

TERMS OF REFERENCE OF ETSI ISG “Integrated Sensing And Communications” (ISG ISAC)

Approved by the Director-General on **27 June 2025** following ETSI Board#153 consultation

SCOPE

ETSI ISG ISAC will provide an opportunity for ETSI members to coordinate their pre-standards research efforts on integrated sensing and communication technology across various EU/National funded collaborative projects, extended with relevant global initiatives, towards paving the way for 6G standardisation of the technology.

The ISG will prepare systematic output on 6G use cases, channel models, architecture and deployment considerations, KPIs and evaluation assumptions, for subsequent evaluation by standards organisations such as 3GPP future 6G releases and ITU-R IMT-2030 deliverables (e.g. capabilities, evaluation methodology).

The scope of ETSI ISG ISAC is summarised below:

- Definition of a prioritised set of 6G use cases and sensing types with a roadmap for their study and evaluation.
- Development of advanced channel models for the target 6G ISAC use cases and sensing types, and validation through extensive measurement campaigns, that can fill the gaps of existing communication-based channel models (e.g. 3GPP, IEEE 802, ITU-R).
- Specification of KPIs and evaluation methodology building upon the channel modelling and measurements, simulations/POCs, and synergies with ETSI ISG RIS and ISG THz.
- Study of a System and RAN architecture framework for 6G ISAC, including end-to-end deployment considerations.
- Study of the privacy and security aspects of sensing data in the ISAC 6G framework.
- Study of the impact of widespread deployment of ISAC on UN sustainability goals.
- Study of the integration of ISAC with the various computing paradigms.
- Study of ISAC-specific considerations in various contexts such as with NTN, RIS, sub-THz, and Near-Field propagations.
- Study of ISAC testing methodologies and implementation considerations.

AREAS OF ACTIVITIES

The activities of the ISG include the following areas:

- Develop a roadmap of prioritised ISAC 6G use cases and sensing types, focusing on advanced 6G use cases and sensing types that are not expected to be covered by 3GPP Release 19 and therefore have the potential to be included in future 6G releases of 3GPP, IEEE and ITU-R IMT-2030 deliverables.
- Develop advanced radio channel models for the target ISAC use cases and sensing types that can overcome the limitations of current baseline radio communication channels (e.g. 3GPP, IEEE 802, ITU-R) and validate them through extensive measurement campaigns, address scattering for both communications and sensing channel measurements within the same framework, to enable verification of the different stochastic and deterministic cluster models.
- Specify KPIs and their evaluation methodology.
- Study architectural changes at System and RAN levels for ISAC in 6G, including end-to-end deployment considerations for different aspects:
 - Level of integration of sensing and communication (full, partial, etc.).
 - Sensing mode to be performed (monostatic, bistatic, multistatic, or combinations thereof).
 - Deployment scenarios to be used (DL, UL, SL, or cross-link) and nodes involved (TRP, UE, non-3GPP device).
 - Radio access technologies (3GPP and non-3GPP) to be used for sensing
- Study of mechanisms in the System and RAN architectures to meet security and privacy requirements for sensing.
- Study of the impact of widespread deployment of ISAC on UN sustainability goals.
- Study of the integration of ISAC with the various computing paradigms.

- Study of ISAC-specific considerations in various contexts such as with NTN, RIS, sub-THz, and Near-Field propagations.
- Study of ISAC testing methodologies and implementation considerations.

ISG ISAC encourages a continual exchange with relevant standardisation groups/bodies (either inside or outside of ETSI) to ensure they are informed and consider the work of ISG ISAC in their further relevant technology specifications developments.

Outreach and engagement (collaboration with other stakeholders) ETSI ISG ISAC activities and deliverables are complementary to existing ETSI work. ETSI ISG ISAC will establish relationships with other ETSI bodies and the wider industry in order to avoid duplication, maximise synergies and ensure broad industry adoption. Of particular note are the relationships with the ETSI bodies and external bodies as listed in the following Annex.

Annex (Informative): Collaboration with other bodies

The ISG may set up appropriate communication channels with the following groups and others as identified during the progression of the work.

ETSI GROUPS	
EPP 3GPP	ETSI Partnership Project - Third Generation Partnership Project
TC ERM	ETSI Technical Committee (TC) EMC and Radio Spectrum Matters (ERM)
TC DATA	ETSI Technical Committee (TC) Data Solutions
TC SAI	ETSI Technical Committee (TC) Securing Artificial Intelligence
ISG THz	Industry Specification Group - TeraHertz
ISG RIS	Industry Specification Group - Reconfigurable Intelligent Surfaces
ISG MEC	Industry Specification Group - Multi-access Edge Computing
ISG MAT	Industry Specification Group - Multiple Access Techniques
ISG ENI	Industry Specification Group - Experiential Networked Intelligence

EXTERNAL GROUPS	
Relevant Funded projects (e.g. EU HEU, CELTIC-NEXT, UK DSIT, UK EPSRC, German BMBF)	Government-funded collaborative projects (regional/national)
IEEE and ACM Initiatives	Institute of Electrical and Electronics Engineers and American Computing Society Initiatives
ITU-R	ITU Radiocommunication Sector
ITU-T	ITU Telecommunication Standardisation Sector
IEEE 802 Standards	Institute of Electrical and Electronics Engineers 802 standards
IEEE ISAC-ETI	IEEE Emerging Technology Initiative on ISAC
IETF	Internet Engineering Task Force
ATIS Next G Alliance	Alliance for Telecommunications Industry Solutions – Next Generation Alliance
One6G Alliance	One6G Alliance
5GAA	5G Automotive Alliance
5GACIA	5G Alliance of Connected Industries and Automation
TCCA	The Critical Communications Association

and others as identified during the progression of the work.