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SPECIFICATIONS OF SIGNALLING SYSTEMS No. 7 SIGNALLING SYSTEM No. 7 MANAGEMENT

SIGNALLING SYSTEM No. 7 PROTOCOL TESTS

ITU-T Recommendation Q.755

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. 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, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation Q.755 was prepared by the ITU-T Study Group XI (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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

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Recommendation Q.755**SIGNALLING SYSTEMS No. 7 PROTOCOL TESTS***(Helsinki, 1993)***1 Introduction**

The protocol testers may be used as an aid when testing the Message Transfer Part (MTP and the Signalling Connection Control Part (SCCP) of Signalling System No. 7 (SS No. 7), either when performing validation testing of an implementation or compatibility testing between two implementations. The tester's main function is simulation of an ordinary user part or sub-system, as seen from the MTP or SCCP respectively, for the generation of test traffic.

Recommendations I.320 and I.321 specify the ISDN protocol reference model to be used for N-ISDN and B-ISDN. User plane (U-plane), Control plane (C-plane) and Management plane (M-plane) are identified. The layering principles apply in each of these planes. The U-plane provides the user information flow transfer with associated controls. The C-plane handles the call and connection control information. The M-plane is divided into two portions, the Layer Management functions and the Plane Management functions. The Plane Management performs management functions related to a system as a whole, it provides coordination between all the planes and has no layered structure. The Layer Management plane contains Layer Management Entities (LME). Each of them provides management functions relating to resources and parameters residing in its own protocol entity. Layer Management handles the operation and maintenance information flows. The interface between adjacent layers within a plane and between LME and its associated layer have to be defined in terms of service primitives. The interface between the LMEs and Plane Management has not to be specified, it is implementation dependent.

Thus the MT is contained in the LME of the MTP-3 (MTP-3 LME) and the ST is within the LME of the SCCP (SCCP LME). The service primitives between MTP-3 LME and the MTP-3, and between SCCP LME and the SCCP is described, as well as the procedures, the messages and the MT and ST substructures. The undefined primitives between the Plane Management (MIB) and the MT and ST are only required to activate/deactivate the concerned testing functions (see Figure 1).

2 MTP tester (MT)

The MT is connected to the MTP as a user part, i.e. identified by a service indicator. It generates Message Signal Units (MSUs) containing a serial number (and possibly additional information) in the Signalling Information Field (SIF). On reception of these messages a check is performed to verify that the messages are delivered according to the defined performance criteria for the MTP.

2.1 Functions**2.1.1 Objectives and scope**

The MT is:

- a possible tool for validation testing when traffic generation is needed whilst performing tests. However, other traffic generators may be used and not all test cases may be covered with the MT when performing validation tests;
- the preferred traffic generator for compatibility tests between different network operators. However, other traffic generators may be used for compatibility testing between different versions of the same system inside one national network;
- a useful possible tool when performing network performance verification tests for SS No. 7 networks which are in service. If international network performance verification should be needed, it would be the preferred traffic generator.
