

SUB-COMMITTEE ON NAVIGATION,
COMMUNICATIONS AND SEARCH AND
RESCUE
10th session
Agenda items 8, 11, 12 and 21

NCSR 10/WP.5
18 May 2023
Original: ENGLISH

DISCLAIMER

As at its date of issue, this document, in whole or in part, is subject to consideration by the IMO organ to which it has been submitted. Accordingly, its contents are subject to approval and amendment of a substantive and drafting nature, which may be agreed after that date.

**DEVELOPMENT OF PERFORMANCE STANDARDS FOR A DIGITAL NAVIGATIONAL
DATA SYSTEM (NAVDAT) (ITEM 8)**

**REVISION OF THE CRITERIA FOR THE PROVISION OF MOBILE SATELLITE
COMMUNICATION SERVICES IN THE GLOBAL MARITIME DISTRESS AND SAFETY
SYSTEM (GMDSS) (RESOLUTION A.1001(25)) (ITEM 11)**

**RESPONSE TO MATTERS RELATED TO THE ITU-R STUDY GROUPS AND ITU WORLD
RADIOCOMMUNICATION CONFERENCE (ITEM 12)**

ANY OTHER BUSINESS (ITEM 21)

Report of the Working Group on Communications

GENERAL

1 The Working Group on Communications, chaired by Mr. A. Schwarz (Germany), met from 10 to 18 May 2023.

2 The Group was attended by representatives from the following Member States:

ANGOLA
ARGENTINA
AUSTRALIA
BAHAMAS
BANGLADESH
BELGIUM
BRAZIL
CANADA
CHILE
CHINA
CÔTE D'IVOIRE
DENMARK
ECUADOR
EGYPT
ESTONIA
FINLAND

FRANCE
GERMANY
GHANA
GREECE
ICELAND
INDIA
INDONESIA
IRELAND
JAPAN
LATVIA
LIBERIA
MALAYSIA
MALTA
MARSHALL ISLANDS
NETHERLANDS
(KINGDOM OF THE)

NEW ZEALAND	SAUDI ARABIA
NIGERIA	SINGAPORE
NORWAY	SPAIN
PANAMA	SWEDEN
PHILIPPINES	THAILAND
POLAND	TÜRKİYE
PORTUGAL	UKRAINE
QATAR	UNITED ARAB EMIRATES
REPUBLIC OF KOREA	UNITED KINGDOM
ROMANIA	UNITED STATES
RUSSIAN FEDERATION	URUGUAY

by the following Associate Member of IMO:

HONG KONG, CHINA

by representatives from the following United Nations and specialized agencies:

INTERNATIONAL TELECOMMUNICATION UNION (ITU)
WORLD METEOROLOGICAL ORGANIZATION (WMO)

by observers from the following intergovernmental organizations:

INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)
EUROPEAN COMMISSION (EC)
INTERNATIONAL COSPAS-SARSAT PROGRAMME (COSPAS-SARSAT)
INTERNATIONAL MOBILE SATELLITE ORGANIZATION (IMSO)

and by observers from the following non-governmental organizations:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
INTERNATIONAL ASSOCIATION OF MARINE AIDS TO NAVIGATION
AND LIGHTHOUSE AUTHORITIES (IALA)
COMITÉ INTERNATIONAL RADIO-MARITIME (CIRM)
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
WORLD SAILING LTD. (WORLD SAILING)
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
THE NAUTICAL INSTITUTE (NI)

TERMS OF REFERENCE

3 Taking into account decisions of and comments and proposals made in plenary, the Group was instructed to:

Agenda item 8 – Development of performance standards for a digital navigational data system (NAVDAT)

- .1 consider the draft performance standards for the reception of maritime safety information and search and rescue related information by MF and HF digital navigational data system (NAVDAT) and the draft amendments to resolution MSC.509(105) on *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)*, set out in document NCSR 10/8, annexes 1 and 2, respectively, and advise the Sub-Committee, as appropriate;

Agenda item 11 – Revision of the Criteria for the provision of mobile satellite communication services in the Global Maritime Distress and Safety System (GMDSS) (resolution A.1001(25))

- .2 consider the draft revision of resolution A.1001(25) on *Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)* set out in the annex to document NCSR 10/11, taking into account the comments provided in documents NCSR 10/11/1, NCSR 10/10/3 (paragraphs 48 and 49) and NCSR 10/10/7 (paragraph 19.3), and advise the Sub-Committee, as appropriate;
- .3 if necessary, recommend any necessary actions to continue the work on the revision of resolution A.1001(25) intersessionally;

Agenda item 12 – Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference

- .4 consider, in consultation with navigation experts, the liaison statement from ITU-R Working Party (WP) 5B on digital selective calling alarms and bridge alert management (NCSR 10/12/4), taking into account document NCSR 10/12/10; prepare a draft reply liaison statement to ITU; and advise the Sub-Committee, as appropriate;
- .5 consider, in consultation with navigation and search and rescue experts, as appropriate, the report of the Correspondence Group on the Revision of Recommendation ITU-R M.1371-5 (NCSR 10/12/5), taking into account document NCSR 10/12/9; finalize the draft liaison statement to ITU; and advise the Sub-Committee, as appropriate;
- .6 consider the liaison statement from ITU-R WP 5B on protection of maritime safety systems operating in the 300-2 500 kHz band from electromagnetic interference (EMI) emanating from wireless power transmission (WPT) systems (NCSR 10/12/3), taking into account the Experts Group's preliminary consideration (NCSR 10/12, annex, paragraphs 4.4 to 4.7); prepare a draft reply liaison statement to ITU; and advise the Sub-Committee, as appropriate;
- .7 finalize the IMO position on relevant WRC-23 agenda items, using annex 18 to document NCSR 9/24/Add.1, as modified by MSC 106 (MSC 106/19, paragraphs 13.28 to 13.32), as the base document, including the IMO position on WRC-23 agenda item 10, taking into account document NCSR 10/12, annex, annex 1, as appropriate, for consideration by the Sub-Committee;
- .8 consider the liaison statements from ITU-R WP 5B on MMSI-encoding of EPIRBs carried on craft associated with a parent ship (NCSR 10/12/2), taking into account documents NCSR 10/12 and NCSR 10/12/8; finalize the draft reply liaison statement to ITU; and advise the Sub-Committee, as appropriate;
- .9 prepare draft terms of reference for the nineteenth meeting of the Joint IMO/ITU Experts Group, provisionally scheduled to take place during the week of 9 to 13 October 2023, and advise on the number of days required for the meeting;

Agenda item 21 – Any other business

- .10 consider documents NCSR 10/21/1, NCSR 10/21/4, NCSR 10/21/7, NCSR 10/21/9, NCSR 10/21/10 and NCSR 10/21/11 proposing modifications to *Harmonization of GMDSS requirements for radio installations on board SOLAS ships* (COMSAR/Circ.32/Rev.1), taking into account relevant parts of document NCSR 10/12, and advise the Sub-Committee, as appropriate;
- .11 consider document NCSR 10/21/5 on the expected delays in the availability of radio equipment in compliance with the revised performance standards set out in resolutions MSC.511(105) and MSC.512(105), including the information provided in document NCSR 10/21/3, and advise the Sub-Committee, as appropriate;
- .12 consider any necessary amendments to the *Guidance on the validity of radiocommunications equipment installed and used on ships* (MSC.1/Circ.1460/Rev.3) and advise the Sub-Committee, as appropriate; and
- .13 submit a report on Wednesday, 17 May 2023.

DEVELOPMENT OF PERFORMANCE STANDARDS FOR A DIGITAL NAVIGATIONAL DATA SYSTEM (NAVDAT) – Agenda item 8**General considerations**

4 The Group had a general consideration of the NAVDAT system, focusing mainly on its anticipated impact over the existing shore-based infrastructure and undertakings by Contracting Governments in accordance with SOLAS regulation IV/5.

5 The Group noted that the existing system (i.e. NAVTEX) and the new proposed system (i.e. NAVDAT) were expected to co-exist for a long time and new equipment to be developed in future would likely encompass both systems. In addition, the Group had the understanding that provision of the NAVDAT service by coast stations would be optional for SOLAS Contracting Governments so that the investment already made in NAVTEX shore infrastructure would not be lost.

6 Notwithstanding the above, the Group noted that all matters related to the implementation of the NAVDAT system will be considered at a later stage, in collaboration with interested parties (e.g. IHO, WMO, RCCs, etc.).

Draft performance standards for NAVDAT

7 The Group considered the draft "performance standards for the reception of maritime safety information and search and rescue related information by MF and HF digital navigational data system (NAVDAT)" set out in document NCSR 10/8, annex 1.

8 In considering the draft performance standards, the Group noted that the frequencies referred to in the draft performance standards for NAVDAT had not yet been included in appendix 15 of the Radio Regulations and that they were to be considered by WRC-23.

9 In this connection, the Group was of the view that the draft performance standards on NAVDAT should be re-considered at NCSR 11 based on the outcome of WRC-23. The Group noted that this would also provide opportunity for concurrent consideration of the related work on the draft NAVDAT manual and the draft amendments to resolution MSC.509(105) at NCSR 11.

10 Due to time constraints, the Group could only consider the draft performance standards on NAVDAT up to paragraph 4.2.2 of the annex to the draft MSC resolution. The Group invited the Sub-Committee to note the progress made on the draft performance standards on NAVDAT, as set out in annex 1, and instruct the nineteenth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters (EG 19) to further review the draft performance standards, and advise NCSR 11, as appropriate.

Draft amendments to resolution MSC.509(105)

11 Due to time constraints, the Group could not undertake consideration of the draft amendments to resolution MSC.509(105) on *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)*, set out in document NCSR 10/8, annex 2, and invited the Sub-Committee to instruct EG 19 to consider the draft amendments, and advise NCSR 11, as appropriate.

Other related work

12 The Group highlighted the need for revising the *Guidance for the reception of maritime safety information and search and rescue related information as required in the global maritime distress and safety system (GMDSS)* (MSC.1/Circ.1645) in future, before enabling the use of NAVDAT service in the GMDSS.

13 In addition, the Group noted that, upon adoption of the performance standards on NAVDAT and the amendments to resolution MSC.509(105), consequential amendments to the respective footnotes contained in the 1974 SOLAS Convention and other related mandatory instruments would be required to insert new references and to update existing references to resolution MSC.509(105).

REVISION OF THE CRITERIA FOR THE PROVISION OF MOBILE SATELLITE COMMUNICATION SERVICES IN THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) (RESOLUTION A.1001(25)) – Agenda item 11

Draft revision of resolution A.1001(25)

14 The Group considered the draft revision of resolution A.1001(25) on *Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)* prepared by the Correspondence Group on the Revision of Resolution A.1001(25) (NCSR 10/11), taking into account the comments provided in documents NCSR 10/11/1, NCSR 10/10/3 (paragraphs 48 and 49) and NCSR 10/10/7 (paragraph 19.3).

15 Regarding the comments in document NCSR 10/10/3 (paragraphs 48 and 49), which were also reflected in the report of the Correspondence Group (NCSR 10/11, paragraph 15), the Group was of the view that high level policy issues, such as intentions of the Organization for future mobile satellite service providers and their "implementation" into the GMDSS, should be carefully taken into account when an application for a new recognized mobile satellite system would be received and considered by the Committee.

16 The Group briefly discussed about the cover page of the draft MSC resolution and noted that converting resolution A.1001(25) into a new MSC resolution might not be feasible under the scope of resolution A.886(21). In addition, it was also noted that it might be preferable to retain resolutions A.1001(25) and A.707(17) together as Assembly resolutions and, if possible, with the same symbol, if or when they were amended (e.g. resolution A.707(17)/Rev.1 and resolution A.1001(25)/Rev.1).

17 With regard to section 1.2 of the draft revision, in particular the scope of application of the revised criteria to new and existing satellite systems and services, the Group noted that the BeiDou Message Service System (BDMSS) had been recognized by the Committee but had not yet become operational in the GMDSS, pending resolution of outstanding implementation issues (NCSR 9/WP.5, annex 2, appendix 2). Therefore, the Group had the understanding that the revised resolution would apply to the oversight of BDMSS only after it had commenced providing GMDSS services.

18 The Group noted a view expressed by the delegation of the United Kingdom, supported by the United States, that the draft provisions in paragraph 1.3.2, implying the possible necessity for the amendment of an existing public services agreement between recognized mobile service providers and IMSO, should be considered carefully from a legal point of view.

19 Due to time constraints, the Group could only undertake consideration of the draft revisions to resolution A.1001(25) up to section 3.4, as set out in annex 2.

20 Recognizing the further work still required on the matter, the Group invited the Sub-Committee to re-establish the Correspondence Group on the Revision of Resolution A.1001(25), to be coordinated by France,¹ to further progress this work intersessionally and subsequently to approve the following terms of reference for the Correspondence Group:

- .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 (9 to 13 October 2023), 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.

21 In order to make as much progress as possible intersessionally, the Group felt that the coordinator of the Correspondence Group should have the flexibility in line with Council guidelines to convene virtual meetings, as a complement to the usual email correspondence.

1

Coordinator:

Mr. Jean-Charles Cornillou
Centre for Studies and Expertise on Risks, the Environment, Mobility and Urban Planning (Cerema)
Technopôle Brest-Iroise 155, rue Pierre Bouguer BP 5
29290 Plouzané Cédex
France
Tel: +33 2 98 05 67 41
Email: Jean-Charles.Cornillou@cerema.fr

22 In view of the above and noting the target completion year for the current output being 2023, the Group observed that it might need to be extended to allow further progress on the revision of resolution A.1001(25).

RESPONSE TO MATTERS RELATED TO THE ITU-R STUDY GROUPS AND ITU WORLD RADIOCOMMUNICATION CONFERENCE – Agenda item 12

23 The Group considered the relevant parts of the report of the IMO/ITU Experts Group in document NCSR 10/12, taking into account the information, comments and proposals in documents NCSR 10/12/2, NCSR 10/12/3, NCSR 10/12/4, NCSR 10/12/5, NCSR 10/12/8, NCSR 10/12/9 and NCSR 10/12/10, and took action as summarized in the ensuing paragraphs.

Bridge alert management

24 In considering the liaison statement from ITU-R WP 5B (NCSR 10/12/4), including the comments in document NCSR 10/12/10, the Group noted diverging views with regard to embedding the concept of BAM in GMDSS radio equipment. Some delegations advocated the view that the notification to the seafarer for a received GMDSS distress or urgency call should be improved through effective use of BAM in order to reduce the cognitive load and distraction to the seafarer, taking into account human element implications. Other delegations were of the view that such alarms were outside the scope of BAM. However, the Group concurred with the view that this matter might cause additional delays to the development of IEC testing standards and production of new VHF, MF and MF/HF equipment complying with resolutions MSC.511(105) and MSC.512(105).

25 Recalling the provisions in resolutions MSC.511(105) and MSC.512(105) for a BAM interface on VHF, MF and MF/HF radio equipment, the Group noted that the reference to resolution MSC.302(87) was made without further additional guidance with regard to GMDSS alerts.

26 In addition, it was noted that ship earth stations complying with resolution MSC.434(98) should be capable of indicating warnings and cautions according to BAM-defined classification, even though such requirement, including BAM interface, was not included in the performance standards for Inmarsat C ship earth stations (i.e. resolution MSC.513(105)).

27 After consideration of the matter, in consultation with navigation experts, the Group prepared a draft liaison statement to ITU-R WP 5B on the matter, as set out in annex 3, and invited the Sub-Committee to approve it, request the Secretariat to convey it to ITU and invite the Committee to endorse this action.

28 Recognizing the need for clarifying the BAM provisions and requirements in resolution MSC.302(87) on *Performance standards for bridge alert management* with respect to classification, handling, distribution and presentation of GMDSS alerts generated by shipborne radiocommunication equipment and to ensure consistency among the performance standards of relevant GMDSS radio equipment with respect to provisions for the BAM interface, the Group recommended that the Sub-Committee should invite interested Member States and international organizations to submit relevant proposals for a new output to the Committee.

29 The Group invited the Sub-Committee to invite IEC to further study the questions regarding the technical implementation of BAM according to IEC 62923-1, making use of interfaces in accordance with IEC 61162.

Revision of Recommendation ITU-R M.1371-5***Report of the Correspondence Group***

30 The Group considered, in consultation with navigation and search and rescue experts, the report of the Correspondence Group on the Revision of Recommendation ITU-R M.1371-5 (NCSR 10/12/5), taking into account the comments provided in document NCSR 10/12/9.

31 The Group reviewed each task specified in the report of the Correspondence Group report and finalized the considerations on all tasks, i.e. tasks A, B1, B2, B3, C, D, E, F, G and H.

32 Regarding task H, the Group noted that a discussion on this matter was premature whilst VDES was still under development.

33 The Group considered task C (Ship type) together with navigation experts and was of the view to maintaining the existing list of ship types in AIS Message 5 and, at the same time, did not support the use of proposed new AIS Message 29 to indicate the ship type information as an additional message. The Group, noting that further amendments to the existing list of ship type identifiers in table 53 of Recommendation ITU-R M.1371-5 might be needed, encouraged interested Member States and international organizations to submit related proposals to NCSR 11, under agenda item 12, for consideration.

34 Having reviewed and finalized the draft liaison statement prepared by the Correspondence Group with respect to tasks A to G, the Group invited the Sub-Committee to approve the draft liaison statement to ITU-R WP 5B, as set out in annex 4, request the Secretariat to convey it to ITU and invite the Committee to endorse this action.

Wireless power transmission systems

35 The Group considered the liaison statement from ITU-R WP 5B on protection of maritime safety systems operating in the 300-2 500 kHz band from EMI emanating from WPT systems (NCSR 10/12/3) and prepared a draft liaison statement to ITU-R WP 5B, with copy to ITU-R Working Party 1A, as set out in annex 5. The Sub-Committee is invited to approve it, instruct the Secretariat to convey it to ITU and invite the Committee to endorse this action.

Finalization of the IMO position on relevant ITU WRC-23 agenda items

36 Taking into account the comments made in plenary, the Group updated the draft IMO position on WRC-23 agenda item 10 to suggest the inclusion of "digital voice in VHF radiotelephony" and "VDES R-mode" in the preliminary agenda for WRC-31.

37 In addition, the Group prepared new text for inclusion in the draft IMO position on WRC-23 agenda item 10, highlighting the need to establish two study questions in the ITU-R Study Group 5 for the 2024-2027 study cycle in order to facilitate studies on these two issues.

38 The Group also updated the "General" section of the draft IMO position based on the information contained in the "Review of maritime transport – 2022", as published by the United Nations Conference on Trade and Development (UNCTD).

39 Based on the foregoing, the Group finalized the draft IMO position on relevant WRC-23 agenda items, as set out in annex 6, and invited the Sub-Committee to agree to it for submission to MSC 107, as an urgent matter, with a view to approval and subsequent submission to WRC-23 (to be held in the United Arab Emirates, from 20 November to 15 December 2023).

40 With regard to the introduction of "digital voice in VHF radiotelephony" and "VDES R-mode", the Group recommended that the Sub-Committee should invite Member States and international organizations to submit relevant proposals for a new output to MSC 108 in order to ensure timely commencement of the necessary work.

41 The Group also recommended that the Sub-Committee should invite MSC 107 to request the Secretariat, when proposals were submitted for consideration by WRC-23, which had not been foreseen when developing the IMO position, to consult with IMO Member States present at WRC-23 and take appropriate action on new issues not included in the IMO position to protect IMO's interests.

MMSI-encoding of EPIRBs carried on craft associated with a parent ship

42 The Group considered the liaison statements from ITU-R WP 5B on MMSI-encoding of EPIRBs carried on craft associated with a parent ship (NCSR 10/12/2), taking into account documents NCSR 10/12 and NCSR 10/12/8.

43 In considering the matter, the Group received additional information and explanations provided by the observer from Cospas-Sarsat regarding the misalignment between Cospas-Sarsat and ITU documentations that had led to a situation where using the 98MIDXXXX MMSI format and the 974XXYYYY identity format had not been recognized as valid by the Cospas-Sarsat system.

44 During the ensuing discussion, the Group noted the following views:

- .1 changes to the Cospas-Sarsat system to enable recognition of the 98MIDXXXX and 974XXYYYY formats as valid alert messages had been approved by the Cospas-Sarsat Council but still were in the process of implementation by States providing its ground segment, and the change thus far approved did not allow for the automatic extraction of the MID from the 98MIDXXXX format;
- .2 the 974XXYYYY format was never intended to be used on the 406 MHz channel of an EPIRB, as it was only intended to be used on AIS-enabled devices for locating purposes; and
- .3 this was a matter to be considered and resolved between Cospas-Sarsat and ITU however, IMO also had a close interest in it due to search and rescue aspects.

45 Regarding the possible future update of the Cospas-Sarsat ground segment software to enable automatic extraction of the MID from messages of the 98MIDXXXX format, the Group noted that the MID was used to send alert messages to the matching administration (in addition to the administration responsible for SAR in the geographic area of the distress), and also noted a question as to whether an update to facilitate notification to the administration associated with the MID would improve SAR outcomes. After brief discussion, no conclusion was reached by the Group on this matter.

46 The Group noted that resolution MSC.471(101) on *Performance standards for float-free Emergency Position-Indicating Radio Beacons (EPIRBs) operating on 406 MHz* might need revisions in future for alignment with Recommendation ITU-R M.585 if/when the ITU Recommendation was revised in a way that could affect MMSI-encoding of EPIRBs carried on craft associated with a parent ship as well as EPIRB-AIS devices using a freeform number identity (i.e. 974XXYYYY).

47 After consideration, the Group prepared a draft liaison statement to ITU-R WP 5B with copy to Cospas-Sarsat Programme, as set out in annex 7. The Group invited the Sub-Committee to approve the draft liaison statement, request the Secretariat to convey it to ITU and invite the Committee to endorse this action.

Terms of reference for the nineteenth meeting of the Joint IMO/ITU Experts Group

48 The Group agreed on the terms of reference for the nineteenth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters, as set out in annex 8, and advised that five days were required for the meeting.

ANY OTHER BUSINESS – Agenda item 21

Modifications to COMSAR/Circ.32/Rev.1

49 The Group considered the comments and modifications proposed to *Harmonization of GMDSS requirements for radio installations on board SOLAS ships* (COMSAR/Circ.32/Rev.1) in documents NCSR 10/21/1, NCSR 10/21/4, NCSR 10/21/7, NCSR 10/21/9, NCSR 10/21/10 and NCSR 10/21/11, taking into account relevant parts of document NCSR 10/12 (annex, paragraphs 9.1 and 9.2).

50 The Group had a lengthy discussion on the proposed modifications to section 1.6.3 and the table under section 2.3 of the circular in relation to the duplication of radiocommunication equipment. Following discussion, the Group decided to delete the reference to SOLAS regulation IV/7.1.2 from section 1.6.3 relating to the duplication of VHF DSC watch receiver, in line with previous GMDSS requirements (i.e. resolution A.702(17) and COMSAR/Circ.32) as well as taking into account amendments to SOLAS chapter IV as adopted by resolution MSC.496(105) and possible unintended consequences. The Group also reviewed and updated the table under section 2.3, including the notes underneath it, based on proposals in documents NCSR 10/21/1 and NCSR 10/21/4. In particular, the Group simplified the notes under the table in section 2.3 and came to a mutual understanding that ships may choose a duplicated MF/HF telephony to substitute an MF telephony in sea area A3.

51 The Group refrained from preparing modifications to section 4.10 of the circular based on the proposals in document NCSR 10/21/7 due to potential implications with respect to location of EPIRBs on existing ships.

52 Regarding the opposing proposals in documents NCSR 10/21/1, NCSR 10/21/9 and NCSR 10/21/10 concerning section 6.1.2 of the circular (i.e. "Interference from LED lighting and other unintentional emitters"), the Group identified a solution by re-organizing the section to clarify the process recommended for identifying the source of electromagnetic interference, such as LED lighting systems, and by removing the reference to safety radio certificate.

53 Having considered the modifications proposed in document NCSR 10/21/11 in relation to radio batteries, the Group concluded that this matter might require a new output proposal to the Committee. Nevertheless, the Group noted an opinion suggesting that radio batteries might be located in the same compartment with ship's emergency source of electrical power, even though this was not the preferred method in general.

54 After consideration, the Group prepared draft modifications to COMSAR/Circ.32/Rev.1, as set out in annex 9, and invited the Sub-Committee to approve them; request the Secretariat to issue COMSAR/Circ.32/Rev.2 with an effective implementation date of 1 January 2024, incorporating the aforesaid modifications into the circular and superseding COMSAR/Circ.32/Rev.1; and invite MSC 107 to endorse this action as an urgent matter, given the forthcoming effective date of the circular (i.e. 1 January 2024).

Availability of radio equipment in compliance with the revised performance standards set out in resolutions MSC.511(105) and MSC.512(105)

55 The Group considered the information provided in document NCSR 10/21/5 concerning the expected delays in the availability of radio equipment in compliance with the revised performance standards set out in resolutions MSC.511(105) and MSC.512(105), taking into account document NCSR 10/21/3 and the comments made in plenary with respect to the urgency of this issue, noting that MSC 107 was expected to consider the same issue (MSC 107/15 and MSC 107/15/3 refer).

56 Having noted general support for the proposal to allow continued installation of radio installations complying with the existing standards (i.e. resolutions A.803(19), as amended, A.804(19), as amended, and A.806(19), as amended), the Group noted also the following views expressed:

- .1 IEC was expected to complete development of the relevant testing standards by 1 January 2026, at the earliest;
- .2 an additional two years would be required for mass production of the relevant equipment and to bring them into the market;
- .3 *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications* (resolution MSC.513(105)) should be incorporated into the proposed draft MSC circular; and
- .4 shore-based infrastructure, which may have already been modernized based on the latest ITU channelling arrangements, may be incompatible with the existing radiocommunication equipment onboard vessels.

57 After consideration, the Group updated the draft MSC circular contained in the annex to document NCSR 10/21/5, as set out in annex 10, and invited the Sub-Committee to agree to it and advise MSC 107 accordingly.

Amendments to MSC.1/Circ.1460/Rev.3

58 The Group noted that MSC 107 was expected to consider a proposal (MSC 107/15/1 (ICS)) for the revision of *Guidance on the validity of radiocommunications equipment installed and used on ships* (MSC.1/Circ.1460/Rev.3), in order to extend the deadline for updating VHF radiocommunication equipment from 1 January 2024 to a later date, due to unavailability of equipment in the market meeting the latest ITU frequency and channelling requirements.

59 Having acknowledged the connection between this matter and the issue concerning availability of VHF equipment compliant with resolution MSC.511(105) (paragraphs 55 to 57 refer), the Group supported the proposal in general and was of the view that the new deadline should be aligned with the date specified in the draft MSC circular set out in annex 10 for consistency.

60 While acknowledging the need for a later compliance date, some administrations expressed the view that this issue was related to the unavailability of components/equipment for existing installations and it was not related to the revised performance standards for VHF equipment. In their view, alignment with the date specified in the draft MSC circular in annex 10 was not essential.

61 The Group invited the Sub-Committee to bring the outcome of its considerations on the above matter to the attention of MSC 107.

ACTION REQUESTED OF THE SUB-COMMITTEE

62 The Sub-Committee is invited to:

- .1 note considerations of the Group with respect to development of the draft performance standards for NAVDAT and related draft amendments to resolution MSC.509(105) and instruct EG 19 to further develop both draft instruments, taking into account the comments and submissions at NCSR 10, for consideration at NCSR 11 (paragraphs 4 to 13, annex 1);
- .2 note the considerations of the Group with respect to the revision of resolution A.1001(25); re-establish the Correspondence Group on the Revision of Resolution A.1001(25), to be coordinated by France, to further progress this work intersessionally; and approve its terms of reference (paragraphs 14 to 20, and annex 2);
- .3 endorse the view of the Group that the coordinator of the Correspondence Group established on the Revision of resolution A.1001(25) should have the flexibility in line with Council guidelines to convene virtual meetings, as a complement to the usual email correspondence (paragraph 21);
- .4 invite the Committee to extend the target completion year of the output concerning the revision of resolution A.1001(25) on *Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)* to 2024 (paragraph 22);
- .5 note the considerations of the Group on issues concerning the application of the concept of bridge alert management; approve the draft liaison statement to ITU-R WP 5B on Digital Selective Calling alarms and the Bridge Alert Management; request the Secretariat to convey it to ITU; and invite the Committee to endorse the action taken (paragraphs 24 to 27, and annex 3);
- .6 note considerations of the Group concerning resolution MSC.302(87) on *Performance standards for bridge alert management* and invite interested Member States and international organizations to submit relevant proposals for a new output to the Committee (paragraph 28);
- .7 invite IEC to further study the questions regarding the technical implementation of BAM according to IEC 62923-1, making use of communication in accordance with IEC 61162 (paragraph 29);
- .8 note the considerations of the Group with respect to the revision of Recommendation ITU-R M.1371-5; approve the draft liaison statement to ITU-R WP 5B on revision of Recommendation ITU-R M.1371-5; request the Secretariat to convey it to ITU; and invite the Committee to endorse the action taken (paragraphs 30 to 34, and annex 4);
- .9 note the considerations of the Group on wireless power transmission systems; approve the draft liaison statement to ITU-R WP 5B on wireless power transmission systems; request the Secretariat to convey it to ITU; and invite the Committee to endorse the action taken (paragraph 35, and annex 5);

-
- .10 note the considerations of the Group on the final IMO position on relevant WRC-23 agenda items concerning matters relating to Maritime Services; agree to the final IMO position; and invite MSC 107 to approve it for subsequent submission to the WRC-23 (paragraphs 36 to 39, and annex 6);
- .11 invite Member States and international organizations to submit relevant proposals for a new output to MSC 108 in order to enable commencement of the necessary work on digital voice in VHF radiotelephony and VDES R-mode (paragraph 40);
- .12 invite MSC 107 to request the Secretariat, when proposals were submitted for consideration by WRC-23, which had not been foreseen when developing the IMO position, to consult with IMO Member States present at WRC-23 and to take appropriate action on new issues not included in the IMO position to protect IMO's interests (paragraph 41);
- .13 note the considerations of the Group on MMSI-encoding of EPIRBs carried on craft associated with a parent ship; approve the draft liaison statement to ITU-R WP 5B on MMSI-encoding of EPIRBs carried on craft associated with a parent ship; request the Secretariat to convey it to ITU; and invite the Committee to endorse the action taken (paragraphs 42 to 47, and annex 7);
- .14 approve the draft terms of reference for the nineteenth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters and agree with the advice of the Group that five days were required for the meeting (paragraph 48 and annex 8);
- .15 approve the draft modifications to COMSAR/Circ.32/Rev.1 on *Harmonization of GMDSS requirements for radio installations on board SOLAS ships*; request the Secretariat to issue COMSAR/Circ.32/Rev.2 with an effective implementation date of 1 January 2024, incorporating the aforesaid modifications into the circular and superseding COMSAR/Circ.32/Rev.1; and invite MSC 107 to endorse the action taken (paragraphs 49 to 54, and annex 9);
- .16 endorse the view of the Group with respect to permitting continued installation of radio installations complying with the existing standards (i.e. resolutions A.803(19), as amended, A.804(19), as amended, A.806(19), as amended and A.807(19), as amended) until 1 January 2028; agree to the draft MSC circular on Delays affecting the availability of new GMDSS equipment compliant with the revised performance standards, set out in resolutions MSC.511(105), MSC.512(105) and MSC.513(105), and forward it to MSC 107 for approval (paragraphs 55 to 57, and annex 10); and
- .17 endorse the view of the Group with respect to the revision of MSC.1/Circ.1460/Rev.3 on *Guidance on the validity of radiocommunications equipment installed and used on ships* to extend the deadline for updating VHF radiocommunication equipment to 1 January 2028 in alignment with the above action and advise MSC 107, accordingly (paragraphs 58 to 60);
- .18 approve the report in general.

ANNEX 1

DRAFT MSC RESOLUTION

PERFORMANCE STANDARDS FOR THE RECEPTION OF MARITIME SAFETY INFORMATION AND SEARCH AND RESCUE RELATED INFORMATION BY MF AND HF DIGITAL NAVIGATIONAL DATA SYSTEM (NAVDAT)

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

TAKING INTO ACCOUNT the amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974 ("the Convention"), adopted by resolution MSC.496(105),

NOTING, in particular, regulation IV/7.1.4 of the Convention, which requires every ship to be provided with a receiver or receivers capable of receiving maritime safety information and search and rescue related information throughout the entire voyage in which the ship is engaged,

NOTING ALSO the works carried out by the International Telecommunication Union on a digital navigational data system (NAVDAT) and the allocated frequencies on MF and HF for its use,

NOTING FURTHER the Guidance for the reception of maritime safety information and search and rescue related information as required in the Global Maritime Distress and Safety System (GMDSS) (MSC.1/Circ.1645), which identifies related information broadcast services and the equipment which should be installed on board ships to meet the requirements of SOLAS chapter IV,

RECOGNIZING that further growth in information promulgated to ships is constrained by the capacity of the International NAVTEX service and HF NBDP broadcasts, and that MF and HF NAVDAT broadcasts may be used in the Global Maritime Distress and Safety System (GMDSS),

HAVING CONSIDERED, at its [...] session, the recommendation made by the Sub-Committee on Navigation, Communications and Search and Rescue at its [...] session,

1 ADOPTS the *Performance standards for the reception of maritime safety information and search and rescue related information by MF and HF digital navigational data system (NAVDAT)*, set out in the annex to the present resolution;

2 RECOMMENDS Governments to ensure that NAVDAT receiver equipment installed on or after [...] conforms to performance standards not inferior to those specified in the annex to the present resolution.

ANNEX

PERFORMANCE STANDARDS FOR THE RECEPTION OF MARITIME SAFETY INFORMATION AND SEARCH AND RESCUE RELATED INFORMATION BY MF AND HF DIGITAL NAVIGATIONAL DATA SYSTEM (NAVDAT)

1 INTRODUCTION

1.1 The equipment receives maritime safety information (MSI) and search and rescue (SAR) related information transmitted by NAVDAT on MF and HF frequencies, and may be used to meet the requirements of SOLAS regulation IV/7.1.4.

1.2 In addition to meeting the requirements of the Radio Regulations, the NAVDAT receiver should comply with the most recent versions of Recommendation ITU-R M.2010 for the NAVDAT in the MF band and Recommendation ITU-R M.2058 for the NAVDAT in HF bands (see also paragraph 3.6).

1.3 The equipment should comply also with the requirements set out in resolutions A.694(17) and MSC.191(79), as amended by resolution MSC.466(101), and with the following Performance Standards.

2 GENERAL

2.1 NAVDAT allows the broadcast of messages in the form of digital files providing texts, pictures or data. This broadcast can be done on the two international frequencies: 500 kHz in the MF band and 4 226 kHz in the HF band, and also on all other maritime radio frequencies allocated by the ITU for this usage.

2.2 The onboard equipment should comprise a radio receiver connected to an appropriate antenna, a signal processor with non-volatile memory, a human-machine interface and:

- .1 an integrated display and data ports; or
- .2 a connection to external equipment with a display and a non-volatile memory (e.g. an integrated navigation system).

2.3 The receiver can be a stand-alone equipment with an integrated display and interface to other external equipment or a black box type equipment.

2.4 The equipment should be provided with an antenna able to receive the entire maritime radio frequencies from, at minimum, 400 kHz to 27 500 kHz.

2.5 The equipment should provide facilities to automatically update the ship's position and the time at which the position was determined from a suitable electronic position-fixing aid which may be an integral part of the equipment. For equipment which does not have an integral position-fixing aid, such facilities should include a suitable interface conforming to the appropriate international standards.²

2.6 When the equipment has a dedicated antenna, it is recommended that the antenna be equipped with two outputs for sharing with another MF/HF receiver.

² Refer to IEC 61162.

3 CONTROLS AND INDICATORS

3.1 Subject messages³ which have been excluded by the operator from display should be readily available.

3.2 When a message is received correctly or with errors, the equipment may be able to emit a corresponding short audio notification. In addition, an alert should be built into the receiver for important messages as indicated in the NAVDAT manual. It should only be possible to reset this alert manually.

3.3 The equipment should be capable of displaying communication parameters, including received signal strength indication (RSSI), signal noise ratio (SNR) and bit error rate (BER).

3.4 Each time messages are received, the following information will be displayed in plain text: priority, subject message, coast station identity and numbering of the message received.

3.5 The equipment should be able to configure parameters of data ports for communication with other ship equipment.

3.6 The software/firmware of the equipment shall be able to be updated. The update should be performed by using a USB port or reception of update messages under subject message 63 (receiver update software). This function is necessary to follow the evolutions of the GMDSS Master Plan for the new NAVDAT stations as well as for the future revisions of the ITU Recommendations.

4 RECEIVER

4.1 Frequency management

4.1.1 The NAVDAT receiver should receive the MF channel (500 kHz) and the HF channel (4 226 kHz) simultaneously.

4.1.2 It should also be possible to receive, via a scanning function, at least one (or more) other frequency allocated to NAVDAT at international, national or regional level (in MF or HF maritime bands).

4.1.3 The NAVDAT receiver should decode the MF channel (500 kHz) and the HF channel (4 226 kHz) simultaneously.

4.1.4 The decoding of frequency(s) received by scanning can be demodulated in real time or in shifted time.

4.2 Scan function

4.2.1 To allow reception of national or regional frequencies assigned to NAVDAT, the receiver should use a scan function on the following maritime frequency bands:

- .1 the MF band from 415 to 526.5 kHz (except 500 kHz);
- .2 the channels assigned to NAVDAT in appendix 15 of ITU Radio regulations: 6 337.5, 8 443, 12 663.5, 16 909.5 and 22 450.5 kHz (except 4 226 kHz); and

³ See the list of subject message codes in NAVDAT Manual or Recommendations ITU-R M.2010 or 2058.

- .3 the frequency bands assigned to wideband digital transmissions of appendix 17 of ITU Radio regulations in the bands 4, 6, 8, 12, 16, 19, 22 and 26 MHz.

4.2.2 The signals received on the frequency selected by scan can be decoded in real time or in time shifted according to the resources of the NAVDAT receiver computer at this moment.

----- End of considerations by the Working Group on Communications-----

4.2.3 The transmitted pre-signal⁴ will allow the receiver to detect the transmission and tune in to the frequency, measure its SNR, identify the NAVDAT coast station and its NAVAREA / METAREA where it is located.

4.3 The receiver sensitivity should be better than – 95dBm in a bandwidth of 10 kHz, with a BER better than 10^{-4} and a SNR better than 28 dB.

4.4 The receiver should comply with last appropriate electromagnetic compatibility (EMC) standards.

4.5 The equipment should be able to receive all NAVDAT message, and identify the priority level and subject message.

4.6 The Maritime Mobile Service Identity (MMSI) of the ship should be used as the identity of the NAVDAT receiver (see also 11).

4.7 The equipment should select automatically whether to receive subsequent messages according to broadcast modes:

- .1 **General broadcast:** The equipment should be able to receive subsequent messages or select to receive messages that are MSI or SAR related information messages.
- .2 **Selective broadcast:** The equipment should be able to receive automatically the subsequent messages according to the ship's position, MMSI's or group and additional lists of identities.
- .3 **Dedicated message:** The equipment should be able to receive automatically the subsequent messages according to ship's MMSI.

4.8 The equipment should be able to select automatically demodulation mode, error correction decoding and message decoding method according to receiving modulation information stream (MIS).

4.9 Message transmission is based on transmission of data packets. The equipment should be able to repair received messages by using repeatedly sent data packets.

4.10 The equipment should have a built-in real-time clock that is automatically calibrated by GNSS receiver (or clock reference through on board data network).

⁴ To ensure proper operation of the receiver scan function, the transmitters of active national or regional NAVDAT coast stations will broadcast a pre-signal before the NAVDAT frames. This pre-signal is a known data repeated eight times for a total duration of 3.2 seconds.

4.11 The equipment should obtain the position and time from GNSS receiver (or from connected to onboard data network).

4.12 The equipment should have in memory the information concerning the NAVDAT coast stations edited by the Organization inside internal stored table. This information will give the name of the station, its geographical position, the numbering allocated by the NAVDAT coordination, the frequency used, as well as the different slots that can be used by the station. This information will be regularly updated upon receipt of subject message 63 (receiver update software).

5 DISPLAY DEVICE

5.1 The display device should be able to display different types of messages in the form of digital files providing texts, pictures, or data.

5.2 The design and size of the integrated display device should be such that displayed information is easily read under all conditions by observers at normal working distance and viewing angles. A connection will have to be possible for the use of an external display of bigger dimensions or appropriate navigational equipment.

5.3 On the display, the following requirement should meet:

- .1 an indication of newly received unsuppressed messages should be immediately displayed until acknowledged or until 24 hours after receipt; and
- .2 newly received unsuppressed messages should also be displayed.

5.4 When displaying received messages a clear indication of the end of any message should be given.

5.5 The display resolution should be at least 640*480 pixels.

5.6 The list of messages received by 500 kHz and 4 226 kHz can be displayed in different areas of the display screen at the same time.

5.7 In the list of received messages, the latest message is displayed on the first line with its number, contents, date and time.

6 STORAGE

6.1 Non-volatile files message memory

6.1.1 For each frequency provided, it should be possible to record at least 100 messages in non-volatile memory. It should not be possible for the user to erase messages from the memory. When the memory is full, the oldest message should be replaced by the new messages.

6.1.2 The user should be able to mark the individual messages for permanent retention. These messages can occupy up to 25% of available memory and should not be overwritten by new messages. When no longer needed, the user should be able to delete the tag on these messages, which can be overwritten normally.

6.1.3 Duplicate messages could be recognized by the equipment and will not be stored.

6.1.4 A memory capacity of not less than 1 GB should be provided to store, as a minimum, the time, transmitter identification, subject message type and message content.

6.1.5 After between 60 and 72 h, a message should automatically be erased from the memory storage. If the number of received messages exceeds the capacity of the storage, the oldest message should be erased.

6.1.6 Only messages satisfactorily received (i.e. BER is better than 10^{-4}) should be stored.

6.2 PROGRAMMABLE CONTROL MEMORIES

6.2.1 Information identifying the transmitter service area and the designator of each subject message in programmable memory should not be erased by interruptions in the power supply of less than 24 h.

6.2.2 The equipment should be able to display, delete and query stored messages, and be able to output messages manually or automatically to appropriate ship equipment (such as ECDIS).

7 ALERT

7.1 The receipt of SAR related information messages should give a continuous audible alarm. It should only be possible to reset this alarm manually. The position information contained in the SAR related information messages may be transmitted to other navigation equipment (e.g. ECDIS, ENC plotter).

8 TEST FACILITIES

8.1 The equipment should be provided with a facility to test that the radio receiver, the display and the non-volatile memory are functioning correctly and to display self-test results. In the case of using a specific antenna, it also should be checked by this process.

9 INTERFACES

9.1 The equipment should include an interface for the transfer of all messages to other navigation or communication equipment as well as standard office interfaces. It is also recommended to provide Ethernet and USB interfaces for high-speed transmission of messages and provide connectivity for printers.

9.2 All interfaces provided for communication with other navigation or communication equipment should comply with the relevant international standards.⁵

9.3 The equipment should be able to display communication status.

9.4 According to the subject message codes the equipment should be able to provide messages to appropriate ship equipment by the data port.

9.5 The equipment should include an interface for alert management in accordance with the *Performance standards for bridge alert management* (resolution MSC.302(87)).

⁵ Refer to IEC 61162.

10 POWER SUPPLY

10.1 The equipment should normally be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the equipment and all equipment necessary for its normal functioning, from an alternative source of energy.

10.2 Equipment shall continue to operate in the presence of power supply variations normally to be expected in a ship and this without loss of software parameters or received messages stored in the memory.

11 Receiver identification

It will be possible to configure the receiver with:

- .1 The identity of the vessel (according to Recommendation ITU-R M.585 MMSI).
- .2 The main Group identity (according to Recommendation ITU-R M.585).
- .3 Additional lists of identities.

12 Stored tables

The receiver will have the possibility of memorizing some tables. For example:

- .1 The list of coast stations with:

Area;
Nation;
Longitude;
Latitude;
Name;
Slots; and
Frequency used.

This stored table is queried when the identities of a NAVDAT coast station are received and the complete parameters of this NAVDAT coast station will be then displayed in plain text.

- .2 The list of subject messages:

Table with subject message 01 to 63.

ANNEX 2

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

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

7 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 DEFINITIONS GENERAL

1.1 Introduction

This resolution determines the criteria, procedures and arrangements for the evaluation, recognition, review 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, as may be amended, 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 oversight of new and existing satellite systems and services for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV.

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 and 2.3.

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 new criteria and requirements of the Organization for the oversight by IMSO.

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* (as defined in RR 1.25) means a radiocommunication service:
- .1 between mobile earth stations and one or more space stations, or between space stations used by this service; or
 - .2 between mobile 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 and the terrestrial networks; and
 - .3 provides the infrastructure to enable provision of a RMSS that meets one or more of the functional requirements set out in section 3.1.1 and the consequential requirements as set out in this resolution.
- .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), where the service will comply with this document for the GMDSS functions in paragraph 3.1.1;
- .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.

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 mobile satellite services systems participating, or wishing to participate in the GMDSS are 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 service 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 evaluation 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 come to an agreement with the MSS provider regarding the terms of the assessment, including the related costs, and to establish a technical and operational assessment team which could include independent consultant experts, Government-seconded experts and experts seconded by IGOs and NGOs. In addition, interested observers could be invited to follow the work of the assessment team;
- .3 invite the International Telecommunication Union (ITU) to comment on any technical and regulatory aspects of the application and the possibility to record the satellite system operating frequencies in RR appendix 15; 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 the technical and operational assessment team and the information received from ITU, IHO and WMO. The report of the technical and operational assessment team will include the identification of the system-critical components of the satellite system.

2.2.5 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 COMSAR NCSR Sub-Committee should verify and evaluate the information, seeking clarification as required direct from the MSS service provider or any party concerned, and decide, taking into account the report of the technical and operational assessment team, whether the mobile satellite services system meets the criteria established by this resolution. In reaching its decision, the COMSAR NCSR 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

~~2.4.3.12~~ 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 future 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.

~~2.4.3.53~~ If, following evaluation, the Organization is unable to recognize the mobile satellite company or the 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 provided 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 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. MSS providers should regularly provide the necessary information to IMSO to confirm compliance with the criteria set out in this resolution.

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 MSS 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 3.7 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^[*]

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/calls;
- .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;

* [~~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.]

- .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.

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 connected to at least one provider of MSI for NAVAREA;
- .4 be connected to at least one provider of MSI for METAREA;
- .5 keep continuous watch for maritime distress, urgency and safety communications;
- .6 always transmit distress alerts without any need to log in to the system; and
- .7 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 service should comply with relevant instruments and standards as issued by international organizations including IEC, IHO, IMO, 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 and general radiocommunications traffic estimated to be required by the ships using the services system.

3.3 Priority access

3.3.1 Mobile Satellite services systems in the GMDSS should be capable of processing maritime distress, urgency, safety 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 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 the RCC within 60 seconds.
- .2 Satellite systems used for providing other mobile satellite services~~communications~~ in addition to maritime communications should be capable of automatically recognizing requests for maritime 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 station~~.

The 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 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 distress ~~alerts and distress calls~~ communications immediate access, when necessary, by pre-empting ongoing communications of lower~~routine~~ priority or by other suitable means approved by the Organization;
 - .5 automatically routing maritime distress alerts/calls¹ directly to a primary and, when necessary, a designated backup RCC; and

¹ Refer to COMSAR/Circ.60 on *Procedure for routing distress alerts*.

- .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 Selection and use of message or access priority for urgency and safety transmissions by ~~SES maritime mobile terminals~~ should preferably be 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 ~~satellite system 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.

~~----- End of considerations by the Working Group on Communications -----~~

3.4 Immediate Connection

Satellite systems participating in the GMDSS should make arrangements to ensure that it will always be possible for an RCC to obtain an immediate connection to a SES and that the RCC 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 the Organization.

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 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 MSS providers should formally suggest to IMSO a public method to be used in the calculation of availability of the system and service(s), including cases in which downtime affects limited geographical areas rather than the whole service area. This method should be approved by IMSO, who will then advise the Organization.

3.5.53 Service MSS providers should advise notify ships, their associated RCCs, maritime safety information providers (MSIPs) and IMSO in advance of planned outages of RMSS recognized services and advise them ships of about the scheduled time for the outage affected service(s) and other relevant downtime and known interruptions in service, and supply any other relevant network information. Service MSS providers should also advise IMSO of unscheduled interruptions into any RMSS recognized services, as soon after the commencement of the interruption as possible, but within 24 hours, and when the RMSS recognized 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. A template for reporting planned and unplanned outages is 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)	

3.5.64 Network availability. The complete mobile satellite communication network, including earth stations for the recognized services, is expected to achieve at least Each mobile satellite service, including ground segment, is expected to be available 99.9% availability (equivalent to a total of 8.8 hours down time per year). The overall satellite system that supports such recognized service is expected to achieve the same availability criteria.

3.6 Restoration and spare satellites Continuity of service

3.6.1 Mobile satellite services should have the means and arrangements to ensure continuity of service during planned work or in case of an unforeseen incident. All system-critical components of the satellite system should have adequate redundancy for

the uninterrupted provision of the mobile satellite service, or for its restoration within one hour after a confirmed failure. This includes the space segment which should have spare 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 services 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 maritime distress and safety communication services in the event of a satellite failure should be notified to IMSO. IMSO and the service provider should conduct exercises from time to time to prove the efficiency and effectiveness of these planned arrangements.

3.6.3 MSS providers should put in place measures to protect the satellite system, including its personnel who are involved in the provision of recognized services, from, inter alia: environmental disasters, fire, vandalism, pandemic, and other unforeseen risks. 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 MSS providers should provide information to IMSO on changes or incidents that would adversely affect any system-critical components, such as the need to switch to redundant solutions, whether or not they result in a system outage.

3.6.5 MSS providers should undergo regular contingency exercises as determined by IMSO to demonstrate compliance with the continuity of service requirements.

3.7 Restoration of service

3.7.1 Full information on the means and arrangements prepared for restoration of the RMSS in the event of failure of the space segment or the ground segment should be notified to IMSO.

3.7.2 IMSO and the MSS provider should conduct scheduled and unscheduled exercises as determined by IMSO to prove the efficiency and effectiveness of these planned arrangements for the space segment and the ground segment.

3.8 Identification

3.8.1. 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.

3.8.2 Each MSS 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 MSS providers may directly notify the ITU of satellite number information for ships registered in MARS under these administrations.

3.98 Information to be made available to SAR authorities

3.9.1 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.

3.9.2 The mobile satellite service should ensure the integrity of the contents of distress alerts.

3.9.3 MSS providers should maintain a database, containing all additional registration, commissioning or other data relevant for the SES operating on their satellite systems and should make this information available 24 hours per day to the proper authority or RCC upon request to support prosecution of a false alert or search and rescue, respectively.

3.109 Reception and routing of distress alerts

3.10.1 The satellite system should allow for addressing a maritime distress alert to a primary MRCC chosen by the ship's operator and covering the area concerned, and should provide for automatic routing, when necessary, to a designated backup 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.²

3.10.2 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.

3.10.3 The satellite system should have reliable and redundant communication links to at least two associated RCCs for efficient handling of distress communications. These links may be implemented directly between the RCCs and a component of the ground segment. The arrangements for these communication links are subject to mutual agreement between the mobile satellite system and the associated RCCs taking into account relevant decisions and recommendations of the Organization.

3.10.4 The satellite system should have means to monitor the health of the network connection with the associated RCCs on a continuous basis and should notify a designated responsible person when the connection is lost with an associated RCC. The system should be provided with an aural and visual alarm when connections with all associated RCCs are lost. In these cases, personnel should immediately notify the disconnected associated RCC(s) and endeavour to re-establish the connection.

3.10.5 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. Additionally, all maritime communications with distress or urgency

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

priority should sound an alarm at the relevant part of the ground segment, which should require manual cancellation.

3.10.6 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 shore-to-ship distress alert relays and distress traffic, preferably via dedicated communication links.

3.10.7 MSS providers should regularly provide information to IMSO to confirm compliance with the above requirements relating to routing of maritime distress alerts.

3.11 Broadcasting EGC messages

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

3.11.2 Facilities for the broadcast of SAR related information and MSI should allow RCCs and authorized MSIPs to:

- .1 transmit their EGC simultaneously on all RMSSs via all interfaces approved by the Organization for use by providers of MSI and SAR-related information; and
- .2 monitor the broadcast of their EGC on the RMSS.

3.11.3 Such facilities for broadcast of SAR related information and MSI should provide for automatic, continuous and reliable transmission.

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

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

- .1 the coverage area of the satellite system;
- .2 the NAVAREAs/METAREAs as established by the Organization, the IHO and the WMO respectively; 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.

3.11.6 The facilities should provide for transmission 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.

3.11.7 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.

3.11.8 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.

3.12 Voice and data communication systems

3.12.1 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.

3.12.2 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.

3.130 Control of ~~maritime mobile terminals~~ship earth stations

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~~, urgency and safety communications.

3.144 Test facilities

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

3.15 Compliance Verification

MSS providers should be prepared to undergo regular testing to confirm compliance with the criteria described in this resolution and provide technical data and figures related to the provision of RMSS, as requested by IMSO as part of the oversight process.

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 — Routeing 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 routeing, 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~~MSS 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 use² 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; and
- .12 the MSS provider is ready to submit the recognized services for oversight by IMSO and sign the required PSA with that organization.

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 to develop 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; and
- .7 any other issues to be indicated by MSC.

ANNEX 3

DRAFT LIAISON STATEMENT TO ITU-R WORKING PARTY 5B

Digital Selective Calling alarms and the Bridge Alert Management

1 The IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) would like to thank ITU-R Working Party (WP) 5B for the liaison statement sent on 25 November 2022, inviting IMO to confirm that the GMDSS distress and urgency alarms are outside of the Bridge Alert Management (BAM).

2 While operating a ship safely, the watchkeeping team, which will frequently be one individual watchkeeper, must also immediately identify any alert situation which requires action. To support this, BAM minimizes audio/visual distractions and reduces cognitive load from alerts.

3 NCSR 10, held from 10 to 19 May 2023, therefore agrees with ITU-R WP 5B that BAM, according to resolution MSC.302(87), has to be implemented in radio equipment. However, the integration of distress and urgency alarms into the BAM needs further consideration at IMO to fully answer the question from ITU-R WP 5B.

4 NCSR 10 noted that it experienced difficulties during the discussion, due to differences in terminology in radiocommunications and BAM. The appendix to this liaison statement includes some terminology and an indicative description of the different meanings of similar terms.

5 IMO invited IEC to further study the questions regarding the technical implementation of BAM according to IEC 62923-1, making use of interfaces in accordance with IEC 61162.

Actions requested

6 The NCSR Sub-Committee invites ITU-R WP 5B to note the information above.

APPENDIX

- 1 Use of the terms "Alarm" and "Alert":
 - .1 GMDSS Alert: message, equipment-to-equipment, through the radiocommunication link;

Alarm: audible sound and visual indication to attract attention of the seafarer.
 - .2 BAM Alert: message from the equipment to appraise the seafarer of a situation requiring attention and/or action, including visual presentation and audible signal;

Alarm: priority of an alert.
- 2 Use of the term "Acknowledge":
 - .1 GMDSS Distress DSC message of type Alert Acknowledgement, confirming the receipt of the Distress message and the intention to provide assistance.
 - .2 BAM Confirmation by the seafarer that the seafarer is aware of the basic information provided by the BAM alert concerned. The effect is that the audible alert sound stops and the visual indication stops blinking, but the alert remains indicated to the seafarer. No consequence to the DSC radio procedure.

ANNEX 4

DRAFT LIAISON STATEMENT TO ITU-R WORKING PARTY 5B

Revision of Recommendation ITU-R M.1371-5 on Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band

1 IMO's Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) would like to thank ITU-R Working Party (WP) 5B for their liaison statements to IMO (i.e. 5B/225, annex 44 and 481, annex 37) relating to the proposed revisions of Recommendation ITU-R M.1371-5.

2 In addition to its liaison statements to ITU-R WP 5B from 4 July 2022 (i.e. 5B/607), NCSR 10, held from 10 to 19 May 2023, would like to provide the following information on the subject.

3 After considering the proposed revisions to Recommendation ITU-R M.1371-5, NCSR 10 was of the view on specific items that:

Navigational Status

.1 in AIS messages 1, 2, 3, the Navigational Status parameter should read as follows:

"0 = under way ~~using engine~~";

"3 = restricted ~~maneuverability~~ manoeuvrability";

"8 = under way ~~sailing~~ under sail only";

"9 = reserved for future use ~~amendment of navigational status for ships carrying DG, HS, or MP, or IMO hazard or pollutant category C, high speed craft (HSC)~~";

"10 = reserved for future use ~~amendment of navigational status for ships carrying dangerous goods (DG), harmful substances (HS) or marine pollutants (MP), or IMO hazard or pollutant category A, wing in ground (WIG)~~";

"14 = active AIS-SART ~~(active)~~, active MOB-AIS, or active EPIRB-AIS"; and

"15 = undefined = default (also used by AIS-SART ~~under test, MOB-AIS and under test or EPIRB-AIS under test~~)",

all other navigational status parameters should be kept unchanged.

Autonomous maritime radio devices (AMRD)

Mobile AtoN in AIS AtoN report

- .2 Mobile AtoN could be included as another type of aids to navigation (AtoN) in message 21 – AIS AtoN report.

Following aspects should be considered by revising Message 21:

- .1 amend code 2 in Table 72 with MAtoN: "RACON or MAtoN" and add in parameter field "AtoN status";
- .2 delete "off-shore" in code 3 in Table 72 to read: "Fixed structures such as oil platforms, wind farms. (Note 1 – This code should identify an obstruction that is fitted with an AIS AtoN station);
- .3 amend code 31 in Table 72 , to read: "Light Vessel/LANBY/Rigs. NOTE: This code should be used only when the Light Vessel/LANBY/Rigs is moored and functioning as an AtoN (this includes when off station flag is triggered)"; and
- .4 amend descriptive text of the parameter "Name of Aid-to-Navigation Extension" in Table 71 as follows:

"This parameter of up to 14 additional 6-bit-ASCII characters for a 2-slot message may be combined with the parameter "Name of Aid-to-Navigation" at the end of that parameter, when more than 20 characters are needed for the name of the AtoN or to just provide for the AtoN designation. When used for the later, the parameter should start with "@@@/###/???" and the characters that follow are the AtoN designation, e.g. LB1, to denote Lighted Buoy 1. This may be portrayed itself or as an extension of the AIS AtoN Name when it is being portrayed. This parameter should be omitted when no more than 20 characters for the name of the A-to-N are needed in total. Only the required number of characters should be transmitted, i.e. no @-character should be used."

Single slot AtoN report

- .3 A new single slot AtoN report could be created. The channel access scheme should include CSTDMA, FATDMA and RATDMA.

The transmission of further detailed information, as proposed by IALA, should await the final outcome of IHO S-124 & S-125. An overlap with existing reporting schemes should be avoided.

The technical solution for the implementation of such a message could be left to ITU-R WP 5B.

Safety related text message for AIS-SART, MOB-AIS, EPIRB-AIS

- .4 when manually deactivated, a safety related text message stating "SART OFF", "MOB OFF" and "EPIRB OFF" should be broadcast from such a device. If a cancel function is provided and activated, the following safety related text message should be broadcasted: "MOB CANCEL" or "EPIRB CANCEL"

Ship type identifier

- .5 NCSR 10 came to the view to maintaining the existing list of ship types in Message 5 and, at the same time, did not support the use of new AIS Message 29 to indicate the ship type information as an additional message. Further amendments to the existing list of ship type identifiers in table 53 of Recommendation ITU-R M.1371-5 may be considered by the NCSR Sub-Committee, at its eleventh session, based on contributions to be received on the matter.

VDES capability indicator

- .6 The VDES capability indicator will be considered after IMO has progressed the work on the introduction of VDES. The NCSR Sub-Committee has two sessions to finalize the work on VDES Performance standards starting from NCSR 10 where after IMO will advise accordingly.

Number of persons on board

- .7 Information on number of persons on board can be obtained using other information channels (i.e. according to the GMDSS and FAL requirements). Therefore, this proposed change is not considered necessary.

Message 29: Extended ship data report

- .8 Until use cases for the proposed new AIS Message 29 are determined and justified, this proposed change is not considered necessary.

Action requested of ITU-R WP 5B

- 4 The ITU is invited to consider the information provided and take action, as appropriate.

ANNEX 5

DRAFT LIAISON STATEMENT TO ITU-R WORKING PARTY 5B (COPY TO WORKING PARTY 1A FOR INFORMATION)

Protection of maritime safety systems from electromagnetic interference (EMI) emanating from Wireless Power Transmission (WPT) systems

1 IMO's Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) would like to thank ITU-R Working Party (WP) 5B for the liaison statement sent at its November 2022 meeting, inviting IMO to provide information on maritime safety systems and their technical characteristics in the following frequency bands: 315-405 kHz, 1 700-1 800 kHz and 2 000-2 170 kHz. In view of the already expected standardisation of WPT systems for electric vehicles, the Sub-Committee has expanded the listing accordingly.

2 The NCSR Sub-Committee wishes to highlight the following IMO performance standards to provide information regarding maritime safety systems required to be carried on board vessels under IMO carriage requirements, as laid down in SOLAS chapters IV and V and under related environmental conditions:

- | | | |
|----|-------------------------|---|
| .1 | Resolution. MSC.114(73) | Revised performance standards for shipborne DGPS and DGLONASS maritime radio beacon receiver equipment
(operating in the band 283,5 – 325 kHz); |
| .2 | Resolution MSC.508(105) | Performance standards for the reception of maritime safety information and search and rescue related information by MF (NAVTEX) and HF
(operating in the band 490 – 518 kHz); |
| .3 | Resolution MSC.512(105) | Performance standards for shipborne MF and MF/HF radio installations capable of voice communication, digital selective calling and reception of maritime safety information and search and rescue related information
(operating in the band 1 600 kHz – 4 000 kHz); |
| .4 | Document NCSR 10/8 | Draft performance standards for the reception of maritime safety information and search and rescue related information by MF and HF digital navigational data system (NAVDAT)
(operating in the band 495 kHz – 505 kHz) |

3 Operational assumptions and requirements for the establishment of the aforementioned services are provided in the following documents:

- | | | |
|----|--------------------------------------|---|
| .1 | Resolution MSC.509(105)
(annex 2) | Criteria for use when providing shore-based digital selective calling (DSC) facilities for use in the GMDSS |
| .2 | Resolution MSC.509(105)
(annex 3) | Criteria for establishing GMDSS sea areas |

- | | | |
|----|--------------------------------------|--|
| .3 | Resolution MSC.509(105)
(annex 4) | Criteria for use when providing a Navtex service |
| .4 | Document NSCR 10/8
(annex 2) | Draft amendments to provision of radio services for the global maritime distress and safety system (GMDSS) (resolution MSC.509(105))
annex 5) |
| .5 | Resolution A.1046(27) | World-wide radionavigation system |

4 It should be noted that the operational use of radio equipment includes use in ports and harbours and in close proximity to land.

5 The NCSR Sub-Committee requests to be kept informed on the progress of the studies regarding WPT systems and could provide further information upon request.

ANNEX 6

DRAFT IMO POSITION ON WRC-23 AGENDA ITEMS CONCERNING MATTERS RELATING TO MARITIME SERVICES

General

Shipping plays a vital role in ensuring the flow of critical goods across supply chains and keeping world trade moving – over 80% of the world trade is transported by sea. Despite the disruption caused by the COVID-19 pandemic, the total volume of goods transported by the international maritime trade stands strong at 11 billion tonnes per year. Dry cargo (bulk, container or packaged) accounts for about 73% of these goods while crude oil and other petroleum products (e.g. gas and chemicals) claim 27%. The international maritime industry employs about 1.89 million seafarers working on approximately 103,000 ships of 100 gross tons and above. On the other hand, some specific incidents during the last two years that caused global supply chain crises have shown the high degree of the world's dependency on a functioning maritime trade.

Whilst facilitating global trade, the safety and security of ships and protection of the marine environment remain core principles of the maritime industry. In this context, radiocommunication services are essential to ensure safe, secure and sustainable shipping. For this very reason, maritime spectrum should be maintained, protected and expanded further based on the needs of the maritime industry.

Agenda item 1.1

1.1 To consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No.5.441B in accordance with resolution **223 (Rev.WRC-19)**;

Background

This agenda item addresses possible measures to ensure the protection of aeronautical and maritime mobile services, located either in international waters or airspace, from other stations located within national territories and operating in the frequency band 4 800-4 990 MHz. Additionally, the agenda item calls for the review of the pfd criteria contained in No.5.441B.

The frequency band 4 800-4 990 MHz is allocated to the maritime mobile service worldwide, as a subset of the mobile service, in accordance with the Table of Frequency Allocations.

Within the mobile services, this band could be used for some maritime applications.

Draft IMO position

To ensure that any change to the regulatory provisions and technical conditions resulting from this agenda item do not adversely impact maritime communications.

Agenda item 1.2

1.2 To consider identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with resolution **245 (WRC-19)**;

Background

Parts of the frequency bands 3 600-3 800 MHz (space-to-Earth) and 6 425-7 025 MHz (Earth-to-space) are used by one of the recognized mobile satellite service operators for the feeder links to support L-band maritime services, including those parts of the frequency bands which are used for the communications within the Global Maritime Distress and Safety System (GMDSS). There is a potential risk for interference from terrestrial IMT systems to receiving land earth stations using the frequency band 3 600-3 800 MHz, and to receiving space stations of one of the recognized mobile satellite service operators using the band 6 425-7 025 MHz. Interference to the space station could be received from multiple base stations deployed in many countries, and hence would be particularly challenging to resolve. Interference could harm the reliability of L-band services used daily on thousands of vessels for operational and welfare communications and could harm the reliability of GMDSS services to vessels.

Draft IMO position

To ensure that any use of the frequency bands 3 600-3 800 MHz in Region 2 and 6 425-7 075 MHz in Region 1 by IMT would not affect the satellites and earth station receivers for the provision of mobile satellite service feeder links used by the GMDSS.

Agenda item 1.3

1.3 To consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with resolution **246 (WRC-19)**;

Background

Part of the frequency band 3 600-3 800 MHz (space-to-Earth) is used in MSS by a recognized mobile satellite service operator for the feeder links to support L-band maritime services, including the services used for the GMDSS. There is potential for interference from new mobile systems to receiving land earth stations using the frequency band 3 600-3 800 MHz. Interference could harm the reliability of L-band services used daily on thousands of vessels for operational and welfare communications and could harm the reliability of GMDSS services to vessels.

Inmarsat provides distress and safety satellite services as part of the GMDSS and has C-band feeder links in the frequency bands 3 550-3 700 MHz in all regions.

Draft IMO position

To ensure that any use of the frequency band 3 600-3 800 MHz by the mobile service in Region 1 would not affect land earth stations using the same band for the provision of mobile satellite service feeder links used by the GMDSS.

To ensure protection of those services within the frequency band 3 600-3 800 MHz to which the frequency band is allocated on a primary basis and not to impose undue constraints on the existing services and their future development.

Agenda item 1.7

1.7 To consider a new aeronautical mobile-satellite (R) service (AMS(R)S) allocation in accordance with resolution **428 (WRC-19)** for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the AM(R)S, the ARNS, and in adjacent frequency bands;

Background

In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies, based on the conditions in Article 31 of the Radio Regulations, for distress and safety purposes with stations of the aeronautical mobile service. These frequencies are listed in Appendix 15 to the Radio Regulations.

Draft IMO position

To ensure that any change to the regulatory provisions and spectrum allocation resulting from this agenda item do not adversely impact the use of the frequencies 123.1 MHz and 121.5 MHz for distress and safety communications for the GMDSS.

Agenda item 1.11

1.11 To consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System and the implementation of e-navigation, in accordance with resolution **361 (Rev.WRC-19)**;

Background

IMO efforts to implement the GMDSS modernization, including the introduction of additional mobile satellite systems, and e-navigation may need the cooperation of ITU in considering whether consequential modifications of the relevant parts in the Radio Regulations would be needed in order to accommodate advanced maritime communication systems and, if found necessary, how to implement them.

The Maritime Safety Committee, at its 105th session, completed the modernization of the GMDSS by adopting amendments to the 1974 SOLAS Convention, including consequential and related amendments to existing instruments, for their entry into force on 1 January 2024. In this regard, the use of HF NBDP and VHF EPIRB for distress communications is removed from SOLAS chapter IV and necessary flexibility for using new systems in the future (e.g. NAVDAT) is inserted into chapter IV.

The Maritime Safety Committee, at its ninety-ninth session, considered an application by China for the recognition of the BeiDou Message Service System (BDMSS) for use in the GMDSS, and consequently referred the application to the NCSR Sub-Committee for evaluation of the detailed information to be provided in due course and authorized the Sub-Committee to invite IMSO to conduct the technical and operational assessment, as appropriate. NCSR 7 considered information provided by China on pre-assessment of BDMSS and invited IMSO to conduct the technical and operational assessment of BDMSS.

After evaluation of the application, the Committee, at its 106th session, adopted resolution MSC.529(106) on *Statement of Recognition of Maritime Mobile Satellite Services Provided by CTTIC through BDMSS*, subject to completion of identified implementation issues, including matters within the purview of WRC-23.

Draft IMO position

To support regulatory actions that assist in the modernization of GMDSS (e.g. future digital data broadcasting by NAVDAT and continued use of the L-Band frequencies for maritime operations and GMDSS following removal of L-band EPIRBs) and implementation of e-navigation.

To support the introduction of additional satellite systems into the GMDSS and to safeguard the availability and full protection of the spectrum used by new and existing GMDSS satellite service providers.

Agenda item 1.15

1.15 To harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with resolution **172 (WRC-19)**;

Background

This band is increasingly being used for maritime communications and expected to be used for safety-related communications.

Draft IMO position

To support the development of regulations to avoid any interferences to this band.

Agenda item 1.16

1.16 To study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non-GSO FSS earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with resolution **173 (WRC-19)**;

Background

Earth stations in motion (ESIMs) operating in these bands are used by large numbers of vessels for broadband connectivity at sea. Regulations exist to facilitate ESIMs operating in geostationary FSS networks in these bands. This agenda item aims to facilitate ESIMs operating in non-GSO FSS systems, which would benefit the provision of broadband services on ships, including those operating in the polar regions which may have no connection to GSO FSS satellites.

ESIMs are expected to be used for safety-related services such as the Fleet Data Automated Safety (FADS).

Draft IMO position

To support the development of regulations for ESIMs operating in non-GSO systems while maintaining compatibility with GSO networks in the same bands.

Agenda item 1.17

1.17 To determine and carry out, on the basis of the ITU-R studies in accordance with resolution **773 (WRC-19)**, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate;

Background

This agenda item addresses possible use of the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz for inter-satellite links. The bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz are used by ESIMs to provide broadband connectivity at sea to large numbers of vessels.

The frequency bands 19.3-19.7 GHz (space-to-Earth) and 29.1-29.5 GHz (Earth-to-space) are used by a recognized mobile-satellite service operator for the feeder links to support L-band maritime services, including the services used for the GMDSS. The ITU-R is studying whether inter-satellite service use, if permitted in the bands 19.3-19.7 GHz and 29.1-29.5 GHz, would cause interference to mobile-satellite service feeder links operations.

Iridium provides L-band distress and safety satellite services as part of the GMDSS. To support its L-band GMDSS and maritime mobile-satellite services (MMSS), Iridium operates Ka-band feeder links in the frequency bands 19.1-19.3 GHz and 29.1-29.5 GHz in all three ITU regions. Interference to mobile-satellite service (MSS) feeder links from inter-satellite service space stations communicating with fixed-satellite service systems in the Ka-band could harm the reliability of L-band GMDSS and MMSS to vessels.

Draft IMO position

To ensure that systems providing service to maritime ESIMs and the inter-satellite link are not impacted by the use of the bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz for inter-satellite links.

To ensure that if the frequency bands 19.3-19.7 GHz and 29.1-29.5 GHz are identified for inter-satellite links, the use of the bands for inter-satellite links would not affect the satellites and earth station receivers for the provision of mobile-satellite service feeder links used to support the GMDSS and other maritime mobile-satellite services.

Agenda item 2

2 To examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with further resolves of resolution **27 (Rev.WRC-19)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in resolves of that resolution;

Background

There are a number of Recommendations incorporated by reference in the Radio Regulations. IMO has reviewed all these Recommendations.

Draft IMO position

- 1 IMO has studied the Recommendations of relevance and commented on each as given at annex 1.
- 2 Incorporation by reference is of importance to IMO because of the close relationship between many of the ITU-R Recommendations related to GMDSS equipment and its operation, to IMO performance standards.
- 3 IMO requests early indication of any changes proposed by ITU to the mechanism of incorporation by reference and to the list of incorporated Recommendations.

Agenda item 4

4 In accordance with resolution **95 (Rev.WRC-19)**, to review the resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

Background

There are number of Resolutions and Recommendations in the Radio Regulations. IMO has reviewed all these Resolutions and Recommendations.

Draft IMO position

IMO has studied the Resolutions and Recommendations of relevance and commented on each as given in annex 2.

Agenda item 9

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with article 7 of the Convention:

- .1 on the activities of the Radiocommunication Sector since WRC-19;
- .2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and
- .3 on action in response to resolution **80 (Rev.WRC-07)**.

Agenda item 9.1, topic b)

Background

Under agenda item 9.1, topic b ITU-R is invited to review the amateur service and the amateur-satellite service allocations in the frequency band 1 240-1 300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service (RNSS) operating in the same band in accordance with Resolution **774 (WRC-19)**. The frequency band 1 240-1 300 MHz is used by the Global Navigation Satellite Systems (GNSS), recognized by IMO as components of the World-Wide Radio Navigation System (WWRNS) that provide World-wide Position, Navigation and Timing (PNT) determination services for ships.

Draft IMO position

To ensure that the protection of RNSS (space-to-Earth) receivers is guaranteed after the possible technical and operational measures envisaged under this agenda item.

Agenda item 10

10 To recommend to the Council items for inclusion in the agenda for the next WRC, and items for the preliminary agenda of future conferences, in accordance with article 7 of the Convention and resolution **804 (Rev.WRC-19)**,

Background information on digital voice in Radio Regulations Appendix 18

Resolution 812 (Rev.WRC-19) on Preliminary agenda for the 2027 World Radio Conference included, inter alia, the following item: "to consider improving the utilization of the VHF maritime frequencies in appendix 18, in accordance with resolution 363 (WRC-19)".

Digital technology is already widely used in land mobile communication. It is an established technology with known technical properties. Digital technology has the potential to accommodate more voice communication channels in the same amount of radio frequency spectrum than the currently established analogue technology. Digital technology may also offer new functionalities to improve safety. It is not expected that ship-to-ship communication by (digital) voice communication will be completely replaced by (written) data communication.

A transition scheme has to be developed to guarantee the smooth introduction of digital technology for voice communication and the envisaged entry into force of the amendments between 2035 and 2045.

However, the VHF channels 06, 13, 16, 70, AIS 1 (AIS-SART) and AIS 2 (AIS-SART) are used for GMDSS based on SOLAS and the ITU Radio Regulations. These channels and any other relevant channels could retain their current

functionality. This is due to the operational and safety needs especially when navigating close to coastal waters or in port areas, and considers the substantial number of non-SOLAS ships participating in the GMDSS.

In order to obtain the maximum benefit from a move towards digital technology for voice communication, IMO commits itself to the revision of the relevant regulatory framework, in particular, with a view to enhancing maritime safety by implementing new functionalities that may not be available with the current analogue voice communication technology and with DSC.

Background information on VDES R-Mode

Global shipping now heavily relies on global navigation satellite systems (GNSSs) for positioning, navigation and timing (PNT), however GNSS is vulnerable to natural or artificial interference such as solar flares, jamming and spoofing.

Draft IMO position on digital voice in Radio Regulations Appendix 18

IMO supports the introduction of digital technology for voice communication in the maritime mobile service, noting the need for a considered transition scheme, and related changes in appendix 18 and other relevant parts in the Radio Regulations in the agenda of WRC-31.

Draft IMO position on VDES R-Mode

IMO supports the ranging mode using the VHF Data Exchange System (VDES R-Mode) as an independent resilient terrestrial PNT system for the back up of GNSS. IMO invites ITU to consider possible changes to the Radio Regulations for implementation of VDES R-Mode as a new maritime radionavigation service in the agenda of WRC-31.

Draft IMO position on digital voice in Radio Regulations Appendix 18 and VDES R-Mode

In light of the complexity of the aforementioned matters and direct involvement of IMO in addressing them, it is essential to establish two new work outputs under the IMO framework. Due to its programme of meetings, IMO's NCSR Sub-Committee is not expected to begin considering these matters until 2025. This time frame should provide sufficient opportunity to thoroughly study these issues, particularly the required transition scheme, prior to WRC-31.

To initiate work within ITU on the consideration of the relevant technical and regulatory implications of these two issues in a timely manner, IMO considers it necessary to propose two study questions in ITU-R Study Group 5 for the 2024-2027 study cycle and to suggest at WRC-23 the inclusion of the following items in the preliminary agenda for WRC-31:

- .1 to consider the introduction of digital technology for VHF voice communications in the maritime mobile service and related changes to RR appendix 18 and other relevant provisions of the Radio Regulations; and

- .2 to consider possible changes to the Radio Regulations for implementation of VDES R-Mode as a new application in the maritime radionavigation service.

IMO encourages ITU administrations and ITU-R sector members to support the establishment of these study questions, to actively contribute to the related studies and to support the inclusion of these issues in the preliminary agenda for WRC-31.

ANNEX 1

RECOMMENDATION ITU-R M.476-5

Direct-printing telegraph equipment in the maritime mobile service

(Question ITU-R 5/8)

(1970-1974-1978-1982-1986-1995)

Required by the maritime community.

RECOMMENDATION ITU-R M.489-2

Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz

(1974-1978-1995)

Needed by IMO to support the carriage requirements of SOLAS chapter IV and needed by the maritime community in general. Will likely be needed into the foreseeable future.

RECOMMENDATION ITU-R M.492-6

Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service

(Question ITU-R 5/8)

(1974-1978-1982-1986-1990-1992-1995)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.541-10

Operational procedures for the use of digital selective-calling equipment in the maritime mobile service

(Question ITU-R 9/8)

(1978-1982-1986-1990-1992-1994-1995-1996-1997-2004-2015)

Needed by IMO. Likely to be needed into the foreseeable future.

RECOMMENDATION ITU-R M.585-8

Assignment and use of identities in the maritime mobile service

(1982-1986-1990-2003-2007-2009-2012-2015)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.625-4

Direct-printing telegraph equipment employing automatic identification in the maritime mobile service

(1986-1990-1992-1995-2012)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.633-4
**Transmission characteristics of a satellite emergency position-indicating
radio beacon (satellite EPIRB) system operating through
a satellite system in the 406 MHz band**

(1986-1990-2000-2004-2010)

Used by IMO to support the performance standards for EPIRBs.

RECOMMENDATION ITU-R M.690-3
**Technical characteristics of emergency position-indicating radio beacons (EPIRBs)
operating on the carrier frequencies of 121.5 MHz and 243 MHz**

(1990-1995-2012-2015)

Required by IMO to define the homing signal characteristics for the satellite EPIRB required by SOLAS chapter IV. Likely to be used by the maritime community for some time to come for EPIRBs and man overboard devices.

RECOMMENDATION ITU-R M.1084-5
**Interim solutions for improved efficiency in the use of the band
156-174 MHz by stations in the maritime mobile service**

(1994-1995-1997-1998-2001-2012)

Used by IMO for the description of VHF channels.

RECOMMENDATION ITU-R M.1171-0
Radiotelephony procedures in the maritime mobile service

(1995)

Required by IMO and the maritime community as long as coast stations offer a public correspondence service. The number of such coast stations is however declining.

RECOMMENDATION ITU-R M.1172-0
**Miscellaneous abbreviations and signals to be used for radiocommunications
in the maritime mobile service**

(1995)

Required by the maritime community.

RECOMMENDATION ITU-R M.1173-1
**Technical characteristics of single-sideband transmitters used in the maritime mobile
service for radiotelephony in the bands between 1 606.5 kHz (1 605 kHz Region 2)
and 4 000 kHz and between 4 000 kHz and 27 500 kHz**

(1995 -2012)

Required by IMO and the maritime community and likely to be required into the foreseeable future.

RECOMMENDATION ITU-R M.1174-4
**Technical characteristics of equipment used for onboard vessel communications in
the bands between 450 and 470 MHz**

(1995-1998- 2004-2015-2019)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.1638-1
**Characteristics of and protection criteria for sharing studies for radiolocation,
aeronautical radionavigation and meteorological radars operating in the frequency
bands between 5 250 and 5 850 MHz**

(2003-2015)

Not required by IMO, but may be required by the maritime community where radars in this band are used.

ANNEX 2

RESOLUTION 13 (REV.WRC-97)

Formation of call signs and allocation of new international series

Retain.

RESOLUTION 18 (REV.WRC-15)

Relating to the procedure for identifying and announcing the position of ships and aircraft of States not parties to an armed conflict

Retain.

RESOLUTION 205 (REV.WRC-19)

Protection of the systems operating in the mobile-satellite service in the frequency band 406-406.1 MHz

Retain.

RESOLUTION 207 (REV.WRC-15)

Measures to address unauthorized use of and interference to frequencies in the bands allocated to the maritime mobile service and to the aeronautical mobile (R) service

Retain.

RESOLUTION 222 (REV.WRC-12)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service, and procedures to ensure long-term spectrum access for the aeronautical mobile-satellite (R) service

Retain.

RESOLUTION 223 (REV.WRC-19)

Additional frequency bands identified for International Mobile Telecommunications

Retain.

RESOLUTION 331 (REV.WRC-12)

Operation of the Global Maritime Distress and Safety System

Retain.

RESOLUTION 339 (REV.WRC-07)

Coordination of NAVTEX services

Retain.

RESOLUTION 343 (REV.WRC-12)

Maritime certification for personnel of ship stations and ship earth stations for which a radio installation is not compulsory

Retain to ensure common operations between convention and non-convention ships.

RESOLUTION 344 (REV.WRC-19)

Management of the maritime identity numbering resource

Retain.

RESOLUTION 349 (REV.WRC-19)
**Operational procedures for cancelling false distress alerts in the
Global Maritime Distress and Safety System**

Retain.

RESOLUTION 352 (WRC-03)
**Use of the carrier frequencies 12 290 kHz and 16 420 kHz for
safety-related calling to and from rescue coordination centres**

Retain.

RESOLUTION 354 (WRC-07)
Distress and safety radiotelephony procedures for 2 182 kHz

Retain.

RESOLUTION 356 (REV. WRC-19)
ITU maritime service information registration

Retain.

RESOLUTION 361 (REV. WRC-19)
**Consideration of regulatory provisions for modernization of the
Global Maritime Distress and Safety System and
related to the implementation of e-navigation**

Subject of agenda item 1.11.

RESOLUTION 363 (WRC-19)
**Considerations to improve utilization of the VHF maritime
frequencies in Appendix 18**

In the preliminary agenda for WRC-27.

RESOLUTION 612 (REV.WRC-12)
**Use of the radiolocation service between 3 and 50 MHz to
support oceanographic radar operations**

Retain.

RECOMMENDATION 7 (REV.WRC-97)
**Adoption of standard forms for ship station and ship earth station licences and
aircraft station and aircraft earth station licences**

Retain.

RECOMMENDATION 37 (WRC-03)
**Operational procedures for earth stations
on board vessels (ESVs) use**

Retain.

RECOMMENDATION 316 (REV. WRC-19)
**Use of ship earth stations within harbours and other waters
under national jurisdiction**

Retain.

ANNEX 7

DRAFT LIAISON STATEMENT TO ITU-R WORKING PARTY 5B

EPIRB MMSI encoding for craft associated with a parent ship

1 The IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR), at its tenth session (NCSR 10), held from 10 to 19 May 2023, considered the liaison statement from ITU-R Working Party (WP) 5B contained in annex 25 to document 5B/731.

2 NCSR 10 noted the information provided and acknowledged the decision by ITU-R WP 5B to progress this issue further following World Radiocommunication Conference 2023 (WRC-23). This will ensure that the issue can be appropriately analysed and any proposed amendments to Recommendation ITU-R M.585 incorporated by reference in the Radio Regulations, can be fully considered.

3 During its discussions, NCSR 10 was advised of related developments, including:

- .1 the letter dated 4 August 2022 from Cospas-Sarsat to all administrations warning against coding of 406-MHz distress beacons (e.g. EPIRBs) with a country code (Maritime Identification Digits or MID) in the forms "98M" or "974", pending further consideration and resolution of the matter among the IMO, ITU and Cospas-Sarsat (noting that the issue should not arise for future "second generation" beacons);
- .2 the outcome of the sixty-seventh session of the Cospas-Sarsat Open Council, held from 16 to 29 November 2022, whereby as an initial protective measure, a critical change to the ground segment was approved with an implementation date of November 2023 to prevent messages with maritime mobile service identity (MMSI) in the format 98MIDXXXX and 974XXYYYY from being processed as "invalid";
- .3 that the timing of implementation of the change approved by the Cospas-Sarsat Council was in the hands of States providing its ground segment, and the implemented change does not currently provide for the automatic recovery of the authentic MID from a distress message coded with a 98M identity; and
- .4 that for the above reasons, the Cospas-Sarsat Council had asked its Joint Committee to continue to examine the issue at its thirty-seventh meeting (June 2023) and to provide further recommendations as the matter continues to be considered by IMO, ITU and Cospas-Sarsat with a view towards identifying an optimal long-term recommendation.

4 In response to ITU-R WP 5B identifying an inconsistency with references to ITU-R documentation in IMO resolution MSC.471(101), a corrigendum to this resolution has been issued by the IMO Secretariat to rectify the inconsistency.

5 ITU-R WP 5B is invited to keep IMO informed on the progress of the considerations of possible changes to Recommendation ITU-R M.585 or other action to address the concerns relating to emergency position-indicating radio beacons (EPIRBs) MMSI encoding for craft associated with a parent ship, when it is considered further following WRC-23.

ANNEX 8

DRAFT TERMS OF REFERENCE FOR THE NINETEENTH MEETING OF THE JOINT IMO/ITU EXPERTS GROUP ON MARITIME RADIOCOMMUNICATION MATTERS

Purpose

To advise on the development of future requirements for maritime radiocommunications taking into account the operational needs as defined by IMO and the regulatory needs as defined by ITU.

Structure

The Experts Group consists in principle of people active in IMO and ITU with a representative range of viewpoints.

Contact points:

IMO Secretariat	–	Mr. C.O. Istanbulu
ITU Secretariat	–	Mr. K. Bogens

IMO is prepared to provide the Group leader.

Instructions

The Experts Group is instructed, based on written proposals received, to:

- .1 taking into account the outcome of discussions at NCSR 10 (NCSR 10/WP.1, paragraphs 12.[..] to 12.[..], and NCSR 10/WP.5, paragraphs [...] to [...] and annex 1), further review and update, if necessary, the draft performance standards for the reception of maritime safety information and search and rescue related information by MF and HF digital navigational data system (NAVDAT) and the draft amendments to resolution MSC.509(105) on *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)*;
- .2 taking into account the outcome of discussions at NCSR 10 with respect to the revision of resolution A.1001(25) (NCSR 10/WP.1, paragraphs 11.[..] to 11.[..], and NCSR 10/WP.5, paragraphs [...] to [...] and annex 2), consider the interim report of the Correspondence Group on the Revision of Resolution A.1001(25) and other submissions received, and specify matters which need further consideration by the Correspondence Group;
- .3 in relation to the regular work in ITU-R, provide comments and advice, as appropriate; and
- .4 prepare a report, containing comments, recommendations and proposals, for consideration by NCSR 11 and, as appropriate, for meetings of the relevant study groups and/or working parties of ITU-R.

Suggested method of working

The Experts Group should meet from 9 to 13 October 2023, at IMO Headquarters, London.

ANNEX 9

DRAFT MODIFICATIONS TO HARMONIZATION OF GMDSS REQUIREMENTS FOR RADIO INSTALLATIONS ON BOARD SOLAS SHIPS (COMSAR.1/Circ.32/Rev.1)

1.3.1 General

1 The first paragraph is amended as follows:

"Specified drawings (plans of the radio installation) should be prepared out well before the work on a new building or reconstruction of ships or offshore units is started. Insufficient or missing drawings may result in deficiencies during radio survey and could lead to expensive repair costs later (resolution ~~A.1140(31)~~1156(32))."

1.6.1 Shore-based maintenance

2 Section 1.6.1 is amended as follows:

"If availability is ensured by using a combination of methods which includes shore-based maintenance, an arrangement acceptable to the Administration should be established to ensure adequate support of the ship for the maintenance and repair of its radio installations. For example, the following arrangements, among others, may be suitable:

- .1 an agreement with a company known to cover the trading sea area of the ship to provide maintenance and repair facilities on a call-out basis;

Note: Production of a valid SOLAS certificate by an Administration is sufficient proof that the Administration is satisfied that adequate shore-based maintenance arrangements have been made by the shipowner.

- .2 provision of facilities at the main base of ships engaged on a regular trading pattern. ~~Records of Equipment (Form P, R or C) should include an indication of the types of arrangements for shore-based maintenance."~~

1.6.3 Duplication of equipment

3 Section 1.6.3 is amended as follows:

".1 If availability is ensured by using duplication of equipment, in addition to the radio installations required by regulations IV/7, IV/8 and IV/9, as appropriate, the following radio installations complying with regulation IV/14 should be available on board ships engaged on voyages in:

- .1 sea area A1 – a VHF radio installation complying with the requirements of regulation IV/7.1.1; and
- .2 sea area A2 – a VHF radio installation complying with the requirements of regulation IV/7.1.1 and an MF radio installation complying with the requirements of regulations IV/9.1.1.

The duplication of equipment above is deemed as being achieved if an equipment with coverage equal to or broader than the required system is installed for compliance with other sea area requirements, providing the required redundancy.

- .12 If availability is ensured by using a combination of methods which includes duplication of equipment, in addition to the radio installations required by regulations IV/7, IV/10 and IV/11, as appropriate, the following radio installations complying with regulation IV/14 should be available onboard ships engaged on voyages in:
- .1 sea area A3 – a VHF radio installation complying with the requirements of regulations IV/7.1.1 and IV/7.1.2, and either an MF/HF radio installation complying with the requirements of regulation IV/11.1.1 and being able to comply fully with the watch requirements of IV/12.1.3 or a recognized mobile satellite service Ship Earth Station (RMSS-SES) complying with the requirements of regulation IV/10.1.1. The MF/HF installation or RMSS-SES installed for duplication should also comply with regulations IV/10.2 and IV/10.3, and;
 - .2 sea areas A3 and A4 – a VHF radio installation complying with the requirements of regulations IV/7.1.1 and IV/7.1.2, and an MF/HF radio installation complying with the requirements of regulation IV/11.1.1 and being able to comply fully with the watch requirements of regulation IV/12.1.3.

~~Ships operating in sea area A4 only occasionally and having originally installed an MF/HF radio installation, may, instead of the additional MF/HF radio installation, install a RMSS-SES complying with the requirements of regulation IV/10.1.1.~~

An RMSS-SES with lesser coverage installed on board should determine the coverage of sea area A3 as a primary system for a ship.

The MF/HF radio installation or RMSS-SES installed for duplication should also comply with regulation IV/10.2.

- .23 The additional radio installations specified in 1.6.3.1.4 and 1.6.3.4.2 of these Guidelines (hereinafter referred to as "duplicated equipment") should each be connected to a separate antenna and be installed and ready for immediate operation.
- .34 It should be possible to connect the duplicated equipment to the reserve source or sources of energy required by regulation IV/13.2, in addition to the appropriate radio equipment specified in that regulation (hereinafter referred to as "basic equipment"). The capacity of the reserve source or sources of energy should be sufficient to operate the particular installation (i.e. the "basic equipment" or the "duplicated equipment") with the highest power consumption, for the appropriate period specified in regulations IV/13.2.1 and 13.2.2. However, the arrangement for the reserve source or sources of energy should be such that a single fault in this arrangement should not be able to affect both the basic and the duplicated equipment. "

1.10 Initial and annual radio survey, issuance, renewal and endorsement of Safety Radio Certificates

4 The first paragraph in section 1.10 is amended as follows:

"The survey of radio installations on SOLAS ships should be carried out in accordance with the rules laid down in resolution A.1140(31)1156(32) on *Survey Guidelines under the harmonized system of survey and certification (HSSC)*, 20192021, and SOLAS chapter I, part B. It is important to note the following text:"

2.3 Equipment requirements (including duplication of equipment) for SOLAS ships

5 The table and the associated notes under section 2.3 is amended as follows:

"

Equipment	A1	A2	A3	A4
VHF telephony installation with DSC capable of:	X	X	X	X
DSC watch on channel 70	X	X	X	X
Radiotelephony watch on channel 16	X	X	X	X
Watch on other appropriate frequency or frequencies for urgency and safety communications for the area in which the ship is navigating	X	X	X	X
MF telephony ⁶ installation with MF DSC capable of:		X	X	
DSC watch on 2 187.5 kHz		X	X	
Watch on other appropriate frequency or frequencies for urgency and safety communications for the area in which the ship is navigating		X	X	
SES providing RMSS			X	
MF/HF telephony ⁶ installation with DSC capable of:				X
DSC watch on 2 187.5 kHz and 8 414.5 kHz				X
Depending on time of day and geographical position, DSC watch on at least one of the frequencies 4 207.5 kHz, 6 312 kHz, 12 577 kHz or 16 804.5 kHz				X
Watch on other appropriate frequency or frequencies for urgency and safety communications for the area in which the ship is navigating				X
Duplicated VHF with DSC ⁸ including watch keeping capability	X ⁷	X ⁷	X	X
Duplicated MF ⁶ with DSC		X ⁷		
Duplicated SES providing RMSS including watch keeping Capability			X ^{4,5}	X ⁵
Duplicated MF/HF telephony ⁶ with DSC including watch keeping Capability			X ⁴	X
(No change is proposed to the remaining rows)				

(No change is proposed to notes 1 to 3)

- 4 Ships in sea areas A3 may choose between duplication with either complete MF/HF transceiver or SES providing an RMSS with coverage equal to or broader than the primary RMSS (See Section 1.6.3).
- 5 ~~A ship earth station can be fitted in lieu of an MF/HF if A4 usage is occasional, see 1.6.3.1. See Section 1.6.3.2.~~
- 6 An MF/HF radio installation may substitute an MF radio installation.
- 7 See section 1.6.3.1.
- 8 A duplicated radio installation capable of maintaining a continuous DSC watch on VHF channel 70 applies to ships constructed on or after 1 January 2024. The expression "constructed" refers to the description given in regulation II-2/1.1.2.1, as complemented by regulation II-2/1.1.3."

3 BASIC EQUIPMENT – SUPPLEMENTARY REQUIREMENTS

3.1 General requirements

- 6 The note under section 3.1 is amended as follows:

"Note: Ancillary equipment ~~such as scramblers and automatic telephone equipment, etc.,~~ may be connected to the required GMDSS equipment, provided that any such connection is made in such a way that the prescribed GMDSS functions will not be rendered ineffective by use of such ancillary equipment and will be fully restored immediately at the normal or abnormal termination of the connected ancillary equipment. Only an interface allowed within the GMDSS equipment type approval should be used to connect ancillary equipment to a mandatory GMDSS installation."

4.10 Float-free EPIRB

- 7 Section 4.10 is amended as follows:

"The float-free EPIRB should be located/installed so that the following requirements are fulfilled:

- .1 The EPIRB should, with greatest possible probability, float-free and avoid being caught in railings, superstructure, etc., if the ship sinks.
- .2 The EPIRB should be located so that it may be easily released manually and brought to the survival craft by one person. It should therefore not be located either in a radar mast or in any other places which can only be reached by vertical ladder.

~~(SOLAS regulations IV/7.1.5, 8.1.1, 9.1.3.1, 10.1.4.1, 11.1.3 and resolutions A.763(18) and MSC.471(101))~~

Note: A float-free EPIRB may also be used to fulfil the requirements for one piece of equipment (of two), which is capable of transmitting ~~distress alert to shore from or near the navigating bridge of the ship~~ ship-to-shore distress alerts from or close to the position from which the ship is normally navigated. Under such conditions, the float-free EPIRB should fulfil the following **additional requirements** with regards to location/installation:

- .3 The EPIRB should be installed in the vicinity of the navigation bridge, ~~i.e.~~ e.g. on the wings of the navigation bridge. Access via vertical ladder should not be accepted. A location on the top of the wheelhouse may be accepted to fulfil the requirement if accessible by stairs; or

(SOLAS regulation IV/7.1.5 and COM/Circ.105)

- .4 It may be possible to activate the EPIRB remotely from the bridge. If remote activation is used, the EPIRB should be installed so that it has unobstructed hemispherical line of sight to the satellites.

(COM/Circ.105)

Note: It should be considered that the main function of the EPIRB is float-free activation. If the additional requirements mentioned above cannot be met without reducing the reliability of the float-free activation, priority should be given to this requirement. Alternatively, two float-free EPIRBs should be installed or a float-free EPIRB and manual EPIRB.

- .5 The EPIRB should be equipped by the manufacturer with a buoyant lanyard suitable for use as a tether to life raft etc. Such buoyant lanyard should be so arranged as to prevent ~~its~~ it from being trapped in the ship's structure.

(resolution MSC.471(101))

- .6 The EPIRB should be marked with the ship's call sign, serial number of EPIRB, MMSI number (if applicable), Hex ID, and battery expiry date."

6.1.2 Interference from LED lighting and other unintentional emitters

8 Section 6.1.2 is amended as follows:

"Navigation lights and other deck and mast-mounted lighting equipped with light emitting diodes (LEDs) or other systems mounted near antennas, including those certified to recognized EMC standards, have been found to cause debilitating interference to radio receiving equipment without operator awareness. Interference to EPFS receivers is also possible. Periodic EMC checks are therefore essential, especially after installation of LED-equipped lighting or other systems mounted near antennas susceptible to unintentional interference.

Before the initial acceptance or flag-in of the ship, or after any electrical or other installation modifications or changes that may have an impact, ~~the following procedure checks~~ checks should take place to ensure that no harmful EMI is experienced by a radio system. If EMI has been identified, either the identified interferer has to be removed, the interference has to be suppressed or the antenna has to be relocated to an area without harmful interference. ~~The result of this evaluation including the findings and measures taken are to be documented and provided to the radio surveyor for the final survey. The radio surveyor should take this report as an annex to the Ship Safety Radio Certificate to be kept on board for future use.~~

To perform the following procedure, a spectrum analyzer with appropriate pre-amplifier is the most appropriate instrument for detecting, identifying and isolating such interference. The presence of harmful interference is to be measured using the spectrum analyzer on all radio reception antennas of equipment mentioned in SOLAS chapters IV and V fitted, in all maritime frequency bands supported by that equipment. For example, the presence of VHF interference may be accurately measured by connecting a spectrum analyzer with low noise pre-amplifier to a victim VHF radiotelephone antenna, and checking for noise in the 155 to 165 MHz band. Interference detected in this way could then be isolated by turning power to the suspected interferers on and then off.

~~Suggested approaches for use~~ The following checks should be performed by crew, shore-based maintainer or radio surveyors to indicate the presence of harmful interference ~~are as follows~~:

1. The presence of interference to VHF radiotelephones equipped with a received signal strength indicator (RSSI) may be indicated by selecting a free channel and observing that the RSSI level does not change when suspected interfering devices are activated and deactivated. This should be repeated on several channels across the VHF band.
2. If no RSSI is provided, the presence of interference to a VHF radiotelephone may be indicated by deactivating suspected sources of interference, selecting a broadcasting station, and then reactivating those devices and listening for a change in signal quality. This should be repeated on several channels across the VHF band.
3. Harmful interference to shipborne AIS may be indicated by swapping the antenna cable connections between the AIS and VHF radio and then performing the VHF radiotelephone check as set out above. If the cabling configuration does not allow this check to be performed, the VHF radiotelephone check can be performed using a portable VHF transceiver held near the AIS antenna using the procedures set out in 6.1.2.1, noting that this is an even less sensitive approach. All antennas should be returned to their original configuration, and tested to ensure normal operation.
4. The presence of interference to GNSS may be indicated by switching the unit to the signal-to-noise (SNR) or integrity display mode, and ensuring SNR levels are not affected when suspected interfering devices are activated or deactivated.

If any interference is suspected, but the source cannot be ~~eliminated~~ identified, then a full evaluation using a spectrum analyser, ~~as set out in 6.1.2~~, is advised, as follows.

To perform the evaluation, a spectrum analyser with appropriate pre-amplifier is the most appropriate instrument for detecting, identifying and isolating such interference. The presence of harmful interference is to be measured using the spectrum analyser on all radio reception antennas of equipment mentioned in SOLAS chapters IV and V fitted, in all maritime frequency bands supported by that equipment. For example, the presence of VHF interference may be accurately measured by connecting a spectrum analyser with low noise pre-amplifier to a victim VHF radiotelephone antenna, and

checking for noise in the 155 to 165 MHz band. Interference detected in this way could then be isolated by turning power to the suspected interferers on and then off. The result of this analysis should be documented and the report should be kept on board."

ANNEX 10

DRAFT MSC CIRCULAR ON

DELAYS AFFECTING THE AVAILABILITY OF NEW GMDSS EQUIPMENT COMPLIANT WITH THE REVISED PERFORMANCE STANDARDS SET OUT IN RESOLUTIONS MSC.511(105), AND MSC.512(105) AND MSC.513(105)

1 The Maritime Safety Committee, at its 105th session (20 to 29 April 2022), adopted amendments to:

- .1 the International Convention for the Safety of Life at Sea (SOLAS), 1974 (resolution MSC.496(105));
- .2 the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 (1988 SOLAS Protocol) (resolution MSC.497(105));
- .3 the International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code) (resolution MSC.498(105)) and the International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code) (resolution MSC.499(105)); and
- .4 the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1979 (1979 MODU Code) (resolution MSC.504(105)), the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989 (1989 MODU Code) (resolution MSC.505(105)) and the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code) (resolution MSC.506(105)),

which are expected to enter into force on 1 January 2024.

2 The Committee also adopted, inter alia, resolutions MSC.511(105) on *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling*, and MSC.512(105) on *Performance standards for shipborne MF and MF/HF radio installations capable of voice communication, digital selective calling and reception of maritime safety information and search and rescue related information*, and MSC.513(105) on *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications*, which recommend Governments to ensure that equipment installed on or after 1 January 2024 conform to performance standards not inferior to those adopted at the session.

3 The Committee, at its [107th session (31 May to 9 June 2023)], having considered information provided by IEC and CIRM on the availability of GMDSS equipment after 1 January 2024, noted that considerable work has been carried out by the radio manufacturing industry and the standards organizations to develop the new equipment required. However, some of the **new** performance standards incorporate new features which **still** require specification from other organizations.

4 The Committee, therefore, concluded that it was unrealistic for new shipborne VHF radio installations, **or** shipborne MF and MF/HF radio installations **or** Inmarsat-C ship earth stations to be available for installation from 1 January 2024.

5 The Committee invited Member States to, until [1 January ~~2026~~ 2028], consider permitting continued installation of:

- .1 shipborne VHF radio installations conforming to performance standards not inferior to those specified in the annex to resolution A.803(19), as amended; ~~and~~
- .2 shipborne MF and MF/HF radio installations conforming to performance standards not inferior to those specified in the annex to resolutions A.804(19), as amended and A.806(19), as amended; ~~and~~
- .3 Inmarsat-C ship earth stations conforming to performance standards not inferior to those specified in the annex to resolution A.807(19), as amended.

6 Member States are invited to bring this information to the attention of the appropriate national authorities and all other parties concerned.
