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SERIES X: DATA NETWORKS AND OPEN SYSTEM
COMMUNICATION

Public data networks – Network aspects

**Echo, drop, generator and test DTEs for
measurement of performance values in public
data networks when providing international
packet-switched services**

ITU-T Recommendation X.139

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION X.139

ECHO, DROP, GENERATOR AND TEST DTEs FOR MEASUREMENT OF PERFORMANCE VALUES IN PUBLIC DATA NETWORKS WHEN PROVIDING INTERNATIONAL PACKET-SWITCHED SERVICES

Summary

This Recommendation provides functional specifications for test sets at international packet-switched gateways for evaluation of the performance international portions according to the parameters specified in X.130-Series Recommendations on PSPDN performance.

Source

ITU-T Recommendation X.139 was revised by ITU-T Study Group 7 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 9th of August 1997.

FOREWORD

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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.

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Recommendation X.139**ECHO, DROP, GENERATOR AND TEST DTEs FOR MEASUREMENT OF PERFORMANCE VALUES IN PUBLIC DATA NETWORKS WHEN PROVIDING INTERNATIONAL PACKET-SWITCHED SERVICES***(revised in 1997)***1 Introduction and scope****1.1 General**

This Recommendation defines echo, drop, generator and test DTEs for estimating the speed of service (delays and throughput) performance of packet-switched public data networks.

1.2 Parameters to be measured

The speed of service (delays and throughput) performance values for packet-switched public data networks defined in Recommendation X.135 are as follows:

- Call set-up delay (see clause 4/X.135).
- Data packet transfer delay (see clause 5/X.135).
- Throughput (see clause 6/X.135).
- Clear indication delay (see clause 7/X.135).

Note that Recommendation X.135 considers the Quality of Service for networks with 9600 bit/s and 64 kbit/s access speeds and that this Recommendation provides means for measuring the parameters for these speeds; higher speeds may be used in the future.

1.3 Accuracy requirements of measurement

The various performance measurement techniques provide differing accuracy capabilities. The accuracy required for the measurements will depend upon the use being made of the results. The accuracy requirements impact on the performance required of the echo, drop, generator and test DTE functions.

The measured value of the delay parameters included in Recommendation X.135 can be expected to be, in most cases, significantly greater than 100 ms. Consequently, an accuracy of approximately 10 ms or less, should be sufficient in these cases.

The measured value of throughput as specified in Recommendation X.135 for 9.6 kbit/s access signalling can be expected in most cases to be in the range of 1000 to 9000 bit/s. Consequently, an accuracy to within 100 bit/s or less, should be sufficient in these cases. Accuracy to within 100 bit/s or less will also be sufficient for the cases involving 64 kbit/s access signalling.

Recommendation X.138 provides detailed information on measurement architectures and, in Annex A, provides detailed information on the calculation of packet-switched network performance statistics and factors which can affect their observation.

1.4 Measurement method using echo, drop and generator DTEs

This subclause describes echo, drop, generator and test DTEs that can be used in estimating speed of service performance. Echo, drop and generator DTEs shall be available at international gateways for testing national and international portions.

It should be noted that there may be networks where the equipment providing the remote STE does not have X.25 ports. In such a case the network provider shall make another arrangement to provide the echo, drop and generator DTE functions.