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SERIES E: OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

Operation, numbering, routing and mobile service –
International operation –
Maritime mobile service and public land mobile service

Selection procedures for the INMARSAT mobile-satellite telephone and ISDN services

Reedition of CCITT Recommendation E.216 published in the Blue Book, Fascicle II.2 (1988)

NOTES

1 CCITT Recommendation E.216 was published in Fascicle II.2 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommandation E.216

SELECTION PROCEDURES FOR THE INMARSAT MOBILE-SATELLITE TELEPHONE AND ISDN SERVICES

1 Introduction

1.1 *Purpose*

The purpose of this Recommendation is to standardize:

a) the selection procedures for subscribers in the public switched telephone network or ISDN calling a ship earth station in the INMARSAT systems;

b) the procedures for calling a subscriber, an operator or a special service termination in the public switched telephone network or ISDN from a ship earth station.

This Recommendation applies to INMARSAT Standard-A, B and C systems. Selection procedures for the INMARSAT Aeronautical system is for further study.

1.2 *Related CCITT Recommendations*

E.215 (Numbering plan for the mobile-satellite services of INMARSAT).

E.210 (Ship identification for VHF/UMF and maritime-mobile satellite services).

E.160 (Definitions relating to national and international numbering plans).

E.163 (Numbering plan for the international telephone service).

E.164 (Numbering plans for the ISDN era).

E.165 (Timetable for coordinated implementation of the full capability of the Numbering Plan for the ISDN era (Recommendation E.164)).

E.171 (International telephone routing plan).

E.172 (Call routing in the ISDN era).

Q.1101 (General principles for interworking between INMARSAT Standard-A system and the telephone network).

Q.1112 (Procedures for interworking between INMARSAT Standard-B system and the international public networks).

F.125 (Telex numbering plan for the mobile-satellite service of INMARSAT).

F.126 (Selection procedures for INMARSAT mobile-satellite telex service).

F.127 (Operational procedures for interworking between the telex service and the service offered by INMARSAT Standard-C).

2 Number structures

2.1 Maritime mobile-satellite services are international in nature and international procedures will be adopted to provide access to these services. For some purposes, a maritime mobile-satellite system can be regarded as analogous to a national network and the ship earth stations as subscribers within that network.

For automatic shore-originated calls, international selection procedures will be adopted using an international prefix number, the three digit country code 87S and a mobile earth station number where the digit S indicates the ocean region. The telephone/ISDN numbering plan for ship earth stations in the INMARSAT System is given in Recommendation E.215.

2.2 For automatic ship-originated calls international selection procedures will be used, including a standardized prefix, i.e. all ships in all ocean areas will use the same prefix to identify an automatic international call.

In addition, prefixes will be adopted to identify other functions for the satellite system. Annex A lists the allocation of the prefixes. Additional prefixes may be required and these can be added, using the spare decimal numeric combinations.

It is desirable to have one set of prefixes for all services. The prefixes listed in Annex A can be used where applicable for telex and data services and, if necessary, additional prefixes for these services may be assigned by the competent Study Group. Close cooperation between the competent Study Groups will be necessary when assigning new prefixes.

The use of some prefixes could be barred to some customers.

2.3 The prefixes will be sent over the radio path to the coast earth station but would not be used outside the satellite system. Hence, a prefix sent to the coast earth station would not be used in the international network.

2.4 The service associated with each prefix is defined in Annex B.

3 Procedures for shore-to-ship calls

3.1 *General selection sequence*

A shore based subscriber calling a ship in the INMARSAT system will select a numbering sequence as follows:

Pi International prefix

87S Country code

$TX_1X_2 \ldots X_n$ *INMARSAT mobile number*.

3.2 *Selection of S digit*

The numbering sequence requires the subscriber to know the satellite coverage area in which the ship is located. The values of the S digit are given in Recommendation E.215.

3.3 *INMARSAT mobile number*

The *INMARSAT mobile number* $TX_1X_2 \ldots X_n$ takes one of the formats defined in Recommendation E.215. The various possibilities are summarized in Table 1/E.216 and are further outlined below.

TABLEAU 1/E.216

Formats of INMARSAT mobile numbers

Format	Application
$1\ X_1X_2X_3X_4X_5X_6$	Ordinary call to INMARSAT Standard A ship earth station
$811\ X_1X_2X_3X_4X_5X_6$	Facsimile call to INMARSAT Standard A ship earth station which is equipped for automatic receipt of facsimile calls
$3\ M_1I_2D_3X_4X_5X_6Z_1Z_2$	Ordinary call to INMARSAT Standard B ship earth station
$4\ M_1I_2D_3X_4X_5X_6X_7X_8$	Ordinary call to INMARSAT Standard C ship earth station
$5\ X_1X_2X_3X_4X_5X_6X_7X_8$	Call to INMARSAT aeronautical aircraft earth station

3.3.1 *INMARSAT Standard-A system*

For an ordinary call to an INMARSAT Standard-A ship earth station the formats of the *INMARSAT mobile number* is:

$$1\ X_1X_2X_3X_4X_5X_6$$

where the digits $X_1X_2X_3X_4X_5X_6$ identify a specific ship earth station. If there is more than one ship earth station at the ship, each will have its own unique *INMARSAT mobile number*.

Identification of different terminal equipment connected to a ship earth station is not possible in the INMARSAT Standard-A system. However, provisions can be made for calls to specific service terminations on the ship, e.g. a facsimile equipment. If signals for providing such information are available within the signalling systems used between the switching centre of call origin (i.e. the local national switching centre) and the coast earth station, they should be automatically inserted by that switching centre. In this case the numbering sequence would be as defined above, irrespective of the service termination on the ship. If some part of the connection does not have this capability, the required termination may be indicated by the following numbering sequence:

Pi	International prefix
87S	Country code
8Y	Service termination
$1\ X_1X_2X_3X_4X_5X_6$	*INMARSAT mobile number*.

Values of the digit Y for the various service terminations are given in Table 3/E.215. Y = 1 is allocated to the facsimile service and Y = 2 is allocated to packet mode data transmission services using the protocol of Recommendation X.25. Of these, only Y = 1 will be available for selection by telephone subscribers.

As other service termination requirements are identified by INMARSAT, the CCITT will make additional allocations. It should be noted that the digits 8Y cannot be used for discrimination between several terminals of the same kind connected to a ship earth station. It should be further noted that the digits 8Y should not be selected for ordinary telephone calls.

3.3.2 *INMARSAT Standard-B system*

The *INMARSAT mobile number* takes the following format for ship earth stations in the INMARSAT Standard-B system:

$$3\ M_1I_2D_3X_4X_5X_6Z_1Z_2$$

The on board identification digits Z_1Z_2 are used for:

– identifying terminal equipment connected to a ship earth station;

– discrimination between several ship earth stations on the ship;

– discrimination between channels of multi-channel ship earth stations;

– combination of the above.

See also Annex C to Recommendation E.215.

3.3.3 *INMARSAT Standard-C system*

The *INMARSAT mobile number* takes the following format:

$$4\ M_1I_2D_3X_4X_5X_6Z_1Z_2$$

The digits Z_1Z_2 can be used for on board identification as follows:

– identifying terminal equipment connected to a ship earth station;

– discrimination between several ship earth stations on the ship;

– combination of the above.

3.3.4 *INMARSAT Aeronautical system*

The format of the *INMARSAT mobile number*, $5\ X_1X_2X_3X_4X_5X_6X_7X_8$, is still to be determined.

4 Procedures for ship-to-shore calls

4.1 *General*

It should be possible to provide all information required for establishing a call from user terminals connected to the ship earth station. Such information may include:

a) called party address including any prefix,

b) desired coast earth station,

c) selection of a specific RPOA (for further study),

d) bearer service/teleservice characteristics, including supplementary service requests.

The information in a) is required for all calls. The information in b), c) and d) may be required on some calls, e.g. if the user requests a specific routing of the call or if specific service characteristics are to be applied.

4.2 *Calling a terrestrial subscriber*

4.2.1 A shipboard user will select the prefix 00 followed by the full international telephone or ISDN number required, whether or not the coast earth station is located in the called subscriber's country. Hence, the numbering sequence selected by a ship board subscriber will be of the form:

00	Prefix for automatic call
$I_1\ I_2\ I_3$	1, 2 or 3 digit country code
$N_1 \ldots N_n$	National (significant) number.

4.2.2 It is also possible to select specific services associated with the call by use of other prefixes than 00, e.g. 34 (person-to-person call), 35 (collect call), 36 (credit card call) and 37 (time and charges requested at end of call). The selection sequence will then be:

P_1P_2	Prefix
$I_1I_2I_3$	1, 2, or 3 digit country code
$N_1 \ldots N_n$	National (significant) number.

4.2.3 The ship earth station will permit the choice of a coast earth station identity through which the call is to be routed. Convenient land-line routings (e.g. use of the coast earth station nearest the destination country) could be encouraged by tariff considerations.

4.2.4 In INMARSAT systems the shipboard user may also select a specified RPOA for routing the call, when a choice between several RPOAs is available at the coast earth station. This selection is provided by information which may not be part of the selection sequence. (For further study.)

4.2.5 In INMARSAT Standard-B systems the user may chose among several service options. If some service characteristics are user selectable, it should be possible to make the selection from the user terminal. Standardization of selection procedures for supplementary services is for futher study.

4.3 *Calling an operator*

4.3.1 A shipboard user will select an operator prefix, the second digit identifying the type of operator required.

4.3.2 Table 2/E.216 illustrates the principle involved for two types of operator.

Some Administrations may wish to operate a system whereby shipboard users insert after the operator prefix a country code (I_1, I_2, I_3). The insertion of the country code will allow the call to be routed to a relevant operator. If an Administration operating such a system receives an operator prefix without the optional digits, then the call must still be connected to an appropriate operator. Similarly, if an Administration not operating such a system receives an operator prefix followed by optional digits, then the optional digits should be ignored and the call connected to the operator denoted by the prefix alone.

TABLE 2/E.216

Prefix		Optional digits	Type of operator
Digit 1	Digit 2		
1	1	$I_1 I_2 I_3$	International outgoing operator
1	2	$I_1 I_2 I_3$	International information service

4.3.3 Each Administration may decide which operators to provide, where they are to be located and how the call would be routed. If a request is received from a ship for a type of operator that the Administration does not provide, then the call will be routed to an operator convenient for that Administration.

4.4 *Other prefixes given in Annex A*

Each Administration may decide which services to provide and how the call would be routed. If a request is received from a ship for a service that the Administration does not provide, then the call will be routed to a location convenient for that Administration.

The general selection sequence could be as shown in Table 3/E.216.

The actual sequence may be decided by the Administration or INMARSAT.

TABLE 3/E.216

Prefix		Optional country code	Other optional digits	Type of service
Digit 1	Digit 2			
3	2	$I_1 I_2 I_3$	–	Medical advice
3	8	–	–	Medical assistance
2	3	–	$X_1 X_2$	Short code selection

5 Procedures for ship-to-ship calls

5.1 Selection procedures for ship-to-ship calls will be similar to those for ship-to-shore calls, using the maritime country code 87S. The numbering sequence selected by the shipboard user will be of the form:

00 Prefix for automatic call

87S Country code

$TX_1X_2 \ldots X_n$ *INMARSAT mobile number*.

This format will be used whether or not the ships are in the same ocean area.

5.2 Each Administration operating a coast earth station may decide whether to switch ship-to-ship traffic within an ocean area at the coast earth station or at an international switching centre.

6 Instructions for telephone subscribers

The general principles laid down in Recommendation E.120 apply also to the maritime mobile-satellite service. The instructions should contain the full selection procedures with some emphasis put on the selection of the S digit in the country code.

7 Instructions for users at ship earth stations

It would be beneficial if coast earth station operators and/or INMARSAT provided user manuals defining the system capabilities and services offered. The manuals should contain information such as:

– general instructions for use of the INMARSAT services;

– location of coast earth stations;

– facilities provided and services supported by each coast earth station;

– selection procedures for setting up automatic calls;

– selection procedures for operator assisted calls for each coast earth station;

– selection procedures for setting up calls to the services listed in Annex A for each coast earth station;

– other instructions which INMARSAT may consider useful or important to users.

ANNEX A

(to Recommendation E.216)

Allocation of telephone prefixes, telex access codes and data transmission prefixes

A.1 Administrations should make application for the allocation of new prefixes and access codes to the CCITT Secretariat. The application should contain a definition for the service, termination or facility to be accessed.

The CCITT Secretariat would be responsible for coordinating the allocation of new prefixes and access codes with the competent Study Groups. The allocation of new prefixes and access codes should be done in such a way as to ensure that equivalent services carried by means of telephone, telex or data circuits are given the same prefix.

The prefixes and access codes to be used for automatic calling should be as follows:

Telephone – For international calls the prefix should be 00 followed by the international telephone number of the called subscriber. As an option for national calls the prefix 0 followed by the national (significant) number of the called subscriber could be used.

Note – In the maritime satellite service only the international format is preferred.

Telex – For international calls the access code should be 00 followed by the international telex number of the called subscriber. As an option for national calls the access code should be 0 followed by the national telex number of the called subscriber could be used.

Note – In the maritime satellite service only the international format is preferred.

Data transmission – For data calls through a public data network the format should always consist of the prefix 0 followed by the international data number of the called subscriber (see Recommendation X.350, § 5.2.1).

A.2 Table A-1/E.216 contains a list of prefixes and access codes allocated up to the present time for access to special destinations, services or facilities.

TABLE A-1/E.216 (Note 1)

Allocation of telephone prefixes, telex access codes and data transmission prefixes

Category	Prefix or access code		Applications (Notes 2 and 3)	Telephone	Telex	Data
	Digit 1	Digit 2				
Operator	1	0	Spare	–	–	–
	1	1	International outgoing operator	A	A	NA
	1	2	International information service	A	A	FS
	1	3	National operator	A	A	NA
	1	4	National information service	A	A	FS
	1	5	Radiotelegram service	FS	A	NA
	1	6	Spare	–	–	–
	1	7	Booking of telephone calls (Note 4)	A	A	NA
	1	8	Spare	–	–	–
	1	9	Spare	–	–	–
Automatic facilities	2	0	Access to maritime PAD (Note 5)	A	NA	NA
	2	1	Store-and-forward (international)	NA	A	NA
	2	2	Store-and-forward (national)	NA	A	NA
	2	3	Abbreviated dialling (short code selection)	A	A	NA
	2	4	Telex letter service	NA	A	NA
	2	5	Access to PSPDN	(Note 8)	NA	(Note 8)
	2	6	Spare	–	–	–
	2	7		–	–	–
	2	8		–	–	–
	2	9		–	–	–
Specialized assistance (Note 6)	3	0	Spare	–	–	–
	3	1	Maritime enquiries	A	A	A
	3	2	Medical advice	A	A	A
	3	3	Technical assistance	A	A	A
	3	4	Person-to-person call	A	NA	NA
	3	5	Collect calls	A	NA	NA
	3	6	Credit card calls	A	A	NA
	3	7	Time and charges requested at end of call	A	A	NA
	3	8	Medical assistance	A	A	A
	3	9	Maritime assistance	A	A	A
Ship reporting	4	0	Spare	–	–	–
	4	1	Meteorological reports	A	A	A
	4	2	Navigational hazards and warnings	A	A	A
	4	3	Ship position reports	A	A	A
	4	4		–	–	–
	4	5		–	–	–
	4	6		–	–	–
	4	7		–	–	–
	4	8		–	–	–
	4	9		–	–	–

TABLE A-1/E.216 *(cont.)*

Category	Prefix or access code		Applications (Notes 2 and 3)	Telephone	Telex	Data
	Digit 1	Digit 2				
Information retrieval	5	0	Spare	–	–	–
	5	1	Meteorological forecasts	FS	FS	FS
	5	2	Navigational warnings	FS	FS	FS
	5	3	Videotex (international)	FS	NA	FS
	5	4	Videotex (national)	FS	NA	FS
	5	5	News (international)	FS	FS	FS
	5	6	News (national)	FS	FS	FS
	5	7	Spare	–	–	–
	5	8		–	–	–
	5	9		–	–	–
Specialized use (Note 7)	6		Administration specialized use, e.g. leased lines	A	A	FS
	7		Spare	–	–	–
	8		Spare	–	–	–
Test	9	0	Spare	–	–	–
	9	1	Automatic test line	A	A	US
	9	2	Commissioning tests	A	A	A
	9	3	Spare	–	–	–
	9	4	Spare	–	–	–
	9	5	Operational coordination	A	A	A
	9	6	Spare	–	–	–
	9	7		–	–	–
	9	8		–	–	–
	9	9		–	–	–

Note 1 – The same table is contained in Recommendations F.126 and X.350.

Note 2 – The entries in the columns under Telephone, Telex and Data have the following meanings:

A = Applicable for access by this service
NA = Not applicable for access by this service
FS = For further study.

Note 3 – The prefix or access code may be followed by an optional telephone country code, data country code (or data network identification code) or telex destination code, or other optional digits.

Note 4 – Via some coast earth stations it would be possible to book telephone calls using the telex service.

Note 5 – PAD = Packet Assembly/Disassembly facility. The prefix 20 should be followed by two digits indicating the required data rate (see Recommendation X.351).

Note 6 – The prefixes 34, 35, 36 and 37 may be followed by the international number of the called subscriber.

Note 7 – Digits following digit 6 will be allocated on a national basis.

Note 8 – The prefix is used for access to maritime satellite data switching exchanges (MSDSEs) (see Recommendation X.350) for virtual call data services (Recommendation X.25) by means of telephone circuits in the INMARSAT system.

A.3 The facilities are defined in Annex B.

ANNEX B

(to Recommendation E.216)

Application of telephone prefixes, data transmission prefixes and telex access codes – Definitions and descriptions

Services and facilities normally provided by the telephone data or telex networks are otherwise defined in CCITT Recommendations and do not require any further definitions. This annex provides definitions and descriptions of some of the special facilities of Annex A.

Note 1 – The same annex is contained in Recommendation F.126.

Note 2 – In this annex the term prefix is used to designate telephone prefix, telex access code and data transmission prefix.

B.1 *Operator*

B.1.1 **international outgoing operator (prefix 11)**

Prefix 11 will connect the caller to an international operator position. The prefix may be followed by a country code. If so, the procedure for servicing the call is described in § 4.3.

B.1.2 **international information service (prefix 12)**

Prefix 12 will connect the caller to the international information service. The prefix may be followed by a country code. If so, the procedure for servicing the call is described in § 4.3.

B.1.3 **national operator (prefix 13)**

Prefix 13 will connect the caller to a national or international operator position in the country where the coast earth station is located. The type of operator to be used is decided by the Administration.

Note – Prefix 13 may not be offered on all coast earth stations.

B.1.4 **national information service (prefix 14)**

Prefix 14 will connect the caller to a national or international operator position. The type of information service to be used is decided by the Administration.

Note – Prefix 14 may not be offered on all coast earth stations.

B.1.5 **radiotelegram service (prefix 15)**

Prefix 15 will connect the caller to the radio telegram service position. The transmission of radio telegram should normally be made by radio telex only. The radio telegram service in this case should be arranged in such a way that automatic retransmission is possible.

B.1.6 **booking of telephone calls (prefix 17)**

Prefix 17 will allow the caller to book a telephone call via the telex service.

This telex message will be routed to the relevant international (or national) telephone operator.

B.2 *Automatic facilities*

B.2.1 **access to maritime PAD (prefix 20)**

Prefix 20 is used for gaining access to a packet assembly/disassembly (PAD) facility in a packet switched public data network. The PAD is accessed via telephone circuits in the INMARSAT system. The prefix is followed by two additional digits indicating the required data rate (see Recommendation X.351).

B.2.2 **store-and-forward (international) (prefix 21)**

Prefix 21 is used for gaining access to a store-and-forward unit (SFU) for international calls.

B.2.3 **store-and-forward (national) (prefix 22)**

Prefix 22 is used for gaining access to a store-and-forward unit (SFU) for national calls.

B.2.4 **abbreviated dialling (short-code selection) (prefix 23)**

Abbreviated dialling (short-code selection) will allow the caller to make a connection by selecting a short special number (e.g. 2 or 3 digits) instead of a full international (or national) number.

B.2.5 **telex letter service (prefix 24)**

Prefix 24 is used for directly transmitting a message originated from a ship earth station (SES) to a selected telegraph office for delivery by mail or any appropriate means.

B.2.6 **access to PSPDN (prefix 25)**

Prefix 25 is used for obtaining access via INMARSAT telephone circuits to a maritime satellite data switching exchange (MSDSE) (see Recommendation X.350) for virtual call data services (Recommendation X.25). The prefix is followed by additional digits indicating data rate or other parameters associated with the call.

B.3 *Specialized assistance*

B.3.1 **maritime enquiries (prefix 31)**

Prefix 31 may be used for special enquiries such as ship location, authorization, all telegrams, etc.

B.3.2 **medical advice (prefix 32)**

Prefix 32 provides connection to national medical facilities (hospital, etc.) for obtaining medical advice or consultation. The prefix may be followed by a country code.

B.3.3 **technical assistance (prefix 33)**

For the maritime satellite service, prefix 33 provides connection to the technical personnel of the coast earth station in case difficulties are experienced in establishing communication.

For other maritime systems, further study is required.

B.3.4 **person-to-person call (prefix 34)**

Prefix 34 should be used when the call is for a specific person at the called number. An operator will intervene in the call, and should be provided with the details of the person to be called. The prefix may be followed by the number of the called party.

B.3.5 **collect calls (prefix 35)**

Prefix 35 should be used for calls, charges for which will be billed to the called party. The telephone operator will intervene in the call and should be provided with the information pertinent to the call. The prefix may be followed by the number of the called party.

B.3.6 **credit card calls (prefix 36)**

Arrangements can be made with the Administration of certain coast stations or coast earth stations for payments for communication services to be made by a credit card. The arrangement is valid only for the services of the station with which it is made.

An operator will intervene in the call and should be provided with details of the credit card. The prefix may be followed by the number of the called party.

B.3.7 **time and charges requested at end of call (prefix 37)**

Prefix 37 provides, upon completion of the call, either automatic printout of charging information, or connection to an operator who will supply charging information on the call. The prefix is followed by the number of the called party.

B.3.8 **medical assistance (prefix 38)**

If the condition of an ill or injured person aboard ship requires his urgent delivery ashore or the delivery of a doctor aboard ship, prefix 38 provides connection to the appropriate national authority responsible for this kind of activity.

B.3.9 **maritime assistance (prefix 39)**

Prefix 39 provides connection to the appropriate national authority in case maritime assistance is required (e.g. tow, oil pollution).

B.4 *Ship reporting*

B.4.1 **meteorological reports (prefix 41)**

Prefix 41 provides connection to the meteorological office for transmission of ship weather reports.

B.4.2 **navigational reports from ships (prefix 42)**

Prefix 42 provides connection to a navigational office for transmission of information from ship on any hazards which could endanger safety of navigation (e.g. wrecks, derelicts, floating obstructions, defective radiobeacons or light vessels, icebergs, floating mines, etc.).

B.4.3 **ship position reports (prefix 43)**

Prefix 43 provides connection to an appropriate national or international centre collecting ship movement information for search and rescue (or other) purposes.

B.5 *Information retrieval services (prefixes 5x)*

Further study is required.

B.6 *Specialized use*

Further study is required.

B.7 *(Reserved for future use.)*

B.8 *(Reserved for future use.)*

B.9 *Test*

B.9.1 **automatic test line (prefix 91)**

Prefix 91 provides automatic test of the ship earth station in telex and telephony mode. In the maritime satellite service the coast earth station will automatically transmit a “QUICK BROWN FOX” test message for telex and provide a loop-around test line connection in accordance with Recommendation O.11 for telephony. Test lines for data transmission are for further study.

B.9.2 **commissioning tests (prefix 92)**

Prefix 92 is used in the maritime satellite service for conducting commissioning tests of ship earth stations.

B.9.3 **operational coordination (prefix 95)**

Prefix 95 is used in the maritime satellite service for operational communications between management and maintenance elements of the system.

ITU-T E-SERIES RECOMMENDATIONS

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