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Noise measurement method on power capacitors

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NOISE MEASUREMENT METHOD ON POWER CAPACITORS

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IEC 63396 has been prepared by technical committee 33: Power capacitors and their applications. It is a Technical Report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Power capacitors are important equipment for HVDC project, but at the same time they are also the main noise source. However, there is no IEC document which is specific to the noise measurement on power capacitors until now.

In recent years, Chinese authoritative testing organizations have conducted a large number of experiments in this area. Now, many laboratories in China are able to simulate the actual operating conditions of power capacitors in HVDC converter stations for noise testing.

This new technical report is aimed to document a feasible method to measure power capacitor's noise in AC and DC systems, in particular in HVDC converter stations, based on the experience developed in China. Furthermore, the testing laboratories could also check and validate periodically the common technical parameters of the noise measurement on power capacitors in an uniform way by this method, in order to promote the practical application of the measurement method and possibly to improve it (in view of a possible future conversion of the technical report to a technical specification).

This document is intended to fill the gap in this technical field, and to promote the construction of environmentally friendly AC and DC substations.

NOISE MEASUREMENT METHOD ON POWER CAPACITORS

1 Scope

The object of this Technical Report is to document a method for the sound pressure level measurement on power capacitor units, by which the sound power level of power capacitor units is determined.

This method is applicable to shunt capacitor units and AC filter capacitor units for AC power systems with a nominal voltage of 1 kV and above and a frequency of 50 Hz or 60 Hz.

This method also applies to the DC filter capacitor units.

Other measurements on power capacitor units can be implemented with reference to this method.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61260-1:2014, *Electroacoustics – Octave-band and fractional-octave-band filters – Part 1: Specifications*

IEC 61672-1:2013, *Electroacoustics – Sound level meters – Part 1: Specifications*

ISO 3744:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*