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SERIES L: CONSTRUCTION, INSTALLATION AND
PROTECTION OF CABLES AND OTHER ELEMENTS OF
OUTSIDE PLANT

Direct current power feeding interface up to 400 V at the input to telecommunication and ICT equipment

Recommendation ITU-T L.1200



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Direct current power feeding interface up to 400 V at the input to telecommunication and ICT equipment

Summary

Recommendation ITU-T L.1200 specifies the direct current (DC) interface between the power feeding system and ICT equipment connected to it. It also describes normal and abnormal voltage ranges, and immunity test levels for ICT equipment to maintain the stability of telecommunication and data communication services. The specified interface is operated from a DC power source of up to 400 V to allow increased power consumption and equipment power density, in order to obtain higher energy efficiency and reliability with less material usage than using a lower voltage such as –48 VDC or AC UPS power feeding solutions.

History

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Data centre, direct current, energy efficiency, ICT equipment, power feeding system, reliability, telecommunication centre.

FOREWORD

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Introduction

This Recommendation specifies a power feeding system for ICT equipment with a DC voltage of up to 400 V.

This Recommendation takes into consideration the improvements in energy efficiency as well as the reduction in greenhouse gas (GHG) emissions and raw materials that are enabled by using the 'up to 400 VDC' power feeding system. The 'up to 400 VDC' power feeding system was developed, due to increased power consumption and equipment power density, in order to obtain a higher energy efficiency with less material consumption than using a lower voltage such as –48 VDC or AC UPS power feeding solutions. One of the advantages of 'up to 400 VDC' power feeding is that it reduces intermediate power conversion stages (e.g., the inverter and power factor compensator can be eliminated) and it is lower current usage than –48 V feeding for the same power requirement, thereby improving the efficiency and reliability of the entire power feeding system.

This Recommendation is concerned with the requirements for the interface between the power feeding system and telecommunication and ICT equipment. It also includes requirements relating to its stability, safety and measurement. Reliability and scalability are easier to improve in DC compared to AC because phase synchronization and inverters are not required. The system architecture is also simpler.

The purpose of the 'up to 400 VDC' interface is to facilitate interworking of different loads, standardization of power feeding systems for ICT equipment, and installation, operation and maintenance of ICT equipment and systems with different origins.

In addition, the DC interface can also simplify the use of renewable energy power sources with DC output such as photovoltaic generators and fuel cell systems.