

# ITU-T Recommendations

## Green ICT Standards and Supplements

### List of ITU-T Recommendations on Green Data Centres

- [ITU-T L.1300](#) – **Best practices for green data centres** (Approved in 2014-06-29): This Recommendation describes best practices aimed at reducing the negative impact of data centers on the climate.
- [ITU-T L.1301](#) – **Minimum data set and communication interface requirements for data centre energy management** (Approved in 2015-05-07): This Recommendation establishes minimum data set and communication interface requirements for data center management in a responsible manner.
- [ITU-T L.1302](#) – **Assessment of energy efficiency on infrastructure in data centre and telecom centre** (Approved in 2015-11-29): This Recommendation contains the assessment methodology of energy efficiency on infrastructure in data centre and telecom centre.
- [ITU-T L.1303](#) – **Functional requirements and framework of green data centre energy-saving management system** (Approved in 2018-11-15): Recommendation ITU-T L.1303 describes functional requirements and framework of energy-saving management system for green data centre. Functional requirements of energy-saving management includes requirements for measuring energy consumption and environmental condition, collecting and storing data, reporting data, and conducting energy-saving. The energy-saving management system consists of following functional blocks: data collecting block; data storing block; data process and analysis block; external system interfacing block; user interface block; control block. Operational flow the energy-saving management system is also provided.
- [ITU-T L.1320](#) – **Energy efficiency metrics and measurement for power and cooling equipment for telecommunications and data centres** (Approved in 2014-03-22): This Recommendation contains the general definition of energy efficiency metrics and measurement for power and cooling equipment for telecommunications and data centres.
- [ITU-T L.Suppl.6](#) – **ITU-T L.1300 - Supplement on a validation test of a data centre cooling method using renewable energy in a cold region** (Approved in 2014-12-19): This Supplement refers to the best practices defined in Recommendation ITU-T L.1300. More precisely, the Supplement first provides a background, purpose and overview of the validation test of a data centre cooling method using renewable energy. Then, test results of such a cooling method are reported together with predictions of future yearly energy consumption.
- [ITU-T L.Suppl.7](#) – **ITU-T L.1300 - Supplement on rationale for minimum data set for evaluating energy efficiency and for controlling data centre equipment in view of power saving** (Approved in 2014-12-19): This Supplement describes the rationale for a minimum data set for evaluating energy efficiency and for controlling data centre equipment with a view to power saving based on Recommendation ITU-T L.1300. More precisely, this Supplement reports the data set necessary for: evaluation of energy efficiency and coordinated control to save power in data centres. Finally, it provides a summary of the minimum data set and gap analysis with other standards.

- [ITU-T L.Suppl.8](#) – **ITU-T L.1300 - Supplement on potential for primary energy savings in TLC/ICT centres through free cooling** (Approved in 2014-12-19): This Supplement refers to the best practices defined in Recommendation ITU-T L.1300. More precisely, this Supplement first provides an introduction of potential for primary energy savings in TLC/ICT centres through the free cooling solution. Then, a probabilistic model for the inlet conditions is defined, and finally an analysis on room temperature and energy consumption is reported.
  - [ITU-T L.Suppl.9](#) – **ITU-T L.1300 - Supplement on case study of reduction of air-conditioning energy by optical fibre based thermometry** (Approved in 2014-12-19): This Supplement refers to the best practices defined in Recommendation ITU-T L.1300. More precisely, this Supplement provides details of a case study related to the reduction of the energy spent for air conditioning through the use of optical fibre based thermometry. A general description of the temperature measurement is provided, then the optimization process for the air conditioning is highlighted. Finally, the results of temperature measurements made using optical fibre sensors are shown.
  - [ITU-T L.Suppl.10](#) – **ITU-T L.1300 - Supplement on verification experiments related to increase of efficiency of air-conditioning and control technologies at a data centre** (Approved in 2014-12-19): This Supplement refers to the best practices defined in Recommendation ITU-T L.1300. More precisely, this Supplement provides an overview of verification experiments related to the increase of efficiency of air-conditioning and control technologies. The results of such verification experiments are provided and an estimation of their applicability to real data centres is reported.
  - [ITU-T L.Suppl.11](#) – **ITU-T L.1300 - Supplement on verification test and feasibility study of energy and space efficient cooling systems for data centres with high density ICT devices** (Approved in 2014-12-19): This Supplement refers to the best practices defined in Recommendation ITU-T L.1300. More precisely, this Supplement provides firstly an introduction to a verification test and feasibility study of energy and space efficient cooling systems for data centres with high density ICT devices. Secondly, trial calculations of energy conservation benefits with respect to the application to a full-scale data centre are then reported.
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