INTERNATIONAL TELECOMMUNICATION UNION

ITU-T M.1380

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(03/93)

MAINTENANCE: INTERNATIONAL DATA TRANSMISSION SYSTEMS

BRINGING-INTO-SERVICE OF INTERNATIONAL LEASED CIRCUITS THAT ARE SUPPORTED BY INTERNATIONAL DATA TRANSMISSION SYSTEMS

ITU-T Recommendation M.1380

(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 M.1380 was prepared by the ITU-T Study Group IV (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 Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.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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ABSTRACT

Bringing-into-service of leased circuits with a digital interface presentation at the renters' premises that are supported by an international data transmission system.

Keywords:

- bringing-into-service,
- international data transmission systems,
- international leased circuits,
- setting-up.

Recommendation M.1380

BRINGING-INTO-SERVICE OF INTERNATIONAL LEASED CIRCUITS THAT ARE SUPPORTED BY INTERNATIONAL DATA TRANSMISSION SYSTEMS

(Helsinki, 1993)

1 General

1.1 Introduction

This Recommendation is only applicable to international leased circuits that are supported by an international data transmission system.

The requirements described in this Recommendation should ensure that an international leased circuit meets performance expectations and is fully tested prior to introduction into service.

The bringing-into-service tests described in this Recommendation should ideally include periods of normal industrial activity to be representative of typical network conditions.

This Recommendation has been developed to be consistent with Recommendation M.1370 [10] that describes the bringing-into-service of international data transmission systems.

Recommendation M.1385 [11] covers maintenance issues for international leased circuits that are supported by an international data transmission system.

This Recommendation addresses the bringing-into-service requirements of leased circuits with a digital presentation at renters' premises. For circuits with an analogue presentation, the bringing-into-service procedures given in Recommendation M.1050 [7] apply, with performance achievement in accordance with Recommendations M.1020 [3], M.1025 [4] or M.1040 [5] as appropriate.

1.2 Terminology

Recommendation M.1300 [8] provides general descriptions of international data transmission systems.

Terminologies and definitions relating to this Recommendation are provided in Recommendation M.60 [1].

1.3 Performance limits and objectives

Performance limits for the international section should be consistent with those given in Recommendation M.1340 [9]. For all performance tests described in this Recommendation, the errored second (ES) and severely errored second (SES) limits should be met simultaneously for the test result to be considered acceptable.

For the national circuit sections, limits will be set independently by the Administrations involved taking account of local conditions. Performance achievement will clearly be dependent upon the performance and topology of the local transmission facilities. To maintain consistency with Recommendation M.1340 [9], Administrations should use errored seconds and severely errored seconds parameters to measure performance achievement.

The possible development and application of performance objectives for transmission delay is left for further study.

All test results obtained during bringing-into-service tests should be retained for future reference during maintenance activities.

2 Preliminary exchange of information

Consideration should be given to information that has already been exchanged for the international data transmission system that will support service. See Recommendation M.1370 [10], 2.

Circuit information should be exchanged in accordance with Recommendation M.1045 [6]. In addition, Administrations may find that it is advantageous to exchange the following information:

a) details of any special maintenance or fault reporting arrangements that have been requested (e.g. single end fault reporting);

b) contact details for, and operational arrangements with, any additional Administrations that are involved with the provision of service (e.g. Administrations that provide a transit routing facility);

c) precise details of the interface presentation and functionality at the renter's premises (this should ideally be in accordance with existing Recommendations, e.g. V.11 [13], X.21 [18], V.24 [14], V.28 [15], V.35 [16], V.110 [17], G.703 [19]);

d) performance limits for the national sections (see 3.2 below) and for the overall circuit;

e) confirmation of the data rate presented at the customer interface where this is different to the data rate extended internationally (e.g. application of Recommendation G.802 [20] for the support of 1544 kbit/s circuits within a 2048 kbit/s transmission hierarchy);

f) details of any equipment loopback capabilities that may be available;

g) details of escalation arrangements and contacts that may be used to overcome operational difficulties (see Recommendation M.1560 [12]).

Administrations should confirm that the information exchanged is consistent and that the circuit will be able to support service.

The information that has been exchanged, as detailed above, should be retained for future reference.

3 Bringing-into-service procedures

It is normal practice to set up the national circuit sections prior to attempting to test the international section.

Suitable performance limits for the national circuit sections should be developed and exchanged between the Administrations involved [see item d) of 2 above].

When the national circuit sections have been provided and successfully tested, the international section (international data transmission system channel) should be tested. Where an existing international data transmission system is known to exhibit an acceptable level of performance, a short duration test (1 hour) will normally be appropriate. The objectives given in Recommendation M.1340 [9], 4 should be met. Where there is little confidence regarding the capabilities of a particular international data transmission system, or where the short duration test objectives were not met, a 24 hour test should be performed using the limits that were originally developed to test the international data transmission system (see Recommendation M.1370 [10], 3). In the event that the 24 hour limits are not met, administrations should agree an appropriate course of action (see Recommendation M.1375 [2] for guidance).

Where the international section extends significantly beyond the channel interfaces of a particular international data transmission system (e.g. where a transit routing involves the interconnection of two international data transmission systems) additional tests may be required. Administrations should ensure that all parts of the international section are fully tested. Suitable additional limits should be agreed between the Administrations involved. Consistency with Recommendation M.1340 [9] should be sought wherever possible.

It will normally be advantageous to perform an end-to-end test to confirm overall integrity and stability. A 24 hour test duration is recommended. Test limits should include allowances for the international and two national circuit sections. Administrations should pay particular attention to highlighting any problems that may be associated with the interworking of separately timed networks, especially for the first circuit provision that uses a particular equipment configuration.

Dependent upon the loopback capabilities provided by the network terminating equipments at the renter's premises, it may be possible to perform end-to-end tests from intermediate points within the network (e.g. at terminal international centres).

Where loop tests are employed it is proposed that no special additional performance allowance is made (i.e. doubling of limits is not recommended).

The application and impact of in-service performance monitoring techniques on the bringing-into-service of international leased circuits is left for further study.

References

[1] Recommendation M.60 *Maintenance terminology and definitions*.

[2] Recommendation M.1375 *Maintenance of international data transmission systems*.

[3] Recommendation M.1020 *Characteristics of special quality international leased circuits with special bandwidth conditioning*.

[4] Recommendation M.1025 *Characteristics of special quality international leased circuits with basic bandwidth conditioning*.

[5] Recommendation M.1040 *Characteristics of ordinary quality international leased circuits*.

[6] Recommendation M.1045 *Preliminary exchange of information for the provision of international leased circuits*.

[7] Recommendation M.1050 *Lining up an international point-to-point leased circuit*.

[8] Recommendation M.1300 *International data transmission systems operating in the range 2.4 kbit/s to 2048 kbit/s*.

[9] Recommendation M.1340 *Performance allocation and limits for international data transmission links and systems*.

[10] Recommendation M.1370 *Bringing-into-service of international data transmission systems*.

[11] Recommendation M.1385 *Maintenance of international leased circuits that are supported by international data transmission systems*.

[12] Recommendation M.1560 *Escalation procedure for international leased circuits*.

[13] Recommendation V.11 *Electrical characteristics for balanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communication*.

[14] Recommendation V.24 *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)*.

[15] Recommendation V.28 *Electrical characteristics for unbalanced double-current interchange circuits*.

[16] Recommendation V.35 *Data transmission at 48 kbit/s using 60 to 108 kHz group band circuits*.

[17] Recommendation V.110 *Support of data terminal equipments (DTEs) with V-Series type interfaces by an integrated services digital network (ISDN)*.

[18] Recommendation X.21 *Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks*.

[19] Recommendation G.703 *Physical/electrical characteristics of hierarchical digital interfaces*.

[20] Recommendation G.702 *Digital hierarchy bit rates*.