INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.145

Amendment 1
(02/2003)

SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

Public data networks – Network aspects

Performance for data networks providing international frame relay SVC service

Amendment 1

ITU-T Recommendation X.145 (1996) – Amendment 1

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ITU-T Recommendation X.145

Performance for data networks providing international frame relay SVC service

Amendment 1

Summary

This amendment provides provisional values for the Availability Threshold Criteria as defined in Table 9/X.145.

Source

Amendment 1 to ITU-T Recommendation X.145 (1996) was prepared by ITU-T Study Group 17 (2001-2004) and approved under the WTSA Resolution 1 procedure on 13 February 2003.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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 Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 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.

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As of the date of approval of this Recommendation, 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.

ITU-T Recommendation X.145

Performance for data networks providing international frame relay SVC service

Amendment 1

1) Introduction

This amendment provides provisional values for the Availability Threshold Criteria as defined in Table 9/X.145.

2) Clause 6.1 and Table 9/X.145

Replace existing clause 6.1 and Table 9/X.145 with the following text:

6.1 SVC availability function

To define frame relay SVC availability, two additional outage criteria are specified in conjunction with the outage criteria of ITU-T Rec. X.144. The full set of frame relay SVC decision parameters and provisional values for their outage thresholds are listed in Table 9.

Table 9/X.145 – Outage criteria for the availability decision parameters

Availability decision parameters	**Criteria** (Note 3)
FLR_c (Note 1): User information frame loss ratio for a population of frames with DE = 0 when all DE = 0 frames conform with the CIR	$FLR_c > C_1$
FLR_e (Note 2): User information frame loss ratio for a population of frames input with DE = 1 when all input DE = 1 frames conform with the EIR and all DE = 0 frames conform with the CIR	$FLR_e > C_2$
RFER – Residual Frame-Error Ratio	$RFER > C_3$
EFR – Extra Frame Rate	$EFR > C_4$
Connection set-up Error Probability (CEP) and Connection set-up Failure Probability (CFP)	$CEP + CFP > C_5$
Premature Disconnect Probability (PDP) and Premature Disconnect Stimulus Probability (PDSP)	$PDP + PDSP > C_6$
NOTE 1 – Applicable as an availability decision parameter only when CIR > 0. If high FLR is observed, the offered DE = 0 traffic should be reduced to CIR before judging the availability state. NOTE 2 – Applicable as an availability decision parameter only when CIR = 0 and there are no DE = 0 frames. If high FLR is observed, the offered DE = 1 traffic should be reduced to EIR before judging the availability state. NOTE 3 – The following threshold criteria values are specified: $C_1 = 10\%$, $C_2 = 25\%$, $C_3 = 1\%$, $C_4 = 1/300$, $C_5 = 0.9$, and $C_6 = 0.01$. All values are provisional and they need not be met by networks until they are revised (up or down) based on real operational experience. NOTE 4 – The connection section (or set of sections) may also be considered unavailable if the underlying physical layer at either section boundary is unavailable (no signal, alarm condition, etc.) due to causes within the connection section(s).	

Performance is considered independently with respect to each availability decision parameter. If the value of the parameter is equal to or better than the defined outage threshold, performance relative

to that parameter is defined to be acceptable. If the value of the parameter is worse than the threshold, performance relative to that parameter is defined to be unacceptable.

A set of connection sections bounded by boundaries B_i and B_j is defined to be **available** (or to be in the available state) if the performance is acceptable relative to all decision parameters.

A set of connection sections bounded by boundaries B_i and B_j is defined to be **unavailable** (or to be in the unavailable state) if the performance of one or more of the decision criteria is unacceptable.

The intervals during which a connection section or concatenated set of connection sections is unavailable are identified by the superposition of the unacceptable performance periods for all decision parameters as illustrated in Figure 7/X.144.

In order to exclude transient impairments from being considered as periods of unavailability, a single test of the availability state must be five minutes or longer. In order to reduce the probability of state transitions during a test of the current availability state, each test should be less than 20 minutes.

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