

## LSSGR: Reliability, Section 12

### Contents

Preface .....	Preface-1
1. Introduction.....	1-1
1.1 Purpose .....	1-1
1.2 Document Organization .....	1-1
1.3 Major Changes in This Issue .....	1-2
1.4 Requirements Terminology .....	1-3
1.5 Requirement Labeling Conventions .....	1-3
1.5.1 Numbering of Requirement and Related Objects .....	1-4
1.5.2 Requirement, Conditional Requirement, and Objective Object Identification .....	1-4
2. Application of Reliability Criteria.....	2-1
2.1 Equipment Boundaries.....	2-1
2.2 Service Life .....	2-2
3. Hardware Reliability Modeling Methods .....	3-1
3.1 Component Reliability Prediction .....	3-1
3.2 Equipment Service Restoral Time .....	3-1
3.3 Operations, Administration, and Maintenance Activities .....	3-2
3.4 System Reliability Modeling .....	3-3
3.5 Reliability and System Architecture Testing.....	3-4
4. Hardware Reliability Parameters.....	4-1
4.1 Introduction.....	4-1
4.1.1 Failure Mode States.....	4-1
4.2 Downtime.....	4-2
4.2.1 Definition .....	4-2
4.2.2 Special Considerations.....	4-3
4.2.3 Prediction .....	4-4
4.2.4 Load-Sharing Failure Modes.....	4-4
4.3 Hardware Cutoff Call Rate .....	4-6
4.3.1 Definition .....	4-6
4.3.2 Prediction .....	4-6
4.3.3 Example .....	4-7
5. Hardware Reliability Requirements .....	5-1
5.1 Individual Termination Downtime .....	5-1
5.2 Multitermination Downtime .....	5-3
5.3 Total Capability Downtime.....	5-4
5.4 Hardware Cutoff Call Rate .....	5-5
5.5 System Operations Capability .....	5-7
5.5.1 Operations System Interfaces .....	5-7

5.5.2	Control, Visibility, and Diagnostic Capability .....	5-8
6.	Application of Field Performance Objectives.....	6-1
6.1	Outage Causes.....	6-1
6.2	Remote Switching Units.....	6-1
6.3	Operations, Administration, and Maintenance Activities.....	6-2
7.	Field Reliability Performance Measures.....	7-1
7.1	Outage Downtime .....	7-1
7.2	Outage Frequency.....	7-1
8.	System Level Measures and Objectives .....	8-1
8.1	Outage Event Definitions.....	8-1
8.2	Reportable Outages and Objectives .....	8-2
8.3	Scheduled Total Outage Event Duration .....	8-4
8.4	ISDN Switching Capability .....	8-5
8.5	System Operations Capability .....	8-5
9.	Individual Termination Objectives .....	9-1
10.	Other Criteria .....	10-1
10.1	Outage Recovery .....	10-1
10.2	Cutoff Calls .....	10-1
10.3	Ineffective Machine Attempts .....	10-2
10.4	Reliability and Quality Switching Systems Generic Requirements (RQSSGR) .....	10-2
	References.....	References-1
	Acronyms .....	Acronyms-1
	Definitions.....	Definitions-1
	Requirement-Object Index.....	ROI-1

## List of Tables

Table 3-1.Summary of Equipment Service Restoral Time Assumptions.....	3-2
Table 4-1.Profile of Hourly Traffic Loads in an Average Day .....	4-5
Table 4-2.Definitions Used in Prediction of Hardware Cutoff Call Rate for Example System.....	4-7
Table 4-3.Hardware Cutoff Call Rate Calculations for Example System.....	4-8