

BUREAU OF INDIAN STANDARDS

PRELIMINARY DRAFT FOR COMMENTS ONLY

(Not to be reproduced without the permission of BIS or used as an Indian Standard)

**मसौदा भारतीय मानक
परमाणु सुविधाएं - सुरक्षा के लिए महत्वपूर्ण
उपकरण - भूकंपीय योग्यता
(पहला पुनरीक्षण)**

Draft Indian Standard

*Nuclear facilities - Equipment important to safety -
Seismic qualification*

(First Revision)

ICS: 27.120.10, 27.120.20

©BIS 2024

©IEC 2024

NATIONAL FOREWORD

(Formal clauses will be added later)

This Draft Indian Standard (Part 344) (First Revision) which is identical with IEC/IEEE 60980-344:2020 Nuclear facilities - Equipment important to safety - Seismic qualification' issued by the International Electrotechnical Commission (IEC) *will be* adopted by the Bureau of Indian Standards on the recommendation of Electronic Measuring Instruments, Systems And Accessories Sectional Committee and approval of the Electronics and Information Technology Division Council.

This standard was originally published in 2001 and was identical with IEC 60980(1989). The first revision of this standard has been taken to align with the latest version of IEC/IEEE 60980-344:2020.

It constitutes a technical revision.

The text of IEC Standard *will be* approved as suitable for publication as an Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appears referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International standards	Corresponding Indian standards	Degree of Equivalence
IEC 60068-2-6, Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)	IS/IEC 60068-2-6 : 2007 Environmental Testing Part 2 Tests Section 6 Test Fc: Vibration sinusoidal	Identical with IEC 60068-2-6:2007

The technical committee has reviewed the provisions of following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International Standards	Title
IEC/IEEE 60780-323	Nuclear facilities – Electrical equipment important to safety – Qualification ^{1,2}
IEEE Std 382 TM ,	IEEE Standard for Qualification of Safety-Related Actuators for Nuclear Power Generating Stations

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:2022 ‘Rules for rounding off numerical values (*Second Revision*)’. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

SCOPE OF IEC/IEEE 60980-344:2020

This International Standard describes methods for establishing seismic qualification procedures that will yield quantitative data to demonstrate that the equipment can meet its performance requirements. This document is applicable to electrical, mechanical, instrumentation and control equipment/components that are used in nuclear facilities. This document provides methods and documentation requirements for seismic qualification of equipment to verify the equipment’s ability to perform its specified performance requirements during and/or after specified seismic demands. This document does not specify seismic demand or performance requirements. Other aspects, relating to quality assurance, selection of equipment, and design and modification of

systems, are not part of this document. As seismic qualification is only a part of equipment qualification, this document is used in conjunction with IEC/IEEE 60780-323.

The seismic qualification demonstrates equipment's ability to perform its safety function(s) during and/or after the time it is subjected to the forces resulting from at least one safe shutdown earthquake (SSE/S2). This ability is demonstrated by taking into account, prior to the SSE/S2, the ageing of equipment and the postulated occurrences of a given number of lower intensity operating basis earthquake (OBE/S1). Ageing phenomena to be considered, if specified in the design specification, are those which could increase the vulnerability of equipment to vibrations caused by an SSE/S2.

Note: - The Technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details, please refer to IEC/IEEE 60980-344:2020 or kindly contact.

Head,

Electronics & IT Department
Bureau of Indian Standards
9, B.S. Zafar Marg,
New Delhi-110002
Email: litd@bis.gov.in, litd08@bis.gov.in
Tele: 011-23608401