

**BUREAU OF INDIAN STANDARDS**

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**मसौदा भारतीय मानक**  
**विश्वसनीयता वृद्धि - अद्वितीय जटिल प्रणालियों में**  
**प्रारंभिक विफलताओं के लिए तनाव परीक्षण**

Draft Indian Standard  
**Reliability growth – Stress testing for  
early failures in unique complex systems**

ICS 03.120.01; 03.120.99

Dependability of Electronic, Electrical  
Components, Equipment and Systems  
Sectional Committee, LITD 02

**Last Date for Comments: 20 October 2023.**

**NATIONAL FOREWORD**

(Formal clauses will be added later)

This draft Indian Standard which is identical with 62429: 2007 ‘Reliability growth – Stress testing for early failures in unique complex systems’ issued by the International Electrotechnical Commission (IEC) *will be* adopted by the Bureau of Indian Standards on the recommendations of the Dependability of Electronic, Electrical Components, Equipment and Systems Sectional Committee and approval of the Electronics and Information Technology Division Council.

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

- a) Wherever the words ‘International Standard’ appear referring to this standard, they should be read as ‘Indian Standard’, and
- 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:

<b>International Standards</b>	<b>Corresponding Indian Standard</b>	<b>Degree of Equivalence</b>
IEC 60050-191:1990 International Electrotechnical Vocabulary – Chapter 191: Dependability and quality of service <i>NOTE: Withdrawn and replaced by IEC 60050-192: 2015</i>	IS 1885 (Part 192): 2015 Electrotechnical vocabulary Part 192 Dependability	Identical
IEC 60300-3-5 Dependability management – Part 3-5: Application guide – Reliability test conditions and statistical test principles	IS 15474 (Part 3/Sec 5): 2018 Dependability Management Part 3 Application Guide Section 5 Reliability Test Conditions and Statistical Test Principles	Identical with IEC 60300-3-5: 2001
IEC 60605-2 Equipment reliability testing – Part 2 Design of test cycles	IS 8161 (Part 2): 2018 Equipment reliability testing Part 2 design of test cycles (First Revision)	Identical with IEC 60605-2 : 1994
IEC 61163-1:2006 Reliability stress screening – Part 1: Repairable assemblies manufactured in lots	IS 15444 (Part 1): 2012 Reliability stress screening: Part 1 repairable assemblies Manufactured in lots (First Revision)	Identical
IEC 61163-2 Reliability stress screening – Part 2: Electronic components	IS 15444 (Part 2): 2020 Reliability Stress Screening Part 2 Components (First Revision)	Identical With IEC 61163- 2: 2020
IEC 61164 Reliability growth – Statistical test and estimation methods	IS 15038: 2011 Reliability growth - Statistical test and estimation methods	Identical With IEC 61164: 2004

Standards referred in this draft adopted standard and has decided that they are acceptable for use in conjunction with this standard:

<b>International Standard</b>	<b>Title</b>
IEC 61710	Power law model – Goodness-of-fit tests and estimation methods

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 2:1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**Scope of IEC 62429: 2007 is as follows:**

This International Standard gives guidance for reliability growth during final testing or acceptance testing of unique complex systems. It gives guidance on accelerated test conditions and criteria for stopping these tests. "Unique" means that no information exists on similar systems, and the small number of produced systems means that information deducted from the test has limited use for future production.

This standard concerns reliability growth of repairable complex systems consisting of hardware with embedded software. It can be used for describing the procedure for acceptance testing, "running-in", and to ensure that reliability of a delivered system is not compromised by coding errors, workmanship errors or manufacturing errors. It only covers the early failure period of the system life cycle and neither the constant failure period, nor the wear out failure period. It can also be used when a company wants to optimize the duration of internal production testing during manufacturing of prototypes, single systems or small series.

It is applicable mainly to large hardware/software systems, but does not cover large networks, for example telecommunications and power networks, since new parts of such systems cannot usually be isolated during the testing.

It does not cover software tested alone, but the methods can be used during testing of large embedded software programs in operational hardware, when simulated operating loads are used.

It addresses growth testing before or at delivery of a finished system. The testing can therefore take place at the manufacturer's or at the end user's premises.

If the user of a system performs reliability growth by a policy of updating hardware and software with improved versions, this standard can be used to guide the growth process.

This standard covers a wide field of applications, but is not applicable to health or safety aspects of systems.

This standard does not apply to systems that are covered by IEC 62279<sup>[39]</sup>.

NOTE– The Technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details please refer IEC 62429: 2007 or kindly contact.

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