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TELEGRAPH SWITCHING

PARTICULAR SIGNALLING FACILITIES

REACTIONS BY AUTOMATIC TERMINALS CONNECTED TO THE TELEX NETWORK IN THE EVENT OF INEFFECTIVE CALL ATTEMPTS OR SIGNALLING INCIDENTS

ITU-T Recommendation U.40

(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 U.40 was revised by the ITU-T Study Group IX (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

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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 Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.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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REACTIONS BY AUTOMATIC TERMINALS CONNECTED TO THE TELEX NETWORK IN THE EVENT OF INEFFECTIVE CALL ATTEMPTS OR SIGNALLING INCIDENTS

(Geneva, 1980; amended at Malaga-Torremolinos, 1984; and at Melbourne, 1988 and Helsinki, 1993)

The CCITT,

considering

(a) that equipment capable of automatically originating calls in the telex network can repeat unsuccessful calls until the call has been set up;

(b) that unlimited repetition of call attempts may cause congestion in the telex network;

(c) that manufacturers of automatic terminals for connection to the telex network should be given guidance on tolerable numbers of repeated call attempts and simultaneous calls;

unanimously declares the following view

1 Ineffective outgoing call

1.1 Non-return of the call-confirmation and/or proceed-to-select signal(s)

1.1.1 The call signal could be maintained for a maximum period of 20 s. If, within this period, the call-confirmation and/or the proceed-to-select signal(s) have not been received from the network, the terminal sends the clear signal.

1.1.2 A further call attempt must not be made within a minimum period of 20 s.

1.1.3 After three such ineffective attempts, the incident should be reported to the staff at the terminal installation, specifying the nature of the fault.

1.2 Slow or incomplete selection

1.2.1 Once the terminal has sent a call signal and has received the call-confirmation and/or proceed-to-select signal(s), transmission of the selection digits must commence within a period of between 0.5 and 7 s, depending on the national network. If this delay is exceeded, the network may clear.

1.2.2 The same procedure applies in the event of incomplete selection by the terminal or, if an interval longer than 7 s occurs, between two selection digits.

1.3 No response after selection

1.3.1 If, after selection has been completed (but before the call has been set up), the terminal receives no signals within 60 s, it may send the clear signal. This delay may be increased to 120 s for international calls.

1.3.2 Further attempts may be made in accordance with 1.1.2 and 1.1.3 above.

1.4 Ineffective attempts followed by service signals

1.4.1 OCC

1.4.1.1 If, after initiating a call, the terminal receives an **OCC** service signal followed by clear, it must wait at least 60 s before repeating the attempt. If **OCC** is received again, then second, third and fourth attempts shall be permitted at 180-second intervals.

1.4.1.2 If the distant terminal is still unavailable after a maximum of four such reattempts, this should be reported to the staff at the terminal installation indicating the number called and the service code received. Ten series of a maximum of four reattempts per series may be carried out at intervals between 480 and 3600 s, between each series.

1.4.1.3 Should the distant terminal remain unavailable after these call series, this should be reported and the call abandoned as far as the automatic terminal is concerned.

1.4.2 NC

1.4.2.1 If, after initiating a call, the terminal receives an **NC** service signal followed by clear, it must wait at least 60 s before repeating the attempt.

1.4.2.2 If the distant terminal is still unavailable after a maximum of four such reattempts, this should be reported to the staff at the terminal installation indicating the number called and the service code received. Ten series of a maximum of four reattempts per series may be carried out at intervals between 480 and 3600 s, between each series.

1.4.2.3 Should this second series still fail to reach the distant terminal, this should be reported and the call abandoned as far as the automatic terminal is concerned.

1.4.3 NA, NP, NCH or the service code CI

1.4.3.1 If, after initiating a call, the terminal receives an **NA**, **NCH** or **NP** service signal followed by clear, only one reattempt may be made after a minimum period of 2 s.

1.4.3.2 In the event of a second failure due to a service signal specified in 1.4.3.1, the terminal should abandon the call and report the incident to the staff at the terminal installation indicating the number called and the service code received.

1.4.3.3 If the terminal receives the service code **CI** followed by clear, the procedure described in 1.4.3.1 and 1.4.3.2 should also be applied.

1.4.4 DER, ABS

1.4.4.1 If after initiating a call, the terminal receives a **DER** or **ABS** service signal followed by a clear, it must wait 30 minutes before repeating the attempt.

1.4.4.2 If the first repeated attempt is unsuccessful, another attempt may be made 30 minutes later. The terminal must then wait two hours before repeating the series of two attempts spaced 30 minutes apart.

1.4.4.3 If the distant terminal is still unavailable after these attempts, further series of attempts can be made after a delay of 15 minutes to 2 hours. A total of 5 such series may be made with two attempts per series.

1.5 Ineffective calls characterized by a clearing signal without a preceding service signal

1.5.1 If after having made a call, the terminal equipment receives a clearing signal without previous reception of a service signal, it must wait 2 s before a second attempt.

1.5.2 If the same phenomenon occurs three times in succession, a second series of three calls may be made again after a delay of 15 minutes.

1.5.3 If the second series of calls produces the same result, the terminal equipment should definitively abandon the call and report the incident to the staff at the terminal installation indicating the number called and that no service code was received.

1.6 Reception of an answerback

1.6.1 If, after having made a call, the terminal equipment receives an incorrect answerback, it may send the clearing signal and repeat the call only once after a period of 2 s.

1.6.2 If the second attempt fails in the same way, the terminal should abandon the call and report the incident to the staff at the terminal installation, indicating the number called and the fact that the expected answerback code was not received.

1.7 Possible terminal configuration

1.7.1 Single telex line

1.7.1.1 Single message, single address – in this case the handling of ineffective call attempts shall be in accordance with Table 1.

1.7.1.2 Single message, multi-address – in this case the handling of ineffective call attempts shall be in accordance with Table 1 on a per address basis.

1.7.1.3 Multi-message, single addresss – in this case the handling of ineffective call attempts shall be in accordance with Table 1 for the first message. If this message is considered undeliverable, then all others are deemed to be undeliverable and it is recommended that no call attempts should be made to this telex address in respect of the remaining messages.

1.7.1.4 Multi-message, multi-address – in this case the handling of ineffective call attempts shall be in accordance with Table 1 on a per message per address basis.

1.7.2 Multiple telex line

1.7.2.1 If an automatic terminal equipment can initiate simultaneous call attempts on a number of outgoing lines, the number of such call attempts in progress at any one time shall not exceed a maximum prescribed by the Administration concerned.

1.7.2.2 In no case shall a multiple-line terminal equipment be allowed to present the same call simultaneously on more than one telex line. Moreover, the periodicity of a given repeated call and the number of attempts to be made in case of failure shall apply to this terminal equipment as indicated in Table 1, irrespective of whether the call is presented on the same line or on different lines.

2 Ineffective incoming calls

2.1 False calls

2.1.1 The terminal should disregard any “call” signal from the network that does not exceed 50 ms in duration.

2.1.2 If the terminal receives no signals within a period of up to 30 s after it has recognized a call signal from the network, it should return the clear signal to the network.

3 Incidents following call set-up

3.1 Idle circuit without clearing signal

3.1.1 Barring prior agreement to the contrary, if no signal is received after the beginning of the call or if the distant correspondent's transmission stops during an incoming call (i.e. steady stop polarity on the incoming path) for a period of more than 2 minutes, the receiving terminal may clear the call and report the incident to the staff at the terminal installation, indicating the nature of the suspected fault and, if possible, the number of the distant subscriber.

3.2 No clear-confirmation

3.2.1 Should the network fail to return the clear-confirmation signal after the terminal has been sending a clear signal for 10 s or more, the terminal should report the incident (giving the time at which it occurred) and withdraw the circuit from service until the necessary action has been taken.

TABLE 1/U.40

Summary of the required reactions to ineffective call attempts and signalling difficulties

Relevant point	Symptoms	Time-out or delay before clearing (seconds)	Maximum number of reattempts per series	Number of series	Minimum internal between series (seconds)	Minimum interval between attempts (seconds)
	Outgoing calls					
1.1	No call-confirmation and/or proceed-to-select	20	3	1	–	20
1.3	No response after selection:					
	national calls	60	3	1	–	20
	international calls	120	3	1	–	20
1.4.1	**OCC**	–	4	10	480 to 3600	60[a)]
						180 [a)]
1.4.2	**NC**	–	4	10	480 to 3600	60
1.4.3	**ABS**, **NA**, **NP**, **NCH**, **DER** or **CI**	–	1	1	–	2
1.5	Clearing without a service signal	–	3	2	900	2
1.6	Incorrect answer-back	0	2	1	–	2
	Incoming calls					
2.1	No signals after a "call" signal	30	–	–	–	–
	Conditions after call establishment					
3.1	Idle circuit (steady Z)	120	–	–	–	–
	Conditions after clearing					
3.2	No clear-confirmation	10	–	–	–	–

a) In the case of **OCC**, the period between the original attempt and the first reattempt should be 60 s. Between subsequent reattempts this period should be extended to 180 s.

NOTES

1 Where various combinations of service signals are encountered, the equipment making the reattemtps shall obey the rules appropriate to the last service signal encountered. In no case, however, shall the total number of reattempts on any one call exceed 12.

2 This Recommendation is subject to amendment in the light of traffic experiments undertaken by Administrations.