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SA/SNZ TR IEC 60725:2013

Technical Report

Consideration of reference impedances and public supply network impedances for use in determining the disturbance characteristics of electrical equipment having a rated current ≤75 A per phase

STANDARDS Australia

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PAEREWA AOTEAROA

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PREFACE

This Technical Report was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality.

The objective of this Technical Report is to record the information and the factors that were taken into account in arriving at the reference impedances that are incorporated in some parts of AS/NZS 61000.3 series of publications. AS/NZS 61000.3 series provides manufacturers and suppliers of electricity and users of electrical equipment intended for connection to an electrical network with limits for voltage disturbances and harmonics produced by that equipment, and the methods for ascertaining compliance to them in order to maintain electromagnetic compatibility within the electrical network.

This Technical Report is identical with, and has been reproduced from IEC/TR 60725, Ed 3. (2012), *Consideration of reference impedances and public supply network impedances for use in determining the disturbance characteristics of electrical equipment having a rated current ≤75 A per phase*. The IEC processes related to development and approval of a Technical Report are subject to a more moderate level of transparency and consensus than the processes related to developing and approving a normative Standard.

As this Technical Report is reproduced from an International Technical Report, a full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
IEC		AS/NZS	
61000	Electromagnetic compatibility (EMC)	61000	Electromagnetic compatibility (EMC)
61000-3-3	Part 3-3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection	61000.3.3	Part 3.3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection
61000-3-11	Part 3-11: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems—Equipment with rated current ≤75 A and subject to conditional connection	61000.3.11	Part 3.11: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems—Equipment with rated current less than or equal to 75 A and subject to conditional connection
61000-3-12	Part 3-12: Limits—Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase	61000.3.12	Part 3.12: Limits—Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase

The term 'informative' has been used in this Technical Report to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

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Consideration of reference impedances and public supply network impedances for use in determining the disturbance characteristics of electrical equipment having a rated current ≤75 A per phase

1 Scope

This Technical Report records the information that was available and the factors that were taken into account in arriving at the reference impedances that were incorporated in IEC 60555 and which are now incorporated in some parts of IEC 61000-3.

In addition, information is given on the impedances of public supply networks associated with service current capacities ≥100 A per phase.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61000-3-3, *Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection*

IEC 61000-3-11, *Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems – Equipment with rated current ≤75 A and subject to conditional connection*

IEC 61000-3-12, *Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase*

3 Systems of low-voltage supply

3.1 Three phase supply systems

Three-phase, four-wire, distribution systems are used worldwide to supply low-voltage consumers with nominal voltages in the region of 230 V/400 V.

To conform with IEC standard voltages, these systems are described as 230 V/400 V throughout this report.

There is considerable variation in the way in which the supplies to individual consumers are connected to three-phase systems.

In some countries, all four wires are taken into the consumer's premises, allowing the use of three-phase 400 V for large loads, with small appliances and lighting circuits connected between one line and neutral at 230 V.