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TELEX NUMBERING PLAN FOR THE MOBILE-SATELLITE SERVICES OF INMARSAT

Reedition of CCITT Recommendation F.125 published in the Blue Book, Fascicle II.4 (1988)

NOTES

1 CCITT Recommendation F.125 was published in Fascicle II.4 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.

Recommendation F.125

TELEX NUMBERING PLAN FOR THE MOBILE-SATELLITE SERVICES OF INMARSAT

1 Introduction

1.1 *Purpose*

The purpose of this Recommendation is to specify a telex numbering plan for mobile earth stations in systems operated by the International Maritime Satellite Organization (INMARSAT). Such systems may include maritime and aeronautical satellite systems. In the future the range of mobile satellite systems may also include satellite systems for other applications.

1.2 *Terminology*

The TELEPHONE/ISDN numbering plan for INMARSAT is contained in Recommendation E.215. Recommendations E.215 and F.125 are designed to be as similar as possible.

The following terms are used in this Recommendation:

1.2.1 **ship station identity**

As defined in the Radio Regulations, Appendix 43. See also Recommendation F.120.

1.2.2 **INMARSAT mobile international number**

The international number which identifies a terminal equipment connected to an INMARSAT mobile earth station for access from a public network.

1.2.3 **INMARSAT mobile number**

The part of the INMARSAT mobile international number which follows a F.69 telex destination code allocated to the INMARSAT system.

1.2.4 **INMARSAT mobile terminal number**

That part of the INMARSAT mobile number which identifies a specific terminal equipment connected to the mobile earth station.

1.2.5 *Other definitions*

For definition of terms such as maritime mobile-satellite service, aeronautical mobile-satellite service, ship earth station, etc., see the Radio Regulations.

1.3 *Basic considerations*

The considerations which form the basis for the numbering plan are:

1.3.1 that it shall be possible to identify a mobile earth station uniquely from the INMARSAT mobile number;

1.3.2 that the INMARSAT mobile number should have a format where the same number could be used for access from all types of public network;

1.3.3 that the number of three-digit F.69 telex destination codes required for supporting future INMARSAT requirements should be as few as possible;

1.3.4 that different routings could be used for calls to mobile earth stations designed to different INMARSAT system standards;

1.3.5 that Administrations and INMARSAT could apply different charging and accounting rates to different INMARSAT system standards;

1.3.6 that the numbering plan should provide capacity for the identification of terminal equipment connected to a mobile earth station;

1.3.7 that the numbering plan should support access to multi-channel mobile earth stations.

1.3.8 that the new mobile earth station numbering plan should incorporate numbering plan(s) already in use for the INMARSAT Standard-A system.

1.3.9 that the length of the INMARSAT mobile international number will be limited to 12 digits to comply with Recommendations U.11 and U.12.

1.3.10 that, for maritime-satellite applications the ship station numbering plan should support access to several ship earth stations in the same ship within one ship station identity;

1.3.11 that the Radio Regulations make provision for the allocation of additional MIDs (maritime identification digits) for a specific country when necessary.

2 Format of INMARSAT mobile international number

The format of the INMARSAT mobile international number is:

$$CCC\ \mathrm{T}\ \mathrm{X}_1 \ldots \mathrm{X}_k$$

where *CCC* is a three-digit F.69 telex destination code allocated to INMARSAT and T $X_1 \ldots X_k$ is the INMARSAT mobile number. The format of the mobile INMARSAT number is given in § 4.

3 Telex destination codes for INMARSAT applications

Telex destination codes for INMARSAT applications are given in Recommendation F.69 and shown in Table 1/F.125.

TABLE 1/F.125

Telex destination codes for INMARSAT applications

Telex destination code	Application
581	Atlantic ocean region, INMARSAT
582	Pacific ocean region, INMARSAT
583	Indian ocean region, INMARSAT

4 Format of INMARSAT mobile earth station number

4.1 *General format*

The general format of the INMARSAT *mobile number* is

$$\mathrm{T}\ \mathrm{X}_1\mathrm{X}_2 \ldots \mathrm{X}_k$$

where the digit T is used for discrimination between different INMARSAT systems.

The formats used for the various INMARSAT systems are defined below. The values of the T digits are summarized in Table 2/F.125.

The T digits represent a limited resource and a new T digit should therefore only be allocated when necessary for technical or operational reasons.

The CCITT Secretariat would be responsible for co-ordinating the allocation of new T [or U] (see § 4.6) digits with the competent Study Groups.

TABLE 2/F.125

Value of T digit for various applications

T digit	Applications
0	Group call in INMARSAT Standard-A, see § 4.2.2
1	Ordinary call in INMARSAT Standard-A, see § 4.2.1
2	Reserved for future use
3	Ordinary call in INMARSAT Standard-B, see § 4.3
4	Ordinary call in INMARSAT Standard-C, see § 4.4
5	Ordinary call in INMARSAT aeronautical system, see § 4.5
6	Reserved for future use
7	Reserved for future use
8	Expedient access to special service terminations in INMARSAT Standard-A, see Recommendation E.215
9	Reserved for future expansion, see § 4.6

4.2 *Formats for INMARSAT Standard-A system*

4.2.1 *Ordinary calls*

The number format used for ordinary calls to ship earth stations in INMARSAT Standard-A system is as follows:

$$1\ X_1X_2X_3X_4X_5X_6 \text{ (7 digits)}$$

where 1 corresponds to the T digit and the digits $X_1X_2X_3X_4X_5X_6$ are allocated to ships by INMARSAT.

The length of the INMARSAT mobile number will be 7 digits, making the length of the INMARSAT mobile international number equal to 10 digits.

4.2.2 *Group calls*

For group calls, the INMARSAT mobile number takes the following format:

$$0\ X_1X_2X_3X_4X_5X_6\ X_7X_8 \text{ (9 digits)}$$

where 0 corresponds to the T digit and X_1 through X_8 takes values assigned by INMARSAT.

The group call numbering scheme is shown in § B.2.2.

The length of the INMARSAT mobile number will be 9 digits making the length of the INMARSAT mobile international number equal to 12 digits.

4.3 *Formats for INMARSAT Standard-B system*

4.3.1 *Ordinary calls*

For ordinary calls to ship earth stations in INMARSAT Standard-B system, the format shall be initially:

$$3\ M_1I_2D_3X_4X_5X_6X_7X_8(9\ \text{digits})$$

where 3 corresponds to the T digit and the $M_1I_2D_3X_4X_5X_6$ are the first 6 digits of the ship station identity MIDXXXOOO (see Annex A). The INMARSAT mobile terminal number digits X_7X_8 may be used for identifying terminal equipment connected to a ship earth station, for discriminating between channels for multi-channel ship earth stations and for discriminating between several ship earth stations on the same ship.

The number format is:

$$3\ X_1X_2X_3X_4X_5X_6\ X_7X_8\ (9\ \text{digits})$$

where the digit X_1 may take the values 8 or 9 which are reserved for future INMARSAT applications.

4.3.2 *Group calls*

The group call numbering scheme is shown in Annex B.

The length of the INMARSAT mobile number will be 9 digits making the length of the INMARSAT mobile international number equal to 12 digits.

4.4 *Format for INMARSAT Standard-C system*

4.4.1 *Ordinary calls*

For ordinary calls to ship earth stations in INMARSAT Standard-C system, the format shall be initially:

$$4\ M_1I_2D_3X_4X_5X_6\ X_7X_8\ (9\ \text{digits})$$

where 4 corresponds to the T digit and where at least the digits $M_1I_2D_3X_4X_5X_6$ are part of the ship station identity. The digits X_7X_8 may also be part of the ship station identity or be used for discrimination between several ship earth stations on the same ship.

The number format is:

$$4\ X_1X_2X_3X_4X_5X_6\ X_7X_8\ (9\ \text{digits})$$

where the digit X_1 may take the values 8 or 9 which are reserved for INMARSAT applications.

4.4.2 *Group calls*

The group call numbering scheme is shown in Annex B. The length of the INMARSAT mobile number will be 9 digits making the length of the INMARSAT mobile international number equal to 12 digits.

4.5 *Format for INMARSAT aeronautical system*

The general format of numbers in the INMARSAT aeronautical system is as follows:

$$5\ X_1X_2X_3X_4X_5X_6\ X_7X_8\ (9\ \text{digits})$$

where 5 corresponds to the T digit.

The format of the digits X_1 through X_8 is still to be determined.

The length of the INMARSAT mobile number will be 9 digits making the length of the INMARSAT mobile international number equal to 12 digits.

4.6 *Future INMARSAT standard systems*

T digits should be allocated for each new INMARSAT standard system in the future. If an earlier system is taken out of service, T digits allocated for that system may be reallocated to new systems.

If the capacity provided by the T digits of Table 2/F.125 is not sufficient, then further capacity may be made available by using T = 9 followed by an additional digit (U) as follows:

$$9\ U\ X_1X_2\ .\ .\ .\ X_k$$

where the digits $X_1\ .\ .\ .\ X_k$ identifies the mobile earth station and any extension connected to it. The digit U is used to identify new INMARSAT systems or for technical and operational reasons (see § 6 below).

5 Digit analysis

If different routing and/or accounting applies to different INMARSAT standard systems, then the digits CCCT need to be analyzed at international exchanges.

If the routing capacity is increased by using T = 9 (see § 4.6), then the digits CCC9U need to be analyzed and this is for further study.

6 Presentation of INMARSAT mobile numbers in directories

6.1 *General*

INMARSAT mobile numbers may be published in separate directories or in separate sections of general directories.

In directories, only the INMARSAT mobile numbers, as specified in § 4.1, shall be listed. The telex destination code to be used and instruction for the subscribers should be contained in general parts of the directories.

The subject on directories for mobile satellite services requires further studies.

ANNEX A

(to Recommendation F.125)

Use of ship station identification for maritime applications of systems operated by INMARSAT

A.1 *General*

Appendix 43 of the Radio Regulations defines an international identification plan for ships participating in the maritime mobile services. The ship station identity consists of nine digits and is composed as follows:

$$M_1I_2D_3X_4X_5X_6X_7X_8X_9$$

where the digits $M_1I_2D_3$ determine the ship's nationality.

For ships participating in systems operated by INMARSAT, the main part of this Recommendation specifies a format of the INMARSAT mobile number as follows:

$$T\ X_1X_2\ .\ .\ .\ X_k$$

The purpose of the digit T is explained in § 4.

For maritime applications, the number can be regarded as being composed of three blocks as follows:

T	$X_1X_2 \ldots X_n$	$X_{n+1} \ldots X_k$
Block 1	Block 2	Block 3

where the digit in block 1 is the digit T, the digits in block 2 are related to the ship station identity as explained below, and block 3 contains digits which are used for other purposes (e.g. INMARSAT mobile terminal number). In some INMARSAT systems, block 3 may be empty.

Note 1 – For the INMARSAT Standard-A system, INMARSAT applies a ship numbering plan which is not related to the ship station identification plan of the Radio Regulations. In this numbering plan the digit T takes the fixed value T = 1.

Note 2 – For INMARSAT Standard-B and C systems, the digit X_1 may take the values 8 or 9 for future applications. In this case, the digits in block 2 are not related to the ship station identification plan.

A.2 *Constraints on ship station identification and numbering*

A.2.1 The present number capacity of the telex network requires that the INMARSAT mobile number must consist of 9 or fewer digits to comply with the requirements of international signalling systems specified in the U-Series Recommendations.

A.2.2 The new numbering plan must cater for the following:

- identification for calls to ship board terminal equipment connected to the ship earth station;
- the possibility of several ship earth stations on the same ship where all ship earth stations have a number associated with the unique ship station identity of the ship;
- the capability of supporting multi-channel ship earth stations.

These capabilities may require digits in block 3 of the INMARSAT mobile number, thus reducing the available space for block 2.

A.3 *Applications of ship station identity*

A.3.1 *Digit capacity in block 2*

The INMARSAT Standard-A system can only support 6 digits in block 2 because of the addressing capacity on the radio path.

The addressing capacity of INMARSAT Standard-B and C systems on the ratio path can cater for up to 9 digits in block 2. However, the limited digit capacity of the terrestrial networks puts the following initial constraints to the number of digits in block 2:

- for the INMARSAT Standard-B system, the initial digit capacity in block 2 is 6 digits in order to allow sufficient capacity in block 3 for supporting the capabilities listed in § A.2.2 above.
- for the INMARSAT Standard-C system, the initial digital capacity in block 2 is 6 digits to allow sufficient capacity in block 3 for supporting the possibility of identifying several terminal equipments connected to a ship earth station and of several ship earth stations on the same ship..

A.3.2 *Mapping between ship station identity and digits in block 2*

The mapping between ship station identity and digits in block 2 is shown in Table A-1/F.125.

For ship earth stations, the ship station identity is thus derived from the digits in block 2 by adding 0_5 at the end until the identity consists of 9 digits.

The digit T in block 1 determines the type of ship earth station and, implicitly, the number of digits in block 2. The relationship is shown in Table A-2/F.125. Further details of the number structure is given in the main part of the Recommendation.

A.3.3 *Ships equipped with several INMARSAT standard systems*

The ship station identity for such ships is the one derived from the ship earth station standard having the smallest size of block 2. This applies only if the numbering systems for the ship earth station standards are related to the ship station identification plan.

TABLE A-1/F.125

Mapping between ship station identity and digits in block 2 of the INMARSAT mobile station number

Ship station identity			XXX XXX 000	XXX XXX 0X0	XXX XXX 0XX
Block 2 mapping	Size of block 2	6 digits	XXX XXX	Mapping not possible	Mapping not possible

X: any digit between zero (0) and nine (9)
0: zero (0)

TABLE A-2/F.125

Relationship between the digit T and the format of the ship station identity in 12 digit INMARSAT mobile international numbers

Value of digit T	INMARSAT standard system	Number of digits in block 2	Format of ship station identity
0	A	(Note 1)	(Note 1)
1	A	6	(Note 2)
2	Reserved	–	–
3	B	6	XXX XXX 000
4	C	6	XXX XXX 000
5	Aeronautical	(Note 3)	(Note 3)
6	Reserved	–	–
7	Reserved	–	–
8	A	(Note 4)	(Note 4)
9	Future expansion	Further study	Further study

Note 1 – Group call address (see Annex B for format of group call addresses).

Note 2 – The INMARSAT mobile number is not related to the ship station identification plan of Appendix 43, Radio Regulations.

Note 3 – The numbering plan for the Aeronautical-Satellite service is not related to the ship station identification plan of Appendix 43, Radio Regulations.

Note 4 – See § 4 for the use of this T-digit.

ANNEX B

(to Recommendation F.125)

Group call numbering scheme for the INMARSAT system

B.1 *Categories for group call services*

At present, four different categories of group call service have been envisaged within the maritime mobile-satellite service.

B.1.1 *National group calls*

The category is defined to address all ships of the same nationality.

B.1.2 *Fleet group calls*

This category is defined to address all ships within one fleet.

B.1.3 *Selected group calls*

This category is defined to address a number of ships having a community of interest irrespective of nationalities or fleets, and forming a predefined group.

B.1.4 *Area group calls*

This category is defined to address all ships of any nationality located within a predetermined geographical area.

B.2 *Group call formats*

B.2.1 The general group call format is T $X_1X_2X_3X_4X_5X_6X_7X_8$ where the digits T $X_1X_2X_3X_4X_5X_6X_7X_8$ take the values in § B.2.2 for INMARSAT Standard-A and the values in § B.2.3 for other INMARSAT standards.

B.2.2 The group call numbering schemes for the INMARSAT Standard-A system will use eight decimal digits $X_1 \ldots X_8$ following the T digit, with T = 0, allocated as follows:

$M_2I_3D_4 0_5 0_6 0_7 0_8 0_9$	National group call
$M_2I_3D_4F_5F_6F_7F_8F_9$	Fleet group call
$0_2 0_3 S_4S_5S_6S_7S_8S_9$	Selected group call
$0_2 0_3 0_4 A_5A_6A_7A_8A_9$	Area group call

where $M_2 \neq 0$ $M_2 \neq 1$ $F_5 \neq 0$ $S_4 \neq 0$.

For T = 1 or 8, the group call number is not valid.

B.2.3 For INMARSAT standards other than Standard-A, the format of the digits $X_1 \ldots X_8$ is as follows:

0MID $0_5 0_6 0_7 0_8$	National group calls
0MID $F_5F_6F_7F_8$	Fleet group calls
000 $S_4S_5S_6S_7S_8$	Selected group calls
0000 $A_5A_6A_7A_8$	Area group calls

The T digit takes the value allocated for the particular standard in accordance with Table 2/F.125.

Hence, for a fleet group call to a Standard B ship earth station, the format would be:

3 0 MID $F_5F_6F_7F_8$

and for a fleet group call to a Standard-C ship earth station, the format would be:

4 0 MID $F_5F_6F_7F_8$

B.2.4 The MIDs in national and fleet group numbers are those allocated in Table 1 of Appendix 43, Radio Regulations [1].

B.2.5 In accordance with § 4 of the above-mentioned Appendix, the particular MID reflects only the country allocating the group call identity and therefore does not prevent group calls to fleets containing more than one ship nationality. Allocation of selected group numbers should be avoided when the same group could equally well be assigned a fleet group number.

B.2.6 National group numbers and fleet group numbers should be allocated by countries. Selected group numbers and area group numbers as applicable to the INMARSAT system should be allocated by INMARSAT; allocation of such numbers may require cooperation with other organizations.

B.2.7 A country having assigned a national group or fleet group number should notify the Director-General of INMARSAT if those numbers are going to be used within the INMARSAT system.

Reference

[1] *Radio Regulations*, Appendix 43, ITU, Geneva, 1982, revised in 1985, 1986 and 1988.

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