ISO 11231:2019 (E)

Space systems — Probabilistic risk assessment (PRA)

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions
3.2 Abbreviated terms

4 Principles of probabilistic risk assessment

4.1 General
4.2 Mission success and system safety risk assessment concept
4.3 PRA general process

5 Objectives, uses and benefits of probabilistic risk assessment

5.1 Objectives of a probabilistic risk assessment
5.2 Probabilistic risk assessment results usage
5.3 Benefits of a probabilistic risk assessment

6 PRA requirements and detailed process

6.1 Probabilistic risk assessment requirements
6.2 Overview of the probabilistic risk assessment process
6.3 Probabilistic risk assessment basic tasks
6.3.1 General
6.3.2 Task 1: Objectives and approach definition
6.3.3 Task 2: System familiarization
6.3.4 Task 3: Initiating event identification
6.3.5 Task 4: Scenario modelling
6.3.6 Task 5: Failure modelling
6.3.7 Task 6: Quantification
6.3.8 Task 7: Uncertainty analysis
6.3.9 Task 8: Sensitivity analysis
6.3.10 Task 9: Ranking
6.3.11 Data analysis

7 Peer review

7.1 General
7.2 Internal peer reviews
7.3 External peer reviews

8 Probabilistic risk assessment report — Data content requirements

Annex A (informative) Example of space systems unit-value/mission-criticality category definitions

Annex B (informative) Capability-based PRA process tailoring guidance

B.1 The capability-level 1 PRA process activities
B.2 The capability-level 2 PRA process activities
B.3 The Capability-level 3 PRA process activities
B.4 The Capability-level 4 PRA process activities
B.5 The Capability-level 5 PRA process activities

B.6 Implementation of capability-based PRA activities throughout the system life cycle on an as-needed basis

Page count: 22