
Generic Operations Interfaces Using OSI Tools: POTS/Loop Testing

CONTENTS

Generic OTGR Contents and Ordering Information	v
Preface	Preface-1
1. Introduction	1-1
1.1 Specification Tools	1-1
1.2 Relationship with Other Bellcore Documents and Standards	1-2
1.3 Purpose of Document	1-2
1.4 Changes from Previous Issue	1-2
1.5 Organization of This Document	1-4
1.6 Requirements Terminology	1-4
2. Background of Operations Interfaces Using OSI Tools	2-1
2.1 Conceptual View of System Management	2-1
2.1.1 OSI Communication Environment	2-3
2.2 Principles of Information Modeling	2-5
2.2.1 Managed Objects	2-5
2.2.2 Inheritance	2-6
2.2.3 Packages	2-6
2.2.4 Behaviour Definitions	2-6
2.2.5 Attributes	2-7
2.2.6 Attribute Groups	2-7
2.2.7 Parameters	2-8
2.2.8 Operations and Notifications	2-8
2.2.9 Naming	2-9
2.3 Common Management Information Services	2-12
2.3.1 Management Operations Services	2-12
2.3.2 Management Notification Service	2-13
2.4 Network Management	2-13
2.5 Specification Tools - GDMO Templates	2-14
2.5.1 Template Descriptions	2-14
2.5.2 Abstract Syntax Notation One (ASN.1)	2-21
2.6 Registration	2-21
3. Background	3-1
3.1 Introduction	3-1
3.2 History and Scope of Bellcore Testing Requirements	3-1
3.3 Generic Access and Testing Architecture	3-2

3.4	Approaches to Distributed Testing	3-4
3.5	Characteristics of Current Testing Domains	3-5
3.5.1	POTS/Loop Domain	3-5
3.5.2	GR-834-CORE Domains	3-6
3.6	Business Drivers	3-6
3.7	Resolution	3-7
3.8	A-Mode and B-Mode Characteristics	3-8
3.8.1	Test Thresholds	3-8
3.8.2	Loop Information	3-9
3.8.3	Summary and Verification Codes	3-9
3.8.4	General Tests	3-10
3.8.5	Specific Tests	3-10
3.8.6	Testing Mode Summary	3-11
3.9	Other Features of the CMISE-Based Interface	3-11
3.9.1	Message Mapping	3-12
4.	Access and Testing Model Overview	4-1
4.1	The Test Environment	4-1
4.2	Test Function	4-2
4.2.1	Functions for Managing Tests	4-3
4.3	Roles for Objects in Test Management	4-4
4.4	Underlying CMISE Services	4-6
4.5	Test Scenarios	4-6
4.5.1	The Controlled Case	4-6
4.5.2	The Uncontrolled Case	4-7
4.6	Architectural Mapping of Test Management Model	4-8
4.7	Test Access	4-9
4.7.1	Access Modes	4-9
4.7.2	Overriding Access	4-14
4.8	Callback Line	4-15
4.8.1	Introduction	4-15
4.8.2	Callback Line Configurations	4-15
4.9	Access and Testing Model Framework	4-17
4.9.1	Object Class List and Inheritance	4-18
4.9.2	Name Bindings	4-18
4.9.3	Actions	4-19
4.9.4	Notifications	4-20
4.9.5	Parameters	4-20
4.10	Using the Model	4-20
4.10.1	Test Access	4-21
4.10.2	Testing Operations	4-22
4.10.3	Starting a Test/Measurement	4-22
4.10.4	During a Controlled Test	4-23
4.10.5	Test/Access Termination	4-23
4.11	Callback Line Model Elements	4-24
4.11.1	callbackLine Object Class	4-24

4.11.2	establishCBL Action	4-25
4.11.3	connectCBL Action	4-25
4.11.4	changeCBL Action	4-25
4.11.5	hangupCBL Action	4-25
5.	Access and Testing Management Information Model	5-1
5.1	Object Class Relationships	5-1
5.1.1	Inheritance Relationships	5-1
5.1.2	Naming Relationships	5-2
5.2	Functional Mapping of Service Types	5-3
5.3	Guidelines for Referencing Information	5-4
5.4	System Management Functional Units	5-5
5.5	Requirements for GR-2940-CORE	5-5
5.6	Definitions of Managed Object	5-6
5.6.1	calloutTestObject	5-6
5.6.2	dialTestObject	5-6
5.6.3	loopTestingSystem	5-7
5.6.4	loopTestingSystemOperations	5-9
5.6.5	traceTestObject	5-9
5.7	Definitions of Conditional Packages	5-11
5.7.1	loopInfoPkg	5-11
5.7.2	loopThresholdsPkg	5-11
5.8	Definitions of Attributes	5-12
5.8.1	calloutNumber	5-12
5.8.2	calloutResults	5-12
5.8.3	dialDTMFResults	5-12
5.8.4	dialRotaryResults	5-13
5.8.5	dialingType	5-13
5.8.6	loopInfo	5-13
5.8.7	loopLeadsReversal	5-14
5.8.8	loopTestAccessMode	5-14
5.8.9	loopThresholds	5-15
5.8.10	staticLoopAccessInfo	5-15
5.8.11	testDirection	5-16
5.8.12	toneApplication	5-16
5.8.13	toneLevel	5-16
5.8.14	toneType	5-17
5.8.15	traceResults	5-17
5.9	Definitions of Parameters	5-18
5.9.1	basicTestInfoParam	5-18
5.9.2	basicTestUncontrolledResultsParam	5-18
5.9.3	calloutTestControlledResultsParam	5-19
5.9.4	calloutTestInfoParam	5-19
5.9.5	coinTestInfoParam	5-20
5.9.6	coinTestUncontrolledResultsParam	5-21
5.9.7	countRingersTestInfoParam	5-21

5.9.8	countRingersTestUncontrolledResultsParam	5-22
5.9.9	dialDTMFTestControlledResultsParam	5-23
5.9.10	dialRotaryTestControlledResultsParam	5-23
5.9.11	dialTestInfoParam	5-24
5.9.12	fullTestInfoParam	5-24
5.9.13	fullTestUncontrolledResultsParam	5-25
5.9.14	loopConnectTestAccessInfoParam	5-26
5.9.15	loopConnectTestAccessReplyParam	5-27
5.9.16	quickTestInfoParam	5-27
5.9.17	quickTestUncontrolledResultsParam	5-28
5.9.18	ringerTestInfoParam	5-28
5.9.19	ringerTestUncontrolledResultsParam	5-29
5.9.20	soakTestInfoParam	5-30
5.9.21	soakTestUncontrolledResultsParam	5-30
5.9.22	traceTestControlledResultsParam	5-31
5.9.23	traceTestInfoParam	5-31
5.9.24	BCRGR2940Mod	5-33
Appendix A:	Test Category Summaries	Appendix A-1
References	References-1
Glossary	Glossary-1

LIST OF FIGURES

Figure 2-1. Conceptual Model for System Management Functions	2-2
Figure 2-2. Management Communications Using CMISE	2-4
Figure 2-3. Naming Tree Example	2-11
Figure 3-1. Generic Access and Testing Architecture	3-3
Figure 4-1. Testing Entities	4-1
Figure 4-2. Relationship of the Agent Domain to Testing Entities	4-5
Figure 4-3. Scenario of a Controlled Test Case	4-7
Figure 4-4. Example Scenario of an Uncontrolled Test Case	4-8
Figure 4-5. Architectural Comparison to Test Management Model	4-9
Figure 4-6. Full Access Functionality	4-11
Figure 4-7. Reduced Access Functionality 1	4-12
Figure 4-8. Reduced Access Functionality 2	4-13
Figure 4-9. 2-Wire Listen Configurations	4-16
Figure 4-10. 2-Wire Talk/Listen Configurations	4-17
Figure 4-11. Framework Action Diagram	4-21
Figure 4-12. Callback Line Management	4-24
Figure 5-1. Inheritance Hierarchy	5-2
Figure 5-2. Possible Name Bindings	5-3

LIST OF TABLES

Table 3-1. Mapping TL1 into CMISE	3-13
Table 4-1. Example Mapping of Test Operations to Testing Functions	4-2
Table 5-1. Functional Mapping of System Management Service Types	5-4