

**Consideration of matters related to the revision of resolution A.1001(25)**

**Interim report of the Correspondence group**

**Submitted by France**

**SUMMARY**

<b>Executive summary:</b>	This document presents the interim report of the correspondence group on the revision of Resolution A.1001(25).
<b>Action to be taken:</b>	Paragraph 14
<b>Related documents:</b>	MSC 94/21, NCSR 5/14/6, NCSR 9/11, NCSR 9/11/1, NCSR 9/11/2, NCSR 9/11/3, NCSR 9/WP.5, NCSR 9/24, NCSR 10/10/3, NCSR 10/11, NCSR 10/10/7, NCSR 10/11/1, NCSR 10/WP 5, NCSR 10/22

**Introduction**

1 NCSR 10, held from 10 to 19 May 2023, having noted the considerations of the Working Group on communications with respect to the revision of resolution A.1001(25), agreed to re-establish the Correspondence Group on the Revision of Resolution A.1001(25) to be coordinated by France, instructing it with the following terms of reference to:

- .1 further develop the draft revision of resolution A.1001(25) based on the progress made at NCSR 10 (NCSR 10/WP.5, paragraphs 14 to 19, and annex 2), taking into account document NCSR 10/11/1;
- .2 submit an interim report, containing an updated draft revision of resolution A.1001(25), to the nineteenth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters, for its consideration; and
- .3 taking into account the outcome of discussions at the meeting of the Joint IMO/ITU Experts Group, submit a report, including a draft revision of resolution A.1001(25), for consideration at NCSR 11.

2 The coordinator of the correspondence group would like to thank the following Member States and international organizations for their participation in the correspondence group: Australia, Canada, China, France, Ireland, Japan, Morocco, New Zealand, Spain, Turkey, the United Kingdom, the United States, IHO, IMO, IMSO, ITF, ITU and WMO, and the representatives of mobile satellite service providers: Inmarsat and Iridium.

3 In addition to regular exchange of e-mails, a distance meeting was organized with the help of Inmarsat in two sessions of 3 hours on 9<sup>th</sup> and 10<sup>th</sup> August 2023.

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4 The draft revision of Res.A.1001(25) in annex 3 is based on the outcome of NCSR 10. Corrections and additions made since the revision of the resolution are in grey shade, and all additions and corrections made by the correspondence group since NCSR 10 are in blue within the grey shade.

### **Text of the resolution**

5 An additional sentence is proposed in the text of the resolution to invite international organizations to consult with recognized GMDSS service providers regarding changes to relevant instruments and standards that may affect their GMDSS services. However, at NCSR 10, the Secretariat indicated that the cover page of the resolution could be updated by the Secretariat once the revision work has been completed.

### **Section 1 General**

6 The main unresolved issue for the correspondence group remains in this section, in particular in sub-section 1.3 related to legacy services. There are two different views on how to manage the revision with arguments for and against the revocation of Res.A.1001(25).

7 Option 1:

#### *“1.3 Legacy services*

*1.3.1 All satellite-based systems and services for the GMDSS which were already approved and in use before the entry into force of this resolution are subject to the requirements of this resolution, with the exception of paragraphs 2.1, 2.2, 2.3 and 2.4.*

*1.3.2 It may be necessary for MSS providers of satellite-based systems and services for the GMDSS already approved to sign an amendment to their public services agreement (PSA) with the International Mobile Satellite Organization (IMSO) in order to take into account the criteria and requirements of the Organization for the oversight by IMSO.”*

.1 MSC 101 agreed to include in its post-biennial agenda an output on "Revision of the Criteria for the provision of mobile satellite communication services in the GMDSS (resolution A.1001(25))", with two sessions needed to complete the item, assigning the NCSR Sub-Committee as the coordinating organ. In taking this decision, the MSC considered document MSC 101/21/19 (Antigua and Barbuda et al.) which highlighted resolution A.1001(25) was developed with focus on a geostationary satellite system and was not adapted to Iridium.

.2 The proposed review intends also to update the current resolution with the knowledge gained over the past years and to incorporate both the requirements to be applied to non-geostationary satellite systems and the provisions of MSC.1/Circ.1414 on Guidance to prospective GMDSS satellite service providers. MSC.1/Circ.1414 would subsequently be revoked.

.3 In addition, in Res.A.1001(25), the Assembly requests the MSC to keep this resolution under review and take appropriate action as necessary to secure the long-term integrity of the GMDSS. The purpose of the correspondence group is to propose a new resolution incorporating requirements that can satisfy RMSS for the GMDSS which were already approved and in use as well as new MSS providers for use in the GMDSS. The Assembly also revoked resolution A.888(21) and MSC/Circ.1077 when adopting Res.A.1001(25).

8 Option 2 is supported by Inmarsat and Iridium:

*“1.3 Legacy services*

*1.3.1 RMSS Providers systems and RMSS recognised for use within the GMDSS before the entry into force of this resolutions will continue to comply with Resolution A.1001(25) to which they were recognised.*

*1.3.2 RMSS Providers shall request recognition of new GMDSS services in accordance with paragraph 1.2.1 of this resolution.”*

.1 Inmarsat and Iridium think that without considering the current version of Res.A.1001(25), this would break the bilateral agreement and as such, remove any constraints held by the IMO or IMSO in regards to the public service agreement (PSA). If we remove the legal and ethical objections as is proposed in option 1, there are still problems. The first section of the paragraph states that Recognised Mobile Satellite Service (RMSS) Provider, this being the satellite company, space and ground segments of the recognised satellite system, which is already approved for uses in the GMDSS before the entry into force of this resolution, is subject to the requirements of this resolution; but this RMSS provider cannot comply with something different to that against which it was recognized.

.2 The second part provides an expectation of paragraphs 2.1, 2.2, 2.3 and 2.4. meaning the current RMSS providers (company and system) are exempt. But how are RMSS expected to request recognition of new services as these would need to be included within sections 2.1, 2.2, 2.3 and 2.4?

.3 Noting that the second part of option 1 which gives the exemption that they do not need their systems and services to undergo another approval process, paragraphs 2.1, 2.2, 2.3 and 2.4 will need amending to take account that RMSS Providers must have a clear way to recognise new services.

.4 The overarching issue is that the satellite providers have spent millions of dollars to design, implement, seek recognition and maintain their systems and services against an IMO Resolution, the standards and criteria for which they are now being told must change.

9 If the Group cannot take any decision, any advice would be welcome to help the correspondence group to conclude on this important point. But it should be noted that little time will be available after 19<sup>th</sup> IMO/ITU EG for the correspondence group to draft its report to NCSR 11.

## **Section 2 Recognition of mobile satellite service for use in the GMDSS**

10 Following the detailed process drafted in this section, a recognition process flow chart, was made, as indicated in annex 1, in order to help the understanding of this section.

## **Section 3 Criteria and requirements for the recognized satellite system**

11 Requirements for continuity of service and for restoration of service have been merged into one single section 3.6. Section 3 was renumbered accordingly.

12 Sub-section 3.4 may be deleted for there is the same requirement in paragraph 3.3.2.3.4 for immediate access or connection, in paragraph 3.3.2.3.2 to identify shore-to-ship communications from RCC, and in paragraph 3.3.2.2.2 to recognize automatically urgency and distress communications from registered RCC.

13 It would be worthwhile to rearrange section 3 to simplify the reading of the text. Sub-sections 3.4, 3.7, 3.8, and 3.9 refer to requirements dedicated only to SAR services and could be merge into a common sub-section. The paragraphs in this new sub-section should also be presented in a more logical way, i.e.:

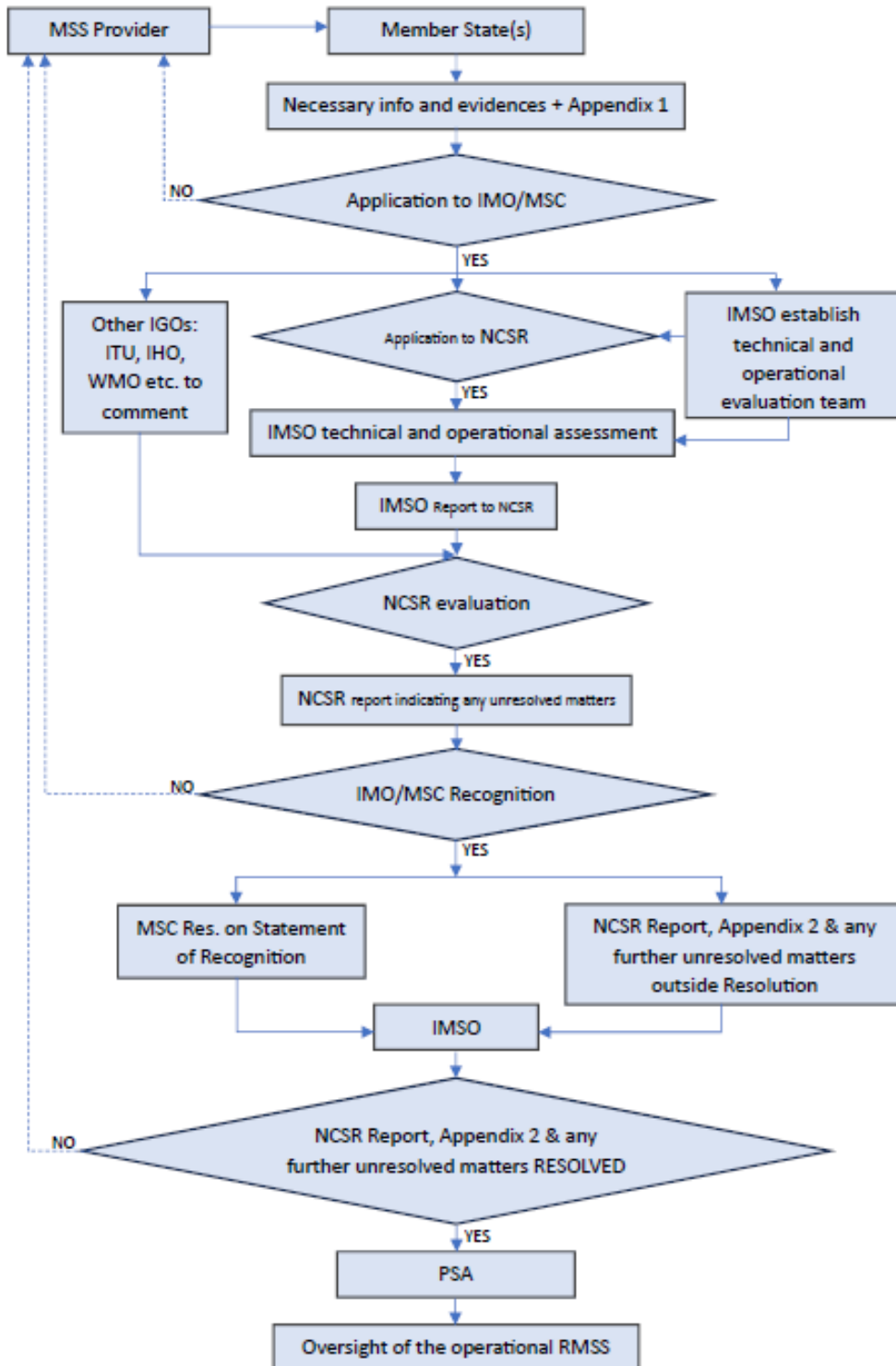
- 1) Reception and routing of distress alerts;
- 2) RCC Immediate Connection;
- 3) Information to be made available to SAR services; and
- 4) Identification.

#### **Action requested of the Experts Group**

14 The Experts Group is invited to note the interim report, the proposed list of actions in annex 2 and the draft text of MSC resolution in annex 3 and take action as appropriate.

ANNEX 1

Recognition process flow chart



**ANNEX 2****draft revisions for consideration of the Experts Group**

The draft text in annex 3 is based on the outcome of NCSR 10.

Corrections and additions to the Res.A.1001(25) are in grey shade, and all additions and corrections made since NCSR 10 are in blue with the grey shade.

<b>Draft MSC resolution</b>	
Text	Consider the additional text in blue
<b>Draft MSC resolution Annex</b>	
<b>Section 1</b>	
Paragraph 1.1	Consider the additional word in blue
Paragraph 1.2	Consider the text
Paragraph 1.3	Consider the two options or find another text
Paragraph 1.4.6	Consider the text
Paragraph 1.4.15	Consider the text
<b>Section 2</b>	
Paragraph 2.1	Consider the text
Paragraph 2.2.1	Consider the text
Paragraph 2.2.3.2	Consider the text
Paragraph 2.2.4	Consider the text
Paragraph 2.2.5	Consider the text
Paragraph 2.3	Consider the text
Paragraph 2.4.2	Consider the text
Paragraph 2.4.5	Consider the text
Paragraph 2.5.2	Consider the text
Paragraph 2.5.3	Consider the text
Paragraph 2.7.1	Consider the text
<b>Section 3</b>	
Paragraph 3.1.1	Consider editorial in blue
Paragraph 3.1.2.3	Consider the text
Paragraph 3.1.3	Consider editorial in blue
Paragraph 3.1.4	Consider the text
Paragraph 3.2	Consider the text
Paragraph 3.3.1	Consider editorial in blue
Paragraph 3.3.2.1	Consider additional words and brackets in blue
Paragraph 3.3.2.2	Consider the text with correction in blue
Paragraph 3.3.2.3.2	Consider additional word in blue
Paragraph 3.3.2.3.4	Consider the text
Paragraph 3.3.2.3.5	Consider the text
Paragraph 3.3.2.4	Consider words in blue
Paragraph 3.4	Consider new title with the additional word in blue
Paragraph 3.4.1	Consider the text
Paragraph 3.5	Consider new title with the additional word in blue
Paragraph 3.5.4	Consider the text
Paragraph 3.5.5	Consider the text
Paragraph 3.5.6	Consider the text
Paragraph 3.6	Consider new title
Paragraph 3.6.1	Consider the text
Paragraph 3.6.2	Consider the text
Paragraph 3.6.4	Consider the text

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Paragraph 3.7.2	Consider the text
Paragraph 3.8.2	Consider the text
Paragraph 3.9.1	Consider the text
Paragraph 3.10.1	Consider the text
Paragraph 3.10.2	Consider the text
Paragraph 3.10.5	Consider the text
Paragraph 3.10.6	Consider the word in blue
Paragraph 3.10.7	Consider the words in blue
Paragraph 3.12.2	Consider the text
Paragraph 3.13	Consider the text
Appendix 1	Consider the text
Appendix 2	Consider the text
Appendix 3	Consider the text

Draft

### ANNEX 3

#### Draft MSC resolution

#### **CRITERIA FOR THE PROVISION OF MOBILE SATELLITE SERVICES COMMUNICATION SYSTEMS INFOR THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)**

~~THE ASSEMBLY,~~

~~RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,~~

~~RECALLING ALSO that regulation IV/5 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended in 1988, requires each Contracting Government to undertake to make available, either individually or in co-operation with other Contracting Governments, as they may deem practical and necessary, appropriate shore-based facilities for space and terrestrial radiocommunication services, having due regard to the recommendations of the Organization,~~

~~TAKING INTO ACCOUNT resolution 322(Rev.Mob-87) of the World Administrative Radio Conference, 1987, relating to coast stations and coast earth stations assuming watchkeeping responsibilities on certain frequencies in connection with the implementation of distress and safety communications for the Global Maritime Distress and Safety System (GMDSS),~~

~~TAKING INTO ACCOUNT ALSO resolution 3, "Recommendation on the early introduction of the Global Maritime Distress and Safety System (GMDSS) elements", adopted by the 1988 SOLAS Conference introducing the system,~~

~~NOTING the Provision of radio services for the GMDSS (resolution A.801(19)), as amended,~~

~~NOTING ALSO that future mobile satellite communication systems might have the potential to offer maritime distress and safety communications,~~

~~NOTING FURTHER the decision of the Maritime Safety Committee, at its eighty-second session, that the oversight of future satellite providers in the GMDSS should be undertaken by the International Mobile Satellite Organization (IMSO),~~

~~RECOGNIZING that mobile satellite communication systems for use in the GMDSS should fulfil performance criteria adopted by the Organization,~~

~~RECOGNIZING ALSO the need for the Organization to have in place criteria against which the capabilities and performance of mobile satellite communication systems for use in the GMDSS may be verified and evaluated,~~

~~1. ADOPTS the "Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)", set out in the annex to the present resolution;~~



2. INVITES Governments, when permitting ships entitled to fly the flag of their State to carry maritime mobile satellite equipment for use in the GMDSS, to require those ships to carry equipment which can utilize only those satellite systems that have been recognized by IMO and conform to the performance standards adopted by the Organization for use in the GMDSS, in accordance with the criteria set out in sections 2 to 5 of the annex;

3. REQUESTS the Maritime Safety Committee to:

(a) apply the criteria set out in the annex to the present resolution, through the procedure set out in section 2 of the annex, to evaluate satellite systems notified by Governments for possible recognition for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV; and

(b) ensure that mobile satellite communication systems recognized by the Organization for use in the GMDSS are compatible with all appropriate SOLAS requirements, and also that such recognition takes into account existing operational procedures and equipment performance standards;

4. REQUESTS ALSO the Maritime Safety Committee to keep this resolution under review and take appropriate action as necessary to secure the long-term integrity of the GMDSS;

5. REVOKES resolution A.888(21) and MSC/Circ.1077.

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that regulation IV/5 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, requires each Contracting Government to undertake to make available, as it deems practicable and necessary, either individually or in co-operation with other Contracting Governments, appropriate shore-based facilities for the mobile satellite service and maritime mobile service, having due regard to the recommendations of the Organization,

RECALLING FURTHER resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

TAKING INTO ACCOUNT resolution 322(Rev.Mob-87) of the World Administrative Radio Conference, 1987, relating to coast stations and coast earth stations assuming watchkeeping responsibilities on certain frequencies in connection with the implementation of distress and safety communications for the Global Maritime Distress and Safety System (GMDSS),

TAKING ALSO INTO ACCOUNT resolution 3, "Recommendation on the early introduction of the Global Maritime Distress and Safety System (GMDSS) elements", adopted by the 1988 SOLAS Conference introducing the system,

NOTING the Provision of radio services for the GMDSS (resolution A.801(19)), as amended,

NOTING ALSO that satellite systems have the potential to offer maritime distress, urgency and safety communications,

NOTING FURTHER the decision of the Maritime Safety Committee, at its eighty-second session, that the oversight of future satellite providers in the GMDSS should be undertaken by the International Mobile Satellite Organization (IMSO),

RECOGNIZING that mobile satellite services for use in the GMDSS should fulfil performance criteria adopted by the Organization,

RECOGNIZING ALSO the need for the Organization to have in place criteria against which the capabilities and performance of mobile satellite services for use in the GMDSS may be verified and evaluated,

1 ADOPTS the "provision of mobile satellite services for the Global Maritime Distress and Safety System (GMDSS)", set out in the annex;

2 DECIDES that the criteria set out in the annex:

.1 apply to the evaluation of mobile satellite services notified by Governments for possible recognition for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV; and

.2 apply to the oversight of existing satellite systems and services for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV;

3 ALSO DECIDES that mobile satellite services recognized by the Organization for use in the GMDSS should be compatible with all appropriate SOLAS requirements, and that such recognition should take into account existing operational procedures and equipment performance standards;

4 INVITES Governments, when permitting ships entitled to fly the flag of their State to carry maritime mobile satellite equipment for use in the GMDSS, to require those ships to carry equipment which can utilize only those mobile satellite services that have been recognized by the Organization and conform to the performance standards adopted by the Organization for use in the GMDSS, in accordance with the criteria set out in the annex;

5 INVITES international organizations, such as the IEC, IHO, ITU and WMO, to consult with recognized GMDSS service providers regarding changes to relevant instruments and standards that may affect their GMDSS services;

6 DETERMINES to keep this resolution under review and take appropriate action as necessary to secure the long-term integrity of the GMDSS;

7 ALSO DETERMINES that this resolution revokes resolution A.1001(25) [and MSC.1/Circ.1414] , as from [DATE].

8 INVITES the Assembly to endorse the action taken by the Maritime Safety Committee.]

## ANNEX

### CRITERIA FOR THE PROVISION OF MOBILE SATELLITE SERVICES COMMUNICATION SYSTEMS INFOR THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

#### 1 DEFINITIONSGENERAL

##### 1.1 Introduction

This resolution determines the criteria, procedures and arrangements for the evaluation, recognition, ~~and~~ review, management and oversight of the provision of recognized mobile satellite services (RMSS) in the global maritime distress and safety system (GMDSS) pursuant to the provisions of SOLAS chapter IV.

##### 1.2 Scope

These criteria, procedures and arrangements apply to:

- .1 the evaluation of new mobile satellite services notified by Governments for possible recognition for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV; and
- .2 the management and oversight of satellite systems and services for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV.

##### 1.3 Legacy services

###### Option 1:

[1.3.1 All satellite-based systems and services for the GMDSS which were already approved and in use before the entry into force of this resolution are subject to the requirements of this resolution, with the exception of paragraphs 2.1, 2.2, 2.3 and 2.4.]

1.3.2 It may be necessary for MSS providers of satellite-based systems and services for the GMDSS already approved to sign an amendment to their public services agreement (PSA) with the International Mobile Satellite Organization (IMSO) in order to take into account the criteria and requirements of the Organization for the oversight by IMSO.]

###### Option 2:

[1.3.1 RMSS Providers systems and RMSS recognised for use within the GMDSS before the entry into force of this resolutions will continue to comply with Resolution A.1001(25) to which they were recognised.]

1.3.2 RMSS Providers shall request recognition of new GMDSS services in accordance with paragraph 1.2.1 of this resolution.]

##### 1.4 Definitions

For the purposes of this resolution, the following definitions apply:

- .1 *Availability* means the percentage of time during which a mobile satellite service is available in its service area for access to, and is able to provide GMDSS related communications through, the satellite system (see paragraph 3.5);

- .2 *Coverage area* means the entire footprint of the satellite system on the surface of the earth;
- .3 *Enhanced group call (EGC)* means the international broadcast of coordinated maritime safety information and search and rescue related information, to a defined geographical area using a recognized mobile satellite service;
- .4 *Ground segment* means the arrangements for controlling the space segment, the network control facilities controlling access to the space segment, fixed earth stations, and gateways between the space segment and terrestrial networks;
- .5 *Maritime safety information (MSI)* means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships;
- .6 *Mobile satellite service* means a radiocommunication service:
- .1 between **ship** earth stations and one or more space stations, or between space stations used by this service; or
- .2 between **ship** earth stations by means of one or more space stations.
- This service may also include feeder links necessary for its operation.
- .7 *Mobile satellite service provider (MSS Provider)* means an entity that provides a mobile satellite service;
- .8 *Recognized mobile satellite service (RMSS)* (as defined in SOLAS chapter IV) means any service which operates through a satellite system and is recognized by the Organization, for use in GMDSS;
- .9 *Satellite system* (as defined in RR 1.111) means a space system using one or more artificial earth satellites. The satellite system:
- .1 includes the space segment and the ground segment;
- .2 interfaces with the SES (Ship Earth Station) and the terrestrial networks; and
- .10 *Service area* means a geographical area precisely defined in the statement of recognition, wholly contained within the coverage area of the recognized mobile satellite service (RMSS);
- .11 *Ship earth station (SES)* (as defined in RR 1.78) means a mobile earth station in the maritime mobile-satellite service located on board ship;
- .12 *Space segment* means satellites and the radiocommunication facilities they carry both for control and to provide GMDSS services, including the forward and return communication links with the earth;

- .13 *Store and forward system* means a two-way communication system in which the messages are stored on receipt and queued within the network for onward transmission to the end recipient, with facilities to correct incoming errors and repeat transmissions until reception is confirmed. For satellite systems, message processing will typically be distributed across onboard processors of the space segment and servers in ground-based gateways and earth stations;
- .14 *System-critical component* is a component of the satellite system for which contingency is required to maintain continuity of service; and
- .15 *Terrestrial network* means the communication networks providing land-based subscriber communication facilities such as telephone, facsimile or data communications [which are external to the ground segment](#).

### 1.1 Mobile Satellite Communication System

The mobile satellite communication system (satellite system) means the space segment, the arrangements for controlling the space segment, the network control facilities controlling the access to the space segment, the earth stations and maritime mobile terminals operating in the system. The satellite system will include, or interface with, the following elements:

- .1 **Earth station** – any fixed satellite communication station acting as a gateway between the space segment and the terrestrial networks.
- .2 **Maritime mobile terminal** – any radiocommunication equipment working through a satellite communication system recognized for use in the GMDSS on board a ship.
- .13 **Space segment** – satellites and the radiocommunication facilities they carry both for control and to provide GMDSS services, including the forward and return communication links with the earth.
- .24 **Terrestrial networks** – the communication networks providing land-based subscriber communication facilities such as telephone, facsimile or data communications.

1.2 **Mobile Satellite Communication Service** means any service which operates through a satellite system and is recognized by the Organization for use in the GMDSS.

### 1.3 Coverage area

The Coverage Area of the satellite system is the geographical area within which the satellite system provides an availability in accordance with the criteria stated in section 3.5 in the ship-to-shore and shore-to-ship directions, and within which continuous alerting is available.

### 1.4 Availability

The availability of any mobile satellite communication system or service is defined as the percentage of time in which the system or service as a whole is available for access to and communications through, the system, calculated according to the following formula:

$$A = \frac{(\text{scheduled operating time}) - (\text{downtime})}{(\text{scheduled operating time})} \times 100\%$$

where:

~~Scheduled operating time = 100% of the time period being reported on; and  
Downtime = the total time during the period for which the recognized GMDSS system or service was not operationally available.~~

~~**Note:** Definitions and calculations of availabilities of communications circuits in the Maritime Mobile Satellite Service are given in the most recent version of Recommendation ITU-R M.828-1.~~

## ~~2 PROCEDURE FOR RECOGNITION OF MOBILE SATELLITE SERVICES COMMUNICATION SYSTEMS FOR USE IN THE GMDSS~~

~~2.1 The evaluation and recognition of new MSS Providers systems participating, or wishing to participate in the GMDSS are coordinated/undertaken by the Organization.~~

### ~~2.2 Application for Recognition~~

~~2.2.1 Satellite system/MSS providers wishing to participate in the GMDSS should apply to the Organization, through a Member State, for recognition of any new mobile satellite provider and its appropriate satellite services as a radio system providing maritime distress and safety satellite communication capabilities for use in the GMDSS. Such applications should be notified to the Organization by Governments, either individually or in co-operation with other Governments. The application will be reviewed by the Maritime Safety Committee (MSC) in relation to its policy for the expansion of satellite services in the GMDSS. If the MSC decides that there are no objections in principle to the application, it will forward the application to the COMSAR Sub-Committee for evaluation. Recognition of the satellite provider to operate in the GMDSS will be undertaken by the committee on the basis of the evaluation report.~~

~~2.2.2 The Governments concerned should make available to the Organization all necessary information and evidences that will be necessary, including the documents set out in appendix 1, to enable it to for a full and comprehensive evaluateion of the proposed the satellite system and mobile satellite services in relation to the criteria indicated below.~~

~~In particular, Governments proposing such mobile satellite systems for possible recognition and use in the GMDSS should provide evidence to show that:~~

- ~~.1 the satellite system conforms with all the criteria specified in this annex;~~
- ~~.2 the charging policies and provisions of resolution A.707(17), as amended, on *Charges for distress, urgency and safety messages through the Inmarsat system*, are complied with;~~
- ~~.3 there is a well founded confidence that the company concerned will remain viable for the foreseeable future and will remain in a position to deliver the required services over an extended period, in keeping with the expectations of the Organization and the maritime industry as to the continuity, durability and reliability of the service; and~~
- ~~.4 the provider of the satellite system is ready to submit any recognized services to oversight by IMSO and sign the required Public Services Agreement (PSA) with that organization.~~

2.2.3 Following consideration of the application, the Committee will:

- .1 forward the application to the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) with appropriate instructions for evaluation;
- .2 invite IMSO to conduct an in-depth technical and operational assessment, and to that effect, to enter into an agreement with the MSS provider to inter alia formalize the modalities of the assessment including the related costs;
- .3 invite the International Telecommunication Union (ITU) to comment on any technical and regulatory aspects of the application; and
- .4 invite organizations such as the International Hydrographic Organization (IHO) and the World Meteorological Organization (WMO) to comment on matters related to the broadcast of MSI using the mobile satellite service.

2.2.4 The NCSR Sub-Committee will consider the report of IMSO, information received from ITU, IHO, WMO, Member States and interested parties. The report of IMSO will include the outcome of the technical and operational assessment including the identification of the system-critical components of the satellite system.

2.2.5 Recognition of the mobile satellite service provider and recognition of the mobile satellite service, to operate in the GMDSS will be undertaken by the Committee based on the recommendation of the NCSR Sub-Committee.

## 2.3 Verification and Evaluation

2.3.1 The COMSARNCSR Sub-Committee should verify and evaluate the information, seeking clarification as required, and decide taking into account the report from IMSO, ~~direct from the MSS service provider or any party concerned, and decide~~, whether the mobile satellite provider and services system meets the criteria established by this resolution. In reaching its decision, the COMSARNCSR Sub-Committee should also take into account the provisions of the relevant regulations of chapter IV of the 1974 SOLAS Convention, ~~as amended~~, and the criteria established by this resolution. The NCSR Sub-Committee will report to the Committee on criteria and inform about any further issues that the Committee should consider.

## 2.4 Recognition

2.4.1~~12~~ Recognition by the Organization should be recorded in an MSC resolution entitled *Statement of Recognition of Maritime Mobile Satellite Services provided by [MSS provider Company Name]*, detailing the specific mobile satellite service(s) which in aggregation meet the full criteria of this resolution. ~~provided by the company which have been recognized by the Organization. A copy of the statement of recognition should be provided to IMSO.~~ The Statement of Recognition should also precisely describe the service area.

2.4.2 The service area is to be delineated on a map taking into account the minimum antenna elevation angle for a proposed type-approved SES and also described in relation to the sea areas defined in SOLAS regulation IV/2. Documentation on the service area of the satellite system should be forwarded to the Organization.

2.4.3 Information on service areas for RMSS should be published by the Organization in the GMDSS Master Plan through the Global Integrated Shipping Information System (GISIS).

2.4.4 The Organization will inform IMSO in regard of pending implementation issues and any other unresolved matters outside of the criteria of this resolution, but which are needed before the new service can become operational in the GMDSS. IMSO will monitor the implementation of these items and report to the NCSR Sub-Committee. The new GMDSS services and IMSO's oversight should only start after all pending items are resolved.

2.43.53 If, following evaluation, the Organization is unable to recognize the ~~company or the service(s)~~ MSS provider or its service(s) offered for the GMDSS, the Organization should communicate this decision to the MSS provider~~company~~ and IMSO in writing, setting out the reasons for the decision and any actions the MSS provider~~company~~ may take to achieve recognition in the future.

## 2.54 The Public Services Agreement

2.54.1 ~~RMSS recognized services~~ are subject to oversight by IMSO according to the rules and arrangements set out in the public services agreement (PSA) concluded between the ~~MSS service~~ provider and IMSO. No ~~maritime mobile satellite services system~~ should be used in the GMDSS unless it has first been recognized by the Organization in accordance with the above procedure and the ~~MSS service~~ provider has been issued with a letter of compliance by IMSO, in respect to those recognized services, in accordance with provisions of the ~~signed a PSA with IMSO~~ which marks the start of the provision of service.

2.5.2 Before issuing the letter of compliance, IMSO should be **satisfied** with evidence confirming completion of all outstanding items for conformity. These may include but are not limited to the evidence listed in appendix 2.

2.54.32 IMSO ~~shall~~**should** conduct ~~its~~ oversight of the ~~RMSS recognized services~~ on a continuing basis.

2.54.43 Responsibility for ensuring compliance with the standards established by this ~~annex~~ resolution, other relevant mandatory international instruments and, to the extent necessary, those recommendations, resolutions and procedures of IMO and ITU which are of a recommendatory nature insofar as they relate to the provision of ~~GMDSS mobile satellite services for the GMDSS~~, rests with IMSO under the terms of the ~~PSA Public Services Agreement~~.

2.5.5 Oversight should be conducted and reported for the service(s) and service area set out in each statement of recognition.

## 2.65 Reports

At least once a year, IMSO should make available to the Organization a report on availability, performance and other relevant information in respect of each ~~RMSS recognized service~~, for the period since the preceding report, in accordance with section 3.5.32 of the criteria indicated below.

## 2.7 Amendments to an existing recognition

2.7.1 **RMSS Providers** wishing to amend existing recognition by the Organization should apply to the Organization in accordance with the procedures in this section.

2.7.2 MSS providers wishing to terminate a recognized service should follow the procedure as set out in the PSA.



## 2.8 Withdrawal of the recognition

2.8.1 The Organization may decide to withdraw the recognition of any mobile satellite service if it is unable to meet the criteria and requirements set in section 3 of this annex. In particular the procedure for restoration of service should be prepared for as per section 3.6 and followed as set out in paragraph 3.5.5. The PSA provides a mechanism for IMSO to notify non-compliance situations to the Organization.

2.8.2 Withdrawal of recognition by the Organization should be recorded in an MSC resolution entitled *Statement of Withdrawal of Recognition of Mobile Satellite Services* provided by [MSS Provider Name], detailing the specific mobile satellite service provided by the MSS provider.

2.8.3 MSS providers wishing to recover recognition of their mobile satellite service after withdrawal by the Organization should apply to the Organization in accordance with the procedures in this section.

## 3 CRITERIA AND REQUIREMENTS FOR THE RECOGNIZED MOBILE SATELLITE COMMUNICATION SYSTEM

### 3.1 Functional requirements<sup>[\*]</sup>

3.1.1 Satellite systems for maritime distress and safety communication services and forming part of the GMDSS ~~radio systems~~ specified in chapter IV, SOLAS regulation IV/5 of the 1974 SOLAS Convention, as amended, should provide capabilities for at least the following ~~maritime~~ distress, urgency and safety communications and general radiocommunications:

- .1 ship-to-shore distress alerts (data) and/or calls (voice);
- .2 shore-to-ship distress alert relays ~~alerts/calls~~;
- .3 ship-to-shore, and shore-to-ship ~~and ship-to-ship~~ search and rescue (SAR) coordinating communications;
- .4 ship-to-shore and shore-to-ship distress, urgency and safety communication ~~transmissions of Maritime Safety Information~~;
- .5 shore-to-ship broadcasting of Maritime Safety Information (MSI) and SAR-related information; and
- .6 ship-to-shore, shore-to-ship, and ship-to-ship general radiocommunications.

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[\* ~~Resolution A.801(19) "Provision of Radio Services for the Global Maritime Distress and Safety System (GMDSS)", Annex 5 "Criteria for use when providing Inmarsat shore-based facilities for use in the GMDSS";~~

- Resolution A.887(21) on *Establishment, updating and retrieval of the information contained in the registration databases for the Global Maritime Distress and Safety System (GMDSS)*;
- Resolution A.694(17) on *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids*;
- ~~IMO International SafetyNET Manual;~~
- System specific EGC manuals
- Resolution A.664(16) on *Performance standards for enhanced group call equipment*; and
- Appropriate IEC Standards and ITU Recommendations.]

3.1.2 In addition, the ground segment should:

- .1 be in continuous operation;
- .2 be connected to at least two associated Rescue Coordination Centres (RCCs);
- .3 be capable of broadcasting MSI for all NAVAREA and METAREA within its service area;
- .4 keep continuous watch on maritime distress, urgency and safety communications;
- .5 always transmit distress alerts without any need to log in to the system; and
- .6 be capable of transmission and reception of at least the maritime distress, urgency and safety communications services included in paragraph 3.1.1.

3.1.3 The ~~mobile~~ satellite system should comply with relevant instruments and standards as issued by the Organization and others international organizations including IEC, IHO, ITU and WMO.

3.1.4 RMSS Providers shall be accessible for consultation regarding changes to relevant instruments and standards that will affect their GMDSS services, as issued by the Organization and others international organizations including IEC, IHO, ITU and WMO.

### 3.2 Capacity

The satellite system should be designed to provide sufficient channel and power capacity to process effectively, with the availability stated in section 3.5, the ~~maritime~~ distress, urgency, safety communications and general radiocommunications traffic estimated to be required by the ships using for the RMSS within its service area system.

### 3.3 Priority access

3.3.1 Satellite systems in the GMDSS should be capable of processing ~~maritime~~ distress, urgency, safety communications and ~~routine communications~~ general radiocommunications in accordance with the message priority as defined by the ITU Radio Regulations. The order of processing these communications should be:

- .1 distress;
- .2 urgency;
- .3 safety; and
- .4 ~~routine~~ (general radiocommunications).

3.3.2 In implementing these four levels of priority:

- .1 Distress alerts and distress calls, including distress alert relays (level 1) should be given priority 1 (distress priority) treatment within satellite systems (i.e. by providing immediate access through the satellite system) ~~to satellite channels~~. For store and forward systems, distress alerts and calls should be

placed prioritized for onward transmission or delivery ahead of all other traffic. In all cases, distress alerts shall be transmitted to an RCC within 60 seconds.

- .2 ~~S~~satellite systems used for ~~providing~~ other mobile satellite services ~~communications~~ in addition to ~~maritime~~ GMDSS communications should be capable of automatically recognizing requests for ~~maritime distress, urgency and safety~~ communications from:

- .1 ship earth station (SES) ~~maritime mobile terminals~~; and
- .2 recognized entities of critical importance for safety at sea, such as MRCCs, hydrographic and meteorological offices, telemedical assistance services (TMAS) and maritime assistance services (MAS) centres, etc., registered with the ~~mobile~~ satellite service ~~earth~~ RMSS Provider station.

The ~~satellite~~ system should process such ~~maritime~~ communications in the ship-to-shore and shore-to-ship directions for levels 1 to 3 with priority over ~~other~~ general radiocommunications.

- .3 In processing ~~maritime~~ distress, urgency, safety communications and ~~routine~~ general radiocommunications, the satellite system ~~and the earth station~~ should be capable of:

- .1 automatically recognizing the ~~message or access~~ priority for ship-to-shore and shore-to-ship communications;
- .2 automatically recognizing the ~~message or access~~ priority for ~~registered~~ user identification of shore-to-ship communications, if any are provided, from, as a minimum, recognized entities of importance for safety at sea, registered by the earth station; and validating the priority against the registered users such as RCCs, TMAS, MAS and hydrographic or meteorological offices;
- .3 preserving and transferring the priority;
- .4 giving ~~ship-to-shore and shore-to-ship~~ distress alerts and distress calls communications immediate access, ~~if when~~ necessary, by preempting ongoing communications of ~~lower~~ routine priority;
- .5 ~~automatically recognizing maritime distress communications and automatically routeing~~ ~~maritime~~ distress alerts/ and distress calls<sup>1</sup> directly to an associated MRCC, or responsible RCC if this capability exists; and
- .6 processing ~~maritime~~ urgency and safety communications in the ship-to-shore and shore-to-ship directions with the required priority, for example by allocating the first vacant channel, if no channel is immediately available.

- .4 ~~S~~selection and use of message or access priority for urgency and safety transmissions by ~~SES~~ ~~maritime mobile terminals~~ should preferably be

<sup>1</sup> Refer to COMSAR/Circ.60 on Procedure for routeing distress alerts.

automatic and should be restricted to calls to special, recognized entities such as RCC, TMAS, MAS medical centres, maritime assistance, hydrographic and meteorological offices, etc., registered with the [RMSS Provider](#) earth station. The satellite system earth station should automatically route such calls directly to the relevant entity.

3.3.3 Limitations in existing public switched networks concerning facilities for indication and use of priority access codes might necessitate special arrangements such as use of leased lines between, for example, MSI providers and the satellite system, until such facilities become available in the public switched network.

### 3.4 [RCC Immediate Connection](#)

3.4.1 Satellite systems participating in the GMDSS should make arrangements to ensure that it will always be possible for an [associated](#) RCC to obtain an immediate connection to a SES and that the RCC could use the systems for [distress, urgency and safety priority](#) communications without any delay.

3.4.2 The [RMSS provider](#) should provide a framework for the RCC to register themselves with the system in order to benefit from the immediate connection and distress priority.

### 3.4 ~~Coverage area~~

3.4.1 ~~The definition of the coverage area is given in section 1.3.~~

3.4.2 ~~The coverage area is to be delineated on a map and also described in relation to the sea areas defined in Chapter IV, regulation 2 of the SOLAS Convention. Documentation on the coverage area of the satellite system, as defined in section 1.3, should be forwarded to the Organization.~~

3.4.3 ~~Information on coverage areas for satellite systems forming part of the GMDSS should be published by the Organization in the GMDSS Master Plan.~~

### 3.5 [RMSS Availability](#)

3.5.1 The satellite system should provide continuous availability for maritime distress, urgency and safety communications services included in paragraph 3.1.1 ~~in the ship-to-shore and shore-to-ship directions.~~

3.5.2 Availability is calculated per each RMSS according to the following formula:

$$A = \frac{(\text{scheduled operating time}) - (\text{downtime})}{(\text{scheduled operating time})} \times 100\%$$

where:

Scheduled operating time	=	100% of the time period being reported on; and
Downtime	=	the total time during the period for which the RMSS was not operationally available in its service area.

Definitions and calculations of availabilities of communications circuits in the Mobile Satellite Service are given in the most recent version of Recommendation ITU-R M.828.

3.5.32 The availability of the space segment, provision of spare satellite capacity and the network control function (i.e. the network availability), as defined in section 1.4 above, should be monitored by IMSO, which should report on the recorded availability of the system to the Organization at least once every year. mobile satellite service should be verified by IMSO, which should report to the Organization on the recorded availability of the mobile satellite service at least once every year.

3.5.4 Where a RMSS is unavailable in a part of the service area, the RMSS Provider should consult with IMSO on a formular to be used to calculate the service availability within the service area as a whole. IMSO should include in the annual report the outcome of such an outage or degradation of the RMSS.

3.5.53 ServiceRMSS providers should advise notify ships, their associated RCCs, maritime safety information providers (MSIPs), IMO EGC Coordinating Panel and IMSO, as appropriate, in advance of planned outages of RMSSrecognized services and advise themships of about the scheduled time for the outage and the restoration of the affected service(s) and other relevantdowntime and known interruptions in service, and supply any other relevant network information. ServiceRMSS providers should also advise IMSO of unscheduled interruptionsoutages into any RMSSsrecognized services, as soon after the commencement of the interruptionoutage as possible, but within 24 hours. The RMSS Providers will update IMSO on request and provide a detailed report of the outage within 7 days of the RMSS restoration and when the RMSSsrecognized services have been restored. Follow up report(s) should be provided as required by IMSO if a reported outage is still in progress at the time of an outage report. An example template for reporting planned and unplanned outages is given in appendix 3.

3.5.64 Network availability. The complete mobile satellite communication network, including earth stations for the recognized services, Each RMSS is expected to achieve at least 99.9% availability (equivalentup to a total of 8.8 hours down time per year).

### 3.6 Restoration and spare satellitesContinuity and restoration of service

3.6.1 RMSS should have the means and arrangements to ensure continuity of service during planned work or in case of an unforeseen outage. All agreed system-critical components of the satellite system should have adequate redundancy for the uninterrupted provision of the RMSS, or for its restoration within one hour after a confirmed outage. This includes the space segment which shall have Sspare satellite capacity and arrangements prepared in advance should be provided in place to ensure that, in the event of a partial or total satellite failure, the recognized maritime distress and safety communication servicesRMSS in the area concerned can be restored to their normal availability, not more than one hour after the failure occurs.

3.6.2 Full information on the means and arrangements prepared for restoration of the RMSSmaritime distress and safety communication services in the event of a satellite system-critical component failure should be notified to IMSO. In agreement the IMSO and the RMSS service providers should conduct contingency exercises from time to time regularly to prove and practice the efficiency and effectiveness of these plannedsuch arrangements.

3.6.3 The system should be adequately protected against software deficiencies and cybersecurity threats in accordance with the relevant standards and recommendations of ISO, ITU and the Organization, and best industry practices.

3.6.4 RMSS Providers should inform the IMSO of any changes or incidents to the RMSS that result in a period of outage or adversely affect any system-critical component.

### 3.7 Identification

3.7.1. The satellite system should be capable of automatically recognizing and preserving the identification of identifying maritime mobile earth stations SES and shore-based entities that are registered in the system for sending or receiving distress, urgency or safety communications.

3.7.2 RMSS provider should make SES identities (satellite numbers) information available to RCCs on a 24-hour basis. Where appropriate, international organizations maintaining a registry of GMDSS identities, such as the ITU Maritime Mobile Access and Retrieval System (MARS), should be regularly notified of these SES identities by the administrations of these organizations. If authorized by the administrations responsible for notifications to MARS, the RMSS providers may directly notify the ITU of satellite identification number information for ships registered in MARS under these administrations.

### 3.8 Information to be made available to SAR authorities

3.8.1 For all distress urgency and safety communications, the maritime mobile terminal identification number or Maritime Mobile Service Identity (MMSI) should be an integral part of the distress alert and be provided to the RCC with the alert. When available, all additional registration, commissioning or other data relevant to the search and rescue or prosecution of a false alert should be referenced to this number and made available to the proper SAR authority or RCC upon request.

3.8.2 The RMSS providers should ensure the integrity of the contents of distress alerts received from an active SES within their RMSS.

3.8.3 RMSS providers should maintain a database, containing all additional registration, commissioning or other data relevant for the SES operating on their satellite systems.

### 3.9 Reception and routing of distress alerts

3.9.1 The satellite system should allow for addressing a maritime distress alert to a specific associated MRCC chosen by the ship's operator and covering the area concerned, but and should also provide for automatic routing to an associated RCC of manually initiated maritime distress alerts. In cases where capability exists, the system may route alerts directly to the responsible RCC as defined under an international common procedure as agreed by the Organization<sup>2</sup>.

3.9.2 Means should be provided to allow the MRCC to easily identify the satellite system and specific SES mobile station from which an alert or other priority message has been received, to enable the MRCC to establish shore-to-ship communications with the ship concerned.

3.9.3 Where capabilities exist, the satellite system should have means to monitor associated RCCs connection into their distress distribution platforms. The system should provide an aural and visual alarm when connections with all associated RCCs within the distribution platform is lost. Where other forms of distress alert distribution are used, the RMSS

<sup>2</sup> Refer to COMSAR/Circ.60 on *Procedure for routing distress alerts*

Provider should make every effort to follow up on all distress alerts via terrestrial communications, to receive acknowledgement that the RCC has received the distress alert.

3.9.4 The relevant part of the ground segment should be provided with an aural and visual alarm to alert a designated responsible person in the event that automatic routing of a distress alert or call to an associated RCCs cannot be achieved within 60 seconds. In this case, all necessary action should be taken immediately to inform the associated RCC of the details of the distress alert or call. Personnel should always be available to react to such an alarm so as to ensure that the distress alert or call can be forwarded to an RCC within five minutes of the alarm being triggered.

3.9.5 The RCC should be provided with reliable communication links, in accordance with relevant ITU-T Recommendations, to the system's network for efficient handling of ship-to-shore, shore-to-ship distress alert relays and distress traffic, preferably via dedicated communication links.

### 3.10 Broadcasting EGC messages

3.10.1 The satellite system should technically be capable of offering facilities for broadcasting of SAR related information from RCCs and MSI from authorized MSIPs, such as Hydrographic Offices and Meteorological Offices, to ships at sea equipped with a suitable SES.

3.10.2 Facilities should allow RCCs and authorized MSIPs to:

- .1 transmit their MSI and SAR related information on all RMSSs via a human-machine interface; and
- .2 monitor the broadcast of their MSI and SAR related information on the RMSS.

3.10.3 Such facilities for broadcast of SAR related information and MSI should provide for reliable transmission.

3.10.4 The facilities should provide for recognition and processing of the four levels of priority specified in paragraph 3.3.1.

3.10.5 It should be possible to broadcast SAR related information and MSI by EGC to all properly equipped ships within a specified area of the service area for at least the following types of areas:

- .1 the NAVAREAs/METAREAs, including 300NM beyond the NAV/METAREA boundary, as established by the Organization, the IHO and the WMO respectively;
- .2 MSI broadcast to Coastal Areas; and
- .3 a temporary area chosen and specified by the originator of the MSI or the SAR related information, including circular or rectangular user-specified areas appropriate for broadcast of distress alert relays, SAR coordinating communications and MSI.

3.10.6 The facilities should provide for broadcast of SAR related information for SAR coordination, including distress alert relays and at least the types of MSI required by the Organization, IHO and WMO for navigational warnings and for meteorological warnings and forecasts.

3.10.7 The facilities for broadcast of navigational, meteorological warnings and SAR related information should include possibilities for:

- .1 scheduling the broadcast at fixed times or transmitting messages as unscheduled broadcast transmissions; and
- .2 automatic repetition of the broadcast with time intervals and number of broadcast transmissions as specified by the MSIP, or until cancelled by the MSIP where the transmission is broadcast.
- .3 making the information available for download by the SES for a specified period where the transmission is not broadcast.

3.10.8 The facilities should provide for marking MSI and SAR related information with a unique identity, enabling the shipborne equipment that receives these broadcasts to automatically ignore messages already received.

### 3.11 Voice and data communication systems

3.11.1 The communication links of the satellite system for mobile-satellite voice and data communication systems should be connected to the public switched telephone network (PSTN) and public switched data network (PSDN), respectively, in accordance with relevant ITU-T Recommendations.

3.11.2 The satellite system upon receipt of ship-to-shore or shore-to-ship communications with distress, urgency or safety priority should, immediately establish the PSTN or PSDN connection necessary for transfer of the alert/call or message. The satellite system should provide the capability to transfer the identity of the calling subscriber to the called subscriber.

### 3.120 Control of ~~maritime mobile terminals~~ship earth stations

3.12.1 Access control arrangements for controlling and giving, or temporarily denying, access by ~~maritime mobile terminals~~SES to the satellite system should at all times allow ~~maritime mobile terminals~~SES access for transmission of maritime distress ~~alerts/calls and distress messages~~, communications.

3.12.2 RMSS Provider who receive multiple Distress Alerts from deactivated, suspended or barred terminals proved to cause disruption to RCCs by sending suspected false distress alerts, can request authorisation from the Flag State Administration to remove the offending terminal from the network.

### 3.134 Test facilities

The satellite system should provide facilities making it possible for ~~maritime mobile terminals~~SES to test the voice and/or data distress capability of their stations without initiating a real distress alert/call.

## 4 ~~CRITERIA AND REQUIREMENTS FOR EARTH STATIONS~~

### 4.1 ~~Functional requirements~~

4.1.1 ~~Earth stations serving the GMDSS should:~~

- .1 ~~be in continuous operation;~~



- .2 — be connected to an associated RCC;
- .3 — keep continuous watch on all appropriate satellite communication channels; and
- .4 — be capable of transmission and reception of at least the maritime distress and safety communications services included in paragraph 3.1.

## **4.2 — Priority**

4.2.1 — The earth station should be capable of automatically recognizing the priority of ship-to-shore and shore-to-ship communications, and should process maritime mobile communications while preserving the four levels of priority specified in paragraph 3.3.1.

4.2.2 — Priority access should be given for distress alerts and calls in real time. In any case, distress alerts and calls should be given priority treatment by providing immediate access to satellite channels, and distress alerts and calls for store and forward systems should be placed ahead of all routine traffic. Any satellite system designed for use in the GMDSS should be able to recognize the four levels of priority and give appropriate access for communications in the ship-to-shore direction and in the shore-to-ship direction for distress, urgency and safety traffic originated by RCCs or other Search and Rescue Authorities.

4.2.3 — Limitations in existing public switched networks concerning facilities for indication and use of priority access codes might necessitate special arrangements such as use of leased lines between, for example, MSI providers and the earth station, until such facilities become available in the public switched network.

## **4.3 — Pre-emption**

Satellite systems participating in the GMDSS should make arrangements to ensure that it will always be possible for an MRCC to obtain an immediate connection to a maritime mobile terminal on demand and that the MRCC could use the systems for SAR alerting and communication without any delay. This may be achieved by a process of pre-emption or by other suitable means approved by IMSO.

## **4.4 — Routing of maritime distress alerts**

4.4.1 — The satellite system should have reliable communication links to one or more associated MRCCs. These links may be implemented directly between the MRCC and an earth station, or some other suitable point in the system's network. The arrangements between the system and the MRCC are subject to approval by the national administration.

4.4.2 — The system's network should be capable of automatically recognizing maritime distress and safety communications and of routing, as far as possible automatically, maritime distress alerts/calls directly to the associated MRCC, via a highly reliable communication link. In cases where capability exists, the system may route alerts directly to the responsible RCC as defined in the IAMSAR Manual.

4.4.3 — The earth station or other relevant part of the system's network should be provided with an aural and visual alarm to alert a designated responsible person in the event that automatic connection to the MRCC cannot be achieved within 60 seconds. In this case, all necessary action should be taken to immediately inform the MRCC of the details of the distress alert or call. Personnel should always be available to react to such an alarm so as to ensure

that the distress alert or call can be forwarded to an MRCC within 5 minutes of the alarm being triggered. All messages with distress or urgency priority should sound an alarm at the earth station or other relevant part of the system's network, which should require manual cancellation.

4.4.4 The MRCC should be provided with reliable communication links to the system's network for efficient handling of shore-to-ship distress alert relays and distress traffic, preferably via dedicated communication links.

#### **4.5 Identification**

The system should be capable of automatically identifying ship earth stations. If other identification than the Maritime Mobile Service Identity (MMSI) is used in the system, the means should be provided 24 h per day to easily identify the ship and to provide the MRCC with all the appropriate additional information necessary for effecting the rescue, including the MMSI number where available.

#### **4.6 Voice communication systems**

4.6.1 The communication links for mobile-satellite voice communication systems should be connectable to the public switched network in accordance with relevant ITU-T Recommendations.

4.6.2 Satellite systems using the public switched network for routing maritime distress calls and distress traffic to and from MRCCs should, upon receipt of ship-to-shore or shore-to-ship distress alerts/calls or distress traffic, immediately attempt to establish the connection necessary for transfer of the distress alert or distress message.

#### **4.7 Data communication systems**

4.7.1 The communication links for mobile-satellite data communication systems should be connectable to the public data communication network in accordance with relevant ITU-T Recommendations. The system should provide the capability to transfer the identity of the calling subscriber to the called subscriber. Maritime distress alerts/calls and distress messages should include the ship identity and the earth station identity, or other means of identifying the point of access to the satellite network.

4.7.2 Satellite systems using the public switched network for routing distress alerts/calls and distress traffic to and from MRCCs should, on receipt of ship-to-shore or shore-to-ship distress alerts/calls or distress traffic, immediately attempt to establish the connection necessary for transfer of the distress alert or distress message.

#### **4.8 Store and forward systems**

Satellite systems using store and forward communication systems should:

- .1 make an initial attempt to deliver a ship-to-shore or shore-to-ship message within 60 seconds for any maritime distress alert or distress traffic, and within 10 minutes for all other maritime messages, from the time the receiving station receives the message (the message should include the ship identity and the earth station or system identity); and

- .2 generate notification of non-delivery immediately once the message is considered non-deliverable, for maritime distress alerts and distress messages not later than 4 minutes after reception of the alert or message.

#### **4.9 Facilities for broadcasting Maritime Safety Information**

4.9.1 Satellite systems forming part of the GMDSS should technically be capable of offering facilities for broadcasting Maritime Safety Information (MSI) from MRCCs and authorized providers of MSI, such as Hydrographic Offices and Meteorological Offices, to ships at sea.

4.9.2 Such facilities for broadcast of MSI should provide for automatic, continuous and reliable reception on board ships and should, as a minimum, fulfil the requirements specified in sections 4.9.3 to 4.9.8 below.

4.9.3 The facilities should provide for recognition and processing of the four levels of priority specified in paragraph 3.3.1.

4.9.4 It should be possible to address the broadcast of MSI to all properly equipped ships within a specified area for at least the following types of areas:

- .1 the entire region covered by the satellite or system over which the transmission is made;
- .2 the NAVAREAs/METAREAs as established by the International Maritime Organization (IMO), the International Hydrographic Organization (IHO) and the World Meteorological Organization (WMO) respectively; and
- .3 a temporary area chosen and specified by the originator of the MSI message, including circular or rectangular user-specified areas appropriate for broadcast of distress alert relays and search and rescue co-ordinating communications.

4.9.5 The facilities should provide for transmission of at least the types of Maritime Safety Information required by SOLAS, as follows:

- .1 search and rescue co-ordination information, including distress alert relays;
- .2 navigational warnings; and
- .3 meteorological warnings and forecasts.

4.9.6 The facilities for broadcast of navigational and meteorological warnings should include possibilities for:

- .1 scheduling the broadcast at fixed times or transmitting messages as unscheduled broadcast transmissions; and
- .2 automatic repetition of the broadcast with time intervals and number of broadcast transmissions as specified by the MSI provider, or until cancelled by the MSI provider.

4.9.7 The facilities should provide for marking MSI messages with a unique identity, enabling the shipborne equipment that receives these broadcasts to automatically ignore messages already received.

~~4.9.8 — The broadcasting service should in addition provide facilities for broadcasts similar to NAVTEX to coastal areas not covered by the International NAVTEX Service, in accordance with the identification system (i.e., the identification characters B1, B2, B3, B4) used in the International NAVTEX Service.~~

## **45 ADDITIONAL RECOMMENDED CAPABILITIES**

~~45.1 Mobile satellite service~~RMSS providers are encouraged to:

- ~~.1 route Automatic Location Identification (ALI) and Automatic Number Identification (ANI) in accordance with appropriate ITU-T Recommendations, with distress calls originating from MSS terminals~~SES routed directly to the RCCs responsible for voice and data calls;
- ~~.2 automatically route information contained in registration databases in accordance with resolution A.887(21), in a recognizable format and including the distress call to the responsible RCC, once means are established for doing so; and~~
- ~~.3 be capable of retrieving maritime safety information~~MSI in a timely manner from NAVAREA, METAREA, other relevant coordinators, and the International Ice Patrol Service, in a standard format and process established by those coordinators.

## **56 NOVEL TECHNIQUES**

~~Satellite systems~~RMSS may be permitted to use novel techniques to provide any of the capabilities required by this resolution. Approval to use such novel techniques for a period of up to 12 months may be given provisionally by ~~IMO~~the Organization in order to allow early introduction and proper evaluation of the technique. Final recognition of a novel technique may be given by the Organization only after receiving a report allowing full technical and operational evaluation of the technique.

## **7 LEGACY SERVICES**

~~7.1 — All satellite-based systems and services for the GMDSS which were already approved and in use\* before the entry into force of this resolution are exempt from the requirements of paragraphs 2.1, 2.2 and 2.3. These systems are:~~

- ~~.1 — Inmarsat-A (due to be withdrawn 31 December 2007)~~
- ~~.2 — Inmarsat-B~~
- ~~.3 — Inmarsat-C~~
- ~~.4 — The International SafetyNET Service~~

~~7.2 — The services defined in paragraph 7.1 are subject to the requirements of paragraph 2.4.~~

\* ~~IMO has decided that Inmarsat Fleet 77 already meets the requirements of Assembly resolution A.888(21) and recommended that Fleet 77 terminals should be used in GMDSS ship installations and by Rescue Co-ordination Centres.~~

## Appendix 1

### Information required for application of recognition

The Governments concerned should provide a complete description of the proposed satellite system. The information and evidence that will be necessary for a full and comprehensive evaluation of any submission to be carried out are very wide-ranging and quite detailed. Experience in designing, implementing and operating the present satellite-based elements of the GMDSS, and evaluating their initial and continuing operational and other capabilities, has shown that it will not be sufficient, for example, to accept a plain statement such as: "the system can deliver a distress alert to an RCC within 60 seconds of it being originated". In such a case, in order to provide an assurance to the Committee that the candidate system will meet this target reliably on a high percentage of occasions, Governments proposing such mobile satellite services for possible recognition and use in the GMDSS should provide evidence to show that:

- .1 the satellite system and the mobile satellite services conform with all the criteria and requirements of the Organizations;
- .2 frequency spectrum: the MSS provider has considered any coordination requirements necessary to make use of the orbits and associated frequencies defining the candidate satellite constellation, in accordance with the applicable procedures and provisions of the ITU Radio Regulations. Such public information should include any technical and operational constraints resulting from the application of the ITU procedures on frequency coordination, and any potential impact to the system's performance resulting from such frequency coordination;
- .3 constellation: number and arrangement of satellites; link budget; number of on-orbit spares required and provided; inter-satellite hand-offs, life span of current satellites, plan for replacement, identification of satellites, etc;
- .4 ground segment: number and geographical disposition of ground stations, satellite and communication network control arrangements; contingency arrangements in the event of satellite or network failures; availability; time of contingency service restoration; communication links to RCCs; distress alert distribution arrangements; message prioritization; personnel availability, shift patterns, training, etc;
- .5 SES: design, manufacture and market availability; test procedures, IEC compliance; capabilities; signalling modes and protocols; ship installation guidelines and arrangements, etc;
- .6 live end-to-end system and contingency tests;
- .7 the MSS provider has [interim] arrangements with MSI providers for NAVAREA and METAREA and two or more providers of SAR-related information under its service area;

- .8 the method used in the calculation of availability, including cases in which downtime affects individual regions or functions rather than the whole system;
- .9 measures taken to protect the satellite system against cybersecurity threats;
- .10 the charging policies of ITU and provisions of the relevant instruments adopted by the Organization, including resolution A.707(17), as may be amended, are complied with;
- .11 there is a well-founded confidence that the MSS provider concerned will remain viable for the foreseeable future and will remain in a position to deliver the required services over an extended period, in keeping with the continuity, durability and reliability of the service;
- .12 the MSS provider is ready to submit the recognized services for oversight by IMSO and sign the required PSA with that organization; and
- .13 operational procedures are in place.

## Appendix 2

### Evidence required before issuing the letter of compliance

Before issuing the letter of compliance, IMSO should be provided with evidence confirming completion of all outstanding items for conformity. These may include but are not limited to:

- .1 MSC to issue a resolution recognizing the MSS provider;
- .2 the MSS provider to sign a PSA with IMSO for oversight of the RMSS;
- .3 a Manual is available for the new EGC service;
- .4 the MSS provider is to have internal operational procedures to support RMSSs;
- .5 a type-approved SES to be made available for the operation of the new mobile satellite services;
- .6 ITU-related requirements necessary to make use of the satellite orbits, associated frequencies defining the candidate satellite constellation, necessary coordination and spectrum identification in RR Appendix 15 have been successfully completed;
- .7 any other issues to be indicated by MSC;
- .8 formal association with two RCCs, one NAVAREA coordinator and one METAREA coordinator, and
- .9 agreement in force with all MSI providers for all NAVAREAs and METAREAs within the recognized area.

### Appendix 3

#### Requirements for reporting outages to IMSO

In reporting both planned and unplanned outages according to the requirements of this resolution, RMSS Providers should provide at least the information set out in the example template given below:

Outage reporting template	
Outage commencement date/time:	
Service restoration date/time:	
Affected services:	
Interrupted GMDSS related traffic during the outage:	
Details of the outage, including:	
<input type="checkbox"/> Name of the component(s) causing the outage	
<input type="checkbox"/> Description of the problem	
<input type="checkbox"/> Action taken to restore the service(s)	

Example template for reporting planned and unplanned outages to IMSO