

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Power transformers –
Part 18: Measurement of frequency response**

**Transformateurs de puissance –
Partie 18: Mesure de la réponse en fréquence**



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POWER TRANSFORMERS –

Part 18: Measurement of frequency response

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The text of this standard is based on the following documents:

FDIS	Report on voting
14/718/FDIS	14/728/RVD

Full information on the voting for the approval of this standard 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.

A list of all parts of the IEC 60076 series can be found, under the general title *Power transformers*, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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

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POWER TRANSFORMERS –

Part 18: Measurement of frequency response

1 Scope

This part of the IEC 60076 series covers the measurement technique and measuring equipment to be used when a frequency response measurement is required either on-site or in the factory either when the test object is new or at a later stage. Interpretation of the result is not part of the normative text but some guidance is given in Annex B. This standard is applicable to power transformers, reactors, phase shifting transformers and similar equipment.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

frequency response

amplitude ratio and phase difference between the voltages measured at two terminals of the test object over a range of frequencies when one of the terminals is excited by a voltage source

Note 1 to entry: The frequency response measurement result is a series of amplitude ratios and phase differences at specific frequencies over a range of frequency.

Note 2 to entry: The measured voltage is the voltage developed across an impedance and so it is also related to current.

2.2

frequency response analysis

FRA

technique used to detect damage by the use of frequency response measurements

Note 1 to entry: The terms SFR and IFRA are commonly used and refer to the use of either a swept frequency voltage source or an impulse voltage source. Provided the measuring equipment complies with the requirements of Clause 5, this standard can be applied to both techniques.

2.3

source lead

lead connected to the voltage source of the measuring instrument used to supply an input voltage to the test object

2.4

reference lead

V_{in}
lead connected to the reference channel of the measuring instrument used to measure the input voltage to the test object

2.5

response lead

V_{out}

lead connected to the response channel of the measuring instrument used to measure the output voltage of the test object