

ICS 27.010

CCS F 20



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 15945-2008

Replacing GB/T 15945-1995

Power quality - Frequency deviation for power systems

电能质量 电力系统频率偏差

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Quarantine;
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1 Scope

This standard specifies the nominal frequency, the permissible frequency deviation, the measurement of frequency deviation and the statistics of the pass rate for power systems.

The one parameter that is not local

Frequency is the direct measure of the balance between generation and demand: it falls when load exceeds generation and rises when generation exceeds load.

And at any instant it is the same everywhere on an interconnected system, which is what separates it from voltage, harmonics and flicker - those are local, this one is the state of the whole grid.

Why the band is narrow

Synchronous motors and clocks run at a speed set by it, turbine blades have resonances that are avoided by staying inside a narrow band, and protection settings assume it.

A deviation large enough to be noticed is already a sign that the system is in trouble. The standard fixes 50 Hz as nominal and allows more where inertia is low - small isolated systems, and systems feeding impact loads such as arc furnaces and rolling mills, moved into Annex A in this edition.

And how a supply is judged over time

The 2008 edition rewrote and expanded the measurement chapter, added the definition of

nominal frequency and deleted the old frequency-variation term.

Annex B was added for the statistical treatment of the pass rate - because a supply is contracted on its behaviour over a period, not on a single instant reading.

About this edition

GB/T 15945-2008 is the current edition. It was issued on 18 June 2008 and has been in force since 1 May 2009, replacing GB/T 15945-1995.

GB/T 15945-1995 has been superseded: a specification that still cites it is citing a withdrawn edition.

The interval between issue and effect is the transition period. It exists so that producers, laboratories and buyers can requalify products, revise procedures and use up documentation before the new text becomes the one that applies. The date on this page is the official one from the record of the Standardization Administration.

Classification and status

GB/T 15945-2008 is classified under ICS 27.010. ICS is the International Classification for Standards, the same scheme used by ISO and by the national bodies of most countries, which is what allows a Chinese standard to be placed beside its foreign counterparts on subject rather than on number.

Its Chinese Standard Classification code is CCS F 20. CCS is the domestic scheme, a letter for the sector and two digits for the subject within it, and it is the code by which the standard is filed and searched in China.

The GB/T prefix marks a recommended national standard. It is not, in itself, law: it becomes binding when a contract names it, when a regulation or a mandatory standard refers to it, or when a producer declares conformity with it. In practice that covers most of the cases in which it will be read - a purchase specification, an inspection agreement or a certification scheme.

How a Chinese national standard is set out

Chinese national standards are drafted to the rules of GB/T 1.1, which fixes the order in which a standard is set out. The document opens with a foreword recording the issuing bodies, the relationship to any previous edition and the technical committee responsible for it. Clause 1 is the scope. Clause 2 lists the normative references - the other standards that have to be applied together with this one, and without which its requirements cannot be met. Clause 3 gives the terms and definitions. The technical clauses follow: the requirements themselves, the test or measurement methods by which conformity is established, the inspection rules that say how a lot is sampled and judged, and, for a

product standard, the provisions on marking, packaging, transport and storage. Annexes, normative or informative, come last.

GB/T 15945-2008 runs to 15 pages in the English translation. What is delivered is the complete document in that order: every clause, every table, every figure and every annex of the Chinese original, with the same numbering, so that a reference to a clause number in a contract or a test report points to the same place in both languages.

About this English translation

The English edition of GB/T 15945-2008 is a full translation of the official Chinese text, not a summary, an abstract or a machine rendering left unchecked. Clause and subclause numbers, table and figure numbers and annex letters are those of the original, because they are what a specification, a purchase order or a test report cites.

Technical terms are translated against the vocabulary standards of the same field, so that a term used in GB/T 15945-2008 reads the same way as in the other Chinese standards it is used beside. Where a term has an established English form in an ISO or IEC document on the same subject, that form is used; where China's term has no foreign counterpart, it is translated literally and the Chinese is kept alongside it rather than replaced by an approximation.

Quantities, units and symbols are carried over unchanged. Chinese standards use SI, so a value in the translation is the value in the original document, not a conversion, and a limit read from the English text is the limit that will be applied by a Chinese inspection body reading the Chinese one.

This page is compiled from the official publication record: the standard number and both titles, the issuing bodies, the dates of issue and effect, the edition it replaces, the ICS and CCS classification. The requirements, limits, tables and test conditions are in the document itself.