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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 internetwork 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.

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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 MEASURES	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 QUALITY 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

ATIS-0300226.2001 (S2016)

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	32
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: