

BUREAU OF INDIAN STANDARDS

PRELIMINARY DRAFT FOR COMMENTS ONLY

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मसौदा भारतीय मानक

**परमाणु ऊर्जा संयंत्र - सुरक्षा के लिए महत्वपूर्ण उपकरण -
बिजली रिएक्टरों में न्यूट्रॉन प्रवाह दर (फ्लक्स)**

**माप के लिए इन-कोर उपकरण
(पहला पुनरीक्षण)**

Draft Indian Standard

*Nuclear power plants - Instrumentation important to safety -
In-core instrumentation for neutron fluence rate (flux)
measurements in power reactors*

(First Revision)

ICS: 27.120.20

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NATIONAL FOREWORD

(Formal clauses will be added later)

This Draft Indian Standard (First Revision) which is identical with IEC 60568:2006 ‘Nuclear power plants - Instrumentation important to safety - In-core instrumentation for neutron fluence rate (flux) measurements in power reactors’ 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 1993 and was identical with IEC Pub 60568: 1977. The first revision of this standard has been taken to align with the latest version of IEC 60568:2006.

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 60880 :1986 Software for computers in the safety systems of nuclear power stations	IS 15398 : 2003 Software for computers in the safety systems of nuclear and radiation facilities	Identical with IEC 60880 :1986
IEC 987 :1989 Programmed digital computers important to safety for nuclear power	IS 15399 : 2003 Hardware for computers in the safety system of nuclear and radiation facilities	Identical with IEC IEC 987 :1989

stations'		
IEC 61226:2005, Nuclear power plants – Instrumentation and control systems important to safety – Classification of instrumentation and control systems	IS 12772 : 2003 Application of computers to nuclear reactor instrumentation and control (First Revision) (Withdrawn)	Identical with IEC 60643 (1979) and IEC 61226 (1993)

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 61468:2000	In-core instrumentation – Characteristics and test methods of self-powered neutron detectors Amendment 1 (2003)
IEC 61513:2001	Nuclear power-plants – Instrumentation and control for systems important to safety – General requirements for systems
IEC 62138:2004	Nuclear power plants – Instrumentation and control important to safety – Software aspects for computer-based systems performing category B or C functions

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 60568:2006

This standard applies to on-line in-core neutron detectors, together with associated components and instrumentation, designed for purposes important to reactor safety: protection, information or control. The detector types usually used are direct current ionization chambers, fission ion chambers and self-powered neutron detectors. This standard provides guidance for the design of

in-core instrumentation for neutron fluence rate measurements in thermal neutron reactors designed for power production. The major emphasis in this standard is on the general design aspects of on-line systems. For the principles of overall system design and for the purpose of neutron flux measurements, reference should be made to IEC 61513...

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 60568:2006 or kindly contact.

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