ITU-T Recommendations

Green ICT Standards and Supplements

List of ITU-T Recommendations on Green ICT Power Feeding

- ITU-T L.1200 **– Direct current power feeding interface up to 400 V at the input to telecommunication and ICT equipment**. (Approved on 2012-05-29): This Recommendation specifies the direct current power feeding interface up to 400 V at the input to telecommunication and ICT equipment.

- ITU-T L.1201 **– Architecture of power feeding systems of up to 400 VDC** (Approved on 2014-03-01): This Recommendation describes the architecture of power feeding systems of up to 400 V for ICT equipment.

- ITU-T L.1202 **– Methodologies for evaluating the performance of an up to 400 VDC power feeding system and its environmental impact**. (Approved on 2015-04-22): This Recommendation provides a framework for assessing performances of up to 400 VDC power feeding systems and the savings incurred when compared to other power feeding systems.

- ITU-T L.1203 **– Colour and marking identification of up to 400 VDC power distribution for information and communication technology systems**. (Approved on 2016-02-22): This Recommendation defines the requirements and guidelines for DC power distribution identification by colour and marking.

- ITU-T L.1204 **– Extended architecture of power feeding systems of up to 400 VDC.** (Approved on 2016-06-29): This Recommendation describes the extended architecture of power feeding systems of up to 400 volts DC (VDC) for ICT equipment in telecommunication centres, data centres and customer premises.
- ITU-T L.1205 **– Interfacing of renewable energy or distributed power sources to up to 400 VDC power feeding systems.** (Approved on 2016-12-14): This Recommendation defines the coupling of local or remote renewable energy into an up to 400 VDC power system without reducing DC performances defined in Recommendation ITU-T L.1202 mainly for efficiency and reliability. The main advantages are saving of fossil fuel (as a source of primary energy consumption), reduction of greenhouse gas (GHG) emissions and increased resilience. Additional site interconnection by a DC grid can even bring more optimization. One other big benefit is that compared to alternating current (AC), with 400 VDC there is no synchronization required between the various inputs, which keeps the architecture simple.
- ITU-T L.1206 **– Impact on ICT equipment architecture of multiple AC, -48VDC or up to 400 VDC power inputs** (Approved on 2017-07-29): This Recommendation discusses multiple power supply interfaces to ICT equipment operated by dual power input feeds with combination of standardized -48 V direct current, alternating current source or direct current source up to 400 V interfaces. Operational voltage and interface characteristics are detailed in ITU-T Recommendations and ETSI relevant standards. It also includes some details on the power architecture within the ICT equipment between the ICT power interface and the ICT end load.
- ITU-T L.1207 **– Progressive migration of a telecommunication/information and communication technology site to 400 VDC sources and distribution** (Approved on 2018-05-14): Recommendation ITU-T L.1207 gives explanation, requirements and guidance for boosting the spread of up to 400 V direct current (400 VDC) power systems and distribution to information and communication technology (ICT) equipment. It includes 400 VDC remote powering up to 400 VDC of distributed ICT equipment, the

option of interconnection of local renewable energy sources and their connection to DC power nanogrids and other users, extending the resilience capability of the telecommunications network and ICT sites to grid failures and climate change.

- **ITU-T L.1220 – Innovative energy storage technology for stationary use - Part 1: Overview of energy storage** (Approved on 2017-08-13): This Recommendation introduces an open series of documents for different families of technologies (battery systems, super-capacitor systems, etc.) that will be enriched progressively as new technologies emerge that may have a possible significant impact in the field of energy storage.
- **ITU-T L.1221 – Innovative energy storage technology for stationary use - Part 2: Battery** (Approved on 2018-11-15): This Recommendation is the subpart 2, battery of a series of Recommendations on innovative energy storage system for stationary power system of telecom/ICT equipment used in telecom networks, datacenters and CPE. This subpart introduces technologies and methods for evaluating, selecting and testing battery systems for defined applications.

- **ITU-T L.1222 – Innovative energy storage technology for stationary use - Part 3: Supercapacitor technology** (Approved on 2018-05-14): Recommendation ITU-T L.1222 is based on Recommendation ITU-T L.1220 and is the part related to supercapacitors. It contains selection criteria for telecommunication application based on main performance parameters and the methods for proper use. In addition, some use cases and examples are given in an Appendix to help users.

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