



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

E.215

(05/97)

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

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

**Telephone/ISDN numbering plan for the
mobile-satellite services of Inmarsat**

ITU-T Recommendation E.215

(Previously CCITT Recommendation)

ITU-T E-SERIES RECOMMENDATIONS

OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

OPERATION, NUMBERING, ROUTING AND MOBILE SERVICES

INTERNATIONAL OPERATION	E.100–E.229
Definitions	E.100–E.103
General provisions concerning Administrations	E.104–E.119
General provisions concerning users	E.120–E.139
Operation of international telephone services	E.140–E.159
Numbering plan of the international telephone service	E.160–E.169
International routing plan	E.170–E.179
Tones in national signalling systems	E.180–E.199
Maritime mobile service and public land mobile service	E.200–E.229
OPERATIONAL PROVISIONS RELATING TO CHARGING AND ACCOUNTING IN THE INTERNATIONAL TELEPHONE SERVICE	E.230–E.299
Charging in the international telephone service	E.230–E.249
Procedures for remuneration of Administrations for facilities made available	E.250–E.259
Measuring and recording call durations for accounting purposes	E.260–E.269
Establishment and exchange of international accounts	E.270–E.299
UTILIZATION OF THE INTERNATIONAL TELEPHONE NETWORK FOR NON-TELEPHONY APPLICATIONS	E.300–E.329
General	E.300–E.319
Phototelegraphy	E.320–E.329
ISDN PROVISIONS CONCERNING USERS	E.330–E.399
<i>QUALITY OF SERVICE, NETWORK MANAGEMENT AND TRAFFIC ENGINEERING</i>	
NETWORK MANAGEMENT	E.400–E.489
TRAFFIC ENGINEERING	E.490–E.799
QUALITY OF TELECOMMUNICATION SERVICES: CONCEPTS, MODELS, OBJECTIVES AND DEPENDABILITY PLANNING	E.800–E.899

For further details, please refer to ITU-T List of Recommendations.

ITU-T RECOMMENDATION E.215

TELEPHONE/ISDN NUMBERING PLAN FOR THE MOBILE-SATELLITE SERVICES OF INMARSAT

Summary

The purpose of this Recommendation is to specify a telephone/ISDN numbering plan for mobile earth stations in systems operated by Inmarsat. Such systems may include maritime, land-based and aeronautical satellite systems. In the future, the range of mobile satellite systems may also include satellite systems for other applications.

Source

ITU-T Recommendation E.215 was revised by ITU-T Study Group 2 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 26th of May 1997.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. 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, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had/had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 1997

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.

CONTENTS

	<i>Page</i>
1 Introduction	1
1.1 Purpose	1
1.2 Terminology	1
1.3 Basic considerations	1
2 Format of Inmarsat mobile international number.....	2
3 E.164 codes for Inmarsat applications	2
4 Format of Inmarsat mobile number.....	2
4.1 General format.....	2
4.2 Formats for Inmarsat-A system	3
4.3 Formats for Inmarsat-B system.....	4
4.4 Format for Inmarsat-C system	5
4.5 Format for Inmarsat Aeronautical system.....	6
4.6 Formats for Inmarsat-M system.....	7
4.7 Formats for Inmarsat-mini-M system	7
4.8 Future Inmarsat systems	8
5 Digit analysis.....	8
6 Presentation of Inmarsat mobile numbers in directories	8
6.1 General.....	8
Annex A – Use of ship station identification for maritime applications of systems operated by Inmarsat.....	9
A.1 General.....	9
A.2 Constraints on ship station identification and numbering.....	9
A.3 Application of ship station identity.....	10
Annex B – Group call numbering scheme for Inmarsat systems	11
B.1 Categories for group call services.....	11
B.2 Group call formats	12
Annex C – Structure of the on-board identification digits in the Inmarsat numbering plan	12
C.1 Introduction	12
C.2 Proposed structure	12
C.3 Allocation	13

TELEPHONE/ISDN NUMBERING PLAN FOR THE MOBILE-SATELLITE SERVICES OF INMARSAT

(Melbourne, 1988; revised at Helsinki, 1993 and in 1997)

1 Introduction

1.1 Purpose

The purpose of this Recommendation is to specify a telephone/ISDN numbering plan for mobile earth stations in systems operated by Inmarsat. Such systems may include maritime, land-based 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 telex numbering plan for Inmarsat is contained in Recommendation F.125. This Recommendation and Recommendation F.125 are designed to be as similar as possible.

This Recommendation defines the following terms.

1.2.1 ship station identity: As defined in the Radio Regulations, Appendix 43. See also Recommendation E.210.

1.2.2 Inmarsat mobile international number: The number following the international prefix which identifies 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 E.164 codes allocated to Inmarsat.

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

1.2.5 on-board identification digits: These digits are the part of the mobile earth station number used for identifying:

- a specific terminal equipment on board;
- a specific mobile earth station.

1.3 Basic considerations

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

1.3.1 that it shall be possible to identify an Inmarsat 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 networks;

1.3.3 that the number of three-digit E.164 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 for different Inmarsat systems;

1.3.5 that Administrations and Inmarsat could apply different charging and accounting rates to different Inmarsat systems;

1.3.6 that the numbering plan should provide capacity for on-board identification or direct access to a specific terminal equipment connected to a mobile earth station, e.g. on board a ship;

- 1.3.7** that the numbering plan should support access to multichannel 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-A system;
- 1.3.9** that the length of the Inmarsat mobile international number should comply with Recommendation E.164 and will be limited to 12 digits until 1st January 1997 (see also Recommendation E.165 and associated Recommendation E.162);
- 1.3.10** that, for maritime satellite applications, the ship earth station numbering plan should support access to several ship earth stations on the same ship within one ship station identity;
- 1.3.11** that the radio regulations make provision for the allocation of additional MIDs for a specific country when necessary;
- 1.3.12** that Inmarsat will assign and administer the Land Identification Digits (L₂I₃D₄) which are used to identify the country of registry of land-based mobile earth stations.

2 Format of Inmarsat mobile international number

The general format of the Inmarsat mobile international number is:

$$CCC T_1 (T_2) X_1 X_2 \dots X_k$$

where CCC is a three-digit E.164 code allocated to Inmarsat as shown in Table 1 and T₁(T₂) X₁ ... X_k is the Inmarsat mobile number. The number of T digits will vary between one or two, according to the particular Inmarsat system involved as shown in Table 2. The format of the mobile number is given in clause 4.

3 E.164 codes for Inmarsat applications

E.164 codes for Inmarsat applications are given in Table 1.

Table 1/E.215 – Telephone/ISDN E.164 codes for Inmarsat applications

Country code	Application
870	Single Network Access Code (Notes 1 and 2)
871	Atlantic-East Ocean Region, Inmarsat
872	Pacific Ocean Region, Inmarsat
873	Indian Ocean Region, Inmarsat
874	Atlantic-West Ocean Region, Inmarsat

NOTE 1 – E.164 code 870 has been allocated to enable the originator of a call to an Inmarsat mobile earth station to dial one E.164 code for worldwide access.

NOTE 2 – The code 870 has been allocated by the ITU on the understanding that by 1 July 2015 at the latest, Inmarsat systems and associated mobile earth stations will be accessed from the fixed network using only the single E.164 code 870. When this objective is achieved, the E.164 codes 871-874 will be returned to the ITU.

4 Format of Inmarsat mobile number

4.1 General format

The general format of the Inmarsat mobile number is:

$$T_1(T_2) X_1 X_2 \dots X_k$$

where a single or double 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.

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

The ITU-T/TSB would be responsible for co-ordinating the allocation of new T digits with the competent Study Groups.

Table 2/E.215 – Value of T digit(s) for various applications

T digit(s)	Application
0	Group call in Inmarsat-A system (see 4.2.2)
1	Ordinary call in Inmarsat-A system (see 4.2.1)
2	Reserved for future use
3	Ordinary call in Inmarsat-B system (see 4.3)
4	Ordinary call in Inmarsat-C system (see 4.4)
5	Ordinary call in Inmarsat Aeronautical system (see 4.5)
6	Ordinary call in Inmarsat-M system (see 4.6)
76	Ordinary call in Inmarsat-mini-M system (see 4.7)
70-75 and 77-79	Reserved for future use
8	Expedient access to special service terminations in Inmarsat-A system (see 4.2.3)
9	Reserved for future expansion (see 4.8)

4.2 Formats for Inmarsat-A system

4.2.1 Ordinary calls

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

$$1 X_1 X_2 X_3 X_4 X_5 X_6 \text{ (7 digits)}$$

where 1 corresponds to the T digit and the digits $X_1 X_2 X_3 X_4 X_5 X_6$ 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.

It should be noted that the Inmarsat-A system will not implement the planned Single Network Access Code mode of operation using the single E.164 code 870, due to technical, operational and financial considerations.

4.2.2 Group calls

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

$$0 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 0 corresponds to the T digit and X_1 through X_8 takes values as 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.

4.2.3 Access to special service terminations on board the ship

In order to handle automatic data and facsimile calls in the Inmarsat-A system, the following format is proposed:

$$8 Y 1 X_1 X_2 X_3 X_4 X_5 X_6 \text{ (9 digits)}$$

where 8 corresponds to the T digit, the digits X_1 through X_6 take the same value as in 4.2.1 and the digit Y determines the service termination. Table 3 lists the values of digit Y for various applications.

NOTE 1 – The Inmarsat mobile international number will then have the following format:

$$CCC\ 8\ Y\ 1\ X_1X_2X_3X_4X_5X_6\ (12\ digits)$$

NOTE 2 – The digits Y, 1, etc., need not be analysed in the international network for routing or charging purposes.

Table 3/E.215 – Values of digit Y for various applications

Y digit	Application
0	Reserved for future use
1	Facsimile, Group 3
2 (Note 1)	Virtual call packet mode data service, Recommendation X.25
3 (Note 2)	Mobile-to-shore high speed data at 56 kbit/s
4 (Note 2)	Mobile-to-shore high speed data at 64 kbit/s
5	Duplex high speed data at 56 kbit/s
6	Duplex high speed data at 64 kbit/s
7 through 9	Reserved for future use

NOTE 1 – The number 8 2 1 X₁X₂X₃X₄X₅X₆ is not available for subscriber dialling in the PSTN or ISDN. The number will be used by interworking units between packet switched public data networks and the PSTN in order to forward data calls to mobile ship earth stations.

NOTE 2 – These services are originated by the terrestrial customer although the high speed data is provided in the mobile to fixed direction.

4.3 Formats for Inmarsat-B system

4.3.1 Maritime mobile – Ordinary calls

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

$$3\ M_1I_2D_3X_4X_5X_6Z_1Z_2\ (9\ digits)$$

where 3 corresponds to the T digit and the digits M₁I₂D₃X₄X₅X₆ are the first 6 digits of the ship station identity MIDXXX000 (see Annex A). The digits Z₁Z₂ may be used for, identifying terminal equipment connected to a ship earth station, for discriminating between channels of multichannel ship earth stations, for discriminating between several ship earth stations on the same ship and for identification of special Inmarsat service terminations, e.g. Group 3 facsimile service.

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

Special requirements on the allocation of the digits Z₁Z₂ are given in Annex C.

4.3.2 Land mobile – Ordinary Calls

For ordinary calls to land-based mobile earth stations in the Inmarsat-B system, the format shall be initially:

$$3\ 8\ L_2I_3D_4X_5X_6X_7X_8\ (9\ digits)$$

where 3 corresponds to the T digit and the digit 8 signifies a land-based mobile earth station and the digits L₂I₃D₄ provide land identification digits which are used to identify the country of registry.

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

4.3.3 Land and maritime high speed data

The number format:

$$3\ 9\ X_2X_3X_4X_5X_6X_7X_8$$

where the digit before X_2 takes the value 9; this is reserved for Inmarsat-B land and maritime high speed data service.

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

4.3.4 Group calls

For further study.

4.3.5 Future extension of the number

The Inmarsat mobile number may be extended to 12 digits as the number capacity of the international network is increased (see Recommendation E.165 and associated Recommendation E.162). Annex C proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digit.

4.4 Format for Inmarsat-C system

4.4.1 Maritime mobile – Ordinary calls

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

$$4\ M_1I_2D_3X_4X_5X_6X_7X_8\ (9\ \text{digits})$$

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. In the latter case, X_7X_8 becomes Z_1 and Z_2 and the principle of Annex C should be followed.

The number format:

$$4\ X_1X_2X_3X_4X_5X_6X_7X_8\ (9\ \text{digits})$$

where the digit X_1 takes the value 8; this is reserved for future Inmarsat applications.

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

4.4.2 Land mobile – Ordinary calls

For ordinary calls to land-based mobile earth stations in the Inmarsat-C system, the format shall be initially:

$$4\ 9\ L_2I_3D_4X_5X_6X_7X_8\ (9\ \text{digits})$$

where 4 corresponds to the T digit and the digit 9 signifies a land-based mobile earth station and the digits $L_2I_3D_4$ provide land identification digits which are used to identify the country of registry.

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

4.4.3 Group calls

Group call selection in the Inmarsat-C system is achieved using two-stage access procedures which do not conform with the scheme outlined in Annex B.

4.4.4 Future extension of the number

For maritime satellite applications, the Inmarsat mobile number used in the Inmarsat-C system may be extended to 12 digits as the numbering capacity of the international network is increased (see Recommendation E.165 and associated Recommendation E.162) in a way similar to those of the B system (see 4.3.5). Annex C proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digit.

4.5 Format for Inmarsat Aeronautical system

The general format of numbers in the Inmarsat Aeronautical system is as follows:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 5 corresponds to the T digit.

The format of the digit X_1 through X_8 ensures the provision of two fundamental requirements for the Inmarsat (aeronautical) mobile number, namely:

- 8-digit primary address for all aircraft; and
- 6-digit alternate address and two DDI digits for selected aircraft.

4.5.1 Primary address

For primary addressing requirements, the number format will be as follows:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8$$

- T digit = 5;
- For $X_1 = 0$ to 7,

the digits $X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8$ are the primary address of aircraft earth station, where X_n is the octal digit representing the corresponding 3 bits of the 24 bit ICAO technical address, and X_2 to $X_8 = 8$ or 9 are reserved for future use.

The primary address is applicable to both Aeronautical Public Correspondence (APC) telephony (and other circuit-mode) and APC packet-mode (data) services.

4.5.2 Alternate address

In order to provide a DDI capability for certain aircraft, the number format will be as follows:

$$\text{For } X_1 = 8,$$

the digits $X_1 X_2 X_3 X_4 X_5 X_6 Z_1 Z_2$ are composed of a 6-digit alternate address of an aircraft earth station followed by a 2-digit extension number,

where:

- X_n are arbitrarily assigned digits to uniquely identify a particular aircraft earth station; and
- Z_n are DDI digits to uniquely identify individual on-board terminals;
- the alternate address is only to be used for APC telephony (and other circuit-mode) service;
- the alternate address shall not be used for APC packet-mode (data) service; and
- the relationship between the ICAO 24-bit technical address and the Inmarsat mobile number will be determined by means of an algorithmic association at the aeronautical Ground Earth Station (GES).

4.5.3 Special facilities

In order to provide access to special facilities provided at Inmarsat Aeronautical ground earth stations for fixed network subscribers, the following number format is to be used:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8$$

For $X_1 = 9$, the digits $X_1 \dots X_n$ are of variable length and used for the special purpose of identifying special facilities at the ground earth station,

where:

- $X_2 \dots X_n$ is for further study (tentatively, $X_2 = 6$ is reserved for special applications, which are unique to individual ground earth stations);
- access to ground earth station special facilities, using $X_1 = 9$, will be available from both PSPDN and the PSTN/ISDN; however, the definition and means to access the various facilities available, may be different for PSPDN and PSTN/ISDN access.

4.6 Formats for Inmarsat-M system

4.6.1 Maritime mobile – Ordinary calls

For ordinary calls to ship earth stations in the Inmarsat-M system, the format shall be initially:

$$6 M_1 I_2 D_3 X_4 X_5 X_6 Z_1 Z_2 \text{ (9 digits)}$$

where 6 corresponds to the T digit and the digits $M_1 I_2 D_3 X_4 X_5 X_6$ are the first six digits of the ship station identity MIDXXX000 (see Annex A). The digits $Z_1 Z_2$ may be used for identifying terminal equipment connected to a ship earth station, for discriminating between channels of a multichannel ship earth station, for discriminating between several ship earth stations on the same ship and for identification of special Inmarsat service terminations, e.g. Group 3 facsimile service.

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

Special requirements on the allocation of the digits $Z_1 Z_2$ are given in Annex C.

4.6.2 Land mobile – Ordinary calls

For ordinary calls to land-based mobile earth stations in the Inmarsat-M system, the format shall be initially:

$$6 8/9 L_2 I_3 D_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 6 corresponds to the T digit, and the digits 8 or 9 signify a land-based mobile terminal and the digits $L_2 I_3 D_4$ provide land identification digits which are used to identify the country of registry.

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

4.6.3 Group calls

For further study.

4.6.4 Future extension of the number

The Inmarsat mobile number may be extended to 12 digits as the number capacity of the international network is increased (see Recommendation E.165 and associated Recommendation E.162). Annex C proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digit.

4.7 Formats for Inmarsat-mini-M system

4.7.1 Ordinary calls – Maritime mobile

For ordinary calls to ship earth stations in the Inmarsat-mini-M system, the format shall be initially:

$$76 X_1 X_2 X_3 X_4 X_5 X_6 X_7$$

where the digits 76 correspond to the T digits and the digits $X_1 X_2 X_3 X_4 X_5 X_6 X_7$ will be analysed by the Inmarsat land earth station handling the call to determine that the mobile is a maritime-based mobile earth station. The digits X_1 through X_7 take the value of 0-9 for each value of X with the exception of digit X_6 which will take the values 1-9.

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

4.7.2 Ordinary calls – Land mobile

For ordinary calls to land-based mobile earth stations in the Inmarsat-mini-M system, the format shall be initially:

$$76 X_1 X_2 X_3 X_4 X_5 X_6 X_7$$

where the digits 76 correspond to the T digits and in conjunction with the digits X_1 through X_7 will be analysed by the Inmarsat land earth station handling the call to determine that the mobile is a land-based mobile earth station. The digits X_1 through X_7 take the value of 0-9 for each value of X with the exception of digit X_6 which will take the values 1-9.

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

4.7.3 Group calls

For further study.

4.7.4 Future extension of the number

The Inmarsat mobile number may be extended to 12 digits as the numbering capacity of the international network is increased (see Recommendation E.165 and associated Recommendation E.162). Annex C proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digits.

4.8 Future Inmarsat systems

T digits should be allocated for each new Inmarsat 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 is not sufficient, then further capacity may be made available by using T = 9 followed by an additional digit (U) as follows:

$$9 U X_1 X_2 \dots X_k$$

where the digits $X_1 \dots X_k$ 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.

The ITU-T/TSB would be responsible for coordinating the allocation of new U digits with the competent Study Groups.

5 Digit analysis

If different routing and/or accounting applies to different Inmarsat systems, then the digits CCC T or CCC T₁T₂ need to be analysed at international exchanges.

If the routing capacity is increased by using T = 9 (see 4.8), then the digits CCC9U need to be analysed.

The above requirements on number analysis are in compliance with Recommendation E.164. See also Recommendation E.165 and associated Recommendation E.162.

The digits Y, 1, etc., following CCC 8 (see 4.2.3) need not be analysed in the international network for routing or charging purposes.

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 country code to be used and instruction for the subscribers should be contained in general parts of the directories.

The use of digits 8 Y in the format for the Inmarsat-A system in 4.2.3 should also be explained in the general parts of the directories. This information should also include indications as to whether or not these numbers are accepted for calls to one or more ocean areas.

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

Annex A

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

Reservation on the use of this Annex

The Inmarsat-B, -M, -mini-M and -C systems depend on analysis of blocks 2 and 3 unlike Inmarsat-A and the following text is therefore the subject of further study.

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 9 digits and is composed as follows:

$$M_1 I_2 D_3 X_4 X_5 X_6 X_7 X_8 X_9$$

where the digits $M_1 I_2 D_3$ 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:

$$T X_1 X_2 \dots X_k$$

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

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

T	X ₁ X ₂ ... X _n	X _{n+1} ... 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. on-board identification). In some Inmarsat systems, block 3 may be empty.

NOTE 1 – For the Inmarsat-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-B, -M and -C systems, the digit X₁ may take either of the values 8 or 9 depending on the specific system to be used 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 PSTN requires that the Inmarsat mobile number consists of 9 or fewer digits. As the number capacity of the PSTN/ISDN is increased to 15 digits, then the Inmarsat mobile number can consist of up to 12 digits.

A.2.2 The new numbering plan must cater for capabilities as follows:

- provision of a reasonable on-board identification capacity for calls to ship board terminal equipment connected to the ship earth station;
- 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;
- capability of supporting multichannel 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 Application of ship station identity

A.3.1 Digit capacity in block 2

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

The addressing capacity of Inmarsat-B, -M and -C systems on the radio path can cater for up to 7 digits in block 2. However, the limited digit capacity of the terrestrial networks puts the following initial constraints on the number of digits in block 2:

- For the Inmarsat-B and -M systems, the initial digit capacity in block 2 is 6 digits to allow sufficient capacity in block 3 for supporting the capabilities listed in A.2.2 above. In the future (see Recommendation E.165 and associated Recommendation E.162), the capacity of block 2 may be extended to 8 or 9 digits.
- For the Inmarsat-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. In the future, the capacity of block 2 may be extended to 7 or more digits.

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

The mapping between the ship station identity and the digits in block 2 is shown in Table A.1.

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

In order to distinguish between Inmarsat mobile numbers consisting of 9 and 12 digits (if they coexist), the digit X₇ of the ship station identity, the eighth digit of the Inmarsat mobile number (see Recommendation E.210) must take the fixed value 0. This constraint is not valid when only 12-digit numbers exist in the future (see also Annex C).

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. Further details of the number structure are given in the text of this Recommendation.

Table A.1/E.215 – Mapping between ship station identity and digits in block 2 of the 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
		7 digits	XXX XXX 000	Mapping not possible	Mapping not possible
X Any digit between zero (0) and nine (9). 0 Zero (0).					

Table A.2/E.215 – Relationship between the T digit(s) and the format of the ship station identity in 12-digit Inmarsat mobile international number

Value of T digit(s)	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	M	6	XXX XXX 000
70-75 and 77-79	Reserved	–	–
76	Mini-M	6	–
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 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 4.2.3 for the use of this T digit.

A.3.3 Ships equipped with several Inmarsat systems

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

Annex B

Group call numbering scheme for Inmarsat systems

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 $TX_1X_2X_3X_4X_5X_6X_7X_8$, where the digits $TX_1X_2X_3X_4X_5X_6X_7X_8$ take the values in B.2.2 for Inmarsat-A and the values in B.2.3 for other Inmarsat systems.

B.2.2 The group call numbering schemes for the Inmarsat-A system will use 8 decimal digits $X_1 \dots X_8$ following the T digit, with $T = 0$, allocated as follows:

$M_2I_3D_40_50_60_70_80_9$	National group call
$M_2I_3D_4F_5F_6F_7F_8F_9$	Fleet group call
$0_20_3S_4S_5S_6S_7S_8S_9$	Selected group call
$0_20_30_4A_5A_6A_7A_8A_9$	Area group call

where: $M_2 \neq 0$, $M_2 \neq 1$, $F_5 \neq 0$ and $S_4 \neq 0$.

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

B.2.3 For Inmarsat-B, -M, -mini-M and Inmarsat Aeronautical, the format of the digits $X_1 \dots X_8$ is for further study.

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

B.2.5 In accordance with 4 of the above-mentioned Appendix 43, 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 Inmarsat systems 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 Inmarsat systems.

Annex C

Structure of the on-board identification digits in the Inmarsat numbering plan

C.1 Introduction

Within the numbering scheme, two digits Z_1Z_2 have been allocated (see 4.3.1 and 4.4.1) to on-board identification. The purpose of these digits is to provide means for identifying different ship earth stations on the same ship, and different instruments, e.g. telephone instrument and a facsimile machine, connected to the same ship earth station.

The length of the Inmarsat mobile international number may be extended from 12 digits to 15 digits as the numbering capacity of the international network is increased (see Recommendation E.165 and associated Recommendation E.162).

It is considered that the above aspects can be met by careful selection of the significance and values of Z_1Z_2 .

C.2 Proposed structure

As outlined earlier, it is necessary for Z_1Z_2 to achieve two identification roles, i.e. station and instrument. It is considered that this can be accomplished by allocating Z_1 to multi-ship earth station identification and Z_2 to multi-instrument identification.

This structure would permit the uniform allocation of numbers to be achieved and would allow the growth of ship earth stations to be independent of the growth of instruments on any one ship earth station.

Further, in order to allow the future expansion of the numbering length, it is proposed that Z_1 should never be equal to 0 (zero) and the eighth digit of a 12-digit ship earth station number should always be equal to 0 (zero) as long as these two-number lengths coexist for the same value of T digit, i.e.:

- T MID XXXZ₁Z₂ (9 digits with $Z_1 \neq 0$).
- T MID XXX0XXZ₁Z₂ (12 digits).

The above approach would then allow the unambiguous identification of 9-digit and 12-digit ship earth station numbers on the same T digit.

NOTE – The above constraint on the eighth digit is not required in the future when only 12-digit numbers exist in Inmarsat systems.

C.3 Allocation

Therefore, from the above, a ship with one ship earth station and one instrument Z_1Z_2 would equal 10. If another instrument were added, then Z_1Z_2 would equal 11 for this instrument.

If a ship had two earth stations of the same standard and one instrument attached to each, then the values of Z_1Z_2 would be 10 for one station, and 20 for the second station. If a second instrument were added to the second station, then the value of Z_1Z_2 would be 21 for this instrument.

Should it be necessary to allocate more than ten instruments per ship earth station, then another value of Z_1 would be allocated to the earth station, e.g. for the tenth instrument Z_1Z_2 would be equal to 19 and for the eleventh instrument 20 would be allocated or the next free value Z_1 .

Table C.1 gives some illustrations of the above allocations.

Table C.1/E.215 – Examples of Z_1Z_2 allocation for ship earth stations with the same T digit

Ship earth station	Instrument	Z_1	Z_2
<i>Multi-ship earth stations</i>			
X	Telephone	1	0
Y	Telephone	2	0
<i>Multi-ship earth stations and multi-instruments</i>			
X	Telephone	1	0
	Facsimile	1	1
Y	Telephone	2	0
Z	Telephone	3	0
	Facsimile	3	1
	Telephone	3	2
	Telephone	3	3
X	Telephone	1	0
	Telephone	1	1
	Facsimile	1	2
	Telephone	1	9
	Telephone	3	0
Y	Telephone	2	0
	Facsimile	2	1
Z	Telephone	4	0

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communication
Series Z	Programming languages