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0TELEPHONE NETWORK AND ISDN

QUALITY OF SERVICE, NETWORK MANAGEMENT AND TRAFFIC ENGINEERING

TRAFFIC MEASUREMENTS FOR SS No. 7 DIMENSIONING AND PLANNING

ITU-T Recommendation E.743

(Previously “CCITT Recommendation”)

FOREWORD

The ITU-T (Telecommunication Standardization Sector) is a permanent organ of the International Telecommunication Union (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 (Helsinki, March 1-12, 1993).

ITU-T Recommendation E.743 was prepared by ITU-T Study Group 2 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 21st of April 1995.

NOTE

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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SUMMARY

Recommendation E.505 lists a large number of measurements relating to SS No. 7 operation. These measurements are intended to satisfy a number of different needs. This Recommendation identifies the sub-set of the measurements in Recommendation E.505 which are useful for SS No. 7 dimensioning and planning activities.

Recommendation E.743

TRAFFIC MEASUREMENTS FOR SS No. 7 DIMENSIONING AND PLANNING

(Geneva, 1995)

1 Introduction

Recommendation E.505 lists a large number of measurements relating to SS No. 7 operation. These measurements are intended to satisfy a number of different needs. This Recommendation identifies the sub-set of the measurements in Recommendation E.505 which are useful for SS No. 7 dimensioning and planning activities.

In the following clauses, the measurement type numbers are taken from Recommendation E.505.

2 Measurements for dimensioning SS No. 7 link sets

Type 1 – Signalling link performance

Object: Message Transfer Part (MTP) signalling links (selectable)

Entities:

g = number of Signal Information Field (SIF) octets and Service Information Octets (SIO) transmitted;

h = number of octets retransmitted;

i) = number of Message Signal Unit (MSU) transmitted;

j = number of SIF and SIO octets received;

k = number of MSU received.

"*The transmitted load is calculated from entity g + six times i. The received load is calculated from entity j + six times k. These loads should be monitored and the maximum capacity compared to the rho-max value used in the Recommendation E.733 dimensioning procedure. Entity h is also of interest as an indicator of possible excessive transmission error.*"

3 Measurements for dimensioning nodes

Type 14 – Signalling Connection Control Part (SCCP) utilization

Object: SCCP (overall)

Entities:

a) number of Unit Data Service (UDTS) messages sent;

b) number of UDTS messages received;

c) number of messages handled (from local or remote sub-systems);

d) number of messages intended for local sub-systems;

e) number of messages requiring global title translation (Note 1);

f) number of messages sent (for connectionless only) (by class 0, 1);

g) number of messages received (for connection only) (by class 0, 1);

h) number of messages sent to a back up sub-system (Note 2).

NOTES

1 This measurement is only required at SCCP nodes with global title translation capabilities.

2 This measurement is system dependent.

Type 20 – Transaction Capability Application Part (TCAP) component utilization

Object: TCAP component type (selectable)

Entities:

a) number of components sent by the node;

b) number of components received by the node;

c) number of simultaneous TCAP transactions (for further study).

Type 21 – TCAP message utilization

Object: TCAP message types (selectable)

Entities:

a) number of TCAP messages sent by the node;

b) number of TCAP messages received by the node.

Node dimensioning methods are for further study but it can be anticipated that the loads represented by these measurements will be useful.

4 Measurements for forecasting

4.1 Call attempts

Type 17 – ISDN User Part (ISUP) node performance

NOTE – This measurement type does not relate to signalling performance; rather, it uses signalling network user part information to indicate the performance of the network node supported by the signalling network. This measurement type relates to the total incoming traffic delivered to the node by ISUP. The unsuccessful call attempt categories are based on the ISUP cause indicator parameter, and relate to the unsuccessful call attempts that fail in the node where the measurements are taken.

Object: ISUP (overall)

Entities:

– number of total incoming call attempts.

Type 18 – ISUP network performance

NOTE – This measurement type does not relate to signalling network performance; rather, it uses signalling network user part information to indicate the performance of the associated switched network onward from the node where the measurements are taken. The unsuccessful call attempt categories are based on the ISUP cause parameter received, and relate to the unsuccessful call attempts that fail in the distant node.

Object: Originating Point Code (OPC) in the Received Message (selectable)

Entities:

– number of total outgoing call attempts.

This call attempt data can be projected together with assumed messages per-call attempt to give future signalling needs.

"The call attempt data can be projected from circuit forecasts by using these measurements with corresponding circuit counts to determine call attempt/circuit/unit time".

4.2 Message distributions

Type 6 – Received signalling traffic distribution

Object: OPC (selectable)

Entities:

– number of SIF and SIO octets received.

Type 7 – Transmitted signalling traffic distribution

Object: Destination Point Code (DPC) (selectable)

Entities:

– number of SIF and SIO octets transmitted.

Type 8 – MTP signalling message distribution

Object: SIO (selectable)

Entities:

– number of SIF and SIO octets handled.

Type 9 – MTP received signalling message distribution

Object: OPC/SIO combination (selectable)

Entities:

– number of SIF and SIO octets received.

Type 10 – MTP transmitted signalling message distribution

Object: DPC/SIO combination (selectable)

Entities:

– number of SIF and SIO octets transmitted.

Type 11 – Detailed MTP signalling message distribution

Object: OPC/DPC/SIO combination (selectable)

Entities:

– number of SIF and SIO octets handled.