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American National Standard for Telecommunications

Operations, Administration, Maintenance, and Provisioning (OAM&P) – Management of Functions for Signalling System No. 7 (SS7) Network Interconnections

Secretariat

Alliance for Telecommunications Industry Solutions

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Abstract

This standard addresses Operations, Administration, Maintenance, and Provisioning (OAM&P) for interconnection connections employing Common Channel Signalling (CCS) based on Signalling System Number 7 (SS7) protocol used in North America. This standard presents principles, specifies requirements, describes architectures and protocol procedures, and identifies strategies for performance of OAM&P functions, including compatibility verification and gateway screening. It identifies procedures, actions, and responsibilities for performance of functions for management of network interconnections. In addition, it identifies responsibilities requiring bilateral (carrier-to-carrier) agreements for administrative control of OAM&P functions.

Foreword

The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.

This American National Standard is one in a series of standards that are being produced to facilitate the interconnection of Network Elements (NEs) and Operation Systems (OSs) for Operations, Administration, Maintenance and Provisioning (OAM&P) purposes. The series specifies architectures, functional requirements, protocols, and other information necessary for the interoperability of networks, NEs, and OSs. The NEs and OSs may be from different suppliers, under different managements, of different levels of complexity, and of different vintage.

This standard specifies the functional requirements, architectures, protocol procedures and other information for management of OAM&P functions for SS7 interconnections. OAM&P functions include Signalling Network Management (SNM), Operations Maintenance Administration Part (OMAP), as well as Telecommunications Management Network functions.

Three other standards in this series have been prepared. The first, T1.208-1997, *American National Standard for Telecommunications – Operations, Administration, Maintenance and Provisioning (OAM&P) – Upper-layer protocols for interfaces between operations systems and network elements*, addresses the requirements at the Session and Presentation Layers and supporting Application Service Elements at the Application Layer for OS–NE Interfaces. The second, T1.204-1997, *American National Standard for Telecommunications – Operations, Administration, Maintenance, and Provisioning (OAM&P) – Lower-layer protocols for interfaces between operations systems and network elements*, specifies services and protocols for the physical, Data Link, Network, and Transport Layers of OS–NE interfaces. The third, T1.210-1993 (R1999), *OAM&P - Principles of Functions, Architectures, and Protocol for Telecommunications Management Network (TMN) Interfaces*, addresses the functions and architectures for the Interfaces between OSs and NEs that are required to manage the various operation, administration, maintenance, and provisioning (OAM&P) functions in a Telecommunications Management Network.

The telecommunications industry will benefit from this series of standards, which promotes interoperability between OSs and NEs.

This standard includes one informative annex, which is not considered part of this standard.

Suggestions for improvement of this standard will be welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, 1200 G Street, NW, Suite 500, Washington, DC. 20005.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee on Telecommunications, T1. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, Accredited Standards Committee T1 had the following members:

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Table of Contents

1 SCOPE, PURPOSE, AND APPLICATION 1

1.1 SCOPE 1
1.2 PURPOSE 2
1.3 APPLICATION 2

2 NORMATIVE REFERENCES 3

3 DEFINITIONS 3

4 ABBREVIATIONS & ACRONYMS 15

5 PRINCIPLES AND FRAMEWORK FOR NETWORK INTERCONNECTIONS 19

5.1 OVERVIEW OF SS7 NETWORK ARCHITECTURE 19
5.1.1 DESCRIPTION OF NETWORK COMPONENTS 20
5.1.1.1 SIGNALLING LINK (SL) 20
5.1.1.2 SIGNALLING POINT (SP) 20
5.1.1.3 SIGNALLING TRANSFER POINT (STP) 20
5.1.1.4 DATA BASE NODE (DBN) 20
5.1.2 TYPES OF SIGNALLING LINKS (SEE FIGURE 1) 20
5.1.2.1 A LINKS 20
5.1.2.2 B LINKS 20
5.1.2.3 C LINKS 20
5.1.2.4 D LINKS 21
5.1.2.5 E LINKS 21
5.1.2.6 F LINKS 21
5.1.3 SIGNALLING MODE 21
5.2 CONFIGURATIONS FOR INTERNETWORK CONNECTIONS 21
5.3 SYNCHRONIZATION 22
5.4 MESSAGE ROUTING 22
5.4.1 MESSAGE ROUTING PRINCIPLES 22
5.4.3 ALTERNATIVE ROUTING AT SP A AND STP B 23
5.5 PERFORMANCE OBJECTIVE FOR NETWORK INTERCONNECTIONS 23
5.5.1 MESSAGE TRANSFER PART (MTP) PERFORMANCE 23
5.5.1.1 UNAVAILABILITY OF SIGNALLING ROUTE SET 23
5.5.1.2 UNDETECTED ERRORS 23
5.5.1.3 LOSS OF MESSAGES 23
5.5.1.4 MESSAGES OUT-OF-SEQUENCE 23
5.5.2 OTHER PERFORMANCE MEASURE 24
5.5.2.1 CHANGEOVER INITIATION 24
5.5.2.2 FAILURE RESPONSE TIME 24
5.5.2.3 ANSWER TIME TO CHANGEOVER 24
5.6 ELEMENTS FOR MANAGEMENT OF NETWORK INTERCONNECTIONS 24
5.6.1 OAM&P STRATEGY 24
5.6.2 NEED FOR HIGH AVAILABILITY OPERATIONS SUPPORT 24
5.6.3 APPOINTMENT OF ADMINISTRATIVE AND TECHNICAL CONTROL 25
5.6.4 DEFINING FUNCTIONS AND RESPONSIBILITIES FOR MANAGEMENT OF NETWORK INTERCONNECTIONS 25
5.6.5 EXCHANGE OF CONTACT POINT(S) INFORMATION 25
5.6.6 LINK DIVERSITY 25
5.6.7 SURVEILLANCE AND TESTING REQUIREMENTS FOR MAINTENANCE PURPOSES 25

6 MESSAGE TRANSPORT SERVICES 26

6.1 SIGNALLING LINK SERVICES 26
6.2 ROUTING LABEL 27
6.2.1 SERVICE INFORMATION OCTET (SIO) 28
6.2.1.1 SERVICE INDICATOR (SI) 28
6.2.1.2 SUBSERVICE FIELD 28

7 TESTING 29

7.1 OVERVIEW 29

7.2 FUNCTIONS 29
7.3 COMPATIBILITY TESTING 30
7.3.1 STRATEGY FOR VERIFYING COMPATIBILITY 30
7.3.2 SIGNALLING LINK TEST CAPABILITY 30
7.3.3 LEVEL 1 COMPATIBILITY 31
7.3.4 SIGNALLING LINK COMPATIBILITY 31
7.3.5 SIGNALLING LINK ACCEPTANCE TESTS 31
7.3.5.1 SIGNALLING DATA LINK TESTING CRITERIA 31
7.3.5.2 EXIT CRITERIA 31
7.3.6 MTP NETWORK INTERCONNECTION CAPABILITIES 31
7.3.7 SCCP NETWORK INTERCONNECTION CAPABILITIES 32
7.3.8 ISDN USER PART (ISDN-UP) CAPABILITIES ....
7.3.9 VERIFICATION OF MESSAGE ROUTING FUNCTIONS 33
7.3.9.1 ROUTING FOR LARGE NETWORKS 33
7.3.9.2 ROUTING TO SMALL NETWORKS 34
7.3.10 RECOVERY FROM FAILURES 35
7.3.11 NETWORK OPERABILITY UNDER STRESS 35
7.3.12 CRAFT INTERFACE 35
7.3.13 CRITICAL EVENTS AND MEASUREMENT REPORTS 35

8 PROVISIONING 35

8.1 SHARING 35
8.1.1 IDENTIFIERS 36
8.1.2 TIMER VALUES 36
8.1.3 PROCEDURAL INFORMATION 37
8.1.4 OTHER PROTOCOL INFORMATION 37
8.1.5 MEASUREMENT DATA 38
8.2 CIRCUIT/TRUNK CONVERSION 38
8.2.1 FUNCTIONS 38
8.2.2 SHARED RESPONSIBILITY 38
8.3 SIGNALLING LINK/TERMINAL PROVISIONING 39
8.3.1 ROUTE DIVERSITY 39
8.3.1.1 SIGNALLING LINK DESIGN 39
8.3.1.2 LINK ASSIGNMENT FOR ROUTE DIVERSITY 39
8.3.1.3 DIVERSITY GUIDELINES 39
8.3.1.3.1 TWO-WAY DIVERSITY 39
8.3.1.3.2 THREE-WAY DIVERSITY 40

9 ADMINISTRATION 40

9.1 ASSIGNMENT OF SIGNALLING ISDN-UP AND SIGNALLING LINK CONTROL 40
9.2 MANAGEMENT OF TRUNK CIRCUIT IDENTIFICATION CODES (TCIC) 40
9.3 GATEWAY SCREENING 40
9.3.1 SCREENING 40
9.3.1.1 MESSAGE TRANSFER PART (MTP) SCREENING 41
9.3.1.2 MESSAGE SCREENING BASED ON MESSAGE PRIORITY 41
9.3.1.2.1 MESSAGE PRIORITY 41
9.3.1.2.2 PRIORITY ASSIGNMENTS 41
9.3.1.2.3 PROVISIONED PRIORITY 41
9.3.1.2.4 MESSAGE SCREENING 42
9.3.1.3 SIGNALLING CONNECTION CONTROL PART (SCCP) SCREENING 42
9.3.2 VISIBILITY 42
9.3.2.1 MINIMUM VISIBILITY 42
9.3.2.2 MAXIMUM VISIBILITY 42
9.3.3 VISIBILITY OF SUBSYSTEMS 43
9.4 OPERATIONS MAINTENANCE ADMINISTRATION PART (OMAP) 43
9.5 CONSIDERATIONS FOR RUNNING OMAP TESTS 43
9.5.1 UPPER BOUNDS FOR EACH TYPE OF OMAP TEST 43
9.5.1.1 INITIATING SIGNALLING POINT TO A SPECIFIC DESTINATION 43
9.5.1.2 INITIATING SIGNALLING POINT TO MULTIPLE DESTINATIONS 43
9.5.1.3 TESTS RUNNING AT AN STP 43
9.5.1.4 TEST INITIATION AT A STP 44
9.5.1.5 TEST DESTINATION 44
9.5.2 TEST ACROSS A NETWORK BOUNDARY 44

9.5.3 REPORTING OF TEST RESULTS 44

10 MAINTENANCE 44

10.1 MAINTENANCE OBJECTIVES 44
10.2 MAINTENANCE PHILOSOPHY 44
10.3 MAINTENANCE PRINCIPLES 45
10.3.1 AUTOMATIC REAL-TIME MAINTENANCE 45
10.3.2 PREVENTIVE MAINTENANCE 45
10.3.3 CORRECTIVE MAINTENANCE 45
10.3.4 CONTROLLED MAINTENANCE 45
10.4 FUNCTIONAL ARCHITECTURE 46
10.4.1 MAINTENANCE ENTITIES (MES) 46
10.5 MAINTENANCE STRATEGIES 46
10.5.1 PERFORMANCE MEASUREMENTS 46
10.5.2 MAINTENANCE ENTITY CONCEPT 46
10.5.3 TESTING 46
10.5.4 MESSAGE TRAPS 47
10.5.5 PROTOCOL SURVEILLANCE 47
10.5.6 COORDINATION OF MAINTENANCE ACTIVITY 47
10.6 MAINTENANCE PROCESSES 47
10.6.1 FAILURE DETECTION 47
10.6.2 FAULT LOCALIZATION 48
10.6.3 FAULT CORRECTION 48
10.6.4 VERIFICATION 48
10.6.5 RESTORATION 48
10.6.6 CIRCUIT PROTECTION 48

11 CAPABILITIES 48

11.1 SIGNALLING MANAGEMENT PROCEDURES FOR NETWORK INTERCONNECTION 49
11.1.1 OVERVIEW 49
11.1.2 ACCESS LINK FAILURE AND RESTORATION (REFER TO FIGURE 10(A)) 49
11.1.2.1 FAILURE OF AN ACCESS LINK AB 49
11.1.2.2 RESTORATION OF LINK AB 49
11.1.3 FAILURE OF LINKS DE AND EF (REFER TO FIGURE 10(B)) 49
11.1.3.1 FAILURE OF LINK EF (DE UNAVAILABLE) 50
11.1.3.2 RESTORATION OF LINK EF (DE UNAVAILABLE) 50
11.1.3.3 RESTORATION OF LINK DE 50
11.1.4 FAILURE OF LINKS DF AND EF (REFER TO FIGURE 10(C)) 50
11.1.4.1 FAILURE OF LINK DF 50
11.1.4.2 FAILURE OF LINK EF (DF UNAVAILABLE) 51
11.1.4.3 RESTORATION OF LINK EF (DF UNAVAILABLE) 51
11.1.4.4 RESTORATION OF LINK DF 52
11.2 ALARM SURVEILLANCE 52
11.3 PERFORMANCE MONITORING AND MEASUREMENTS 52
11.3.1 MEASURING AND REPORTING INTERVALS 52
11.3.2 ANALYSIS OF MEASUREMENTS 52
11.3.3 RECOMMENDED MEASUREMENTS 52
11.3.4 OVERVIEW 53
11.4 TEST PROCEDURES AND CAPABILITIES FOR THE SIGNALLING NETWORK INTERCONNECTION 53
11.4.1 SIGNALLING LINK TEST PROCEDURE 53
11.4.1.1 OVERVIEW 53
11.4.1.2 PROCEDURE 53
11.4.1.3 APPLICATION OF SLT FOR SIGNALLING LINK SURVEILLANCE 54
11.4.2 MTP ROUTING VERIFICATION TEST (MRVT) 54
11.4.2.1 OVERVIEW 54
11.4.2.2 GENERIC PROCEDURE DESCRIPTION 54
11.4.2.3 TEST MESSAGES 54
11.4.2.4 ERRORS DETECTED 55
11.4.2.5 REQUIREMENTS FOR NETWORK INTER-CONNECTION 55
11.4.2.6 MRVT MESSAGE FLOWS 56
11.4.2.7 FOLLOW-UP MAINTENANCE ACTIONS 57
11.4.2.7.1 UNEXPECTED MRVR 57
11.4.2.7.2 MRVR IS RECEIVED AFTER TIMER T1.116/T1 EXPIRES 57

11.4.2.7.3 MRVR IS RECEIVED AFTER ALL MRVAS HAVE BEEN RECEIVED 57
11.4.3 SCCP ROUTING VERIFICATION TEST (SRVT) 57
11.4.3.1 OVERVIEW 57
11.4.3.2 PROCEDURE DESCRIPTION 57
11.4.3.3 ERRORS DETECTED 58
11.4.3.4 SRVT PROCEDURE FOR OPERATION OVER NETWORK INTERCONNECTIONS 60
11.4.3.4.1 ACTIONS AT GATEWAY IN INITIATING NETWORK 60
11.4.3.4.2 ACTIONS AT GATEWAY IN THE TERMINATING NETWORK 60
11.4.3.5 REPRESENTATIVE SRVT SCENARIOS 61
11.4.3.6 FOLLOW-UP MAINTENANCE ACTIONS 62
11.4.4 LINK EQUIPMENT FAILURE MANAGEMENT PROCEDURE 62
11.4.4.1 OVERVIEW 62
11.4.4.2 LINK EQUIPMENT FAILURE PROCEDURE AND THE MESSAGES 62
11.4.5 MESSAGE TRAPS 63
11.4.5.1 OVERVIEW 63
11.4.5.2 DESCRIPTION OF MESSAGE TRAP CAPABILITY 63
11.4.5.3 TYPES OF MESSAGES 63
11.4.5.4 EVENT TYPES 63
11.4.5.5 TRAPPING LIMITS 64
11.4.5.6 TRAP ANALYSIS 64
11.5 EXCHANGE TO EXCHANGE CAPABILITIES 64
11.5.1 GLARE 64
11.5.2 CONTINUITY CHECK PROCEDURE 64
11.5.3 CIRCUIT VALIDATION TEST (CVT) 65
11.5.3.1 MRVT AS PREREQUISITE 65
11.5.3.2 CVT PROCEDURE 66
11.5.4 CIRCUIT QUERY TEST 66
11.5.4.1 OVERVIEW 66
11.5.4.2 CIRCUIT STATES 67
11.5.4.3 AUDITING PROCEDURES 68
11.5.5 CIRCUIT TURN UP PROCEDURE 71
11.5.5.1 OVERVIEW 71
11.5.5.2 TURN-UP PROCEDURE IN A NON-CONTROL SWITCH 71
11.5.5.3 TURN-UP PROCEDURE IN A CONTROL SWITCH 71
11.6 TELECOMMUNICATIONS MANAGEMENT NETWORK CAPABILITIES OVERVIEW 72
11.6.1 TMN FUNCTIONS COMPLEMENTING PROTOCOL CAPABILITIES 72
11.6.2 RATIONALE FOR INTER-TMN COMMUNICATIONS 72
11.6.3 ARCHITECTURE FOR MANAGING SS7 INTERCONNECTIONS AND INTER-TMN COMMUNICATIONS 73
11.6.4 TMN FUNCTIONS AND THEIR APPLICATIONS FOR SS7 INTERCONNECTIONS 73
11.6.4.1 PERFORMANCE MANAGEMENT 73
11.6.4.2 FAULT MANAGEMENT 73
11.6.4.3 CONFIGURATION MANAGEMENT 73
11.6.4.4 ACCOUNTING MANAGEMENT 74
11.6.4.5 SECURITY MANAGEMENT 74
11.6.5 INTER-TMN FUNCTIONS 74
11.6.5.1 BILATERAL AGREEMENT FOR EXCHANGE OF DATA ITEMS 74
11.6.5.2 RELIABILITY OF INTER-TMN COMMUNICATIONS DATA LINKS 74

12 NETWORK TRAFFIC MANAGEMENT 75

12.1 SIGNALLING NETWORK MANAGEMENT 75
12.1.1 SIGNALLING TRAFFIC MANAGEMENT 75
12.1.2 SIGNALLING LINK MANAGEMENT 75
12.1.3 SIGNALLING ROUTE MANAGEMENT 75
12.2 SWITCHED NETWORK TRAFFIC MANAGEMENT 75
12.2.1 PURPOSE 75
12.2.2 INTERACTION BETWEEN THE SIGNALLING NETWORK AND THE PUBLIC SWITCHED NETWORK 75

A BIBLIOGRAPHY 77

B FIGURES 78

American National Standard
for Telecommunications –

Operations, Administration, Maintenance, and Provisioning (OAM&P) – Management of Functions for Signalling System No. 7 (SS7) Network Interconnections

1 Scope, purpose, and application

1.1 Scope

This standard addresses Operations, Administration, Maintenance, and Provisioning (OAM&P) for internetwork connections employing Common Channel Signalling (CCS) based on Signalling System Number 7 (SS7) protocol used in North America. The internetwork connection may be either within or between North American countries.

This standard presents principles, specifies requirements, describes architectures and protocol procedures, and identifies strategies for performance of OAM&P functions, including compatibility verification and gateway screening.

It identifies procedures, actions, and responsibilities for performance of functions for management of network interconnections. In addition, it identifies responsibilities requiring bilateral (carrier-to-carrier) agreements for administrative control of OAM&P functions. No attempt is made to specify agreements or assign responsibilities.

The accomplishment of the OAM&P functions takes advantage of the SS7-protocol-provided capabilities augmented by Telecommunications Management Network (TMN) capabilities. The protocol-provided capabilities include signalling network and traffic management functions that permit real time detection of failures, automatic recovery, and service restoration. The TMN functionality provides constant monitoring and control of the signalling points as managed entities of the TMN.

The use of the SS7 network to provide message transport service for the TMN traffic has not been addressed. This subject involves protocol-related issues that are considered beyond the scope of this standard. This standard assumes the use of a separate data network for transport of the intra- and inter-TMN traffic. However, limited TMN capabilities exist currently through the use of OMAP protocol in SS7.

In addition, this standard does not address conformance testing. Further, it does not provide details of compatibility testing including test scripts for compatibility verification. These subjects will be addressed in future standards.

NOTE – The term management is used in the context of performance (and supervision of the performance) of functions relating to SS7 network interconnections. The functions necessary for SS7 interconnections relate to Operations, Maintenance Administration, Provisioning, and Security.

This standard uses material from the following American National Standards on SS7 protocol: