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M.3010

Addendum 1

(06/98)

SERIES M: TMN AND NETWORK MAINTENANCE: INTERNATIONAL TRANSMISSION SYSTEMS, TELEPHONE CIRCUITS, TELEGRAPHY, FACSIMILE AND LEASED CIRCUITS

Telecommunications management network

Principles for a Telecommunications management network

Addendum 1: TMN conformance and TMN compliance

ITU-T Recommendation M.3010 – Addendum 1

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION M.3010

PRINCIPLES FOR A TELECOMMUNICATIONS MANAGEMENT NETWORK

ADDENDUM 1

TMN conformance and TMN compliance

Source

Addendum 1 to ITU-T Recommendation M.3010, was prepared by ITU-T Study Group 4 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 26th of June 1998.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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PRINCIPLES FOR A TELECOMMUNICATIONS MANAGEMENT NETWORK

ADDENDUM 1

TMN conformance and TMN compliance

(Geneva, 1998)

1 Introduction

This Addendum to Recommendation M.3010 defines TMN conformance and TMN compliance. TMN conformance, which is testable, relates to the interfaces between TMN physical blocks. TMN compliance relates to the TMN architecture, principles, and functions.

2 TMN conformance definitions

The goal of TMN conformance is to increase the probability that different systems within a TMN will be able to interoperate, that TMNs in different service/network provider's Administrations will be able to interoperate as much as the Administrations agree to do, and that a customer's system and a service provider's TMN will be able to interoperate as much as the two agree to interoperate.

The definitions can, in principle, be applied to Q3, X, or F interfaces. However, present requirements and standards for the F interface are in the formative stage. Therefore, the definitions in this clause apply to Q3 and X interfaces. However, this clause enumerates TMN conformance definitions which are testable.

TMN conformance is a condition for systems' interworking but is not sufficient to guarantee interoperability. It is always recommended that the purchaser/user of these systems perform some form of verification testing to determine that any two systems, claiming any type of TMN conformance, interoperate. Interoperability testing must include testing of the interface protocols, the shared /exposed information over those interfaces, and the interface functionality of the system.

Definitions associated with TMN interface conformance are provided as follows:

- TMN interface protocol conformance definition;
- Levels of TMN interface information conformance.

The TMN interface specification must be documented, publicly available, and licensable at a reasonable price on a nondiscriminatory basis.

2.1 TMN interface protocol conformance

An interface (Q3, X) of a system is TMN interface protocol conformant if and only if all of the following are met:

1) The interface uses a communications protocol stack specified by ITU-T Recommendations for TMN. Currently, the communications protocol stack must conform to Recommendation Q.811 for lower-layer protocols and Recommendation Q.812 for upper-layer protocols. A valid and consistent selection of protocols must be chosen from the choices enumerated in Recommendations Q.811 and Q.812.

2) The system interface documentation specifies the International Standardized Profiles (ISPs), where they exist, enumerated in Recommendations Q.811 and Q.812 which are supported. Conformance with Recommendations Q.811 and Q.812 is specified with respect to specific ISPs. Management Communications profiles are selected based on types of TMN Management Services that need to be provided over the interface as per the corresponding tables in Recommendations Q.811 and Q.812. Standardized Implementation Conformance Statements in the form of Protocol Implementation Conformance Statements (PICS) [Recommendation X.290], and Protocol Implementation Extra Information For Testing (PIXIT) [Recommendation X.290] must be provided.

3) The system interface documentation specifies if the interface can be used as an X interface or a Q3 interface.

4) The system interface can act in the appropriate role(s) for the protocol over that interface (e.g. agent and/or manager for CMIP, initiator/responder for FTAM). The system interface documentation specifies the roles in which the system can act.

5) If the protocol stack selected in item 1) requires information modelling, then a standarized information modelling technique must be used.

6 If GDMO-based information models are implemented, the system interface must meet one of the levels of TMN interface information conformance as documented in 2.2.

2.2 TMN interface information conformance

A system interface may make a claim, by level, of information conformance for each management functionality that the interface supports. It is expected that this management functionality will be by information model document.

2.2.1 Level A interface information conformance

An interface of a system is **Level A** interface information conformant, for this management functionality, if and only if all of the following are met:

1) The system interface is TMN interface protocol conformant, i.e. it meets the criteria in the definition in 2.1.

2) The managed-object classes the system interface supports are defined in the applicable information models specified in ITU-T Recommendations relevant to this management functionality. The system interface documentation shall list the Recommendations that define the specified information models with the inclusion of the version number and date. Standarized Implementation Conformance Statements in the form of Managed Objects Conformance Statements (MOCS), and Management Information Conformance Statements (MICS), and Managed Relationship Conformance Statement (MRCS), if applicable, must be provided [Recommendation X.724].

3) If the system interface uses managed-object classes which have been subclassed from classes enumerated in item 2) in this definition, for the sole purpose of providing for missing model functionality, then these managed-object classes must be defined following the strict inheritance rules as specified in Recommendation X.720.

4) Any additional object classes other than those enumerated in item 2) in this definition, that are needed to extend the ITU-T information model due to missing model functionality, shall have accompanying documentation which fully specifies the information models with the inclusion of the version number and date. Separate Standarized Implementation Conformance Statements in the form of Managed Objects Conformance Statements (MOCS), and Management Information Conformance Statements (MICS), and Managed Relationship Conformance Statement (MRCS), if applicable, must be provided [Recommendation X.724] for these object classes.

2.2.2 Level B interface information conformance

An interface of a system is **Level B** interface information conformant, for this management functionality, if and only if all of the following are met:

1) The system interface is TMN interface protocol conformant, i.e. it meets the criteria in the definition in 2.1.

2) The managed-object classes the system interface supports are defined in the applicable information models specified in other de jure standards bodies (e.g. ETSI, T1, TTC) or de facto standards bodies (e.g. ATM Forum, NMF). The system interface documentation shall list the documents that define the specified information models with the inclusion of the version number and date. Standarized Implementation Conformance Statements in the form of Managed Objects Conformance Statements (MOCS), and Management Information Conformance Statements (MICS), and Managed Relationship Conformance Statement (MRCS), if applicable, must be provided [Recommendation X.724].

3) If the system interface uses managed-object classes which have been subclassed from classes enumerated in item 2) in this definition, for the sole purpose of providing for missing model functionality, then these managed-object classes must be defined following the strict inheritance rules as specified in Recommendation X.720.

4) Any additional object classes other than those enumerated in item 2) in this definition, that are needed to extend the information model due to missing model functionality, shall have accompanying documentation which fully specifies the information models with the inclusion of the version number and date. Separate Standarized Implementation Conformance Statements in the form of Managed Objects Conformance Statements (MOCS), and Management Information Conformance Statements (MICS), and Managed Relationship Conformance Statement (MRCS), if applicable, must be provided [Recommendation X.724] for these object classes.

2.2.3 Level C interface information conformance

An interface of a system is **Level C** interface information conformant, for this management functionality, if and only if all of the following are met:

1) The system interface is TMN interface protocol conformant, i.e. it meets the criteria in the definition in 2.1.

2) The managed-object classes the system interface supports are defined in a non-standard information model relevant to this management functionality. The system interface documentation shall fully document the information models with the inclusion of the version number and date. Standarized Implementation Conformance Statements in the form of Managed Objects Conformance Statements (MOCS), and Management Information Conformance Statements (MICS), and Managed Relationship Conformance Statement (MRCS), if applicable, must be provided [Recommendation X.724].

3) If the system interface uses managed-object classes which have been subclassed from classes enumerated in item 2 in this definition, for the sole purpose of providing for missing model functionality, then these managed-object classes must be defined following the strict inheritance rules as specified in Recommendation X.720.

3 TMN compliance

TMN compliance relates to the TMN architecture, principles, and functions.

TMN compliance for an implementation may be claimed if the following criteria are met:

1) The implementation supports the TMN functional, informational, and physical architecture.

2) The implementation’s documentation should state what TMN logical layer(s) the implementation supports.

3) The implementation, meets the definition of a TMN physical block (e.g. OS, NE, MD, QA).

4) The implementation’s interfaces are documented and published.

5) The implementation interface documentation identifies the supported TMN Managed Areas and the associated TMN Management Services that are described in Recommendation M.3200. The system interface documentation should also identify the applicable M.32xx Recommendations, if available.

6) If the information requested in item 5) is not available, e.g. the appropriate Recommendation M.32xx document does not exist, the implementation interface documentation should itemize the Recommendation M.3400 TMN Management Function Sets and associated TMN Management Functions it supports.

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