



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**F.353**

**OPERATIONS AND QUALITY OF SERVICE  
TELEMATIC SERVICE**

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**PROVISION OF TELEMATIC AND DATA  
TRANSMISSION SERVICES ON INTEGRATED  
SERVICES DIGITAL NETWORK (ISDN)**

**ITU-T Recommendation F.353**

(Extract from the *Blue Book*)

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## NOTES

1 ITU-T Recommendation F.353 was published in Fascicle II.5 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

## Recommendation F.353

### PROVISION OF TELEMATIC AND DATA TRANSMISSION SERVICES ON INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

The CCITT,

*considering*

(a) that the I-series of Recommendations apply to the general concept and to the network capabilities of an ISDN. Specifically, Recommendations I.210, I.211 and I.212 describe, in a general way, the principles of telecommunication services, the bearer services and the teleservices supported by an ISDN;

(b) that the F-series of Recommendations describe the operations and quality of Telematic services;

(c) that many countries wish to adopt a common strategy for introducing the non-voice Telematic services on ISDN;

(d) that there is a need to harmonize the service approach for Telematic services, specially the requirements for supplementary services;

(e) that intercommunication is required between the existing non-voice services on the dedicated networks and non-voice services in the ISDN;

(f) that there is a need to identify the priority for introducing non-voice Telematic services in the ISDN,

*recommends*

that the guidelines laid down in this Recommendation be followed in providing Telematic and data transmission services on ISDN.

#### **1 Existing services provided on ISDN**

When Telematic and data services are provided on ISDN, it is necessary to refer to the Recommendation of each service for service description:

- F.160 General operational provisions for the international facsimile services
- F.162 Operational requirements of an international store-and-forward facsimile switching service (COMFAX)
- F.170 Operational provisions for the international public facsimile service between public bureaux (bureaufax)
- F.180 General operational provisions for the international public facsimile service between subscribers' stations
- F.184 Operational provisions for the international public facsimile service between subscribers stations with Group 4 facsimile machines (Telefax 4) (formerly Recommendation F.161)
- F.190 Operational provisions for the international facsimile service between public bureaux and subscriber station and vice versa (Bureaufax-Telefax and vice versa)
- F.200 Teletex service
- F.201 Interworking between the Teletex service and the telex service – General principles
- F.202 Interworking between the telex service and the Teletex service – General procedures and operational requirements for the international interconnection of telex/Teletex conversion facilities.
- F.203 Network based storage for the Teletex service
- F.220 Service requirements unique to the processable mode number one (PM1) used within the Teletex service
- F.230 Service requirements unique to the mixed mode (MM) used within the Teletex service
- F.300 Videotex service

F.400 Message Handling System and Service overview

F.500 International public directory services

Existing services that may be provided on ISDN have to intercommunicate with the same services on existing networks including existing conversion facilities (see Table 1/F.353).

TABLE 1/F.353

Existing services on ISDN	Services on existing network
Teletex	Teletex (PSTN, CSPDN, PSPDN) Telex
Telex (see Note 1)	Telex Teletex (PSTN, CSPDN, PSPDN)
Telefax 2/3	Telefax 2/3 (PSTN)
Videotex	Videotex (PSTN, PSPDN)
MHS services	MHS S (PSTN, CSPDN, PSPDN)
Data transmission	Data transmission (PSTN, CSPDN, PSPDN)

ISDN Integrated Services Digital Network

PSTN Public Switched Telephone Network

CSPDN Circuit Switched Public Data Network

PSPDN Packet Switched Public Data Network

MHSS Message Handling System Services

Note 1 – Telex on the ISDN

Note 2 – The migration from non-ISDN terminals to ISDN is a national matter.

Note 3 – If existing terminals migrate to ISDN, their compatibility with terminals on existing networks shall not be degraded.

Note 4 – Compatibility between ISDN terminals and existing terminals must be retained.

Where administrations offer the telex service on the ISDN, the following principles should be followed:

- i) Operational procedures should be in accordance with Recommendation F.60.
- ii) The telex terminal on the ISDN should be addressable, from international telex networks, by the F.69 telex destination code and a national telex number. The maximum length of the national telex number should be in accordance with the telex signalling requirements of the CCITT U-series of Recommendations.

## 2 New services<sup>1)</sup> provided on ISDN

New services that may be provided on ISDN with intercommunication requirements with other services on ISDN and on existing networks (see Table 2/F.353).

<sup>1)</sup> A new service is one that is not yet generally available on existing networks.

### 3 Teleservices classification

#### 3.1 General principles

Teleservices classification allows structured approach of the compatibility problem between terminals of the Telematic services.

To ensure stability of the classification in the future, the list has been divided into major categories.

Each category contains a limited representative set of ISDN teleservices. The subsequent development of this list will take into account the new Telematic services which could be defined by the CCITT.

TABLE 2/F.353

New services on ISDN	Services on ISDN and existing networks
Teletex with mixed mode	Teletex (PSTN, CSPDN, PSPDN, ISDN) Telefax 4 (ISDN, CSPDN) Telex
Teletex with processable mode (PM1)	Teletex (PSTN, CSPDN, PSPDN, ISDN) Telefax 4 (ISDN, CSPDN) (Class II, III) Telex
Telefax 4 Class I	Telefax 3 (PSTN) Telefax 4 (CSPDN)
Telefax 4 Class II	Telefax 3 (PSTN) Telefax 4 (CSPDN) Teletex (PSTN, CSPDN, PSPDN, ISDN)
Telefax 4 Class III	Telefax 3 Telefax 4 Teletex (PSTN, CSPDN, PSPDN, ISDN)
Videotex 64 (see Note 1)	Videotex (PSTN, PSPDN, ISDN)

*Note 1* – Videotex service using the full capacity of the 64 kbit/s B-channel of the ISDN access.

*Note 2* – Additional intercommunication requirements may be identified subsequently.

A Telematic service is defined by its specific operational rules, by the list of supported standardized functionalities (applications or modes) and by the relevant communication protocols.

Each application or mode handles presentation schemes based on the user of one medium or several media which can be synchronized. A medium conveys the characteristics of information presented to the user.

The simplest and the most discriminant form of classification has to consider the media as the basic elements based upon which the categories are elaborated.

#### 3.2 Teleservices list

The following list will be completed progressively taking into account the new services as they will appear in the next years.

##### *Audio services*

- Telephony
- Audio conference
- ... (other audio service)

*Text and data services*

- Telex
- Teletex
- Telefax 3
- Telefax 4
- Videotex
- Telewriting
- Data transmission
- MHS
- . . . (other text and data service)

*Video services (see Note)*

- Videophone
- Video conference
- . . . (other video service)

*Multimedia services*

- Audiovideography
- Audiography
- Telematic audio conference
- Telematic video conference
- Teleaction
- . . . (other multimedia service)

*Note* – In this category, the sound is always and implicitly included.

## **4 Interworking requirements**

### *4.1 General*

Interworking of Telematic terminals with compatible terminals on ISDN is mandatory.

In order to maintain the defined quality of service, suitable selection mechanisms have to be implemented to guarantee access to compatible terminal.

### *4.2 Interworking with the Teletex service*

Interworking between all terminals connected to different networks must be possible.

Real-time connection between Teletex terminals operating at different speeds is required for the duration of the call. The information on the successful transmission should be given by the receiving terminal to the sending terminal within the call.

The procedures for call set-up to terminals connected to different networks should be as similar as possible.

Interworking with international telex is mandatory.

### *4.3 Interworking within the Telefax 4 service*

Interworking between all terminals connected to different types of networks must be possible.

Real-time connection between Telefax 4 terminals operating at different speeds is required for the duration of the call. The information on the successful transmission should be given by the receiving terminal to the sending terminal within the call.

The procedures for call set-up to terminals connected to different networks should be as similar as possible.

#### 4.4 *Interworking from Telefax 4 to Telefax 3*

Interworking between Telefax 4 terminals and Telefax 3 terminals should be possible even if they are connected to different types of networks. The preferred method of interworking is to be provided by the inclusion of a Group 3 capability in the Group 4 terminal.

Real-time connection between Telefax terminals (Group 3 and Group 4) operating at different speeds is required for the duration of the call. The information on the successful transmission should be given by the receiving terminal to the sending terminal within the call. Interworking between Group 4 only terminals and Group 3 terminals could be resolved by using network units (store-and-forward or MH system). Further study on this is needed.

The procedure for call set-up to terminals connected to different networks shall be as similar as possible.

#### 4.5 *Additional interworking configurations*

Other interworking configurations are for further study.

### **5 Assignment of priorities**

The current assignment of priorities to the future work is:

- a) Priority for non-voice teleservices:
  - 1) existing Telematic services on ISDN,
  - 2) new non-voice Teleservices.
- b) Priority for bearer services:
  - 1) new bearer services on ISDN,
  - 2) use of bearer services of ISDN by existing terminals.

### **6 Introductory strategy guideline**

These are strategic guidelines for the introduction of existing services on ISDN. The implementation is strictly a national matter; however, a measure of co-ordination is necessary internationally in order to provide users worldwide attractive telecommunication services, appropriate intercommunication possibilities, and thereby to ensure financial success for the service providers.

Any existing service introduced on ISDN should have immediate access to the same service on existing networks.

There should be minimum changes in the user access procedures.

Any transition from existing to future international tariffs and accounting should be orderly.

The suggested provisional list of priorities for the implementation of existing services on ISDN is:

- 1) Teletex, Telefax, Videotex;
- 2) Data transmission;
- 3) Message Handling System Services;
- 4) Telex.

It is stressed once again that the priority of implementation is a national matter but it has significant international relevance.

Simultaneous implementation of existing services on ISDN in all countries is deemed desirable and efforts should be made to achieve this goal.

### **7 Bearer services for non-voice communications**

Recommendation I.211 describes and defines a recommended set of bearer services and their bearer capabilities to be supported by an ISDN as a basis for defining the network capabilities required.

The purpose of this chapter is to indicate the recommended bearer services associated to non-voice Telematic teleservices:

7.1 *Circuit mode bearer services*

- 64 kbit/s unrestricted,
- 64 kbit/s (usable for speech information transfer),
- 64 kbit/s (usable for 3.1 kHz audio information transfer),
- 384 kbit/s unrestricted,
- 1536 kbit/s unrestricted,
- 1920 kbit/s unrestricted,
- $2 \times 64$  kbit/s unrestricted.

7.2 *Packet-mode bearer services*

- Virtual call and permanent virtual circuit (B or D channel);
- Connectionless packet bearer service on a D channel (further study needed);
- Use signalling bearer service on a D channel (further study needed).