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Assessment of power quality – Characteristics of electricity supplied by public networks

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ASSESSMENT OF POWER QUALITY – CHARACTERISTICS OF ELECTRICITY SUPPLIED BY PUBLIC NETWORKS

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62749, which is a technical specification, has been prepared by IEC technical committee 8: System aspects of electrical energy supply.

The text of this technical specification is based on the following documents:

DTS	Report on voting
8/1363/DTS	8/1381/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

The description of ELECTRICITY is of fundamental importance within electricity supply systems. In general, its characteristics depend less on its generation than on the way in which it is transported by networks and being used by the equipment of the multiple users. Faults or other events such as short-circuit and lightning strikes occurring within users' installations or public networks also disturb or degrade it.

There is a need for a common set of power quality indices and measurement methods in order to allow different system operators to measure and report power quality in a consistent manner.

Regarding the limits or levels of power quality, the situation differs. Historically, the electrical systems in different countries/regions have been designed in different ways to cater for national/regional variations like different geographic, climatic or commercial conditions, etc. It is thus essential that any set of internationally agreed power quality limits or levels also recognize these differences which depends namely on the system configuration, the transfer characteristics between the different voltage levels (attenuation or amplification), the actual disturbance levels on the system, etc.

Also, the level of power quality is not absolute rather it depends on the price that clients are willing to pay for it. Optimizing power quality should be carried out in a cost-effective manner in that if NETWORK USERs expect power quality to be an intrinsic characteristic of the product they also want it at the lowest price.

This is why some of the objectives recommended hereafter allow for a range of values, or options, while still ensuring the coordination of disturbance levels between different parts of the system or voltage levels.

Then, the requirements to be applied can be expressed by the association of the IEC Power Quality framework from the normative part of this Technical Specification and PROFILES. Examples of profiles are given in Annex A.

Nowadays, Smart Grid construction and massive deployment of renewable energy sources increase the complexity of power quality management.