**TERMS OF REFERENCE OF
ETSI ISG Multiple Access Techniques (ISG MAT)**

Approved by the Director-General on 25 November 2024,
following the ETSI Board consultation from 16 to 26 September 2024

## SCOPE

ETSI ISG MAT provides an opportunity for ETSI members (and participating non-members) to share their research results and early findings in order to build a wider industry consensus on new Multiple Access Techniques for the upcoming 6$^{th}$ generation of mobile systems (6G) based on 3GPP specifications.

The scope of the ISG is on downlink multi-user (MU) multiple access techniques for the physical layer of the 3GPP radio interface that enhance the transmission efficiency (e.g., spectrum efficiency, power consumption, latency, user fairness, etc.) of specified approaches.

Two delivery modes for downlink are considered: i) unicast-only delivery and ii) joint broadcast/multicast and unicast delivery.

Candidate downlink Multiple Access Techniques in the scope are (but not limited to): OMA (Orthogonal Multiple Access), SDMA (Spatial Division Multiple Access), NOMA (Non-Orthogonal Multiple Access), RSMA (Rate-Splitting Multiple Access).

Relevant deployment environments are (but not limited to) indoor hotspot, urban macro (e.g., High Demand Density areas) and rural.

The ISG will produce informative output only including Group Reports (GRs) that will be made available to 3GPP and other relevant industry for consideration in their related 6G standardisation activities.

## AREAS OF ACTIVITIES

The ISG will focus on the following areas of activities:

1. Use cases, deployment scenarios, key performance indicators and evaluation methodology
2. Study of transmitter and receiver processing structures including complexity aspects
3. Study of physical layer procedures
4. Study of link level and system level performance
5. Study of potential specification impact and gaps of new multiple access techniques
6. Proof-of-concepts, prototypes, and field trials

## ORGANIZATION

No internal organisation or Working Groups have yet been identified. The ISG will be able to re-consider and evolve its internal structure as required, taking into consideration the workload, priorities, and available resources.

## SPECIFIC RULES, COMPLEMENTING THE ETSI TECHNICAL WORKING PROCEDURES, APPLYING TO THE ISG:

| Term of Office of the ISG Chair (as specified in ETSI TWP Clause 3.3.1) | |
| --- | --- |
| The ISG Chair shall be appointed by the ISG for a term of office of | two (2) years |

| Term of Office of ISG Vice-Chairs (as specified in ETSI TWP Clause 3.3.2) | |
| --- | --- |
| The ISG Vice-Chair(s) shall be appointed by the ISG for a term of office of | two (2) years |

| Term of office of ISG Working Group Chairs (see ETSI TWP Clause 3.3.2) | |
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| The ISG Working-Group Chair(s) shall be appointed by the ISG for a term of office of | two (2) years |

| **Duration of the ISG Kick-off Period** | |
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| The ISG Kick-off Period shall start with the ISG Kick-off Meeting and shall end | at the end of the KoM |

| **ISG Members eligibility to vote after the ISG Kick-off Period (see ETSI TWP Clause 3.7.2)** | |
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| **Option 3** | ISG Members are eligible to vote (voting Members) if they have attended at least two (2) of the previous three (3) ISG Plenary Meetings, the ISG Kick-off Meeting being counted as a Plenary Meeting. |

| **ISG Members voting weight (see ETSI TWP Clause 3.7.3)** | |
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| **Option 2** | The ISG Members eligible to vote and not part of a Corporate or Public Group are granted a voting weight equal to one (1). Each organization will be entitled to cast only one (1) vote. If several delegates from the same organization cast a vote, only the last vote cast will be retained.<br><br>The ISG Members eligible to vote and part of a Corporate or Public Group are granted a voting weight of one (1), allocated to the whole Corporate or Public Group. Each organization will be entitled to cast only one (1) vote in representation of the Corporate or Public Group. If several delegates from the same Group cast a vote, only the last vote cast will be retained. |

| **ISG Members voting results interpretation (see ETSI TWP Clause 3.7.4)** | |
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| **Option 1** | A proposal shall be deemed to be approved if seventy one percent (71%) of the votes cast are in favour.<br>Abstentions or failure to submit a vote shall not be included in determining the number of votes cast.<br>If a proposal fails to achieve seventy one percent (71%), the result shall be re-calculated using only the votes of the ISG voting Members with the ETSI Full member status.<br>If the re-calculated result achieves seventy one percent (71%), the proposal shall be deemed to be approved; |

## COLLABORATION WITH OTHER BODIES

The ISG may set up appropriate communication channels with the following groups:

| ETSI GROUPS | |
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| **EPP 3GPP** | ETSI Partnership Project - 3rd Generation Partnership Project |
| **TC ERM** | Technical Committee - EMC and Radio Spectrum Matters |
| **TC SAI** | Technical Committee - Securing Artificial Intelligence |
| **ISG ENI** | Industry Specification Group - Experiential Networked Intelligence |
| **ISG ISAC** | Industry Specification Group - Integrated Sensing And Communications |
| **ISG MEC** | Industry Specification Group - Multi-access Edge Computing |
| **ISG mWT** | Industry Specification Group - millimetre Wave Transmission |
| **ISG RIS** | Industry Specification Group - Reconfigurable Intelligent Surfaces |
| **ISG THz** | Industry Specification Group - TeraHertz |
| **ISG ZSM** | Industry Specification Group - Zero touch network & Service Management |

and others as identified during the progression of the work.

| EXTERNAL GROUPS | |
|---|---|
| **Relevant Regional projects**<br>(e.g. EU SNS JU, UK DSIT FONRC, UK DSIT TITAN, UK DSIT HASC, German BMBF, COST INTERACT) | Government funded collaborative projects (regional/national) |
| **IEEE Initiatives** | Institute of Electrical and Electronics Engineers initiatives |
| **ITU-R** | ITU Radiocommunication Sector |
| **ITU-T** | ITU Telecommunication Standardization Sector |
| **IMT-2030 (6G) Promotion Group** | China's IMT-2030 Promotion Group |
| **IEEE ETI on NGMA** | IEEE Emerging Technology Initiative on Next Generation Multiple Access |
| **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 |
| CCSA | Chinese communications standard association |
| 5G-MAG | 5G Media Alliance |
| EBU | European Broadcasting Union |

and others as identified during the progression of the work.

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