

Reliability of systems, equipment and components —

Part 7: Guide to fault tree analysis

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Quality, Management and Statistics Standards Policy Committee (QMS/-) to Technical Committee QMS/23, upon which the following bodies were represented:

- Association for Consumer Research (ACRE)
- Association of Consulting Engineers
- British Gas plc
- British Railways Board
- Cable and Wireless plc
- City University
- Civil Aviation Authority
- Cranfield Information Technology Institute
- Cranfield Institute of Technology
- Design Council
- EEA (the Association of Electronics, Telecommunications and Business Equipment Industries)
- Electricity Industry in United Kingdom
- Electronic Components Industry Federation
- Engineering Equipment and Materials Users' Association
- GAMBICA (BEAMA Ltd.)
- Institute of Petroleum
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- Railway Industry Association of Great Britain
- Safety and Reliability Society
- Society of British Aerospace Companies Limited
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- United Kingdom Atomic Energy Authority
- University of Technology, Loughborough

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Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Introduction	1
1 Scope	1
2 Normative references	1
3 Definitions	1
4 Symbols	1
5 General	1
5.1 Fault tree structure	1
5.2 Objectives	2
5.3 Applications	2
6 Principles	2
6.1 General considerations	2
6.2 System structure	2
6.3 Events considered	3
6.4 Approaches	3
7 Procedures	3
7.1 Scope of analysis	3
7.2 System familiarization	3
7.3 Top event identification	4
7.4 Fault tree construction	4
7.5 Fault tree evaluation	6
8 Identification and labelling	8
9 Report	8
Annex A (normative) Symbols	10
Figure 1 — Example of a fault tree	4
Figure 2 — Example showing common cause considerations	5
Publication(s) referred to	Inside back cover

National foreword

This Part of BS 5760 has been prepared under the direction of the Quality, Management and Statistics Standards Policy Committee. It is identical with IEC 1025:1990, “*Fault tree analysis (FTA)*”, published by the International Electrotechnical Commission (IEC).

Eight Parts of this standard have been published and these may be summarized as follows:

Part 0. Introductory guide to reliability. This Part provides guidance to directors of companies who need to know why reliability is important to them, to engineers not trained in quality and reliability to show how reliability should influence their technical decision making, and to middle management not specialized in engineering, to explain how measures to achieve reliability should be integrated with other aspects of project management to give optimum results.

Part 1. Guide to reliability and maintainability programme management. This Part discusses the essential features of a comprehensive reliability and maintainability programme for the planning, organization, direction and control of resources to produce systems, equipment and components which will be reliable and maintainable. It includes consideration of the specification and assessment of reliability and maintainability and of arrangements for the collection of reliability data.

Part 2. Guide to the assessment of reliability. This Part recommends general procedures for the assessment of reliability of hardware systems and contains guidance for the reliability practitioner on the quantitative and statistical aspects of reliability, such as reliability modelling, the provision of data, and the concepts of redundancy and simulation.

Part 3. Guide to reliability practices: examples. This Part contains authentic practical examples illustrating the principles established in Parts 1 and 2 of BS 5760.

Part 4. Guide to specification clauses relating to the achievement and development of reliability in new and existing items. This Part provides more detailed guidance on the specification of reliability.

Part 5. Guide to failure modes, effects, and criticality analysis (FMEA and FMECA). This Part describes failure modes and effects analysis (FMEA) and failure modes, effects and criticality analysis (FMECA), and gives guidance on the application of these techniques.

Part 6. Guide to programmes for reliability growth. This Part describes procedures to expose and remove weaknesses in hardware and software items in order to achieve acceptable reliability in a product. It explains basic concepts, management and test procedures and describes techniques for analysis and correction of failures.

Part 7. Guide to fault tree analysis. This Part describes fault tree analysis and gives guidance on the application of this technique which may be used to identify factors affecting the reliability, performance and safety characteristics of a system.

Further Parts are envisaged in order to provide guidance on other techniques of reliability management. At present two further Parts are in the process of being drafted, and these are as follows.

¹⁾*Part 8. Guide to the assessment of reliability of systems containing software.* This Part will provide guidance on the assessment of reliability of systems containing software.

Part 9. Guide to reliability block diagrams

¹⁾ Currently published as a Draft for Development, DD 198:1991.

Cross-references

International Standard	Corresponding British Standard
IEC 50(191):1990	BS 4778 <i>Quality vocabulary</i> Section 3.2:1991 <i>Glossary of international terms</i> (Identical)
IEC 617-12:1983	BS 3939 <i>Guide for graphical symbols for electrical power, telecommunications and electronics diagrams</i> Part 12:1985 <i>Binary logic elements</i> (Identical)

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 12, an inside back cover 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.

