

Terms of Reference (ToR) for the ETSI ISG “Reconfigurable Intelligent Surfaces” (ISG RIS)

Approved by the Director-General on **8 June 2021**, following ETSI Board consultation

Scope

ETSI ISG RIS will provide an opportunity for ETSI members to coordinate their pre-standards research efforts on RIS technology across various EU/UK collaborative projects, extended with relevant global initiatives, towards paving the way for future standardization of the technology. ETSI ISG RIS will consequently concentrate in defining use cases, covering identified scenarios and clearly documenting the relevant requirements. The (tentative) scope of the ETSI ISG RIS is summarized below:

- Defining use cases, KPIs, and deployment and operational scenarios for RIS
- Radio-frequency aspects including surface models, channel characterization, radiation characterization, and radiation exposure limits for RIS
- RIS-aided air-interface technologies, mechanics, and requirements
- System and network level control signaling aspects for RIS
- System and network architecture framework considerations for RIS
- Baseline evaluation methodology and performance analysis of RIS (Link-level and System-level)
- RIS microelectronics, enabling technologies, and proof-of-concepts (Prototyping)
- RIS verification and validation (e.g., Hackathons)

Areas of Activity

ETSI ISG RIS will focus on pre-standards work including the identification of technology and standards gap through the following activities:

- Identify Gaps and Recommendations of existing and required standards both inside ETSI and in other SDOs;
- Identify and describe RIS related use cases & specific scenarios, specify derived requirements and identify technology challenges in the following areas:
 - Fixed and Mobile Wireless Access
 - Fronthaul and Backhaul
 - Sensing and Positioning
 - Energy and EMF Exposure Limits
 - Security and Privacy
- Document a networking e2e reference architecture including RIS elements;
- Describe RIS based specific deployment practice / guidelines;
- Provide a Gap Analysis for RIS microelectronics and enabling technologies;
- Provide and demonstrate PoCs and test case descriptions to validate standards-based approaches.

Outreach and engagement (collaboration with other stakeholders)

ETSI ISG RIS activities and deliverables will be complementary to existing ETSI work. ETSI ISG RIS will establish relationships with other ETSI bodies and the wider industry to avoid duplication, maximize synergies and act to ensure broad industry adoption. Of particular note are the relationships` with the following ETSI bodies and external bodies listed in the Annex.

Annex (informative): collaboration with other bodies

ISG RIS will set up appropriate communication channels to the following groups:

ETSI groups

- EPP 3GPP
- ISG ENI
- ISG MEC
- ISG mWT
- ISG SAI
- ISG ZSM

and others as identified during the progression of the work.

External groups

- EC Horizon Europe/H2020 programme
- IEEE and ACM Initiatives
- INNOVATE UK programme
- ITU-R (ITU Radiocommunication Sector)
- ITU-T (ITU Telecommunication Standardization Sector)

and others as identified during the progression of the work.