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TELEGRAPH SWITCHING

RADIOTELEX INTERWORKING

GENERAL REQUIREMENTS TO BE MET IN INTERFACING THE INTERNATIONAL TELEX NETWORK WITH THE FULLY AUTOMATED MARITIME VHF/UHF RADIO SYSTEM

ITU-T Recommendation U.62

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

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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

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Recommendation U.62

GENERAL REQUIREMENTS TO BE MET IN INTERFACING THE INTERNATIONAL TELEX NETWORK WITH THE FULLY AUTOMATED MARITIME VHF/UHF RADIO SYSTEM

(Malaga-Torremolinos, 1984; revised Helsinki, 1993)

The CCITT,

considering

(a) that it is desirable that the interface between the international telex service and the fully automated maritime VHF/UHF radio system be defined;

(b) that the CCIR is charged with the task of making recommendations relating to the radio path of the fully automated maritime VHF/UHF radio systems;

(c) that explanation of the detail of the interface between the international telex network and the fully automated maritime VHF/UHF radio systems would be of assistance to the CCIR,

unanimously recommends

that the interface between the international telex network and the automatic maritime VHF/UHF service should be in accordance with the following requirements:

1 General

1.1 In this Recommendation, the term mobile-service switching centre (MSC) is understood to mean the interworking point between the international or national telex network and the maritime VHF/UHF system. The MSC may have access to a junction called the location register which contains the current location of the mobile stations.

1.2 Fully automated maritime VHF/UHF radio systems should be capable of interfacing the international telex network in one or more ways:

- in accordance with:
  - i) Recommendation U.1, Signalling conditions to be applied in the international telex service (type A and type B signalling);
  - ii) Recommendation U.11, Telex and gentex signalling on intercontinental circuits used for intercontinental automatic transit traffic (type C signalling);
  - iii) Recommendation U.12, Terminal and transit control signalling system for telex and similar services on international circuits (type D signalling);
- in accordance with Recommendation F.132, Procedures for use of store and forward facilities in the maritime mobile services for ship-originated calls,
- in accordance with Series F and U Recommendations on international store and forward units.

1.3 Type D signalling (see Recommendation U.12) and, as a second choice, type C signalling (see Recommendation U.11) are the preferred signalling systems, when they are available within the national boundaries, for the reasons given in Annex A/U.60.

1.4 The numbering and selection procedures should be in accordance with Recommendation F.121.

2 Ship originated calls

2.1 When accessing a store-and-forward unit, the shipboard subscriber should select, in accordance with Recommendation F.121, one of the access codes 21 or 22 possibly followed by the character "+" in order to gain access to the store-and-forward facility.

2.2 For direct access to the telex network, the procedures are given in 3.4/F.121. The following points should be observed:

2.2.1 If the end-of-selection character "+" is not required for technical reasons on the radio path, it must be inserted by the MSC.

2.2.2 Access codes (possibly followed by additional digits) as defined in Recommendation F.121 for accessing special services or facilities, may be converted by the MSC to an appropriate number in the telex network when the service or facility is terminated at a point in the telex network other than the MSC.

2.3 Any service code generated in the telex network for a particular call should be returned to the calling ship.

3 Shore originated calls

3.1 Interfacing methods

The following interfacing methods are possible:

a) through a store-and-forward unit associated with one or more MCSs;

b) direct real-time access through an MSC. Here, the following sub-categories may exist:

   i) MSC connected to location registers;

   ii) MSCs not connected to location registers.

The technical solutions, including routing principles, required for each of these interfaces, are given below.

3.2 Store-and-forward facilities

3.2.1 The store-and-forward unit is accessed by normal telex procedures.

3.2.2 Procedures for forwarding messages to the store-and-forward unit and for retransmission of such messages should follow the normal procedures defined in Series F and U Recommendations.

3.2.3 Message should be retained for a period of time as defined in 4.4/F.110..

3.2.4 The store-and-forward unit may be connected to a location register for routing of calls to ships which are currently operating outside their home area.

The routing of such calls are described in Annex A.

3.2.5 For other applications of store-and-forward units, see 3.3.6 below.

3.3 MSCs connected to location registers

3.3.1 The technical arrangement for location registers is outlined in Annex A.

3.3.2 A system with MSCs connected to location registers corresponds to the *level 3* of operation defined in 3.2.4/F.121.

For simplicity, the MSC in which the ship station is permanently registered will be referred to as the home MSC. If the ship is not in its home area, the MSC in which the ship station is currently located will be referred to as the visited MSC.

3.3.3 The general selection procedures to be used for setting up calls to ships are given in Recommendation F.121. They may lead to the following possibilities:

i) The calling subscribers enters the following number sequence:

$$D_1D_2(D_3)A_1A_2(A_3)MIDX_4X_5X_6$$

where $D_1D_2(D_3)$ is the Recommendation F.69 destination code of the country in which the home MSC of the called ship is located, $A_1A_2(A_3)$ is the service access code in that country and $MIDX_4X_5X_6$ is the ship station number (MID = maritime identification digit). This can only consist of 6 digits for reasons given in Recommendation F.120. This implies that ship stations with more than 6 digits cannot be accessed automatically.

NOTE – The MID may on a regional basis be replaced by the digits 8Y thus permitting a seventh digit X_7 of the ship station number (see Recommendation F.120 for details).

The call is routed on the international telex network directly to the home MSC of the called ship station.

It may also be possible to employ two-stage selection where the first stage is used for accessing the location register in the country of destination and the second stage for transferring the ship station number. This procedure would allow ship station numbers to consist of up to 9 digits (see Note to 3.4.2).

ii) If the country of origin has its own location register and the country of destination has a class-of-traffic assigned to the maritime VHF/UHF service, it would in principle be possible to access a ship by the following selection sequence from the calling subscriber:

$$A_1A_2(A_3)MIDX_4 \ldots X_n$$

where $A_1A_2(A_3)$ is the service access code for maritime services in the country of origin or a Recommendation F.69 destination code allocated to the maritime VHF/UHF service, and $MIDX_4 \ldots X_n$ is a ship station number consisting of up to 9 digits.

Alternatively, two-stage selection may be used. The first stage is used for accessing the location register and the second stage for transferring the number of the called ship (see Note to 3.4.2).

The call is forwarded to the country of destination by the location register in the country of origin. This is done by sending the following address sequence of digits on the international network:

$$D_1D_2(D_3)MIDX_4 \ldots X_nC$$

where $D_1D_2(D_3)$ is the destination code of the country of destination and C is a class-of-traffic character identifying maritime VHF/UHF service in the country of destination. The destination code $D_1D_2(D_3)$ is uniquely determined from the MID part of the ship station number.

In order to operate such a system, class of traffic signals need to be defined or type A, C and D signalling. Type B signalling cannot support such a class of traffic signal.

3.3.4 If the called ship is currently located at another MSC than the home MSC, the home MSC may reroute the call to the required destination. The address format inserted by the home MSC for the purpose of rerouting would be one of those given in 3.3.3 depending on the facilities available.

If the call cannot be rerouted, the service code ABS or another more suitable service code should be returned from the home MSC.

3.3.5 When operating a system where rerouting would be required, the following time-outs should be observed:

Types A and B signalling (see Recommendation U.1)

The time from the end of selection, combination No. 26 (+), or last selection character received and the return of the call connected signal should not exceed 60 seconds.

Type C signalling (see Recommendation U.11)

The time taken from the end of selection signal, combination No. 26 (+), to the call-connected signal should not exceed 60 seconds (see Table 1/U.11, remarks relating to the call-connected signal).

Type D signalling (see Recommendation U.12)

The time taken from the end of selection signal, CSC code No. 11, to the call connected signal should not exceed 90 seconds (see 3.11/U.12).

NOTE – It should be noted that for type A, B and C signalling, the same timings pertain to service signals (**NP**, **NC**, **NA**, **OCC**, etc.), and that in addition for type D signalling the same timing pertains to the last backward path signalling characters and terminating-through connection.

3.3.6 For technical or operational reasons, e.g. when the time-out requirements of 3.3.5 cannot be met, the home MSC (or home location register) of the called ship station may offer the calling subscriber, by an appropriate service code, a store-and-forward service for forwarding the call to the ship.

3.4 MSCs not connected to location registers

3.4.1 In the case of MSCs not connected to location registers, the calling telex subscriber must know the actual location of the called ship, e.g. country, MSC, coast station.

This situation would correspond to the *level 2* of operation as described in 3.2.3/F.121. The required selection procedure is given in Recommendation F.121.

3.4.2 Two-stage selection may be used where the first stage is used for accessing the required MSC (or coast station) and the second stage for transferring the ship station number. This procedure would allow ship station numbers to consist of up to 9 digits.

NOTE – Two-stage selection may be difficult from an automatic terminal.

3.4.3 If the called ship does not respond to the call, the MSC (or coast station) should return the service code ABS or another more suitable service code.

3.5 Service codes

For unsuccessful calls, the MSC (or coast station) should return service codes as defined in Recommendation F.131.

3.6 Maritime answerback code

The answerback of the ship station should be in accordance with Recommendation F.130. The MSC (or the coast station) should ensure that the answerback which is sent into the telex network consists of 20 consecutive characters sent at cadence speed.

4 Maritime group calls

4.1 The composition of a group call address is defined in Recommendation F.120.

4.2 If group call services are at all permitted in the maritime VHF/UHF service, the MSCs (or coast stations) should only permit such calls from authorized telex subscribers.

The authorization may be established in one of the following ways:

i) when type A, B or C signalling is used between the MSC (coast station) and the international telex network, the WRU signal answerback sequence should apply;

ii) when type D signalling is used, the calling line identification procedure should apply. If Control Signalling Code No. 12 is received, the WRU signal answerback procedure defined above should be used.

4.3 Calls from unauthorized subscribers should be cleared with the service signal **NA**.

Annex A

Use of location registers in the maritime VHF/UHF service

(This annex forms an integral part of this Recommendation)

A.1 For the automatic maritime VHF/UHF radiotelephone service, CCIR Recommendation 586 describes the procedures to be used on the radio path for updating of location information. A similar procedure would be applicable for the radiotelex service. The location updating is initiated by the ship station when the station detects a change in the coast station identity after the criteria given in CCIR Recommendation 587.

A.2 Each MSC is connected to a location register which keeps an updated list of the current location of all ship stations registered in that MSC (the home MSC of the stations). The home MSC of a ship station should be uniquely determined from the MID and possibly one or two additional digits of the ship station number.

The location registers are interconnected for mutual updating of the location of ship stations.

A.3 Insofar as routing of telex calls to ships is concerned, there are several possibilities:

A.3.1 The telex call is always routed directly to the home MSC by the procedures given in 3.3.3 i). If the called ship is at another MSC (a visited MSC) than the home MSC, the call is rerouted by the home MSC to the appropriate destination.

A.3.2 The call is routed to an MSC or location register in the calling subscriber's country by the method given in 3.3.3 ii). The further routing of the call may then be done by either of the following methods:

i) the call is routed to the home MSC and, if required, rerouted by that MSC as described in A.3.1 above;

ii) the MSC in the country of origin interrogates the home location register of the mobile station in order to obtain the required routing information. If the called ship station is located in some visited MSC, the MSC may then route the call directly to the required destination.