

Reliability data analysis techniques — Procedures for comparison of two constant failure rates and two constant failure (event) intensities

ICS 29.020

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub

National foreword

This British Standard reproduces verbatim IEC 61650:1997 and implements it as the UK national standard.

The UK participation in its preparation was entrusted by Technical Committee DS/1, Dependability and technology, to Subcommittee DS/1/1, Dependability, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the IEC title page, pages ii to iv, pages 1 to 11 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the Management Systems Sector Board, was published under the authority of the Standards Board and comes into effect on 15 October 1997

© BSI 03-2000

ISBN 0 580 28097 7

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
National foreword	Inside front cover
Foreword	iii
Text of IEC 61650	1

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
61650**

Première édition
First edition
1997-08

Techniques d'analyse des données de fiabilité –

**Procédures pour la comparaison de deux taux
de défaillance constants et de deux intensités
de défaillance (événements) constantes**

Reliability data analysis techniques –

**Procedures for comparison of two constant failure
rates and two constant failure (event) intensities**



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

Contents

	Page
Foreword	iii
Introduction	1
1 Scope	1
2 Normative reference	1
3 Definitions	1
4 Symbols	1
5 Assumptions and area of application	2
6 Specification of input data	2
7 Calculation procedures	3
Annex A (normative) Tables of the F distribution — Graphs for comparison of two failure rates/intensities for $T_1^* = T_2^*$	5
Annex B (informative) Mathematical background	8
Annex C (informative) Examples	8
Annex D (informative) Bibliography	11
Figure 1 — Example of calculation of T_i^* for one repaired item, $T_i^* = t_1 + t_2 + t_3 + t_4$	2
Figure 2 — Example of calculation of T_i^* for five non-repaired items, $T_i^* = t_1 + t_2 + t_3 + t_4 + t_5$	3
Figure A.1 — Comparison of two failure rates/intensities for $T_1^* = T_2^*$ Significance levels 10 %; 5 %; 1 %; 0,1 %; $4 \leq r \leq 130$	6
Figure A.2 — Comparison of two failure rates/intensities for $T_1^* = T_2^*$ Significance levels 10 %; 5 %; 1 %; 0,1 %; $110 \leq r \leq 250$	7
Table 1 — Decision criteria using the binomial distribution	3
Table 2 — Decision criteria using the F distribution	4
Table 3 — Decision criteria using the graphs, Figure A.1 or Figure A.2 in Annex A	4
Table 4 — Decision criteria using the standard normal distribution	4
Table 5 — Significance levels (one-sided) using the standard normal distribution	4
Table A.1 — 0,90 fractiles of the F distribution [$F_{0,90}(v_1, v_2)$]	5
Table A.2 — 0,95 fractiles of the F distribution [$F_{0,95}(v_1, v_2)$]	5