|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title: ITU logo | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2022-2024 | | | | TSAG-TD534 |
| TSAG |
| **Original: English** |
| **Question(s):** | | N/A | | | Geneva, 29 July - 2 August 2024 |
| **TD (Ref.:** [SG5-LS134](http://handle.itu.int/11.1002/ls/sp17-sg5-oLS-00134.docx)**)** | | | | | |
| **Source:** | | ITU-T Study Group 5 | | | |
| **Title:** | | LS/i on ITU-T SG5 Lead Study Group Report [from ITU-T SG5] | | | |
| **LIAISON STATEMENT** | | | | | |
| **For action to:** | | | - | | |
| **For information to:** | | | TSAG | | |
| **Approval:** | | | ITU-T Study Group 5 management team (19 July 2024 by correspondence) | | |
| **Deadline:** | | | N/A | | |
| **Contact:** | | | Dominique Wurges ITU-T SG5 Chair | E-mail: [dominique.wurges@orange.com](mailto:dominique.wurges@orange.com) | |
| **Contact:** | | | Fryderyk Lewicki WP1/5 Chair | Tel: +48 71 321 09 24  E-mail: [fryderyk.lewicki@orange.com](mailto:fryderyk.lewicki@orange.com) | |
| **Contact:** | | | Paolo Gemma WP2/5 Chair | Tel: +390239994000  E-mail: [paolo.gemma@huawei.com](mailto:paolo.gemma@huawei.com) | |
| **Contact:** | | | Shuguang Qi  WP3/5 Chair | Tel: +86 10 82053589-8858  E-mail: [qishuguang@caict.ac.cn](mailto:qishuguang@caict.ac.cn) | |
| **Contact:** | | | Reyna Ubeda Engineer to ITU-T SG5 TSB | Tel:+41227305356  E-mail: [reyna.ubeda@itu.int](mailto:reyna.ubeda@itu.int) | |

A new liaison statement has been received from SG5.

This liaison statement follows and the original file can be downloaded from the ITU ftp server at <http://handle.itu.int/11.1002/ls/sp17-sg5-oLS-00134.docx>.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2022-2024 | | | | | **SG5-LS134** |
| **STUDY GROUP 5** |
| **Original: English** |
| **Question(s):** | | All/5 | | | | 19 July 2024 |
| **LIAISON STATEMENT** | | | | | | |
| **Source:** | | ITU-T Study Group 5 | | | | |
| **Title:** | | LS on ITU-T Study Group 5 Lead Study Group Report | | | | |
| **LIAISON STATEMENT** | | | | | | |
| **For action to:** | | | | – | | |
| **For information to:** | | | | TSAG | | |
| **Approval:** | | | | ITU-T Study Group 5 management team (19 July 2024 by correspondence) | | |
| **Deadline:** | | | | N/A | | |
| **Contact:** | | | Dominique Würges ITU-T SG5 Chair | | E-mail: [dominique.wurges@orange.com](mailto:dominique.wurges@orange.com) | |
| **Contact:** | | | Fryderyk Lewicki WP1/5 Chair | | Tel: +48 71 321 09 24 E-mail: [fryderyk.lewicki@orange.com](mailto:fryderyk.lewicki@orange.com) | |
| **Contact:** | | | Paolo Gemma WP2/5 Chair | | Tel: +390239994000 E-mail: [paolo.gemma@huawei.com](mailto:paolo.gemma@huawei.com) | |
| **Contact:** | | | Shuguang Qi  WP3/5 Chair | | Tel: +86 10 82053589-8858 E-mail: [qishuguang@caict.ac.cn](mailto:qishuguang@caict.ac.cn) | |
| **Contact:** | | | Reyna Ubeda Engineer to ITU-T SG5 TSB | | Tel: +41227305356 E-mail: [reyna.ubeda@itu.int](mailto:reyna.ubeda@itu.int) | |

|  |  |
| --- | --- |
| **Abstract:** | This liaison statement informs TSAG on SG5 lead roles and gives an update on SG5 activities from January to 12 July 2024. |

# 1 Introduction and highlights

ITU-T Study Group 5 “EMF, environment, climate action, sustainable digitalization, and circular economy” provides a unique platform to tackle critical issues related to electromagnetic fields (EMF), environment, climate action, sustainable digitalization and circular economy. ITU-T SG5 continues to play a crucial role in addressing various aspects related to environmental sustainability and digital transformation. ITU-T SG5 actively collaborates with other ITU Study Groups, Standard Development Organizations such as ETSI Technical Committee on Environmental Engineering, United Nations Agencies and other entities.

ITU-T Study Group 5 is actively fulfilling its mandate as the lead study group on:

* electromagnetic compatibility, resistibility and lightning protection, soft error caused by particle radiations;
* human exposure to electromagnetic fields;
* circular economy and e-waste management; and
* ICTs related to the environment, energy efficiency, clean energy, and sustainable digitalization for climate actions.

More information is detailed in Section 4.

From January until 12 July 2024, ITU-T SG5 has organized one meeting, as shown in the table below. Furthermore, ITU-T SG5 has contributed to the organization of events and sessions to raise awareness on the role of standards on Environment, Climate Change and Circular Economy.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Meeting, Venue and Date** | **Recommendations consented** | **Documents Agreed** | **New work items agreed** | **Executive Summary** |
| ITU-T Study Group 5 meeting, Wroclaw, 17–21 June 2024 | 21 | 3 | 30 | [Link](https://www.itu.int/en/ITU-T/studygroups/2022-2024/05/Pages/exec-sum.aspx) |

# 2 Main achievements

The list of results pertaining to ITU-T SGs Recommendations on electromagnetic compatibility, resistibility and lightning protection, soft error caused by particle radiations, human exposure to electromagnetic fields, circular economy, and e-waste management and ICTs related to the environment, energy efficiency, clean energy, and sustainable digitalization for climate actions, since January 2024, are provided in Annex 1 (status: until 12 July 2024).

The fifth and last meeting of ITU-T SG5 in this study period (2022–2024) was held in Wroclaw, Poland, from 17 to 21 June 2024. This meeting was kindly hosted by the Wrocław University of Science and Technology.

One important achievement of the meeting was the finalization of the SG5 ToR Questions, title, and mandate. The new proposed SG5 title to be submitted for WTSA-24 is Environment, climate action, circular economy and EMF.

Two important Recommendations consented during the June meeting were:

* Recommendation ITU-T L.1071 (ex. LD4PI) “A model for digital product passport information on sustainability and circularity”.
* Recommendation ITU-T L.1472 (ex. L.database) “Requirements for the creation of an ITU database on energy consumption and GHG emissions of the ICT sector”

The main highlights concerning the last SG5 meeting (17–21 June 2024) are described in the following text.

**Working Party 1/5** experts consented seven revised Recommendations:

* ITU-T K.81 “High-power electromagnetic immunity guide for telecommunication systems”
* ITU-T K.87 “Guide for the application of electromagnetic security requirements – Overview”
* ITU-T K.12 “Characteristics of gas discharge tubes for the protection of telecommunications installations”
* ITU-T K.52 “Guidance on complying with limits for human exposure to electromagnetic fields”
* ITU-T K.83 “Monitoring of electromagnetic field levels”
* ITU-T K.100 “Measurement of radio frequency electromagnetic fields to determine compliance with human exposure limits when a base station is put into operation”
* ITU-T K.42 “General Principle for the definition of emission and immunity requirements for Telecommunications/ICTs Equipment”

Three new Recommendations were consented:

* ITU-T K.155 “Performance Requirements and Test Methods for Surge Protective Modules Used in AC power port of Telecommunication Equipment”
* ITU-T K.156 “Time and spatial averaging in RF-EMF exposure assessment”
* ITU-T K.157 “Electromagnetic compatibility requirements and test methods for satellite communication terminal equipment”

One Supplement was agreed:

* ITU-T K.Suppl.32 “Case studies of radio frequency - electromagnetic field (RF-EMF) assessment”

Eight new work items were established:

* ITU-T K.12 (Rev) “Characteristics of gas discharge tubes for the protection of telecommunications installations”
* ITU-T K.Suppl.25 “Long reach single twisted-pair Ethernet resistibility testing”
* ITU-T K.91 (Rev) “Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields”
* ITU-T K.100 (Rev) “Measurement of radio frequency electromagnetic fields to determine compliance with human exposure limits when a base station is put into operation”
* ITU-T K.calibr “Calibration for equipment for the EMF assessment”
* ITU-T K.RIS\_EMC “Electromagnetic compatibility requirements and measurement methods for Reconfigurable Intelligent Surface”
* ITU-T K.42 (Rev) “Preparation of emission and immunity requirements for telecommunication equipment – General principles”
* ITU-T K.emc\_satellite\_ES “Electromagnetic compatibility requirements and test methods for Earth stations for satellite communications”

Under the umbrella of **Working Party 2/5**, one revised Recommendation was consented:

* ITU-T L.1310 “Energy efficiency metrics and measurement methods for telecommunication equipment”

Six new Recommendations were consented:

* ITU-T L.1260 “Reference Model of a Factory Energy Management System”
* ITU-T L.1327 “Guidelines on the selection of cooling technologies for data centres in multiple scenarios”
* ITU-T L.1017 “Environmental performance scoring of smartphones”
* ITU-T L.1071 “A model for digital product passport information on sustainability and circularity”
* ITU-T L.1028 “Indicator for global-warming-potential impact as a function of ICT-equipment operating-lifetime extension”
* ITU-T L.1632 “Identification method for building infrastructure equipment in a sustainable city”

Four new work items were established:

* ITU-T L.DLEE “Deep Learning Computing Energy Efficiency Evaluation Framework and Metrics”
* ITU-T L.S\_AI “Recommendation for the design of environmentally sustainable AI-based and XR‑based Systems”
* ITU-T L.DPP4C “Consumer-oriented environmental information and reverse value chain information about ICT goods on digital product passports”
* ITU-T L.ICT4RD “Methodology of Using ICTs to Manage the Recycling and Disposal of E‑waste”

As for **Working Party 3/5**, experts consented one revised Recommendation:

* ITU-T L.1410 “Methodology for environmental life cycle assessments of information and communication technology goods, networks and services”

Three new Recommendations were consented:

* ITU-T L.1472 “Requirements for the creation of an ITU database on energy consumption and GHG emissions of the ICT sector”
* ITU-T L.1384 “Implementation of a virtual micro power station at base station sites”
* ITU-T L.1490 “Framework and Functional Requirements of Greenhouse Gas Emissions Management System using Digital Technology for Public Sector”

Two Supplements were agreed:

* ITU-T L.Suppl.60 to ITU-T L.1410 “Example of an LCA of a mobile phone fully compliant with Recommendation ITU-T L.1410”
* ITU-T L.Suppl.44 “Guidelines on best practices and environment friendly policies for effective information and communication technology deployment methods”

Eighteen new work items were established:

* ITU-T L.ClimAI “Guidelines for Assessing the Impact of Artificial Intelligence on Greenhouse gas emissions”
* ITU-T L.Carbon\_DA “Guidelines for Data Annotation for Carbon emissions Verification Knowledge Graph”
* ITU-T L.TR\_MAP\_GHG “Assessing the Projections of Urban Greenhouse Gas Emission”
* ITU-T L.PCF\_SEM “Methodology for the assessment of the carbon footprint of a smart electricity meter”
* ITU-T L.Suppl.CFA\_BSE to ITU-T L.1410 “Guidelines for Carbon Footprint Assessment of 5G Base Station Equipment”
* ITU-T L.Suppl.CE\_Shared\_BS to ITU-T L.1420 “Carbon Emission Accounting and Allocation Methods for infrastructure Shared Base Station Sites”
* ITU-T L.TR\_GLC\_ service “General principles for the evaluation of low-carbon ICT service enterprises”
* ITU-T L.TR\_GLC\_manufacturing “General principles for the evaluation of low-carbon ICT manufacturing enterprises”
* ITU-T L.EnvImpServers “Requirements for environmental impact evaluation of servers”
* ITU-T L.impact\_simplified “Simplified assessments of the GHG emissions impact of the use of ICT solutions”
* ITU-T L.PS\_HPC “Distributed Power Supply Architecture for High Performance Computing (HPC) Data Center”
* ITU-T L.PV\_base station “Smart controlling methods for photovoltaics system installed in base station site”
* ITU-T L.TR\_DG assessment “Assessment method of sustainable transition in cities using ICTs”
* ITU-T L.1203 (Rev) “Colour and marking identification of up to 400 VDC power distribution for information and communication technology systems”
* ITU-T L.1210 (Rev) “Sustainable power-feeding solutions for 5G networks”
* ITU-T L.liquid\_DC “High Efficiency Liquid Cooling Solutions and Practices for Data Centres”
* ITU-T L.low\_DC “Guidelines for the construction of low carbon data centres to climate change mitigation and adaptation”
* ITU-T L.Bio-Adapt “Biodiversity Adaptation to Climate Change”

**3 Plan of work for this study period and towards the next study period and progress**

The list of Recommendations and other texts on electromagnetic compatibility, lightning protection, electromagnetic effects, environment, climate change, energy efficiency, clean energy and circular economy, including e-waste that are currently under development in ITU-T SG5, can be found at: <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=5>.

The next ITU-T SG5 is planned for the next study period. The meeting is planned from 26 May – 6 June 2025 in Geneva,

ITU-T Study Group 5 Regional Group Latin America is planning to meet in 2024.

**4 SG5 as Lead Study Group on electromagnetic compatibility, resistibility and lightning protection, soft error caused by particle radiations, human exposure to electromagnetic fields, circular economy, and e-waste management and ICTs related to the environment, energy efficiency, clean energy, and sustainable digitalization for climate actions**

**4.1 Electrical protection, reliability, safety and security systems**

The phenomena and protection for reliability, safety and security of ICT systems are studied by Question 1/5. The reliability of the infrastructure is essential for the stability of society. The purpose of this Question is to produce new or revised Recommendations or Supplements regarding the protection of telecommunication systems and facilities against the effects of nearby lightning strikes, disturbances from nearby electric power systems, and the security of unintended emissions or intended electromagnetic interference.

Q1/5 is currently working on two work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8294&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.2 Protecting equipment and devices against lightning and other electrical events**

The specification of resistibility and safety applied to telecommunications equipment and infrastructure against lightning and other phenomena is studied by Question 2/5. The purpose of this Question is to produce new or revised Recommendations or Supplements regarding the resistibility of ICT equipment, and also specifications, test methods and principles of application for protective components and assemblies.

Q2/5 is currently working on nine work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8295&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.3 Human exposure to electromagnetic fields (EMFs) due to digital technologies**

The EMF aspect of ICTs and digital technologies is studied by Question 3/5. The purpose of this Question is to develop international standards and guidelines relating to the assessment of human exposure to electromagnetic fields (EMF) produced by ICT installations and devices, including cellular phones and base stations. This concerns the construction, maintenance and use of radiocommunication installations, and the proper use of devices and information on factors affecting exposure from transmitting stations and mobile devices in order to assure compliance with RF EMF limits. These Recommendations and guidelines should provide the appropriate support to countries in establishing national regulations concerning the assessment and compliance of RF EMF exposure. The Question will also develop standards, technical papers and methodologies for compliance with exposure limits of the general public and workers to electromagnetic fields.

Q3/5 is currently working on eight work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8296&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.4 Electromagnetic compatibility (EMC) aspects in ICT environment**

The EMC aspects in the ICT environment are studied by Question 4/5. The electromagnetic environment is changing rapidly through the development and installation of new types of electric/electronic equipment and evolving the telecommunication infrastructure. This Question aims to establish the EMC requirements, including emission and immunity requirements for ICT equipment, and countermeasures for facilities to reduce electromagnetic compatibility issues and maintain a controlled electromagnetic environment for ICT systems and services.

The Question is closely in collaboration with ITU-R SG1, SG5 and SG6, ITU-T SG9, IEC ACEC (Advisory Committee on Electromagnetic Compatibility), IEC CISPR and SC77B.

Q4/5 is currently working on five work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8297&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.5 Environmental efficiency of digital technologies**

The environmental performance and efficiency aspects of digital and frontier technologies are studied under Question 6/5. These technologies are capable of unlocking the next level of efficiency for the public and manufacturing sector, while accelerating progress on the SDGs. However, the environmental performance of digital and frontier technologies themselves is often overlooked. This Question identifies the environmental efficiency requirements of digital and frontier technologies, including their water, materials, and energy efficiency. It focuses on studying technical solutions, enhancements, metrics, key performance indicators and related accurate measurement methods, and reference values for different types of technologies.

Q6/5 is currently working on 24 work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8298&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.6 E-waste, circular economy, and sustainable supply chain management**

The e-waste challenge and the potential of the circular economy to facilitate sustainability in ICTs and add new values to supply chain management is studied by Question 7/5. This Question seeks to address the e-waste challenge by identifying the environmental requirements of digital technologies, including IoT, end-user equipment and ICT infrastructures or installations, based on the circular economy principles and improving the supply chain management.

Circular models, such as urban mining, reuse, refurbishment, and recycling in the reverse supply and value chain, not only support a more circular economy but also facilitate social impact, considering the opportunities given by more structured information tools like the digital product passport.

Q7/5 is currently working on 14 work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8299&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.7 Guides and terminology on environment**

The activities on the development of Guides and terminology on environment and climate change are studied by Question 8/5. Q8/5 is tasked with: working on all terms, definitions, abbreviations, letter symbols and schematic symbols used in the ITU-T Study Group 5 Recommendations, Supplements, Handbooks and Directives; harmonizing with terminology used by other parties outside of ITU-T Study Group 5; and liaising with other bodies regarding terminology used in the Study Group 5 Recommendations, among others.

Q8/5 works closely with ITU-T Standardization Committee for Vocabulary (SCV).

Q8/5 is currently working on one work item. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8300&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.8 Climate change and assessment of digital technologies in the framework of the Sustainable Development Goals (SDGs) and the Paris Agreement**

Question 9/5 aims to develop assessment methodologies and guidance that allow objective, transparent and practical assessments of the sustainability impacts of digital technologies, including information and communication technologies (ICTs), artificial intelligence and 5G, in order to align their developmental trajectories with the Paris Agreement and the United Nations Sustainable Development Agenda. This Question also aims to study how environmental assessments may be used in the frame of broader sustainable development assessments, including economic, environmental and social assessments.

Q9/5 is currently working on 34 work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8301&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.9 Climate change mitigation and smart energy solutions**

The use of ICTs and smart technologies to improve the efficiency of energy management systems and reduce carbon emissions is being studied by Question 11/5. This Question aims to develop standards, guidance, Supplements and/or Technical Reports to: create a smart energy system using ICT and digital technologies such as artificial intelligence; apply smart energy solutions to achieve a low-carbon economy; and develop effective and efficient ICT and digital technologies-based solutions for energy management and energy saving solutions.

Q11/5 is currently working on 16 work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8302&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.10 Adaptation to climate change through sustainable and resilient digital technologies**

The use of sustainable and resilient ICTs and digital technologies to adapt to the effects of climate change is being studied by Question 12/5. This Question looks to support the development of energy efficiency ICT architectures, add energy-saving features to ICTs equipment and applications, improve air-flow controlling technology, cooling technology and renewable energy systems, and more. It also recognizes the lack of adequate broadband infrastructure in rural areas. Question 12/5 aims to develop Recommendations, Supplements and/or Technical Reports that support the deployment of digital technologies in accelerating climate adaptation actions. Particular emphasis has been placed on expanding the capacity of rural communities and areas to build and maintain climate-resilient ICT infrastructures.

Q12/5 is currently working on seven work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8303&isn_status=-1,8,1&details=0&field=acdefghijo).

**4.11 Building circular and sustainable cities and communities**

The building of circular and sustainable cities and communities is being studied by Question 13/5. This Question aims to develop Recommendations, Supplements and/or Technical Reports identifying requirements and providing guidance, innovative frameworks and tools that support the transition to a circular city.

Q13/5 is currently working on three work items. See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_sg=8268&isn_qu=8304&isn_status=-1,8,1&details=0&field=acdefghijo).

**5 Collaboration with other SGs and external organizations**

ITU-T SG5 collaborates with several ITU Study Groups, SDOs, UN Agencies and other organizations to strengthen the work on environment, climate action and circular economy. Details for each Working Party are described in the following paragraphs. ITU-T SG5 representatives also participate in the ITU Intersectoral Coordination and provide updates of its activities.

WP1/5 maintains collaboration with ITU-T SG15 on conformance and interoperability, IEC TC81 and CENELEC TC 81X on lightning protection, IEC TC 108 on safety (especially on remote power feeding), IEEE PES SPDC, IEC SC 37A and 37B on surge protective devices, IEC SC 77B on high frequency transients, and ETSI ERM on lightning protection, CIGRÉ, CIRED and UIC on power frequency interference, IEC TC 64 on safety (protection against electric shock), and IEEE PES SPDC on surge protective devices.

It also maintains collaboration with ITU-T SG9, ITU-R WP1A, WP1C, WP4A, WP4C, WP5A, WP5B, WP5C, WP5D, WP6A and IEC TC 77 on EMC issues; with ITU-D, WHO, ICNRIP and IEC TC106 on topics on assessment of human exposure to electromagnetic fields (RF EMF); with ITU-T SG17 and IEC SC77C on topics on security of telecommunication and information systems concerning the electromagnetic environment. WP1/5 also collaborates with ITU-T SG12, IEC TC47 and IEC TC 107 for studies on soft error by particle radiations. Additionally, WP1/5 exchanges information with IEC SC77B, SC77C, TC106 and CISPR through liaisons with IEC ACEC. WP1/5 also maintains collaboration with CISPR/I.

WP2/5 and WP3/5 maintains close collaboration with ETSI TC EE, ITU-T SG11; ITU-T SG2; FAO, CEN-CENELEC (SABE)and the World Bank on ICTs and adaptation to the effects of climate change topics; with IEC SEG4 on advance and low impact power feeding solutions and with 3GPP; ATIS; CCSA; CEDARE; ETNO; ETSI TC ATTM, FG AI4H; FG ML5G; FG NET2030; FG-VM; ISO; IEC; IEEE; CEN/CLC/JTC 10; IEC SyC LVDC; JCA-IMT2020; JCA-IoT; JCA-ML and SC&C; ITU-T Study Groups, SCV, ISO TC323, CEN/CENELEC/ETSI SF-SSCC “Circular Economy” on e-waste management, energy efficiency, circular economy and other green ICT standard topics.

WP2/5 and WP3/5 collaborate with ITU-D SG2 on aspects related to Environment, Climate Change and Circular Economy and with ITU-R Study Groups on topics related to energy efficiency and GHG emissions of broadcasting services.

WP2/5 has also collaborated with ISO/TMBG/CCCC “Climate Change Coordination Committee (CCCC)”. Additionally, WP2/5 exchanges information with ISO TC 207, CEN/CLC environmental TC, IEC SyC Smart Cities through liaisons with IEC ACEA.

Additionally, WP2/5 and WP3/5 collaborate closely with GSMA, GESI, SBTi and IEA on the topics related to GHG emissions trajectories for the ICT sector and Scope 3 emissions. Furthermore, the group is collaborating closely with AIOTI on topics related to the enablement aspects of ICT and digital technologies. ITU-T SG5 collaborates and cooperates with the Basel Convention and UNIDO on e-waste management.

ITU-T SG5 is an active collaborator with CODES and OnePlanet Network on the impact initiative of Digital for Circular Economy (D4CE).

**6** **ITU-T Study Group 5 Regional Groups**

ITU-T Study Group 5 has the following Regional Groups:

* [ITU-T Regional Group for the Arab Region](https://www.itu.int/en/itu-t/regionalgroups/sg05-arb/Pages/default.aspx)

ITU-T SG5 Regional Group for the Arab Region (SG5RG-ARB) met in Muscat-Sultanate of Oman, from 13–16 May 2024. The SG5 Secretariat presented the report as contained in [TD1561](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1561).  
The meeting was collocated with the [ITU Regional Workshop on EMF Harmony: Balancing Connectivity, Safety and Tower Location Selection in the Arab Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/emf/Pages/default.aspx) from 13–16 May 2024.  
Additionally, the revised Terms of Reference of SG5RG-ARB were presented, and approval was requested. During the closing plenary, the SG5 meeting approved the revised ToR as contained in [TD1560](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1560).

* [ITU-T Regional Group for Africa](https://www.itu.int/en/itu-t/regionalgroups/sg05-afr/Pages/default.aspx)

ITU-T SG5 Regional Group for Africa (SG5RG-AFR) met in Ouagadougou, Burkina Faso, from 7–9 May 2024. The SG5RG-AFR Chair presented the report as contained in [TD1558](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1558).  
The meeting was collocated with the [15th Symposium on ICT, Environment, Climate Change and Circular Economy](https://www.itu.int/en/ITU-T/climatechange/symposia/202405/Pages/default.aspx) from 7 to 9 May 2024.

* [ITU-T Regional Group for the Latin America](https://www.itu.int/en/itu-t/regionalgroups/sg05-latam/Pages/default.aspx)ITU-T SG5 Regional Group for the Latin America (SG5RG-LATAM) will convene its meeting on 5 September 2024 in Lima, Perú.  
  [TD1506](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1506) contains the request to consider the appointment of Ms Lina Zuluaga from the Agency of the National Spectrum of Colombia as Chair of SG5RG-LATAM in replacement of Miguel Felipe Anzola. The appointment was approved by the meeting.

**7 ITU-T Study Group 5 preparation for WTSA-24**

The SG5 WTSA-24 preparation ad hoc group was established at the ITU-T SG5 meeting, 13–23 June 2023, in Sophia Antipolis, France.

The Co-Conveners of this group were:

* Mr Daniel Dianat, Ericsson ([daniel.dianat@ericsson.com](mailto:daniel.dianat@ericsson.com))
* Ms Qi Shuguang, China ([qishuguang@caict.ac.cn](mailto:qishuguang@caict.ac.cn))

The tasks of this ad hoc group were to:

* ​Prepare the revised Terms of Reference of the SG5 Questions.
* Prepare the SG5 revised Mandate (WTSA - Resolution 2).
* Consider the discussion from TSAG on restructuring, WTSA-24 preparation, and provide appropriate guidance to ITU-T SG5.​

The ad hoc group held 17 meetings from 9 August 2023 to 6 June 2024.

The report of the progress of the ad-hoc group was presented during the SG5 opening plenary on 17 June 2024, as contained in [TD1566-R2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1566).

During the SG5 meeting (17–21 June 2024), four sessions of the SG5 WTSA-24 preparation ad hoc group were held, as follows:​

* Monday, 17 June 2024, from 1400 to 1500 hours, CEST
* Tuesday, 18 June 2024, from 1400 to 1530 hours, CEST
* Wednesday, 19 June 2024, from 1330 to 1530 hours, CEST
* Thursday, 20 June 2024, from 1330 to 1500 hours, CEST

During these sessions, the group revised and finalized the SG5 ToR Questions, title, and mandate. The new proposed SG5 title to be submitted for WTSA-24 is Environment, climate action, circular economy and EMF​ (as contained in [TD1720](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1720)).

The report of these sessions is in [TD1722-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T22-SG05-240617-TD-GEN-1722).

**9 Other activities**

**9.1** **Events on Environment, Climate Change and Circular Economy**

The following sessions and workshops were organized:

* [15th Symposium on ICT, Environment, Climate Change and Circular Economy](https://www.itu.int/en/ITU-T/climatechange/symposia/202405/Pages/default.aspx), Ouagadougou, Burkina Faso, 7–9 May 2024.
* [ITU Side Event to 2024 STI Forum: Leveraging Data for Climate Action: Insights from the ICT Sector](https://www.itu.int/en/ITU-T/studygroups/2022-2024/05/Pages/event-20240510.aspx) , Virtual, 10 May 2024.
* [ITU Regional Workshop on EMF Harmony: Balancing Connectivity, Safety and Tower Location Selection in the Arab Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/emf/Pages/default.aspx) , Muscat-Sultane, Oman, 13–16 May 2024.
* [DTD Ask the expert session: Assessing the circularity of ICT goods](https://www.itu.int/cities/digitaltransformationdialogues/circularity) , Virtual, 22 May 2024.
* [WSIS session on Traceability of E-Waste and the Use of Digital Product Passports for ICT Goods](https://www.itu.int/net4/wsis/forum/2024/Agenda/Session/267) , Virtual, 30 May 2024.

During the ITU-T SG5 closing plenary the following activities were announced. More information will be made available on the [ITU SG5 website](https://www.itu.int/en/ITU-T/studygroups/2022-2024/05/Pages/default.aspx):

* ITU AI/ML Challenge on Sustainable AI: Designing Energy-Efficient ML Algorithms
* ITU and ETSI event on Sustainability, Geneva, 11–12 December 2024 (tbc)
* ITU and IEEE event on Climate Resilience, 12–13 December 2024 (tbc)

Annex 1

**Achievements of ITU-T Study Group 5 on electromagnetic compatibility, resistibility and lightning protection, soft error caused by particle radiations, human exposure to electromagnetic fields, circular economy, and e-waste management and ICTs related to the environment, energy efficiency, clean energy, and sustainable digitalization for climate actions  
(status from January to July 2024)**

* 1. **WP1/5 – EMC, lightning protection, EMF**
     1. **Recommendations approved**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | K.83 | Monitoring of the electromagnetic field levels |
| 5 | K.91 | Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields |
| 5 | K.37 | Low and high frequency EMC mitigation techniques for telecommunication installations and systems – Basic EMC Recommendation |
| 5 | K.38 | Radiated emission test procedure for physically large systems |
| 5 | K.154 | Operating telecommunication facilities using lightning strikes data obtained from Lightning Location Systems |

**1.1.2** **Informative texts agreed**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | K.Suppl.32 | Case studies of radio frequency - electromagnetic field (RF-EMF) assessment |

**1.1.3** **Recommendation consented (in AAP Last Call)**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | K.81 | High-power electromagnetic immunity guide for telecommunication systems |
| 5 | K.87 | Guide for the application of electromagnetic security requirements – Overview |
| 5 | K.12 | Characteristics of gas discharge tubes for the protection of telecommunications installations |
| 5 | K.52 | Guidance on complying with limits for human exposure to electromagnetic fields |
| 5 | K.100 | Measurement of radio frequency electromagnetic fields to determine compliance with human exposure limits when a base station is put into operation |
| 5 | K.42 | General Principle for the definition of emission and immunity requirements for Telecommunications/ICTs Equipment |
| 5 | K.155 | Performance Requirements and Test Methods for Surge Protective Modules Used in AC power port of Telecommunication Equipment |
| 5 | K.156 | Time and spatial averaging in RF-EMF exposure assessment |
| 5 | K.157 | Electromagnetic compatibility requirements and test methods for satellite communication terminal equipment |

**1.2 WP2/5 – Environmental efficiency, e-waste, circularity, and sustainable ICT networks**

**1.2.1 Recommendations approved**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | L.1362 | Power management capabilities of the future energy telecommunication fixed network nodes. Enhanced Interface for power management in Network Function Virtualization (NFV) environments |
| 5 | L.1031 | Guideline for the development of an e-waste management system and achieving the e waste targets of the Connect 2030 Agenda |
| 5 | L.1307 | Energy Efficiency in Micro Data Centre for Edge Computing |

**1.2.2** **Recommendations consented (in AAP Last Call)**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | L.1310 | Energy efficiency metrics and measurement methods for telecommunication equipment |
| 5 | L.1260 | Reference Model of a Factory Energy Management System |
| 5 | L.1327 | Guidelines on the selection of cooling technologies for data centres in multiple scenarios |
| 5 | L.1017 | Environmental performance scoring of smartphones |
| 5 | L.1071 | A model for digital product passport information on sustainability and circularity |
| 5 | L.1028 | Indicator for global-warming-potential impact as a function of ICT-equipment operating-lifetime extension |
| 5 | L.1632 | Identification method for building infrastructure equipment in a sustainable city |

**1.3 WP3/5 – Climate change, adaptation, mitigation, and net-zero emissions**

**1.3.1 Recommendations approved**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | L.1640 | Methodology for dynamic monitoring and analysis of greenhouse gas emissions in city |
| 5 | L.1508 | Framework for climate change adaptation in coastal cities using ICT and digital technologies |
| 5 | L.1391 | Specifications of 5G network sharing and co-construction adapting to climate change mitigation |

**1.3.2** **Informative texts agreed**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | L.Suppl.Mobile\_Phone\_LCA | Example of an LCA of a mobile phone fully compliant with Recommendation ITU-T L.1410 |
| 5 | L. Suppl.44 | Guidelines on best practices and environment friendly policies for effective information and communication technology deployment methods |

**1.3.3** **Recommendations consented (in AAP Last Call)**

| **SG** | **No** | **Title** |
| --- | --- | --- |
| 5 | L.1410 | Methodology for environmental life cycle assessments of information and communication technology goods, networks and services |
| 5 | L.1472 | Requirements for the creation of an ITU database on energy consumption and GHG emissions of the ICT sector |
| 5 | L.1384 | Implementation of a virtual micro power station at base station sites |
| 5 | L.1490 | Framework and Functional Requirements of Greenhouse Gas Emissions Management System using Digital Technology for Public Sector |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_