



# TECHNICAL SPECIFICATION



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## Power quality management – Part 3: User characteristics modelling

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Model category and modelling methodology .....	9
4.1 Model category used for power quality assessment of distorting installations .....	9
4.2 Model structure .....	10
4.2.1 Power supply model .....	10
4.2.2 User model .....	11
4.3 Consideration on modelling.....	12
4.4 Input data requirement.....	12
4.5 Characterization of measured data.....	13
5 Modelling for different power quality indices .....	13
5.1 Voltage deviation .....	13
5.1.1 Simplified calculation for voltage deviation analysis .....	13
5.1.2 Advanced model for voltage deviation analysis .....	14
5.2 Voltage fluctuation and flicker .....	14
5.2.1 Simplified calculation for voltage fluctuation and flicker analysis.....	14
5.2.2 Advanced model for voltage fluctuation and flicker analysis .....	15
5.3 Harmonics/interharmonics.....	16
5.3.1 Simplified calculation for harmonics/interharmonics analysis .....	16
5.3.2 Advanced model for harmonics/interharmonics analysis .....	17
5.4 Unbalance .....	18
5.4.1 Simplified calculation for unbalance analysis .....	18
5.4.2 Advanced model for unbalance analysis .....	18
5.5 Voltage dip .....	19
5.5.1 Simplified calculation for voltage dip analysis .....	19
5.5.2 Advanced model for voltage dip analysis .....	20
Annex A (informative) Typical disturbing users and power quality parameters to be concerned.....	21
Annex B (informative) Model example applications .....	22
B.1 New type of installations with power electronic interface .....	22
B.1.1 Device with rectifier and inductive DC bus .....	22
B.1.2 Device with rectifier and capacitive DC bus .....	22
B.1.3 Device with PWM rectifier .....	23
B.1.4 Example of hybrid power quality simulation.....	24
B.2 Traditional disturbing installations .....	25
B.2.1 Large drive systems.....	25
B.2.2 Electric arc furnace (EAF).....	26
B.2.3 AC electrified railway .....	28
B.3 An application example of recommended methods .....	32
Bibliography.....	36
Figure 1 – Equivalent power source model.....	10
Figure 2 – Thevenin/Norton harmonic model including fundamental frequency.....	11
Figure 3 – $P_{st} = 1$ curve.....	15

Figure 4 – Equivalent phasor model of induction motor ..... 19

Figure 5 – Unbalance modelling of induction motor based on negative impedance..... 19

Figure 5 – Equivalent circuit for voltage dip due to induction motor starting ..... 19

Figure B.1 – Simplified harmonic models by small size simplified time domain equivalent model..... 23

Figure B.2 – Harmonic assessment results based on frequency domain and time domain hybrid simulation ..... 25

Figure B.3 – Norton equivalent model ..... 26

Figure B.4 – EAF modelling by two chaotic functions per phase and simulated flicker levels ..... 27

Figure B.5 – Principal arrangement of traction system ..... 28

Figure B.6 – High speed train traction system with  $PQ$  recorders and VSC compensator..... 30

Figure B.7 – Recordings of voltage unbalances with and without VSC compensator ..... 30

Figure B.8 – On-site measurements with and without VSC compensator..... 31

Figure B.9 – Simulation of unbalances and with VSC compensation ..... 31

Figure B.10 – Simulated harmonic distortions and VSC compensation currents ..... 32

Figure B.11 – Schematic diagram of a grid including nonlinear loads ..... 33

Figure B.12 – Starting curve of an induction motor and power curve of a controllable load.... 34

Figure B.13 – Current wave forms and spectra of electric loads ..... 35

  

Table 1 – Example of representation/Template of the equivalent power source ..... 10

Table 2 – Example of representation/Template of the equivalent harmonic current source ..... 11

Table 3 – Example of representation/template of the equivalent frequency impedance..... 12

Table A.1 – Type of installation..... 21

Table B.1 – Modelling methods of nonlinear electric loads ..... 33

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**POWER QUALITY MANAGEMENT –****Part 3: User characteristics modelling**

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

Draft	Report on voting
8/1690/DTS	8/1702/RVDTS

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 Specification 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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at <http://www.iec.ch/standardsdev/publications>.

A list of all parts in the IEC 63222 series, published under the general title *Power quality management*, can be found on the IEC website.

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

- reconfirmed,
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- revised.

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## **POWER QUALITY MANAGEMENT –**

### **Part 3: User characteristics modelling**

#### **1 Scope**

This part of IEC 63222 is intended to provide provisions regarding recognized engineering practices applicable to assess the user's characteristics in power quality predicted assessment. It summarizes the best practice in non-linear, unbalanced, impact and fluctuating loads or generations modelling for power quality disturbance anticipation in public power systems at the planning stage.

This document focuses on frequency-domain modelling for AC power quality analysis in electric power networks, typically in the range up to the 50<sup>th</sup> harmonic (2,5 kHz in 50 Hz systems or 3 kHz in 60 Hz systems). Unbalance is analyzed in three-phase systems and only negative sequence component is considered. The approach and modelling guidelines provided are valid on the representation of user installations connected to power systems acting as sources of disturbance. Modelling of the network elements is out of the scope of the document.

These guidelines will be valuable in the definition of power quality performance specifications for user equipment. They will also assist users when modelling their installation to assess or demonstrate compliance with the emission limits provided by the system owner/operator and to investigate and specify mitigation measures.

#### **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 TR 61000-3-6, *Electromagnetic compatibility (EMC) – Part 3-6: Limits – Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems*

IEC TR 61000-3-7, *Electromagnetic compatibility (EMC) – Part 3-7: Limits – Assessment of emission limits for the connection of fluctuating installations to MV, HV and EHV power systems*

IEC TR 61000-3-13, *Electromagnetic compatibility (EMC) – Part 3-13: Limits – Assessment of emission limits for the connection of unbalanced installations to MV, HV and EHV power systems*

IEC 61000-4-30, *Electromagnetic compatibility (EMC) – Part 4-30: Testing and measurement techniques – Power quality measurement methods*