

Working Party 3:

L.1000 - Universal power adapter and charger solution for mobile terminals and other ICT hand held devices: Universal power adapter and charger solution targeting reduced device duplication, demand on raw materials and waste. Designed to serve the vast majority of mobile ICT devices and also offering improved energy efficiency, the solution widens adapters and chargers' application to more devices, thereby enabling their reuse and increasing their lifetime.

L.1001 - External universal power adapter solutions for ICT equipment for stationary use: Universal power adapter solution (UPA) for stationary ICT devices targeting reduced device duplication, demand on raw materials and waste. Designed to serve the vast majority of ICT devices and also offering improved energy efficiency, the UPA solution for stationary ICT equipment widens UPAs' application to more devices, thereby enabling their reuse and increasing their lifetime.

L.1300 - Best practices for green data centres: Best practices aimed at reducing the negative impact of data centres on the climate. The application of the best practices defined in this Recommendation can help owners and managers to build future data centres, or improve existing ones, to operate in an environmentally responsible manner.

L.1310 - Energy efficiency metrics and measurement methods for telecommunication equipment: Energy efficiency metrics test procedures, methodologies and measurement profiles required to assess the energy efficiency of telecommunication network equipment.

L.1400 - Overview and general principles of methodologies for assessing the environmental impact of information and communication technologies: The first Recommendation of the L.1400-series gives an overview of the series' general principles and contains a guide to the other standards comprising the L.1400-series.

L.1410 - Methodology for the assessment of the environmental impact of information and communication technology goods, networks and services: Methodology to assess the environmental impact (positive and negative effects) of ICT goods, networks and services, and specific guidance on energy and greenhouse gas (GHG) impacts.

L.1420 - Methodology for energy consumption and greenhouse gas emissions impact assessment of information and communication technologies in organizations: methodology to assess ICT-related energy consumption and/or greenhouse gas (GHG) emissions in ICT organizations as well as ICT-related activities within non-ICT organizations.

Work with SG5

SG5 collaborates with partners including national administrations, regulators, international organizations, standards development organizations (SDOs), private-sector players and academia. SG5 works closely with, *inter alia*: ITU-R, ITU-D, UNFCCC, UNEP, WHO, CIGRÉ, EC, CENELEC, ETSI, ISO, IEC, GeSI, GHG Protocol Initiative, and ICT4EE Forum.

Joint Coordination Activity on ICT and Climate Change (JCA-ICT&CC)

JCA-ICT&CC coordinates ITU-T activity on ICT and climate change with ITU-R and ITU-D and across ITU-T Study Groups (particularly SGs 5, 9, 13, 15 and 16). JCA-ICT&CC also channels cooperation with external bodies and is the first point of contact for organizations interested in contributing to this work.

More information on JCA-ICT&CC: <http://www.itu.int/en/ITU-T/jca/ictcc/Pages/default.aspx>.

Focus Group on Smart Sustainable Cities (FG-SSC)

FG-SSC is tasked with assessing the standardization requirements of cities aiming to boost their social, economic and environmental sustainability through the integration of ICTs in their infrastructures and operations.

FG-SSC is analyzing ICT solutions and projects that promote environmental sustainability in cities, identifying best practices in the deployment of smart-city solutions. It acts as an open forum for the exchange of knowledge among smart-city stakeholders and will develop a standardization roadmap taking into consideration the activities underway in various SDOs, forums and consortia.

Participation in the work of FG-SSC is free of charge and open to any individual from an ITU Member State.

More information on FG-SSC: <http://www.itu.int/en/ITU-T/focusgroups/ssc/Pages/default.aspx>.

Management Team and Secretariat

Chairman

Ahmed ZEDDAM (France)

Vice-Chairmen

Tariq AL-AMRI (Saudi Arabia)

Nasser Saleh AL MARZOUQI (United Arab Emirates)

Héctor CARRIL (Argentina)

Sam Young CHUNG (Republic of Korea)

Flavio CUCCHIETTI (Italy)

Keith DICKERSON (United Kingdom)

Fatoumata S. DICKO (Mali)

Guy-Michel KOUAKOU (Côte d'Ivoire)

Josef OPITZ (Germany)

Li XIAO (China)

Working Party Chairmen

WP 1: Célio Fonseca BARBOSA (Brazil)

WP 2: Mjitsuo HATTORI (Japan)

WP 3: Paolo GEMMA (Italy)

Working Party Vice-Chairmen

WP 1:

Phillip HAVENS (United States)

György VARJU (Hungary)

WP 2:

Fryderyk LEWICKI (Poland)

Mike WOOD (Australia)

WP 3:

Jean-Manuel CANET (France)

Yong-Woon KIM (Republic of Korea)

Franz ZICHY (United States)

Secretariat

Cristina BUETI, SG5 Adviser

Tel.: +41 22 730 6301

e-mail: tsbsg5@itu.int

ITU-T

Study Group 5

Environment and climate change

Lead study group:

- Electromagnetic compatibility and electromagnetic effects
- Information and communication technologies and climate change

The reliance of information and communication technologies (ICTs) on electromagnetic radiation gives rise to the need for global technical standards to ensure safety and efficiency in the operation and use of telecommunication/ICT installations and devices. ICTs including satellites, mobile phones and the Internet are also capable of playing a key role in addressing major global challenges related to climate change and sustainable development.

ITU-T Study Group 5 (SG5) develops international standards (ITU-T Recommendations) that address ICT's relationship with electromagnetic effects and climate change. The group also raises awareness of ICT's role in tackling climate change and assists in the development of 'green ICT' strategies by organizing dedicated symposia, workshops, training and capacity-building activities.

SG5 additionally develops reports on issues related to ICTs, the environment and climate change to facilitate the exchange of technological knowledge, to assess countries' experiences with emerging sustainable technologies, and to support public and private-sector efforts in moving towards a greener, more resource-efficient global economy.



ITU Telecommunication Standardization Sector (ITU-T)

ITU-T Home: www.itu.int/ITU-T

ITU-T and Climate Change: www.itu.int/ITU-T/climatechange/

ITU-T Study Group 5

SG 5 Home: <http://www.itu.int/en/ITU-T/studygroups/2013-2016/05/Pages/default.aspx>

International Telecommunication Union
Place des Nations
CH-1211 Geneva 20
Switzerland
www.itu.int

Printed in Switzerland
Geneva - May 2013



ITU-T Study Group 5

Responsible for studies relating to:

- ICT environmental aspects of electromagnetic phenomena and climate change.
- The protection of telecommunication networks and equipment from damage and interference due to electromagnetic disturbances, such as those produced by power faults and lightning.
- Electromagnetic compatibility (EMC), safety and human exposure assessment connected with electromagnetic fields produced by telecommunication installations and devices, including cellular phones.
- The existing copper network outside plant and related indoor installations.
- Methodologies for assessing the environmental impact of ICT.
- Guidelines for using ICTs in an eco-friendly way.
- Eco-friendly management, recycling and disposal e-waste.
- Energy efficiency of the ICT and its power feeding system, as well as ICT impact on energy efficiency in other sectors.
- How to use ICT to help countries and the ICT sector adapt to the effects of environmental challenges, including climate change.

Mandate and role:

The World Telecommunication Standardization Assembly (WTSA-12) in Dubai, UAE, 20-29 November 2012, recognized the vital role that ICTs play in tackling environmental challenges such as climate change and e-waste. SG5 was instructed to develop ITU-T Recommendations, methodologies and other publications relating to ICTs and the environment, including climate-change and e-waste issues.

- Resolution 73 “Information and communication technologies, environment and climate change”
- Resolution 79 “The role of telecommunications /information and communication technology in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it”

WTSA-12 reaffirmed the need to inform the public of the potential effects of exposure to electromagnetic fields (EMFs) and its impact on human health. In this regard, SG5 was instructed to expand and continue its work and support in this domain.

- Resolution 72 “Measurement concerns related to human exposure to electromagnetic fields”

The World Conference on International Telecommunication (WCIT-12) in Dubai, 3-14 December 2012, recognized the importance of energy and resource efficiency in Article 8A of the International Telecommunication Regulations (ITRs).

- Article 8A “Member States¹ are encouraged to adopt energy-efficiency and e-waste best practices taking into account relevant ITU-T Recommendations”

Structure

SG5 organizes its standardization work into three *Working Parties* (sub-groups), each responsible for a range of study *Questions* (subjects under study).

In addition, four *Regional Groups* – for the African, Arab, Americas and Asia Pacific regions – ensure that the ITU-T Recommendations emanating from SG5 address the needs of all the world’s regions.

Working Party 1 - Damage prevention and safety

- Q1: Copper cables, networks and fibre-optic connection hardware for broadband access
- Q2: Protective components and assemblies
- Q3: Interference to telecommunication networks due to power systems and electrified railway systems
- Q4: Resistibility and safety in telecommunications
- Q5: Lightning protection and earthing of telecommunication systems

Working Party 2 - Electromagnetic fields: emission, immunity and human exposure

- Q6: EMC issues arising from the convergence of IT and communication equipment
- Q7: Human exposure to electromagnetic fields (EMFs) due to radio systems and mobile equipment
- Q8: EMC issues in home networks
- Q9: Generic and product family EMC recommendations for telecommunication equipment
- Q10: Security of telecommunication and information systems concerning the electromagnetic environment
- Q11: EMC requirements for the Information Society

Working Party 3 - ICT and climate change

- Q13: Environmental impact reduction including e-waste
- Q14: Setting up a low cost sustainable telecommunication infrastructure for rural communications in developing countries
- Q15: ICTs and adaptation to the effects of climate change
- Q16: Leveraging and enhancing the ICT Environmental sustainability
- Q17: Energy efficiency for the ICT sector and harmonization of environmental standards
- Q18: Methodologies for the assessment of environmental impact of ICT
- Q19: Power feeding systems

Q12 - Guides and terminology on environment and climate change

Responsible for maintaining a consistent use of terminology in ITU-T Recommendations developed by SG5, ensuring that the group’s Recommendations are comprehensible to parties all around the world.

Key SG5 publications

SG5 publishes its standards in the K- and L-series of ITU-T Recommendations which are freely available on the ITU-T website, at: <http://www.itu.int/en/ITU-T/publications/Pages/recs.aspx>

Working Party 1:

K.12 - Characteristics of gas discharge tubes for the protection of telecommunications installations: Requirements and test procedures for gas discharge tubes (GDT) used for the protection of telecommunication installations. The requirements and test procedures assure the protection function of the component and that it presents a safe operation during its expected service life.

K.21 - Resistibility of telecommunication equipment installed in customer premises to overvoltages and overcurrents: Resistibility requirements and test procedures for equipment installed in or on the premises, covering overvoltages or overcurrents including: surges due to lightning on or near the line plant; short-term induction

from adjacent a.c. power lines or railway systems; earth potential rise due to power faults; direct contacts between telecommunication lines and power lines; and electrostatic discharges.

K.27 - Bonding configurations and earthing inside a telecommunication building: Earthing and bonding procedures to be implemented inside a telecommunication building to ensure the safety of personnel, the protection of equipment against damage, and the mitigation of electromagnetic interference within the building.

K.56 - Protection of radio base stations against lightning discharges: Set of procedures to protect a radio base-station from direct lightning flashes in its tower, as well as from lightning surges conducted by power and telecom lines connected to the base-station. The procedures contain requirements for earthing, bonding, cable routing, and installation of surge protective devices.

Guide on the Use of the Overvoltage Resistibility Recommendations: Guide to the testing of equipment, particularly equipment with multiple external and internal ports. The guide assists in laying out a test plan in the interests of ensuring compliance with ITU-T Recommendations on overvoltage resistibility.

Working Party 2:

K.48 - EMC requirements for telecommunication equipment - Product family Recommendation: Emission and immunity requirements for switching, transmission, power, digital mobile base-station, wireless LAN, digital radio relay system, xDSL, and supervisory equipment. The requirements also describe operational conditions for emission and immunity testing, as well as performance criteria for immunity tests.

K.83 - Monitoring of electromagnetic field levels: Guidance on making long-term measurements in the monitoring of electromagnetic fields (EMF), with the end-purpose of providing the general public with accessible data on EMF levels.

K.87 - Guide for the application of electromagnetic security requirements - Overview: Electromagnetic security risks of telecommunication equipment and how to assess and prevent those risks, in order to comply with the information security management guidelines outlined in Recommendation ITU-T X.1051. Major electromagnetic security risks addressed include:

- natural electromagnetic threats (e.g., lightning)
- unintentional interference (i.e., electromagnetic interference)
- intentional interference (i.e., intentional electromagnetic interference)
- deliberate EM attacks via high-altitude electromagnetic pulse
- deliberate high-power electromagnetic attacks
- information leakage from electromagnetic emanation (i.e., electromagnetic security)

K.91 - Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields: Comprehensive guide to the assessment and monitoring of human exposure to radio frequency electromagnetic fields (RF EMF) in areas with surrounding radiocommunication installations, based on existing exposure and compliance standards in the frequency range of 9 kHz to 300 GHz. The guide is oriented to the examination of areas accessible to people in the real environment of currently operated services with many different sources of RF EMF, but also gives references to standards on EMF compliance of products.

K.92 - Conducted and radiated electromagnetic environment in home networking: Describes the home networking electromagnetic environment and offers guidance on its evaluation. It covers the typical conducted and radiated phenomena, the attributes of the home networking environment, and the specification of disturbance characteristics and levels.

^[1] Applicable to Member States signatory to the ITRs: <http://www.itu.int/osg/wcit-12/highlights/signatories.html>