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INTERNATIONAL TELECOMMUNICATION UNION

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STANDARDIZATION SECTOR
OF ITU

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**SERIES F: NON-TELEPHONE TELECOMMUNICATION
SERVICES**

Telematic services – Public facsimile service

**Operational provisions for the international
public facsimile service between subscriber
stations with group 4 facsimile terminals
(telefax 4)**

ITU-T Recommendation F.184

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(Previously “CCITT Recommendation”)

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ITU-T F-SERIES RECOMMENDATIONS NON-TELEPHONE TELECOMMUNICATION SERVICES

TELEGRAPH SERVICE	F.1-F.109
Operating methods for the international public telegram service	F.1-F.19
The gentex network	F.20-F.29
Message switching	F.30-F.39
The international telemessage service	F.40-F.58
The international telex service	F.59-F.89
Statistics and publications on international telegraph services	F.90-F.99
Scheduled and leased communication services	F.100-F.104
Phototelegraph service	F.105-F.109
MOBILE SERVICE	F.110-F.159
Mobile services and multideestination satellite services	F.110-F.159
TELEMATIC SERVICES	F.160-F.399
Public facsimile service	F.160-F.199
Teletex service	F.200-F.299
Videotex service	F.300-F.349
General provisions for telematic services	F.350-F.399
MESSAGE HANDLING SERVICES	F.400-F.499
DIRECTORY SERVICES	F.500-F.549
DOCUMENT COMMUNICATION	F.550-F.599
Document communication	F.550-F.579
Programming communication interfaces	F.580-F.599
DATA TRANSMISSION SERVICES	F.600-F.699
AUDIOVISUAL SERVICES	F.700-F.799
ISDN SERVICES	F.800-F.849
UNIVERSAL PERSONAL TELECOMMUNICATION	F.850-F.899
HUMAN FACTORS	F.900-F.999

For further details, please refer to ITU-T List of Recommendations.

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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 F.184 was revised by ITU-T Study Group 1 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 19th of July 1996.

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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CONTENTS

	<i>Page</i>
1 Introduction	1
1.1 Scope	1
1.2 Service definitions	1
1.4 Restrictions on the use of the Telefax 4 service	2
2 Network requirements	2
3 Numbering plan	2
4 Coding scheme	3
5 Operation of the Telefax 4 service	3
5.1 General	3
5.2 Call phases	4
5.3 Call identification	4
5.4 ISDN supplementary services	5
6 Quality of service	6
6.2 Error protection	6
6.3 International routes	6
6.4 Duration of service	6
6.5 Observations on the quality of the service	6
7 Subscriber terminals	6
7.1 General	6
7.2 Coding scheme	7
7.4 Receiving capability	7
7.5 Alarm indicators	7
7.6 Terminal identification	7
7.7 Page format, Telefax 4 service	8
8 Customer information	9
8.1 Directories	9
8.2 Operating instructions	9
9 Access to facsimile message handling facilities	9
10 Tariff principles	9

Superseded by a more recent version

SUMMARY

This Recommendation defines the operational provisions for the international public facsimile service between subscriber stations with Group 4 facsimile machines (Telefax 4). Study Group 1 has agreed to delete the Recommendations covering the teletex service and this has required the amendment of Recommendation F.184 to remove references to teletex.

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Recommendation F.184

OPERATIONAL PROVISIONS FOR THE INTERNATIONAL PUBLIC FACSIMILE SERVICE BETWEEN SUBSCRIBER STATIONS WITH GROUP 4 FACSIMILE TERMINALS (TELEFAX 4)

(revised in 1996)

1 Introduction

1.1 Scope

1.1.1 This Recommendation defines the rules to be followed in the international Group 4 Facsimile (Telefax 4) service.

1.1.2 The **telefax 4** is an international service, offered by Recognized Operating Agencies (ROAs) enabling subscribers to exchange correspondence either manually or automatically via telecommunication networks.

1.1.3 The basic element of the correspondence between people using the service is the page, as the smallest unit of text treated as an entity. No restrictions shall exist as far as the operator procedures for generation of the text or the positioning of text within the reproducible area on a page are concerned.

1.1.4 Questions of an essentially technical nature concerning the Telefax 4 services are dealt with by the T-Series Recommendations.

1.1.5 In this Recommendation, the word “terminal” is used instead of “apparatus” which appears in Recommendations T.563 and T.6. These two words should be considered as being equivalent.

1.2 Service definitions

1.2.1 General

An essential characteristic of the Telefax 4 service is that it provides a basic level of compatibility between all terminals participating in the service.

1.2.2 Basic requirements

1.2.2.1 The basic requirements of Telefax 4 service are as follows:

- a) the basic level of compatibility is provided between any two terminals both nationally and internationally so that they may communicate image-coded information to each other. This is to be achieved by requiring that terminals comply with Recommendations T.6, T.62, T.70, T.503, T.563 and T.400-Series;
- b) it is for each ROA to decide on the network(s) on which the Telefax 4 service will be carried. There shall be no restriction on the type of network to be used;
- c) it should be possible to extend the Telefax 4 service to any number of countries;
- d) to permit private use options, for example encryption, there shall be no technical limitation on the bit sequence of the subscriber's information that may be transmitted;
- e) a received Telefax 4 message can be printed or displayed as decided by the recipient and the terminal characteristics. If the message is printed, the receiving subscriber will be furnished with a document that is identical with that produced by the sending subscriber as far as its contents, layout and format are concerned;
- f) it is intended that the Telefax 4 service should require no changes to the Recommendations for existing services or networks.

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1.2.3 Standardized options

1.2.3.1 It is recognized that some subscribers may need to use their Group 4 facsimile terminals to communicate nationally and internationally using service features that are not included in the basic requirements. A number of ITU-T standardized options should, therefore, be defined. However, the provision of any option in a service leads to some degree of incompatibility and the number of standardized options should be restricted to those features which are listed below for which a clear international need can be foreseen.

The sending terminal shall ensure the transmission of documents using only those options that have been indicated as being available at the receiving terminal.

1.2.3.2 The standardized options should provide means for:

- a) different pel transmission densities (Recommendation T.563);
- b) optional coding schemes (Recommendations T.6, T.81 and T.82);
- c) grey scale images (Recommendations T.42, T.81, T.82 and T.85);
- d) colour images (Recommendations T.42, T.81, T.82 and T.85);
- e) printable areas (Recommendation T.563);
- f) escape into national and private options (Recommendation T.62);
- g) resolution conversion algorithms (Recommendation T.563);
- h) file transfer – for further study.

NOTES

1 Administrations and ROAs are encouraged to ensure that standardized and nationally defined options are used in such a way as to minimize the need for the introduction of private use options.

2 As the service develops, there is a need for further study and consequently changes may be required to the above list.

1.4 Restrictions on the use of the Telefax 4 service

NOTE – Please refer to Recommendation F.160 for details.

2 Network requirements

2.1 It is the responsibility of each ROA to decide on which network(s) the Telefax 4 service is to be provided. The term Telefax 4 network, as used in this Recommendation, shall be taken to mean a network on which Telefax 4 service is provided.

2.2 Considering that the Telefax 4 service may be operated on the following networks:

- a) Telefax 4 service on an Integrated Services Digital Network (ISDN).
- b) Telefax 4 service on a Circuit Switched Public Data Network (CSPDN).
- c) Telefax 4 service on a Packet Switched Public Data Network (PSPDN).

Interworking between Group 4 facsimile terminals supported on any networks must be possible.

2.3 The international connection shall use international data transmission facilities. Exceptionally, bilateral agreements to use other means may be made where necessary.

2.4 In the case of international interworking between Group 4 facsimile terminals connected to dissimilar networks, Recommendation X.300 shall apply.

2.5 International routes between ISDNs for the Telefax 4 service shall be capable of supporting user data rates of up to 64 kbit/s.

3 Numbering plan

3.1 Considering that it is the responsibility of each ROA to decide on the network(s) to be used for the Telefax 4 service in accordance with the options noted in clause 2, the Telefax 4 numbering plan must accommodate these options.

Superseded by a more recent version

3.2 The Telefax 4 numbering plan is based upon the individual numbering plans of each of these networks, i.e. Recommendation E.164 for ISDN, and Recommendation X.121 for Public Data Networks (PDNs).

3.3 Each of these numbering plans provides for international calls between similar networks.

3.4 Administrations are requested to consider the numbering plan of their particular implementation relative to the existing networks. Further study is required.

4 Coding scheme

4.1 The basic coding scheme for the international Telefax 4 service is detailed in Recommendation T.6.

5 Operation of the Telefax 4 service

5.1 General

5.1.1 The Telefax 4 service in each country and the interconnection between countries or networks shall use fully automatic switching so that it is possible for any Telefax 4 subscriber to reach any other Telefax 4 subscriber using fully automatic selection.

5.1.2 It is a requirement to allow the through connection of a call between Group 4 facsimile terminals connected to a private automatic branch exchange (or similar systems) and those connected to public exchanges used for the Telefax 4 service.

5.1.3 Two-Way Alternate (TWA) communication is a capability of the Telefax 4 service, which also includes One-Way Communication (OWC); the calling subscriber will have full control of the Group 4 facsimile call.

5.1.4 Interworking with other services

For further study.

5.1.4.1 Interworking between telefax services

Communication between terminals should take place at the level of compatibility at, or nearest to, the parameters initially selected by the originating user. The determination of this level should be carried out automatically via the pre-message procedures. This should take into account aspects of the quality of transmission media available in the participating networks and the options available on the receiving terminal.

1) Telefax 4 (ISDN) – Telefax 3 (PSTN)

Interworking between terminals of the Telefax 4 service connected to the ISDN and terminals of the Telefax 3 service (see Recommendation F.180) should be provided as a function of the Group 4 terminal.

Telefax 4 terminals connected to the ISDN will use specific service features of the ISDN. The capability of the Telefax 4 terminal on the ISDN shall be as follows:

- i) Calls from Telefax 4 (ISDN) to Telefax 3 (PSTN) should be set up using the 3.1 kHz audio bearer service if it is known that the called number is Telefax 3. Otherwise, the Telefax 4 will attempt the call using the circuit mode 64 kbit/s 8 kHz structured multi-user bearer service category (MUB – Recommendation 1.231.9) specifying the 3.1 kHz fallback option.

Where a network does not support the MUB service, an alternative solution would be to attempt the Telefax 4 call initially using the 64 kbit/s bearer service and, if unsuccessful, re-attempt the call as a Telefax 3 using the 3.1 kHz, audio bearer service. This will allow the completion of calls to other ISDN terminals or PSTN Group 3 terminals.

Superseded by a more recent version

- ii) Calls from Telefax 3 (PSTN) to the ISDN terminal will be presented on the 3.1 kHz audio bearer service. The Telefax 4 (ISDN) terminal shall accept the call and operate as a Group 3 terminal.

NOTE – Telefax 4 (ISDN) – ISDN calls will use the 64 kbit/s bearer service.

2) *Telefax 4 (PDN) – Telefax 3 (PSTN)*

In this case, Telefax 4 terminals use data transmission facilities. Interworking shall be provided by network interworking units. As far as the numbering plans are concerned, refer to paragraphs 3.4 and 3.5.

5.1.4.2 Interworking between Telefax 4 terminals provided on different Public Data Networks (PDNs) shall be provided in accordance with the appropriate ITU-T Recommendation.

5.1.4.3 Interworking is desirable between terminals of the Telefax 4 service and terminals of services other than facsimile provided over public switched networks.

5.2 Call phases

5.2.1 The operation for each call may be divided into the following three phases:

a) Preparation: preparation of the information to be transmitted.

b) Transmission:

- call establishment (manual or automatic);
- pre-information phase (see Note 1);
- information transfer (see Note 1);
- post information phase (see Note 1);
- call clearing.

NOTE 1 – During these parts of the transmission phase the network must be transparent with respect to control procedures.

c) Output: displaying the message either by immediate printing or from a storage medium upon control by the user.

NOTE 2 – The information may consist of one or more Telefax 4 documents each consisting of one or more Telefax 4 pages.

5.2.2 The control procedures as specified in Recommendations T.62, T.503 and T.400-Series shall be used as end-to-end communication procedures between terminals in the service.

5.2.3 The network independent basic transport service for Telefax 4 is specified in Recommendation T.70.

5.2.4 The network-dependent control procedures for the Telefax 4 service should be those that are defined for that network on which the Telefax 4 service is provided (see relevant Recommendations).

5.3 Call identification

5.3.1 General

5.3.1.1 The Telefax 4 procedures include the exchange of reference information prior to sending any document. This reference information includes identification of the parties to the call as well as the date and time. Also, supplementary reference information is exchanged during a call to allow reference to an individual document or page for error recovery or other purposes.

5.3.1.2 This reference information, taken together, is defined to be printable on a single line called the call identification line. Use of this information is a local decision except in recovering from an interrupted transmission. In the case of automatic linking, the use of this information is for further study.

5.3.2 Format of the call identification line

5.3.2.1 The call identification line is composed of four fields as follows:

- field 1: identification of the called terminal;
- field 2: identification of the calling terminal;

Superseded by a more recent version

- field 3: date and time;
- field 4: supplementary reference information.

5.3.2.2 Presentation of this information must be possible. It may be presented on a screen or printed. The choice of whether and where (only the first page or all pages) this presentation is made, is an operator decision except in certain recovery situations. The relationship between the Call Identification Line (CIL) and the document must be given.

5.3.2.3 Where the transmission of a document is interrupted for any reason, the call identification line and the words “not complete” (or national equivalent) are to be printed or otherwise displayed at the point of interruption as well as at the point at which transmission is reassumed. This is not necessary if automatic linking is used.

5.3.2.4 When the call identification line is presented, the format shown in Figure 1 is used.

Error! Cannot open file.

5.3.2.5 Field 1 (identification of the called terminal) contains the identification of the called terminal in the format defined in 7.6. It is originated in the control procedures by the called terminal.

5.3.2.6 Field 2 (identification of the calling terminal) contains the identification of the calling terminal in the format defined in 7.6. It is originated in the control procedures by the calling terminal.

5.3.2.7 Field 3 (date and time) contains the date and time reference information showing the year, month, day, hour and minute in the fixed format of 14 characters thus YY-MM-DD-HH:MM. This field is originated in the control procedures by the calling terminal. On the ISDN the calling terminal shall obtain this information from the network. On the networks which do not supply date and time, the terminal obtains it from an internal clock which may be updated by the network with a monitor document or, if not available, manually. This time represents the time of the call origination.

5.3.2.8 Field 4 (supplementary reference information) contains a document reference number, a hyphen (coding 2/13) as a separator and a page reference number as defined in Recommendation T.62. This field has a fixed length of seven character positions and is originated in the control procedures by the terminal that is sending the associated documents. Specific rules for options of the service are defined in relevant Recommendations.

5.3.2.9 Each of the fields of the call identification line is separated by the solidus (/) character (coding 2/15).

5.3.2.10 Only graphic characters of the primary set of graphic characters defined in Recommendation T.51 are used in the call identification line.

5.4 ISDN supplementary services

5.4.1 The following supplementary services could be used for the Telefax 4 service in the circuit mode on the B-channel if they are offered by the ISDN service provider:

- a) closed user group;
- b) multiple subscriber number;

Superseded by a more recent version

- c) user-to-user signalling;
- d) calling line identification presentation;
- e) called line identification presentation;
- f) in-call modification.

Other supplementary services are for further study.

5.4.2 Supplementary services for the Telefax 4 service in the packet mode

The provision of packet mode services according to Recommendation X.31 within the ISDN is for further study.

6 Quality of service

6.1 For quality of service, see clause 6/F.160.

6.2 Error protection

To ensure call integrity, error protection will be provided by Telefax 4 control procedures (see Recommendations T.62 and T.70). The error rate on the pre-information, information and post-information phases should not exceed 1×10^{-6} .

6.3 International routes

The capacity of the routes between countries also has an important influence on the quality of the service. For that reason, the number of circuits provided between any two networks should be such that in the route busy hour not more than one call in 50 is lost due to a lack of international circuits. (For further study.)

6.4 Duration of service

6.4.1 The national and international facilities of the Telefax 4 service shall be open continuously.

6.4.2 Telefax 4 terminals for which call numbers are published in the directories shall, in principle, be available to accept calls continuously.

6.5 Observations on the quality of the service

For further study.

7 Subscriber terminals

7.1 General

7.1.1 In order to support a high quality of service, a range of data signalling rates has been defined as follows.

7.1.1.1 Integrated Services Digital Networks (ISDNs)

Terminals on the ISDN shall operate in accordance with user classes of service 30 as defined in Recommendation X.1.

7.1.1.2 Public data networks

Terminals on a circuit switched data network shall operate in accordance with user classes of service 5 and 7 as defined in Recommendation X.1.

Terminals on a packet switched data network shall operate in accordance with user classes of service 9 to 11 as defined in Recommendation X.1.

7.1.2 The facilities required in terminals connected to the international Telefax 4 service are listed in the following subclauses.

Superseded by a more recent version

7.2 Coding scheme

Group 4 facsimile terminals shall have the ability to send, receive and display documents encoded using the Group 4 coding scheme defined in Recommendation T.6.

7.3 No constraints should be made on the type of presentation technology employed.

7.4 Receiving capability

7.4.1 The ability of a terminal to receive incoming traffic is a prerequisite for it to answer the call.

NOTE – The control procedures may allow for negotiation of storage capability between terminals. This matter is for further study.

7.4.2 If during a call, the ability of the receiving terminal to continue to accept traffic is jeopardized (e.g. memory threshold reached), an indication of this condition will be passed to the sending terminal using the control procedures to permit the orderly termination and resumption of the transmission.

7.5 Alarm indicators

7.5.1 Alarm indicators (visual and/or audible) are required in the terminals to inform users about conditions that could have an adverse effect on the quality of service.

7.5.2 Where appropriate, the following indicators are required:

- a) terminals unable to transmit (e.g. paper jam at transmitting end);
- b) terminals unable or soon unable to receive (e.g. paper jam or receiving memory nearly full);
- c) operator assistance required;
- d) message received in store.

7.6 Terminal identification

7.6.1 Each terminal in the Telefax 4 service shall have a unique identification. The different parts of this identification are contiguous as shown in Figure 2 and no characters other than those specified there are used. The implementation of TID is only allowed by downloading from the network or installation by licensed persons. The TID itself must be protected against unauthorized manipulation.

Part 1	= 1	Part 2	Part 3	= 1	Part 4
Network and country code		National subscriber number	Additional information		Mnemonic abbreviation
Up to 4		Up to 12	Up to 4		Minimum 3
Maximum 15			Maximum 24 characters		

FIGURE 2/F.184

Format of the terminal identification

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7.6.2 Part 1 (network and country¹⁾ code) contains the relevant information about the network and country concerned, in accordance with the principles of Recommendation X.121²⁾. For equipment connected to the ISDN, i.e. Part 1 contains 0 followed by 1 to 3 digits country code of Recommendation E.164. (See also Recommendation F.351.)

7.6.3 Part 2 (national subscriber number) is the number of the main station or of the private branch exchange. It will be the complete call number including any national area code and terminal selection number [Multiple Subscriber Number (MSN)] applicable within the country concerned, by means of which a user can be reached by other subscribers of the same country and on the same network²⁾. This part is separated from Part 1 by a hyphen (coding 2/13).

7.6.4 Part 3 (additional information), when used, begins with a hyphen (coding 2/13) and may contain alphanumeric characters for the code identifier of specific equipment. This possibility can be used for indication of, for example, terminal in a "group number" or when a call is terminated in a document storage facility outside the terminal. In the latter case the value in Part 3 will be returned to the calling terminal. The indication of special service signals within Part 3 is for further study. Where alphabetic characters are used, the use of capital or small letters does not affect the meaning. The maximum number of characters in Part 3 is normally four. However, observing the other rules in 7.5, Part 3 may be enlarged. (This item requires further study.)

7.6.5 Part 4 (mnemonic abbreviation) will consist of a minimum of three letters as information for the automatic identification of the connected subscriber. Both capital and small letters can be used and mixed. Only non-accented letters A-Z and a-z must be used (coding 4/1 to 5/10 and 6/1 to 7/10).

The use of capital or small letters does not change the meaning of the mnemonic (e.g. "ABC" mnemonic has the same meaning as "AbC" mnemonic). The mnemonic abbreviation must always be preceded by the character = (equals sign, coding 3/13).

7.6.6 The parts of the terminal identification are justified to the left and the format is fixed at a length of 24 characters. If the total number of characters in Parts 1 to 4 is less than 24, the format must be filled to 24 characters by the addition of space characters (coding 2/0) immediately following Part 4.

7.6.7 The directories issued by ROAs must include at least Parts 1, 2 and 4 of the user's terminal identifications.

7.6.8 In intercommunication with other services as much as possible the identification systems of the separate services should be maintained, with required conversion to be provided by network devices. This point will be covered by each intercommunication case separately via the appropriate Recommendations.

7.6.9 The calling terminal may verify the identification of the called terminal prior to the information transfer phase of the call.

7.7 Page format, Telefax 4 service

7.7.1 General

7.7.1.1 The principal objective of the Telefax 4 service is to establish a basic defined mode of operation common to all terminals used in the service. Therefore, a minimum basic requirement is defined, and all terminals used in the Telefax 4 service shall comply with this minimum basic requirement. This, however, does not preclude the possibility that terminals may by prior agreement operate in modes different from these basic minimum requirements.

7.7.1.2 The maximum reproducible areas for various standard paper sizes are defined in Recommendation T.563.

The minimum requirement is that the image area defined by the United Nations' layout key and ISO 3535 shall be reproduced.

7.7.1.3 The range of the terminals' capabilities is exchanged during session establishment, prior to document transmission. These procedures are defined in Recommendations T.62, T.503 and T.400-Series along with the default values for these capabilities if this exchange is not explicitly stated.

¹⁾ Country or geographical area code.

²⁾ These are not necessarily the numbers used in call establishment.

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7.7.1.4 A particular selection from this established range is made preceding transmission of each document. Some of these selections may be changed at page boundaries and some may also be changed within a page.

8 Customer information

8.1 Directories

A terminal must comply with all the requirements of a service in order to be included in the directory for that service.

In the case of network interworking facilities to provide interworking Telefax 4 terminals on dissimilar networks or between Telefax 3 and Telefax 4 terminals, separate access numbers to subscribers via interworking units may be necessary. These numbers must be shown in directories.

NOTE – In these cases, the terminals of the Telefax 4 service may have two identifications (contrary to what is indicated in 7.6.1). In a given call, however, only one identification is valid.

8.2 Operating instructions

For further study.

9 Access to facsimile message handling facilities

Users of the Telefax 4 service may wish to have access to the services offered by message handling facilities. This is for further study.

10 Tariff principles

Refer to the relevant D-Series Recommendations.

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Series A	Organization of the work of the ITU-T
Series B	Means of expression
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Telephone network and ISDN
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media
Series H	Transmission of non-telephone signals
Series I	Integrated services digital network
Series J	Transmission of sound-programme and television signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	Maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound-programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminal equipments and protocols for telematic services
Series U	Telegraph switching
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