5i’

SECTION 13

DEFINITIONS

Recommendation U.140

DEFINITIONS OF ESSENTIAL TECHNICAL TERMS

RELATING TO TELEGRAPH SWITCHING AND SIGNALLING

The definitions given below have been identified as necessary for studies in the field of telegraph switching and signalling.

Sub-numbers in the 721.XX.YY range signify correspondence with definitions in the International Electrotechnical Vocabulary (IEV) of the International Electrotechnical Commission (IEC).

Sub-numbers in the range 35.ZZ or 37.ZZ signify definitions derived from the ITU List of Definitions of Essential Telecommunications Terms.

1 public telegraph network

F: réseau télégraphique public

S: red telegráfica pública

A telecommunication network set up to perform a telegraph service for the public.

Note — A public telegraph network is supplied, operated and controlled by an Administration or recognized private operating agency.
721.51.01

2 Gentex network

F: réseau Gentex

S: red géntex

Switched telegraph network used between Administrations or recognized private operating agencies to provide an international public telegram service.
721.51.02

3 subscriber’s line; subscriber loop

F: *ligne d'abonn´e; ligne de rattachement*

S: *l´inea de abonado; bucle de abonado*

A link between equipment in a subscriber's premises and the local telecommunication centre providing required services.

721.51.03 .bp

4 dedicated circuit (in telegraphy and data transmission)

F: liaison sp´ecialis´ee (en t´el´egraphie et transmission de donn´ees)

S: circuito especializado (circuito dedicado) (en telegraf´ia y transmisi´on de datos

A telegraph link established permanently without the use of switching facilities and dedicated to the exclusive use of a set of terminals.

721.51.05

5 international circuit

F: *circuit international*

S: *circuito internacional*

A circuit directly connecting two exchanges situated in different countries.

721.51.06

6 intercontinental circuit

F: *circuit intercontinental*

S: *circuito intercontinental*

A circuit connecting two exchanges situated in different countries on different continents.

721.51.07

7 set (group) of circuits

F: *faisceau de circuits*

S: *haz (grupo) de circuitos*

A group of circuits established between two exchanges, any circuit of which may be chosen without preference for the setting up of a connection.

721.51.08

8 **private network (in telegraphy)**

F: r´eseau priv´e (en t´el´egraphie)

S: red privada (en telegraf´ia)

A group of terminals that can establish calls between one another without passing through the switching equipment of the public network.
721.51.09

9 **overflow position (in a private network)**

F: poste principal d'un r´eseau priv´e

S: posici´on de desbordamiento (en una red privada)

A nominated terminal of a private network to which an incoming call is redirected if the terminal identification has been omitted or if connection to the selected terminal is not possible.
721.51.10

10 **closed private network**

F: r´eseau priv´e ferm´e

S: red privada cerrada

A private network that does not permit intercommunication other than between terminals connected to it.

721.51.11 .bp

11 **interworking between networks**

F: interconnexion de r´eseaux

S: interfuncionamiento de redes

The means whereby terminals connected to a telecommunication network may communicate with terminals of another network.
721.51.12

12 **path**

F: chemin

S: trajecto

In a telegraph network, a route between any two exchanges.
721.51.21

13 (terminal) port

F: acc`es

S: puerto (acceso)

A functional unit of an exchange through which signals can enter or leave a network.
721.51.22

14 circuit-switched connection

F: liaison commut´ee

S: conexi´on conmutada de circuitos

A temporary connection that is established on request between two or more stations in order to allow the exclusive use of that connection until it is released.
721.51.24

15 multipoint connection

F: liaison multipoint

S: conexi´on multipunto

A connection established between three or more stations.
721.51.25

16 point-to-point connection

F: liaison point à point

S: conexi´on punto a punto

A connection established between only two stations.

721.51.26 .bp

17 connection

F: cha | ne de connexion

S: conexi´on

A temporary association of channels or circuits, switching and other functional units set up to provide for the transfer of information between two or more points in a telecommunication network.
721.52.01
37.18

18 (complete) connection

F: cha | ne de connexion compl`ete; (chemin de) communication

S: conexi´on (completa)

A temporary association of channels or circuits, switching and other functional units set up to provide for the transfer of information between terminals in a telecommunication network.
721.52.02

19 (telex) call

F: communication (t´elex)

S: llamada (t´elex); comunicaci´on (t´elex)

The establishment and possible use of a complete connection by connected telex terminals.
721.52.03

20 subscriber serving exchange

F: commutateur de rattachement

S: central de servicio de abonados

A public switching exchange which connects subscribers in a same area to one another, or which establishes connection between them and the other exchanges.
721.52.04

21 transit exchange

F: commutateur nodal t´el´egraphique

S: centro de tr´ansito

A telegraph exchange which enables connections between other telegraph exchanges to be established.

721.52.05 .bp

22 telegraph switching exchange

F: centre de commutation t´el´egraphique

S: centro de conmutaci´on telegr´afica

The set of equipments installed at a single location to switch telegraph traffic.
721.52.06

23 **sub-centre**

F: *sous-centre*

S: *subcentro*

A switching centre which serves a group of terminals and concentrates the traffic from this group towards a larger parent switching centre in which it is dependent for the routing of the whole of its traffic.

721.52.08
35.02

24 **line concentrator**

F: *concentrateur de lignes*

S: *concentrador de l´ineas*

A switching equipment remotely located in a local line network and enabling the traffic between the subscriber serving exchange and a number of subscribers to be carried by a smaller number of lines.

Note — A compatible equipment must normally be provided at the subscriber serving exchange.

721.52.09
35.09

25 **trunk circuit**

F: *circuit interurbain*

S: *circuito interurbano*

Telegraph circuit between two telegraph exchanges not belonging to the same local network.

26 **telegraph junction circuit**

F: *jonction de sous-centre*

S: *circuito telegr´afico de enlace*

A telegraph circuit connecting a sub-centre with its parent switching centre.

721.52.11
35.12(a)

27 **overline service**

F: *groupement de lignes*

S: *servicio de l´ineas agrupadas*

Several subscriber line circuits grouped under the same address in such a way that a call to that address may reach any of the free lines of the group.

721.52.12 .bp

28 **overflow** (in telegraphy)

F: d´ebordement (en t´el´egraphie)

S: desbordamiento (en telegraf´ia)

Redirection by the network of calls or messages to a designated position, when a connection to the called position cannot be established, with a view to a later retransmission.
721.52.13
35.10

29 **circuit switching**

F: commutation de circuits

S: conmutaci´on de circuitos

The temporary connection of two or more terminals upon request providing the exclusive use of a complete connection until it is released.
721.52.14

30 **message switching; store and forward switching**

F: commutation de messages; messagerie

S: conmutaci´on de mensajes; conmutaci´on en el servicio de almacenamiento y retransmisi´on

The process of routing messages comprising, in certain nodes of the network, a receiving, storing as necessary, and forwarding of messages within a telecommunication network.
721.52.15

31 **reperforator switching**

F: commutation avec retransmission par bande perfor´ee

S: conmutaci´on con retransmisi´on por cinta perforada

A tape relay system in which the tape from a reperforator feeds directly into a permanently associated automatic transmitter which can be switched to an outgoing channel.

Note — This switching may be manual, automatic or semi-automatic.
721.52.17
35.03

32 **character switching**

F: commutation de caract`eres

S: conmutaci´on de caracteres

The temporary connection of two or more terminals upon request using a process of storing and transferring character by character from one line to another.
721.52.18

33 **circuit switching exchange; switch** (circuit)

F: commutateur de circuits

S: centro de conmutaci´on de circuitos; conmutador (de circuitos)

A set of devices associated with a set of circuits intended to interconnect temporarily on request such circuits to constitute connections.

721.52.19 .bp

34 **message switching exchange; switch** (message)

F: commutateur de messages

S: centro de conmutaci´on de mensajes; conmutador (de mensajes)

A set of devices associated with a set of circuits intended to receive, store as necessary, and forward messages without providing any exclusive connection between circuits.
721.52.20

35 **national subscriber's telex number**

F: num´ero t´elex national d'abonn´e

S: n´umero t´elex nacional de abonado

A sequence of digits that a caller must normally select to connect to a called subscriber situated in the same country.
721.52.21

36 **local telex number**

F: num´ero t´elex local

S: n´umero de t´elex local

A sequence of digits shorter than the national subscriber's telex number used to connect a called subscriber situated in a restricted geographical area.

721.52.22

37 alternative selection signals

F: pluralit´e des codes de signaux de s´election

S: pluralidad de señales de selecci´on

The acceptance by the network of several different codes for selection signals, e.g. International Telegraph Alphabet No. 2 and International Alphabet No. 5, the choice of code being either fixed for a given subscriber, or variable at the subscriber's choice, for each call attempt.
721.52.28

38 prefix giving access to the long distance telex network

F: pr´efixe d'acc`es à grande distance

S: prefijo de acceso a la red t´elex de larga distancia

A digit or sequence of digits giving access to the remainder of the national telex network from an area inside which local telex numbers are used.
721.52.29

39 prefix giving access to the international telex network

F: pr´efixe d'acc`es à l'international

S: prefijo de acceso a la red t´elex internacional

A digit or a sequence of digits that must be selected by a subscriber, possibly after the prefix giving access to the long distance telex network, to connect with the international network.
721.52.30

40 prefix giving access to the intercontinental telex network

F: pr´efixe d'acc`es à l'intercontinental

S: prefijo de acceso a la red t´elex intercontinental

A digit or a sequence of digits that must be selected by a subscriber, possibly after the prefix giving access to the long distance telex network, to connect with the intercontinental network.

721.52.31 .bp

41 destination code

F: *code télex de destination*

S: *código de destino*

A sequence of digits identifying the country in which the called subscriber is located or a specified network in that country.

Note — The telex destination codes have been fixed by Recommendation F.69.
721.52.32

42 international selection sequence

F: *numéro de batterie*

S: *secuencia de selección internacional*

First sequence of digits in an international two-stage selection.
721.52.33

43 international two-stage selection

F: *numérotation internationale en deux temps*

S: *selección internacional de dos etapas*

The process of establishing international calls using two sequences of digits, the first sequence characterizing the called country or network, and the second sequence characterizing the called subscriber in that country or network.
721.52.34

44 traffic routing (in circuit switching)

F: *acheminement (en commutation de circuits)*

S: *encaminamiento de tráfico (en conmutación de circuitos)*

Designating in accordance with given rules the set of circuits to be used for setting up a connection from a given exchange for a given call attempt.
721.52.36

45 normal (traffic) **routing**

F: *acheminement normal*

S: *encaminamiento normal (de tráfico)*

Designating in accordance with given rules the set of circuits on a first priority basis from which a circuit is to be selected, provided that a free circuit exists in that set for a given call attempt.
721.52.37

46 **alternative traffic routing**

F: *acheminement d´etourn´e; d´etournement*

S: *encaminamiento alternativo (de tr´afico)*

Designating in accordance with given rules the set of circuits to be taken in the case where no circuit is available in the set of normal traffic routing circuits for a given call attempt.
721.52.38

47 **first choice set of circuits**

F: *faisceau de premier choix*

S: *haz de circuitos de primera elecci´on*

A set of circuits to be used on a first priority basis if a free circuit from this set is available.

721.52.39 .bp

48 **emergency routing**

F: *acheminement de secours*

S: *encaminamiento de emergencia*

The routing to be chosen exceptionally if neither the normal traffic routing nor any alternative traffic routing set of circuits is available.
721.52.40

49 **re-routing**

F: *r´eacheminement*

S: *reencaminamiento*

In case of congestion in a transit exchange, the re-direction of the call backwards to a preceding exchange in the already partly established connection with a view to finding an alternative traffic routing from that exchange.
721.52.41

50 **switching signal**

F: *signal de commutation*

S: *señal de conmutaci´on*

A signal transmitted between two exchanges or between one exchange and a terminal for establishing and clearing a call.
721.52.42

51 **forward switching signal**

F: *signal (de commutation) vers l’avant*

S: *señal de conmutaci´on hacia adelante*

A switching signal transmitted in the direction from the caller to the called party.
721.52.43

52 **return switching signal**

F: *signal (de commutation) vers l’arri`ere*

S: *señal de conmutaci´on hacia atr´as*

A switching signal transmitted in the direction from the called party to the caller.
721.52.44

53 **free circuit condition**

F: *´etat de disponibilit´e*

S: *estado de circuito libre*

The characteristic state of a circuit available for the setting up of a call.
721.52.45
35.13

54 **calling signal**

F: *signal d’appel*

S: *señal de llamada*

A forward switching signal retransmitted on a circuit or a subscriber’s line to indicate that the setting up of a call is requested.
721.52.50

35.15 .bp

55 **call control procedure**

F: *proc´edure de commande d’appel*

S: *procedimiento de control de la llamada*

The entire set of interactive signals necessary to establish, maintain and release a call.
721.52.51

56 **call-confirmation signal**

F: signal de confirmation d'appel

S: señal de confirmaci´on de llamada

A return switching signal, in response to a calling signal, to acknowledge the receipt of the calling signal.
721.52.52
35.16

57 **call accepted signal**

F: signal d'acceptation d'appel

S: señal de llamada aceptada; señal de aceptaci´on de la llamada

A signal sent over the return channel, indicating that the call can be accepted by a terminal.
721.52.53

58 **selection signals**

F: s´equence de s´election

S: señales de selecci´on

A sequence of forward signals giving to an exchange information necessary to the setting up of a call.
721.52.54

59 **address** (in circuit switching)

F: adresse (en commutation de circuits)

S: direcci´on (en conmutaci´on de circuitos)

The part of the selection signals which indicates the destination of a call.
721.52.55

60 **address** (in information processing)

F: adresse (en traitement de l'information)

S: direcci´on (en tratamiento de la informaci´on)

A character or group of characters that identifies a storage or a device without the use of any intermediate reference.
721.52.56

61 **processed-to-select signal**

F: *signal d'invitation à num´eroter*

S: *señal de invitaci´on a marcar*

A return switching signal transmitted by an exchange in response to a calling signal or after a call-confirmation signal to indicate that the exchange is ready to receive the selection signals.
721.52.57

35.17 .bp

62 (user) **class of service signal**

F: *signal de cat´egorie*

S: *señal de clase de servicio (de usuario)*

A character or group of characters among the selection signals identifying the user's class of service of the calling party.
721.52.58

63 **pre-signal**

F: *pr´esignal*

S: *preseñal*

A class of service signal transmitted at the beginning of the selection signals.
721.52.59

64 **post-signal**

F: *postsignal*

S: *postseñal*

A class of service signal transmitted after the sequence of digits characterizing the called terminal.
721.52.60

65 **end of selection signal**

F: *signal de fin de s´election*

S: *señal de fin de selecci´on*

A switching signal transmitted among the selection signals after the digits of the called subscriber's number to indicate that there is no further digit belonging to this number.
721.52.61

66 **keyboard selection**

F: num´erotation au clavier (en t´el´egraphie)

S: selecci´on por teclado (marcaci´on por teclado)

In automatic telegraph switching, the use of telegraph alphabet signals sent from the teleprinter's keyboard or from an automatic equipment to form the selection sequence.

721.52.62

67 **dial selection** (in telegraph)

F: num´erotation au cadran (en t´el´egraphie)

S: selecci´on por disco (marcaci´on por disco) (en telegraf´ia)

In automatic telegraph switching, the use of dial pulse trains from a dial or an automatic equipment to form the selection sequence.

721.52.63

68 **call-connected signal**

F: signal de communication ´etablie

S: señal de comunicaci´on establecida

The switching signal returned over the backward signalling path to indicate that the call is extended to the called station.

721.52.64

35.19 .bp

69 **clearing signal**

F: signal de lib´eration

S: señal de liberaci´on

The switching signal transmitted over a circuit to release a switched connection.

721.52.65

35.20

70 **confirmation of clearing signal**

F: signal de confirmation de lib´eration

S: señal de confirmaci´on de liberaci´on

Return switching signal which indicates that the clearing signal has been executed.
721.52.66

71 service signal

F: signal de service

S: señal de servicio

Signal transmitted automatically by the network to the calling terminal indicating the progress of a call or the cause of failure of the call attempt.
721.52.67

72 engaged; busy signal

F: signal d'occupation

S: señal de ocupado; señal de ocupaci´on

A busy signal which indicates that the called station is busy or not available.
721.52.68

73 barred signal

F: signal d'interdiction

S: señal de acceso prohibido

A service signal which indicates that a call cannot be established because access is barred.
721.52.69

74 call set-up time

F: temps d'´etablissement d'une communication

S: tiempo de establecimiento de la comunicaci´on

The interval of time between the sending of the calling signal by the calling party and the reception of the call-connect signal.
721.52.70

75 pre-selection delay

F: temps de pr´es´election

S: tiempo de preselecci´on

The interval of time between the sending of the calling signal by the calling party and the reception of the proceed-to-select signal.

721.52.71 .bp

76 selection time

F: temps de num´erotation

S: tiempo de selecci´on (tiempo de marcaci´on)

The interval of time between the reception by the calling party of the proceed-to-select signal and the end of reception by the exchange of the selection sequence.
721.52.72

77 post-selection time

F: temps de s´election

S: periodo de espera despu´es de marcar

The interval of time between the end of the sending of the selection sequence by the calling party and the reception of the call-connect signal.
721.52.73

78 effective duration of a call

F: dur´ee d'une communication

S: duraci´on efectiva de una comunicaci´on

The interval of time between the reception by the calling party of the call-connect signal and the sending of the clearing signal.
721.52.74

79 stored program control (SPC)

F: commande par programme enregistr´e

S: control por programa almacenado (CPA)

The control of an exchange by means of a set of instructions which are stored and can be modified.
721.52.75

80 common channel signalling

F: *signalisation par canal s´emaphore; signalisation sur voie commune*

S: *señalizaci´on por canal com´un*

A signalling method in which signalling information relating to a multiplicity of circuits is conveyed over a single channel by labelled messages.
721.52.76

81 channel associated signalling

F: *signalisation voie par voie*

S: *señalizaci´on asociada al canal*

A signalling method in which the signals for the traffic carried by a single transmission channel are transmitted over that channel itself or over a signalling channel permanently associated with it.

Note — This term may also apply when the signals for a circuit are transmitted over the channel carrying the traffic.
721.52.77

82 call clearing delay

F: *temps de lib´eration*

S: *tiempo de liberaci´on de la llamada*

The interval of time between the beginning of the sending of the clearing signal by a terminal and the appearance of the free circuit condition on the return line.

721.52.78 .bp

83 unsuccessful call

F: *appel infructueux*

S: *llamada infructuosa*

A call attempt which does not result in the establishment of a complete connection.
721.52.79

84 call not accepted signal

F: *signal de refus d'appel*

S: *señal de rechazo de la llamada*

A call control signal sent by the called terminal to indicate that it does not accept the incoming call.
721.52.80

85 **lost call**

F: *appel perdu*

S: *llamada perdida*

A request for a connection which is rejected due to network congestion.
721.52.81

86 **head-on collision**

F: *double prise (sur circuit mixte); collision frontale*

S: *colisi´on frontal*

The condition which exists when, on a transmission path capable of being used to set up calls in both directions, the path is seized from both ends simultaneously or nearly so. The seizure of the path by the distant end is not apparent, due to propagation delays.
721.52.82

87 **terminal connection method** (in telex)

F: *mode de raccordement (en t´elex)*

S: *m´etodo de conexi´on del terminal (en t´elex)*

The characteristics of the interface between a telex subscriber's line and a subscriber-serving exchange.
721.52.83

88 **speed converter concentrator**

F: *concentrateur-diffuseur*

S: *concentrador convertidor de velocidad*

The temporary storing of data arriving from slow channels and their retransmission on high speed channels and vice versa.
721.52.84

89 **system control station**

F: *centre directeur*

S: *estaci´on de control del sistema*

Station which is responsible for maintenance and clearance of faults on a transmission system.

721.52.86 .bp

90 indication of duration

F: indication de dur´ee

S: indicaci´on de duraci´on

The indication by the network to the paying *terminal* of the chargeable time of a call prior to the release of the paying terminal or by recall at a convenient time.

Note — This information may be provided automatically or on demand.
721.53.32

Recommendation U.201

INTERWORKING BETWEEN THE TELETEX SERVICE

AND THE TELEX SERVICE

(Melbourne, 1988)

1 Introduction

1.1 This Recommendation defines the procedures to be followed for interworking between the Teletex service and the telex service.

1.2 This Recommendation is one of the a series which define interworking between the telex service and the Teletex service.

The other Recommendations are:

a) Recommendation F.200: Teletex service

b) Recommendation T.390: Requirements for interworking with the telex service

c) Recommendation F.201: Interworking between the Teletex service and the telex service — General principles

2 Basic interworking service

2.1 *Types of interworking*

2.1.1 Interworking between the Teletex service and the telex service consists of two directions:

a) the telex to Teletex direction;

b) the Teletex to telex direction.

2.2 *Methods of interworking*

2.2.1 *considering* :

(a) that the Teletex service can be provided upon various networks (see Recommendation F.200, § 2);

(b) that an Administration can provide the Teletex service on more than one network (e.g. PSTN and PSPDN | | |);

(c) that the technical constraints of the existing networks (e.g. numbering plans, | | |),

the two following methods of interworking between the telex service and the Teletex service can be provided:

i) interworking with one-stage selection;

ii) interworking with two-stage selection.

or a recognized private operating agency.

2.2.2 The service requirements of each method are described in Recommendation F.201, §§ 3 and 4 respectively.

3 Telex access to a conversion facility (CF)

3.1 *One-stage selection*

Recommendation F.201, § 3 describes the service principles for this method of interworking.

3.1.1 *Access from a manual telex terminal*

Interworking in the telex to Teletex direction using one-stage selection, in case of manual terminals, is described in Figure 1/U.201 and associated notes.

Figure 1/U.201, p.

Figure 1/U.201 [1t1.201], p.

Figure 1/U.201 [2T1.201], p.

3.1.2 *Access from a telex automatic emitting device (TAED)*

Interworking on the telex to Teletex direction, using one-stage selection, in case of TAEDs is described in Figure 2/U.201 and associated notes.

Figure 2/U.201, p.

Figure 2/U.201 [T2.201], p.

3.2 *Two-stage selection*

3.2.1 *Service principles*

Recommendation F.201, § 4, describes the service principles for this method of interworking.

3.2.2 *Access from a manual terminal*

3.2.2.1 Interworking in the telex to Teletex direction, using two-stage selection, in case of manual terminals, is described in Figure 3/U.201 and associated notes.

Figure 3/U.201, p.

Figure 3/U.201 [T3.201], p.

3.2.2.2 *Address input*

3.2.2.2.1 *Single address input format*

a) *Case 1* — If the telex subscriber has a processable answerback according to Recommendation U.74, minimum address input is:

Table, p.

Teletex address is the call-numeric string necessary to select the Teletex terminal, i.e.

— if there is only one network supporting the Teletex service, the Teletex address is the national Teletex number;

— if there is more than one network supporting the Teletex service, the Teletex address includes the DNIC/TCC number according to Recommendation X.121. DNIC or TCC may be separated from the national Teletex number by a hyphen (-), Combination No. 1 of ITA2.

b) *Case 2* — If the telex subscriber has a non-processable answerback according to Recommendation U.74, he should input the following string:

Table, p.

Telex address is the Recommendation F.69 code followed by the national telex number. Any spaces shall be ignored by the CF.

c) *Case 3* — A telex subscriber may omit specifying the calling address, either inadvertently or intentionally, by transmitting:

Table, p.

In this case no ‘‘ADD’’ signal should be sent by the CF.

d) *Remark* — In all cases the signal ‘‘+’’ is not to be used within the address input for other purposes than to indicate ‘‘end of address’’.

3.2.2.2.2 *Multiple address input facility*

— This facility enables the calling telex subscriber to deposit messages addressed to multiple Teletex recipients.

— If this facility is provided by the CF, the calling telex subscriber should separate each Teletex address (including or not the mnemonic part) by:

[T4.201], p.

— The input of the last address, the calling telex address (if required) and the EOA signal, shall follow the rules established for the single address in § 3.2.2.2.1 of this Recommendation.

— The calling telex subscriber should know whether the called CF offers the multi-address facility. However, if the facility is invoked by the calling telex subscriber but not offered by the CF, this will be treated as an abnormal condition and the suggested reaction of the CF is in the annex to this Recommendation.

3.2.2.3 *Request for positive delivery notification (PDN)*

— If this facility is provided by the CF the method of requesting a PDN shall be to follow the Teletex address (or each Teletex addresses if multi-address is also offered) for which a PDN is required, by the sequence:

H.T. [T5.201]

,	ACK

Table [T5.201], p.

— Example: (in this example both the PDN and the multi-address facilities are offered)

. | |

3029 - 500 9145 = XYZ, ACK

3029 - 500 9090

+

. | |

— The possibility of requesting a PDN for all Teletex addresses by means of a single indicator, is for further study.

— The calling telex subscriber should be aware whether the CF offers this facility or not.

However, if a calling telex subscriber requests a PDN from a CF which does not offer this facility, this shall be treated as an abnormal condition and is described in the annex to this Recommendation.

3.2.2.4 *Validation result*

3.2.2.4.1 *Positive validation result*

— The format of the positive validation result is:

H.T. [T6.201]

← ≡	↓	VAL	↑	Telex terminal identification

Table [T6.201], p.

— The Teletex terminal identification shall be in accordance with Note 6 to Figure 7/U.201.

— The format of the progress signal following the validation result is:

H.T. [T7.201]

← ≡ ↓	GA

Table [T7.201], p.

— If the CF offers the multi-address input facility, validation of addresses shall continue until a valid address is found.

— If the timing constraints have been met (i.e. a valid address has been found within 5 seconds of receipt of the EOA signal) it is the Teletex terminal identification of this valid address which is returned with the validation result, in the format described above.

— Where time to find a valid address exceeds 5 seconds after receipt of the EOA signal, the CF shall behave according to § 4.1.4 of Recommendation F.201 and Table 1/F.201.

3.2.2.4.2 *Negative validation answer*

— If the validation leads to a negative result, the CF should send at least the telex service signal ‘‘NP’’ or, if available, other appropriate service signals according to Recommendation U.70. The CF should then clear the call.

— Where the CF offers multi-address input, all addresses shall be validated. As this may be difficult in real-time, the CF should return the addresses found to be invalid in a single non-delivery notification.

4.2.2.4.3 *Action of the CF following validation*

The action of the CF following validation shall be as prescribed in § 4.1.4 of Recommendation F.201, and Table 1/F.201.

3.2.2.5 *Input message acknowledgement*

The input message acknowledgement (IMA) is to be returned by the CF to the calling telex subscriber after the EOI.

This information is used as the message reference in case of notifications (NDN or PDN).

The format of the input message acknowledgement is:

H.T. [T8.201]

← ≡ ↓ ↑ yy mm dd hh:mm ← ≡ }	IMA xxx xxx ← ≡	{	

Table [T8.201], p.

where the xxx xxx← ≡ is an additional reference number and is optional.

3.2.2.6 *Notifications format*

3.2.2.6.1 *Non-delivery notification (NDN) format*

— The NDN message has the format and content described in Figure 4/U.201:

H.T. [T9.201]

	Field	Comment
	Telex subscriber's answerback	
C o n t e n t ↑ ← ≡ CF NATIONAL NUMBER ↓ T TTX ȼ [↓] ← ≡ ← ≡ ← ≡ NDN [TELETEX] ← ≡ ↑ YY MM DD HH:MM ← ≡ ← ≡ ↓ TELETEX ADDRESS ↑:XX — — — XX ← | (== | (da | MA | (ra | (ua | Y | (ra | M | (ra | D | (ra | H:MM | (<- | (== | xxxxxx | (<- ≡] ← ≡ ↓ CAUSE ↑:xxx | (<- ≡ ← ≡ ← ≡ } . . . Date and time of the CF Address received by the CF during deposit (The same information as given after the input of the message) Telex service signal of the last delivery attempt, as specified in Recommendation U.70 }	{ {	
	Telex subscriber's answerback	
↑ ← ≡ CF NATIONAL NUMBER ↓ T TTX ȼ } ← ≡ ← ≡ ← ≡ ← ≡ ← ≡ ← ≡ ← ≡ ← ≡	{ {	

Note — Text given in [| is optional.

↑ Figure shift ← Carriage return ≡ Line feed ↓ Letter shift

Space

FIGURE 4/U.201

Table [T9.201], p.

When the multi-address facility is offered, one separate NDN is returned to the originator, for each non-delivered address (recipient).

3.2.2.6.2 *Positive delivery notification (PDN) format*

— The PDN message has the format and content described in Figure 5/U.201.

Figure 5/U.201 [T10.201], p.

Blanc

3.2.2.7 *Text delivery*

3.2.2.7.1 *Text delivery with ODA*

If the CF provides the On-line delivery acknowledgement (ODA) facility, it sends a MOM signal immediately after the IMA.

The CF attempts to establish the delivery call within a maximum pariod of 30 seconds, with several attempts (at least one in the case of PSTN). Attempts should be made at 5-second intervals measured from the end of one attempt to the beginning of the next.

A MOM signal is returned after each attempt followed eventually by network service signals.

If the message delivery succeeds the CF returns to the telex user the called party's Teletex answerback, as described in Note 6 of Figure 7/U.201, and clears the call.

If the Teletex call establishment fails within 30 seconds, the CF sends service signal ''ITL'' and clears the call, the procedure is then as in § 3.2.2.7.2 below.

3.2.2.7.2 *Text delivery without ODA*

If the ODA facility is not provided, the CF sends a service signal ''ITL'' immediately after the IMA, and clears the call.

After sending an ITL signal, in all cases, the CF should attempt to deliver the message within four hours. The CF should make at least 16 series of four calls, with 15 minutes between each series. (These figures may be revised in some cases, e.g. in the case of a PSTN.)

If the delivery fails despite the performance of the cycle of delivery attempts, the CF should send a non-delivery notification (NDN) with the format described in § 3.2.2.6.1.

3.2.2.8 *Follow-on message facility*

— Where this facility is offered, rather than clearing the call (as stated in §§ 3.2.7.1 and 3.2.7.2) the CF should generate a prompt in the format below:

H.T. [T11.201]

← ≡ ↓	TTX NBR↑:

Table [T11.201], p.

— The CF shall wait up to 15 seconds for the start of a new input to appear, after this delay the CF shall clear the call.

— The CF shall treat the follow-on message as if it had been received in a completely separate session.

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3.2.3 *Access from a telex automatic emitting device (TAED)*

3.2.3.1 Interworking on the telex to Teletex direction, using two-stage selection, in case of TAEDs is described in Figure 6/U.201 and appending notes.

Figure 6/U.201, p.

Figure 6/U.201 [T12.201], p.

3.2.3.2 *Address input*

3.2.3.2.1 *Single address input format*

a) *Case 1* — Whether or not the telex subscriber has a processable answerback according to Recommendation U.74, he should input his telex address as described below:

Table, p.

— The start of address ‘‘CI’’ informs the CF that prompts that validation information and WRU signal must not be returned to the telex automatic emitting devices.

— Teletex address and telex address have the same definition as in § 3.2.2.2.1 to this Recommendation.

b) *Case 2* — A telex subscriber may omit his address input either inadvertently or intentionally by transmitting:

Table, p.

c) *Remark*

In all cases:

— no ‘‘ADD’’ signal should be sent by the CF;

— the signal ‘‘+’’ is not to be used within the address line for other purposes than to indicate ‘‘end of address’’.

3.2.3.2.2 *Multi-address input format*

(See § 3.2.2.2.2, Recommendation U.201.)

3.2.3.3 *Positive delivery notification (PDN) facility request*

(See § 3.2.2.3.)

3.2.3.4 *Validation result*

3.2.3.4.1 *Positive validation answer*

— The result of the address validation, if positive, should be sent to the user together with the IMA, after successful completion of the message input.

— The positive validation result, in the format defined in § 3.2.2.4.1 of Recommendation U.201, and the IMA in the format defined in § 3.2.2.5, should follow without pause, the transmission of the CF’s answerback in response to the first ‘‘WRU’’ requested by the user after the end of message input ‘‘EOI’’ (see step referred by Note 10 in Figure 6/U.201).

— If no answerback is requested by the telex user at this stage (Note 10, Figure 6/U.201) positive validation answer and IMA cannot be returned.

— In all cases, if a second WRU is issued by the telex user, at this stage (Note 10, Figure 6/U.201), the CF shall return only its answerback.

— This is in order to allow a positive match, if the telex TAED performs a comparison between the answerbacks returned at the start and the end of the call.

— Where the multi-address input facility is offered the CF should continue validating addresses until a valid one is found, and return the result of the first positive one in the way described above.

3.2.3.4.2 *Negative validation answer*

If the validation result is negative, the CF should transmit sequences of characters ‘‘T’’ according to Recommendation S.4 to interrupt the telex terminal transmission. If the terminal continues to transmit for more than 20 seconds, the CF shall clear the call. This will be followed, after a pause of one second, by the appropriate service signal, according to Recommendation U.70, and clear the call.

Where the multi-address input facility is provided and all addresses are found to be invalid, this should be treated as a negative validation result and the CF shall act in accordance with § 4.1.4 of Recommendation F.201 and Table 1/F.201.

3.2.3.5 *Notification formats*

Positive and negative notification (PDN and NDNs) formats are as described in §§ 3.2.2.6.2 and 3.2.2.6.1 respectively.

4 Delivery procedure to Teletex from a CF

4.1 *Service principles*

Recommendation F.201, §§ 3.2 and 4.2 describe the service principles for this direction.

4.2 *Text delivery*

After clearing, the CF should attempt to deliver the message within four hours. The CF should make at least 16 series of four calls, with 15 minutes between each series. (These figures may be revised in some cases, e.g. in the case of a PSTN.)

If the delivery fails despite the performance of the cycle of delivery attempts, the CF should send a non-delivery notification (NDN). This information is sent to the Teletex user with the complete reference of the related message in order to allow the Teletex user to take further action. No further delivery action shall be taken by the CF.

Text delivery to the telex terminal is described by Figure 7/U.201, for both one- and two-stage selection CFs.

The main difference between these two CFs is the content of the answerback of the CF.

Figure 7/U.201, p.

Figure 7/U.201 [1T13.201], p.

Figure 7/U.201 [2T13.201], p.

ANNEX A

(to Recommendation U.201)

Reactions to abnormal conditions during the telex input

A.1 *Telex connection clearing without the end of input signal*

After a clear without the end of input (EOI) signal, the conversion facility should forward the message to the Teletex subscriber.

A.2 *Telex subscriber pausing during input of address information*

If there is a delay greater than 15 seconds at the start of the address input or between characters within the address input, the CF shall clear the connection.

A.3 *Telex subscriber stopping transmission without sending the end of input signal*

After at least a 30 seconds time-out, the conversion facility should send a prompt ‘‘GA’’ to the telex subscriber in order to request more information input (e.g. a text or the end of the input signal). If after a further 30 seconds time-out there is no more information, then the conversion facility should send the input message acknowledgement signal, followed by a service message BK. After this the conversion facility should clear the call.

A.4 *Telex subscriber sending a WRU to the conversion facility during text input*

i) In case of one-stage selection procedure, the CF should return the rearranged Teletex answerback (see Note 3 of Figure 1/U.201).

ii) In case of two-stage selection procedure, in any step of the procedure, the conversion facility should return its answerback after receiving a WRU. In addition:

— if WRU is followed by text, message input is continued after the conversion facility answerback. Also the WRU is deleted from the message text;

— if WRU is followed by a clear from the telex network, the conversion facility proceeds as in § A.1 above;

— if WRU is followed by an idle condition, the conversion facility proceeds as in § 3 above.

A.5 *Telex subscriber sending a text after the end of input signal*

Any characters received after the end of input signal will be ignored. The conversion facility should use the ‘‘TTT | | | ’’ characters to attempt to stop the telex transmission and if successful, then send an input message acknowledgement signal followed by clearing. After clearing, the message should be normally forwarded to the Teletex terminal.

This does not apply in a case of a two-stage selection CF offering the follow-on message facility.

A.6 *Telex subscriber clearing after the end of input signal and before the input message acknowledgement signal*

The message shall be normally forwarded to the Teletex terminal.

A.7 *Telex subscriber sending national variants of ITA2 characters (figure shift characters of F, G and H)*

These combinations could either be converted into a Teletex code which is a non-telex character (e.g. ‘‘*’’), or into the national use of these combinations. The choice is a national matter.

A.8 *The conversion facility detecting signal distorsion during text input*

Reactions to the detection of distorsion are a national matter.

A.9 *Telex subscriber sending a bell signal*

The conversion facility has to ignore the bell signal in text input.

A.10 *CFs storage capacity overflow during telex message input*

— In order to avoid memory overflow occurring during message input, a guaranteed message length of 12 | 00 characters is defined.

— The CF should return an ‘‘NC’’ service signal if guaranteed storage space is not available.

— Messages exceeding the guaranteed length will continue to be accepted if storage is available.

— If the number of characters received by the conversion facility during a message input exceeds the available storage to that input, the conversion facility should discard the excess characters and no attempt should be made by the conversion facility to overwrite previously stored characters. When this occurs, the conversion facility should immediately attempt to prevent the telex subscriber from sending further characters by transmitting a sequence of ‘‘TTT. | | ’’ characters for a maximum of 20 seconds.

If the calling terminal stops transmission within this period, the conversion facility should return the message length exceeded indication, ‘‘LDE’’, return IMA in case of the two-stage selection procedure and then behave as normal, as if the text input phase had finished.

If the terminal continues to transmit characters after this period, the conversion facility should forcefully clear the connection.

— The conversion facility should attempt to deliver the message text, accepted and stored, preceded by a special text prefix to indicate to the called Teletex subscriber that the message may be incomplete.

A.11 *Request of optional facilities, when not provided by the CF*

If a user requests an optional facility not offered by a CF (e.g. multi-address or positive delivery notification), the CF shall use sequences of character ‘‘T’’ (according to Recommendation S.4) to attempt to stop the telex transmission. After the successful stop, the CF should then send an ‘‘NA’’ service signal.

MONTAGE: RECOMMANDATION U.202 SUR LE RESTE DE CETTE PAGE