INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE
12th session
Agenda item 20

NCSR 12/20/Add.1
25 June 2025
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REPORT TO THE MARITIME SAFETY COMMITTEE

Attached are annexes 1 to 24 to the report of the Sub-Committee on Navigation, Communications and Search and Rescue on its twelfth session (NCSR 12/20).

LIST OF ANNEXES

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ANNEX 1

DRAFT SN.1 CIRCULAR

ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES

1 The Maritime Safety Committee, at its [111th session ([date])], having considered the recommendation made by the Sub-Committee on Navigation, Communications and Search and Rescue at its twelfth session (13 to 22 May 2025), and in accordance with the *Procedure for the adoption and amendment of traffic separation schemes, routeing measures other than traffic separation schemes, including designation and substitution of archipelagic sea lanes, and ship reporting systems* (resolution A.858(20)), adopted an area to be avoided *Off the coast of Reunion*, as set out in the annex.

2 Accordingly, the aforementioned recommendation and the routeing measure will be implemented at 0000 hours UTC on [1 December 2026].

AREA TO BE AVOIDED OFF THE COAST OF REUNION

(Reference chart: INT 7349, edition 1996, and INT 7488, edition 2013 from the Service Hydrographique et Océanique de la Marine (SHOM) of France

Note: These charts are based on World Geodetic System 84.)

Description the area to be avoided

An area to be avoided, recommended only for cargo ships of 300 gross tonnage and upwards in transit, with no scheduled stopover or authorized activity, is established in the waters delimited by a line joining the following points:

	Latitude	Longitude
(1)	20°40.23' S,	055°27.53' E
(2)	20°40.23' S,	056°30.02' E
(3)	21°12.55' S,	056°47.08' E
(4)	21°43.28' S,	055°36.32' E
(5)	21°31.30' S,	055°05.32' E
(6)	21°08.10' S,	055°00.75' E
(7)	21°05.10' S,	055°00.23' E
(8)	21°04.22' S,	055°00.25' E
(9)	21°02.88' S,	055°00.10' E
(10)	20°59.57' S,	055°00.43' E
(11)	20°56.60' S,	055°01.63' E
(12)	20°54.17' S,	055°03.42' E
(13)	20°50.15' S,	055°05.58' E
(14)	20°46.25' S,	055°08.88' E
(15)	20°45.03' S,	055°10.77' E
(16)	20°43.43' S,	055°15.78' E
(17)	20°41.85' S,	055°18.60' E
(18)	20°40.73' S,	055°22.37' E
(19)	20°40.43' S,	055°24.68' E

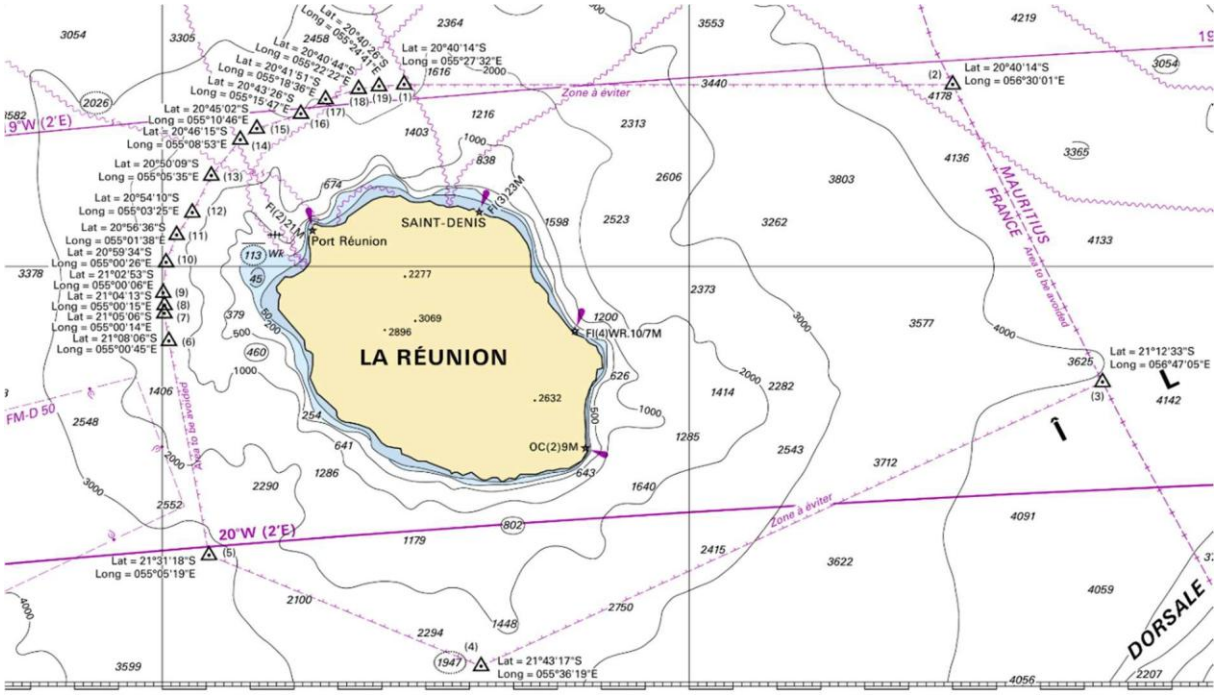

Figure 1: Charlet provided for illustration purposes

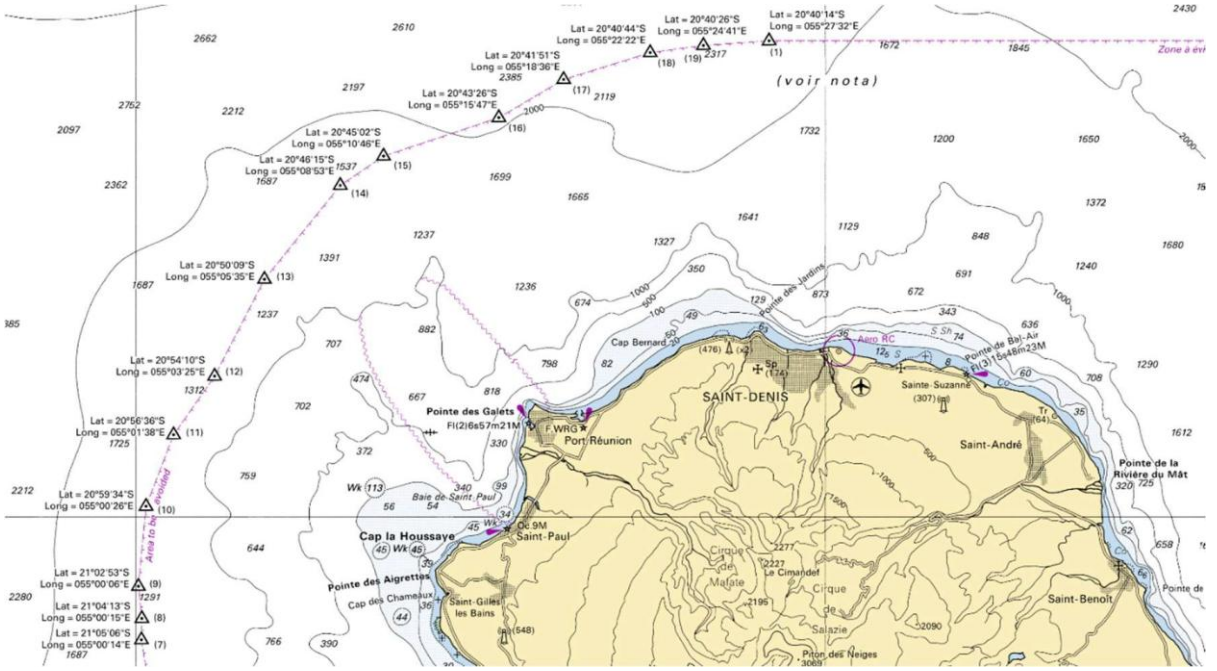

Figure 2: Charlet provided for illustration purposes

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ANNEX 2

DRAFT MSC RESOLUTION

MANDATORY SHIP REPORTING SYSTEM "IN THE ADRIATIC SEA" (ADRIREP)

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the adoption of mandatory ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20), which authorizes the Committee to perform the function of adopting ship reporting systems on behalf of the Organization,

TAKING INTO ACCOUNT the *Guidelines and criteria for ship reporting systems* adopted by resolution MSC.433(98),

HAVING CONSIDERED the recommendations of the Sub-Committee on Navigation, Communications and Search and Rescue, at its twelfth session,

1 ADOPTS, in accordance with SOLAS regulation V/11, the revised mandatory ship reporting system "In the Adriatic Sea" (ADRIREP) described in the annex to the present resolution, which revises in its entirety the existing text of annex 2 to resolution MSC.139(76);

2 DECIDES that the said revised mandatory ship reporting system "In the Adriatic Sea" (ADRIREP) will be implemented at 0000 hours UTC on [1 December 2026];

3 REQUESTS the Secretary-General to bring this resolution and its annex to the attention of Member States and Contracting Governments to the 1974 SOLAS Convention;

4 REVOKES annex 2 to resolution MSC.139(76) as from 0000 hours UTC on [1 December 2026].

ANNEX

DESCRIPTION OF THE MANDATORY SHIP REPORTING SYSTEM "IN THE ADRIATIC SEA" (ADRIREP)

1 CATEGORIES OF SHIPS REQUIRED TO PARTICIPATE IN THE SYSTEM

1.1 Ships of the following categories are required to participate in the system:

.1 all oil tanker ships of 150 gross tonnage and above;

.2 all ships of 10,000 gross tonnage and above; and

.3 all others ships, irrespective of their size, carrying on board hazardous cargo, in bulk or in package.

1.2 For the purpose of this system, the term "hazardous cargo", as defined in resolution MSC.433(98), means:

.1 goods classified in the International Maritime Dangerous Goods (IMDG) Code;

.2 substances classified in chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) and chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code);

.3 oils as defined in MARPOL Annex I;

.4 noxious liquid substances as defined in MARPOL Annex II;

.5 harmful substances as defined in MARPOL Annex III; and

.6 radioactive materials specified in the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code).

2 GEOGRAPHICAL COVERAGE OF THE SYSTEM AND THE NUMBER AND EDITION OF THE REFERENCE CHART USED FOR THE DELINEATION OF THE SYSTEM

2.1 The operational area of the mandatory ship reporting system covers the whole Adriatic Sea, north from the latitude 40° 25'.00 N, as shown in appendix 1, including positions and names of the competent shore-based authorities.

2.2 The reference charts including the operational area of the ADRIREP are the Italian Chart No.435 INT 306 of the Italian Navy Hydrographic Institute (Edition 1993, Datum ED-50) and the Croatian Chart No.101 of the Hydrographic Institute of the Republic of Croatia (First Edition 1998, New Edition 2005, New print 2017, Datum Bessel Ellipsoid).

3 FORMAT AND CONTENTS OF THE REPORT, TIMES AND GEOGRAPHICAL POSITIONS FOR SUBMITTING REPORTS, AUTHORITIES TO WHOM REPORTS SHALL BE SENT, AVAILABLE SERVICES

The formats for reporting are derived from the one attached as appendix to resolution A.851(20).

3.1 Sailing plan

3.1.1 The sailing plan (SP) of ADRIREP shall be sent to the competent authorities in accordance with the format shown in appendix 3.

3.1.2 The SP shall be sent in the following situations:

.1 when crossing northwards the latitude 40° 25'.00 N; and

.2 when leaving a port inside the area covered by the ADRIREP system.

3.1.3 When entering the Adriatic Sea by crossing northwards the parallel 40° 25'.00 N, the ship shall submit the SP to VTS Brindisi, which shall confirm its reception and make this information available to all other competent shore-based authorities.

3.1.4 When leaving a port inside the area covered by the ADRIREP system the ship shall submit the SP to the nearest competent shore-based authority of the country of the port of departure. The authority receiving this report shall confirm its reception and shall make this information available to other competent shore-based authorities.

3.1.5 The SP should be sent using the ship web-user interface of the Union Maritime Information and Exchange system (SafeSeaNet), established in accordance with Directive 2002/59/EC, as amended, or alternatively reported via radio on VHF channel or any other means of communication as specified for the competent shore-based authority receiving the report.

3.1.6 The sailing plan shall, as required, contain the following information, in order to meet the objectives of the ADRIREP:

- ship's name, call sign, IMO identification number and flag;
- date and time of the report;
- present position;
- course;
- speed;
- port of departure;
- destination and estimated time of arrival;
- route information (reported on a voluntary basis);
- ship's draught;
- information on hazardous cargo;
- ship agent or cargo agent;
- ship's type, deadweight, gross tonnage, length overall and breadth;
- total number of persons on board; and
- any other relevant information (brief details of incident, bunker fuel details, navigational status, SATCOM details, etc.).

3.1.7 In the last section of the SP, in accordance with provisions of SOLAS and MARPOL Conventions, ships shall also report information on any defect, damage, deficiency or limitations as well as, if necessary, information related to pollution incident or loss of cargo. The possession of this information will enable the operators of the shore-based competent

authority to broadcast safety messages to other ships and to ensure more effective tracking of the trajectories of ships concerned.

3.2 Position report

3.2.1 The position report (PR) is considered as on demand report. This report is provided upon request from the competent shore-based authorities, and it is used to confirm correctness of data provided in the sailing plan. Any competent shore-based authority of the ADRIREP interacting with the ships may request a PR. In addition, the PR shall be provided by the ship to the nearest competent shore-based authority whenever there are changes to the SP during ship's voyage in the ADRIREP area.

3.2.2 The report will be requested on VHF channels by the competent shore-based authority in accordance with appendix 2. The ship may provide response by any means of communication assigned to the competent shore-based authority receiving the report (if agreed).

3.2.3 The competent shore-based authorities can request a PR to confirm any information from the SP. The ship shall provide the PR to update the following designators: G, I, L, O, P, T, W and X. The competent shore-based authority requesting the position report shall confirm its reception and shall make this information available to other competent shore-based authorities.

3.3 Final report

3.3.1 The final report (FR) shall be sent in the following situations:

.1 when entering a port area or an anchorage area under the responsibility of the port within the ADRIREP area; or

.2 when leaving the area of the ADRIREP system (south from the latitude 40° 25'.00 N).

3.3.2 The ship shall submit the FR to the nearest competent shore-based authority of the port of arrival when entering a port inside the area covered by the ADRIREP system. The authority receiving the FR shall confirm the reception and shall make it available to other competent shore-based authorities.

3.3.3 The ship shall submit the FR to VTS Brindisi when leaving the area of the ADRIREP system (south from the latitude 40° 25'.00 N). The VTS Brindisi shall confirm the reception and shall make this information available to other competent shore-based authorities.

3.3.4 The FR should be submitted via the communication means assigned to the competent shore-based authority receiving the report.

3.3.5 The FR shall only include information that the vessel is leaving ADRIREP area and any relevant deviations from the SP.

3.4 Times and geographical position for submitting reports

3.4.1 Sailing the Adriatic Sea northwards

The ship shall submit the SP to the competent shore-based authority (VTS Brindisi) when entering the Adriatic Sea by crossing northwards the parallel 40° 25'.00 N.

3.4.2 Sailing the Adriatic Sea southward

3.4.2.1 The ship shall submit the SP to the nearest competent shore-based authority of the port of departure, when leaving a port inside the area covered by the ADRIREP system.

3.4.2.2 The ship shall submit the PR to the competent shore-based authorities, upon their requests. Any competent shore-based authority of the ADRIREP interacting with the ships may request/receive PRs. In addition, the PR shall be provided by the ship to the nearest competent shore-based authority whenever there are changes to the SP during the ship's voyage in the ADRIREP area.

3.4.2.3 The ship shall submit the FR to the competent shore-based authority (VTS Brindisi) when leaving the Adriatic Sea by crossing southward the parallel 40° 25'.00 N.

3.4.3 Crossing the Adriatic Sea

3.4.3.1 The ship shall submit the SP to the nearest shore-based authority of the port of departure, when departing from the port located in the area covered by the ADRIREP system.

3.4.3.2 The ship shall submit the PR to the competent shore-based authorities, upon their requests. Any competent shore-based authority of the ADRIREP interacting with the ships may request/receive PRs. In addition, the PR shall be provided by the ship to the nearest competent shore-based authority whenever there are changes to the SP during the ship's voyage in the ADRIREP area.

3.4.3.3 The ship shall submit SP to any of the competent authorities as per appendix 2.

3.4.4 Special cases

3.4.4.1 The ADRIREP reports for the ships arriving or departing from a port in Bosnia and Herzegovina will be made automatically available to Bosnia and Herzegovina.

3.4.4.2 The ADRIREP reports for the ships leaving the Adriatic Sea by crossing southward the parallel 40° 25'.00 N will be made automatically available to Greece.

3.5 Authorities to whom the reports should be sent

The ships participating in the system shall submit the report to the shore-based authorities as in appendix 2.

3.5.1 Available means of communication

3.5.1.1 Ships participating in the system shall submit reports by electronic means using the SafeSeaNet system, as a primary means of reporting or via the alternative means assigned to the competent shore-based authority, as agreed.

3.5.1.2 The SafeSeaNet Web-user interface for electronic ship reporting shall be used to submit and view ADRIREP reports and to check competent shore-based authority responses to these reports.

3.5.1.3 By using the SafeSeaNet, the ships will have access to information available about their ship and can reuse available information when creating a new report.

3.5.1.4 The SafeSeaNet Web-user interface for electronic ship reporting can be accessed at: www.adrirep.com.

4 INFORMATION TO BE PROVIDED TO SHIPS AND PROCEDURES TO BE FOLLOWED

The competent shore-based authority shall confirm the reception of report and make it available to other shore-based authorities of the system.

5 COMMUNICATION REQUIRED FOR THE SYSTEM, FREQUENCIES ON WHICH REPORTS SHOULD BE TRANSMITTED AND INFORMATION TO BE REPORTED

5.1 The ADRIREP ship reporting system is based on electronic reporting using the SafeSeaNet system.

5.2 Alternate (backup) methods of reporting are available if the SafeSeaNet system is not available, as indicated in appendix 2.

5.3 The radio call to the appropriate shore-based authority shall be made on the VHF channel assigned to that authority as per appendix 2. The ships sailing within system area are obliged to use VHF channels assigned to the appropriate shore-based authority of the system.

5.4 The language used for voice communication shall be English, using the IMO Standard Marine Communications Phrases.

6 RULES AND REGULATIONS IN FORCE IN THE AREA OF THE SYSTEM

The International Regulations for Preventing Collisions at Sea (COLREGs) are applicable through the whole area covered by the system.

7 SHORE-BASED FACILITIES TO SUPPORT OPERATION OF THE SYSTEM

.1 VTS Durres (Albania):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF communication

.2 VTS Croatia (Croatia):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF communication

.3 VTS Brindisi (Italy):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF communication

.4 Ancona Coast Guard (Italy):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF, MF/HF communication

.5 VTS Venezia (Italy):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF, MF/HF communication

.6 VTS Trieste (Italy):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF, MF/HF communication

.7 VTS Bari (Italy):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF, MF/HF communication

.8 Pescara Coast Guard (Italy):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF, MF/HF communication

.9 Montenegro VTS (Montenegro):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF communication

.10 MRCC Koper (Slovenia):
- reporting by electronic means (SafeSeaNet)
- email
- telephone
- VHF communication

8 ALTERNATIVE COMMUNICATION IF THE COMMUNICATION FACILITIES OF THE SHORE-BASED AUTHORITIES FAIL

8.1 The system is designed with sufficient system redundancy to cope with normal SafeSeaNet system failure.

8.2 Each shore-based facility is equipped with VHF band communication capabilities, as indicated in appendix 2; in addition to that, in case of failing contacts by VHF, the shore-based authorities can operate and be contacted through phone, Inmarsat-C and MF/HF facilities. In order to ensure the continuous 24-hour activity, the shore-based facilities have been located and manned with properly trained and dedicated personnel in the respective national MRCCs/MRSCs/VTSs. Should a shore-based authority suffer an irretrievable breakdown and call off itself from the system until the failure is repaired, it could be relieved by one of the adjacent shore-based authorities.

8.3 In case of voice communication, the ships shall provide the information as requested by the competent shore-based authority.

9 MEASURES TO BE TAKEN IF A SHIP FAILS TO COMPLY WITH THE REQUIREMENTS OF THE SYSTEM

The primary objective of the system is to support the safe navigation and the protection of the marine environment through the exchange of information between the ship and the shore. If a ship does not submit reports and can be positively identified, then information will be passed to the competent flag State authorities for investigation and possible prosecution in accordance with national legislation. Information will be passed also to port State control inspectors.

APPENDIX 1

OPERATIONAL AREA OF ADRIREP

APPENDIX 2

CONTACT DETAILS OF ADRIREP AUTHORITIES

Country	Competent shore-based authority name identifier	LOCATION	VHF CHANNEL	Phone	Email
Albania	VTS DURRES	Durres	CH 15 CH 16	+35552706970	kapiteneria.durres@dpdetare.gov.al
Croatia	VTS CROATIA	Dubrovnik, Split, Rijeka	CH 10	+38551 312300	vts3@pomorstvo.hr
Italy	VTS BRINDISI	Brindisi	CH 10	+39 0831 590219	so.cpbrindisi@mit.gov.it
Italy	ANCONA COAST GUARD	Ancona	CH 10	+39 071 502101	so.cpancona@mit.gov.it
Italy	VTS VENEZIA	Venezia	CH 9	+39 041 240 5706	so.cpvenezia@mit.gov.it
Italy	VTS TRIESTE	Trieste	CH 11	+39 040 676616	so.cptrieste@mit.gov.it
Italy	VTS BARI	Bari	CH 14	+39 080 5281544	so.cpbari@mit.gov.it
Italy	PESCARA COAST GUARD	Pescara	CH 14	+39 085 9189800	so.cppescara@mit.gov.it
Montenegro	MONTENEGRO VTS	Bar	CH 11	+38230315386	vts@pomorstvo.me
Slovenia	MRCC KOPER	Koper	CH 12	+38656632106 +38656632107 +38656632108	koper.mrcc@gov.si kp.promet@gov.si

APPENDIX 3

FORMAT OF "ADRIREP" SHIP REPORTING SYSTEM SAILING PLAN

	Message identifier:	- ADRIREP
	Type of report	- SP (Sailing plan) - PR (Position report) - FR (Final report)
A	Ship	- Ship's name, call sign, IMO identification number and flag
B	Date/time (UTC) of the report	- A 6-digit group giving date of month (first 2 digits), hours and minutes (last 4 digits) for example - DDHHMM
C	Present position	- A 4-digit group giving latitude in degrees and minutes suffixed with "N" or "S" and a 5-digit group giving longitude in degrees and minutes suffixed with "E" or "W"
E	Course	- A 3-digit group giving the course in degrees
F	Speed	- A 3-digit group giving a speed in knots (Speed in knots and tenths of knots)
G	Port of departure	- LoCode or name of port of departure
I	Destination and estimated time of arrival	- ETA in UTC expressed as in B above, followed by LoCode or Name of port of destination
L	Route information	To be reported on a voluntary basis by ships sharing their voyage plan in electronic format-
O	Draught of the vessel	- draught expressed by a 4-digit group indicating centimetres
P	Cargo information	- The general category of hazardous cargo as described in resolution MSC.433(98) and shown in paragraph 1.2 of this document
T	Agent	- Ship agent or Cargo agent
U	Size and type	- Ship's type, expressed by 2 digits AIS code - Deadweight, expressed by 6 digits group indicating tonnes - Gross tonnage, expressed by 6 digits group indicating tonnes - Length overall, expressed by 3 digits group indicating meters - Breadth, expressed by 3 digits group indicating meters. Example: U/31/020000T/030000T/150M/045M
W	Total number of persons on board	- The total number of crew and other persons on board
X	Miscellaneous	Any other relevant information, including: - Bunker fuel details (characteristics and estimated quantity) - Navigational Status - SATCOM (ship's satellite communications available) - Brief details of incidents (if any)

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ANNEX 3

DRAFT RESOLUTION MSC.314(88)/REV.1

**MANDATORY SHIP REPORTING SYSTEM
"IN THE SOUND BETWEEN DENMARK AND SWEDEN" (SOUNDREP)**

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the adoption of mandatory ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20), which authorizes the Committee to perform the function of adopting ship reporting systems on behalf of the Organization,

TAKING INTO ACCOUNT the *Guidelines and criteria for ship reporting systems* adopted by resolution MSC.433(98),

HAVING CONSIDERED the recommendations of the Sub-Committee on Navigation, Communications and Search and Rescue, at its twelfth session,

1 ADOPTS, in accordance with SOLAS regulation V/11, the revised mandatory ship reporting system "In the Sound between Denmark and Sweden" (SOUNDREP), described in the annex to the present resolution, which revises in its entirety the existing text of the annex to resolution MSC.314(88);

2 DECIDES that the said revised mandatory ship reporting system will be implemented at 0000 hours UTC on […];

3 REQUESTS the Secretary-General to bring this resolution and its annex to the attention of Member States and Contracting Governments to the 1974 SOLAS Convention;

4 REVOKES resolution MSC.314(88) as from 0000 hours UTC on […].

ANNEX

DESCRIPTION OF THE MANDATORY SHIP REPORTING SYSTEM "IN THE SOUND BETWEEN DENMARK AND SWEDEN" (SOUNDREP)

1 Categories of ships required to participate in the system

1.1 Ships participating in the ship reporting system:

Ships of 300 gross tonnage and upwards proceeding to or from ports or anchorages in the Sound or passing through the reporting area.

Pursuant to SOLAS 1974 Convention, as amended, the SOUNDREP does not apply to warships, naval auxiliaries, other ships owned or operated by a Contracting Government and used, only on Government non-commercial service. However, such ships are encouraged to participate in the reporting system.

2 Geographical coverage of the system and the number and edition of the reference chart used for delineation of the system

2.1 The mandatory ship reporting system SOUNDREP is operated by Sound VTS. The call sign is "Sound Traffic".

2.2 The operational area of SOUNDREP covers the northern, central and southern part of the Sound as shown on the chartlet given in appendix 1. The area includes the routeing systems, in the north TSS "In the Sound" and in the south TSS "Off Falsterbo", both adopted by the Organization.

2.2.1 Report and border line North

Denmark:

(1)	56° 06´.58 N	012° 11´.00 E	(Rågeleje)
(2)	56° 14´.00 N	012° 11´.00 E	(At sea North of Rågeleje)

Sweden:

(3)	56° 18´.08 N	012° 17´.39 E	(At sea West of Kullen)
(4)	56° 18´.08 N	012° 26´.88 E	(Kullen Light House)

2.2.2 Report and border line South

Denmark:

(5)	55° 17´.44 N	012° 27´.28 E	(Stevns Light House)
(6)	55° 10´.00 N	012° 27´.28 E	(At sea South of Stevns)

Sweden:

(7)	55° 10´.00 N	012° 54´.50 E	(At sea South of Falsterbo)

2.2.3 Report and border line East

Sweden:

(7)	55° 10´.00 N	012° 54´.50 E	(At sea South of Falsterbo)
(8)	55° 22´.89 N	013° 01´.93 E	(Fredshög)

2.2.4 Report and border line West

Denmark:

(9)	55° 19´.81 N	012° 27´.30 E	(Mandehoved)
(10)	55° 33´.28 N	012° 35´.53 E	(Aflandshage)

2.2.5 Sector division

The SOUNDREP area is divided into two sectors at latitude 55° 50´.00 N; sector 1 northerly and sector 2 southerly. Each sector has an assigned VHF channel as shown in appendix 2.

2.3 The reference charts (Datum: World Geodetic System 1984 (WGS 84)), which include the operational area of SOUNDREP, are:

.1 Danish charts Nos. 102 (7th edition May 2009), 104 (5th edition Aug 2009), 131 (1st edition Nov 2008), 132 (19th edition Aug 2009) and 133 (13th edition Sep 2009); and

.2 Swedish charts Nos. 921 (4th edition 2009) and 922 (22th edition 2009).

3 Format, content of reports, times and geographical positions for submitting reports, authority of whom reports should be sent and available services

3.1 Procedures of reporting

3.1.1 The SOUNDREP report must be initiated (see paragraph 3.1.4) to Sound VTS using VHF voice transmission. However, ships can fulfil most of the reporting requirements of the reporting system by the use of non-verbal means such as AIS (Automatic Information System) class A as approved by the Organization, and by email or other alternative methods, prior to entering the ship reporting area (see also paragraph 3.4.1, Note (c)). Additional details are given in appendix 3. For contact information see appendix 2.

3.1.2 The use of correct and updated AIS information can accomplish the reporting requirements for designators A (part of), B, C, E, F, I, O, P and W.

3.1.3 Email or other alternative methods prior to entering the ship reporting area, can accomplish the reporting requirements for designators L, T and X. Such non-verbal partly report must also state designator A (see also paragraph 3.4.1, Note (c)). Additional details are given in appendix 3. Information on Liability certificates may be presented by the company as defined by SOLAS regulation IX/1.2.

3.1.4 A ship which fulfils the reporting requirements of the SOUNDREP mandatory ship reporting system, by the use of non-verbal means, must as a minimum carry out a VHF voice transmission to communicate the name of the ship (part of designator A) and the report line of entry, to the Sound VTS when actually entering the area. The same procedure must be followed before departing a port or leaving an anchorage in the SOUNDREP area. Additional details are given in appendix 3.

3.1.5 Designators U and Q, if applicable, shall at all times be given using VHF voice transmission to Sound VTS when entering the area. Additional details are given in appendix 3.

3.1.6 To prevent overloading the VHF channels for reporting by verbal voice transmissions and to avoid interference with essential navigational duties, and by this hampering the safety of navigation in the area, a ship unable to accomplish the reporting requirements for designators L, T and X by email or other alternative methods prior to entering the ship reporting area, can report these designators by the use of radio telephone or mobile phone to Sound VTS. Designator A must additionally be included in this part reporting.

3.2 Verbal reporting is not required when a ship is passing the SOUNDREP sector line at latitude 55° 50´.00 N. However, change of VHF frequency is required according to appendix 2.

3.3 Format

The mandatory ship report shall be drafted in accordance with the format shown in appendix 3. The information requested from ships is derived from the Standard Reporting Format shown in paragraph 2 of the appendix to resolution A.851(20).

3.4 Content

A report from a ship to the SOUNDREP by non-verbal means or by voice transmission must contain the following information:

A	Name of the ship, call sign and if available IMO identification number and MMSI No.
B	Date and time
C	Position expressed in latitude and longitude
E	True course
F	Speed
I	Destination and ETA
L	Route information on the intended route through the Sound
O	Maximum present draught
P	Cargo; and quantity and IMO class of dangerous goods, if applicable (see note (c) below)
Q	Defects and deficiencies or other limitations
T	Contact details for the communication of cargo information (see note (c) below)
U	Air draught when exceeding 35 metres W Total number of persons on board
X	- Type and estimated quantity of bunker fuel, for ships of 1,000 gross tonnage and above - One or more Convention certificates of insurance issued by a party to the Conventions and carried on board the ship, providing evidence of existence of insurance for maritime claims, as well as civil liability certificates, as applicable, issued in accordance with: ▪ the International Convention on Civil Liability for Oil Pollution Damage, 1992, as amended (1992 Civil Liability Convention); ▪ the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (2001 Bunkers Convention); and, ▪ the Nairobi International Convention on the Removal of Wrecks, 2007 (2007 Nairobi WRC).

Note:

(a) On receipt of a report, operators of the Sound VTS will establish the relation to the ship's position and the information supplied by the facilities available to them.

(b) The master of the ship must forthwith inform the Sound VTS concerned of any change to the information notified, including designator Q.

(c) Information on dangerous cargo and contact details for the communication of cargo information (designator P and T of the reporting format) is only requested when such information has not been notified to the competent authority via SafeSeaNet in an European Union (EU) Member State in accordance with the requirements of Article 13 (for ships leaving or entering an EU port) in Directive 2002/59/EC on establishing Community vessel traffic monitoring and information system and amended by Directive 2009/17/EC, prior to entering the operational SOUNDREP area. Additional details are given in appendix 3.

3.5 Geographical position for submitting reports

3.5.1 Ships entering the SOUNDREP operational area shall submit a report when crossing the entrance lines or on departure from a port or anchorage within the operational area.

3.5.2 Further reports should be made whenever there is a change in navigational status or circumstance, particularly in relation to designator Q the reporting format.

3.6 Crossing traffic

Recognizing that ferries crossing between Helsingør and Helsingborg operate according to published schedules special reporting arrangements can be made on a ship to ship basis. Ferries leaving the ports Helsingør in Denmark and Helsingborg in Sweden operating according to published schedules are normally not requested to report to the Sound VTS.

3.7 Authority

The VTS Authority for the SOUNDREP is Sound VTS with call sign "Sound Traffic". Additional details are given in appendix 2.

4 Information to be provided to ships and procedures to be followed

4.1 Ships are required to keep a continuous listening watch in the area on the relevant VHF sector channel and VHF channel 16.

4.2 Sound VTS will provide information service to shipping about specific and urgent situations, which could cause conflicting traffic movements as well as other information concerning safety of navigation for instance, information about weather, current, ice, water level, navigational problems or other hazards.

4.2.1 If necessary, Sound VTS can provide individual information to a ship particularly in relation to positioning and navigational information or local conditions by using the IMO Standard Marine Communication Phrases (SMCP), section A1/6 for VTS message markers. The message markers can be of ADVICE, WARNING, INFORMATION, QUESTION, ANSWER, REQUEST and INTENTION.

4.2.2 Information of general interest to shipping in the area will be broadcast by Sound VTS on VHF channel as specified by the VTS operator or will be given on request. A broadcast will be preceded by an announcement on VHF channel 16. All ships navigating in the area should listen to the announced broadcast.

4.3 If a ship needs to anchor owing to breakdown, low visibility, adverse weather, changes in the indicated depth of water, etc., Sound VTS can recommend suitable anchorages or other place of refuge within the operational area.

5 Communication required for the SOUNDREP system

5.1 The language used for communication shall be English, using IMO Standard Marine Communication Phrases, where necessary.

5.2 Details of communication and contact information are given in appendix 2.

6 Rules, regulations and recommendation in force in the area of the system

6.1 Regulations for preventing collisions at sea

The International Regulations for Preventing Collisions at Sea (COLREG) are applicable throughout the operational area of SOUNDREP.

6.2 Traffic separation scheme "In the Sound"

The Traffic separation scheme *"*In the Sound*"*, situated to the north in the narrows of the Sound, as adopted by the Organization, and rule 10 of the International Regulations for Preventing Collisions at Sea therefore applies.

6.3 Traffic separation scheme "Off Falsterbo"

The separation scheme "Off Falsterbo" situated in the southern part of the Sound, as adopted by the Organization, and rule 10 of the International Regulations for Preventing Collisions at Sea therefore applies.

6.4 IMO Recommendation on Navigation through the entrances to the Baltic Sea – The Sound

SN.1/Circ.263, section 1.9 and IMO publication on Ships' Routeing, part C, on Amendments to Recommendation on Navigation through the entrances to the Baltic Sea, adopted at MSC 83 in October 2007, recommends for the Sound that loaded oil tankers with a draught of 7 metres or more, loaded chemical tankers and gas carriers, irrespective of size, and ships carrying a shipment of irradiated nuclear fuel, plutonium and high-level radioactive wastes (INF Code materials), when navigating the Sound between a line connecting Svinbådan Lighthouse and Hornbæk Harbour and a line connecting Skanör Harbour and Aflandshage should use the pilotage services established by the Governments of Denmark and Sweden.

6.5 Mandatory pilotage

Harbours within the SOUNDREP area are covered by provisions about mandatory pilotage for certain ships bound for or coming from Danish and Swedish ports.

6.6 Air draught when exceeding 35 metres

6.6.1 The navigable Drogden channel is located beside a major airport. In order to ensure safety of navigation in the dredged channel of Drogden and to reduce the risk of collision between an aircraft that serves the airport and a ship or other floating equipment, a reporting obligation has been established. Additional details are given in appendix 3, designator U.

6.6.2 The safety procedure that has been established is that for all ships, including ships with a tow, with an air draught exceeding 35 metres, Sound VTS shall notify the air traffic control stating the maximum air draught of the ship or floating equipment. The notification shall be given at least 30 minutes prior to the expected time (UTC) for passage of:

.1 Nordre Røse lighthouse at position 55° 38´.17 N, 012° 41´.21 E; and

.2 light buoy No.9 at position 55° 36´.15 N, 012° 41´.79 E.

6.6.3 Sound VTS will transfer the information to the air traffic control.

7 Shore-based facilities to support the operation of the system

7.1 System capability

7.1.1 The Sound VTS centre is situated at Malmö, Sweden.

7.1.2 The Sound VTS system comprises several remote sensor sites. The sites provide surveillance of the SOUNDREP area using a combination of radar and AIS. An integrated network of ten radar sensors integrated with AIS provides surveillance of the area.

7.1.3 All the sensors mentioned below will be controlled or monitored by the VTS operators.

7.1.4 Recording equipment automatically stores information from all tracks, which can be replayed. In case of incidents the VTS authority can use records as evidence. VTS operators have access to different ship registers, pilot information and hazardous cargo data.

7.1.5 An integrated database is available for the operators in handling information.

7.2 Radar and other sensors

Information necessary to evaluate the traffic activities within the operational area of SOUNDREP is compiled via remote controlled sensors comprising:

.1 Sensors for water level and current at Drogden and Flintrännan;

.2 High-resolution radar systems; and

.3 VHF communications systems including DSC call (see appendix 2).

7.3 Radio communication equipment

Redundant VHF system with DSC functionality (see appendix 2).

7.4 AIS facilities

Sound VTS is linked to both the Danish and Swedish national shore-based AIS network and can continually receive messages broadcast by ships with transponders to gain information on their identity and position. The information is displayed as part of the VTS system and is covering the ship reporting area.

7.5 Personnel qualifications and training

7.5.1 The VTS centre is staffed with personnel all educated and experienced as officers in charge of navigational watch according to national and international requirements.

7.5.2 Training of VTS personnel will meet the standards recommended by IMO in MSC/Circ.1065 on IALA Standards for training and certification of VTS personnel (Ed. 2).

7.5.3 Refresher training is carried out on a regular basis.

8 Information concerning the applicable procedures if the communication facilities of shore-based Authority fail

8.1 The system is designed with sufficient system redundancy to cope with normal equipment failure.

8.2 In the event of radio communication system failure at the VTS centre, communication will be maintained via a redundant standby VHF system. If the radar system or other essential equipment suffers a breakdown, information of reduced operational capability will be given by Sound VTS or as national navigational warnings.

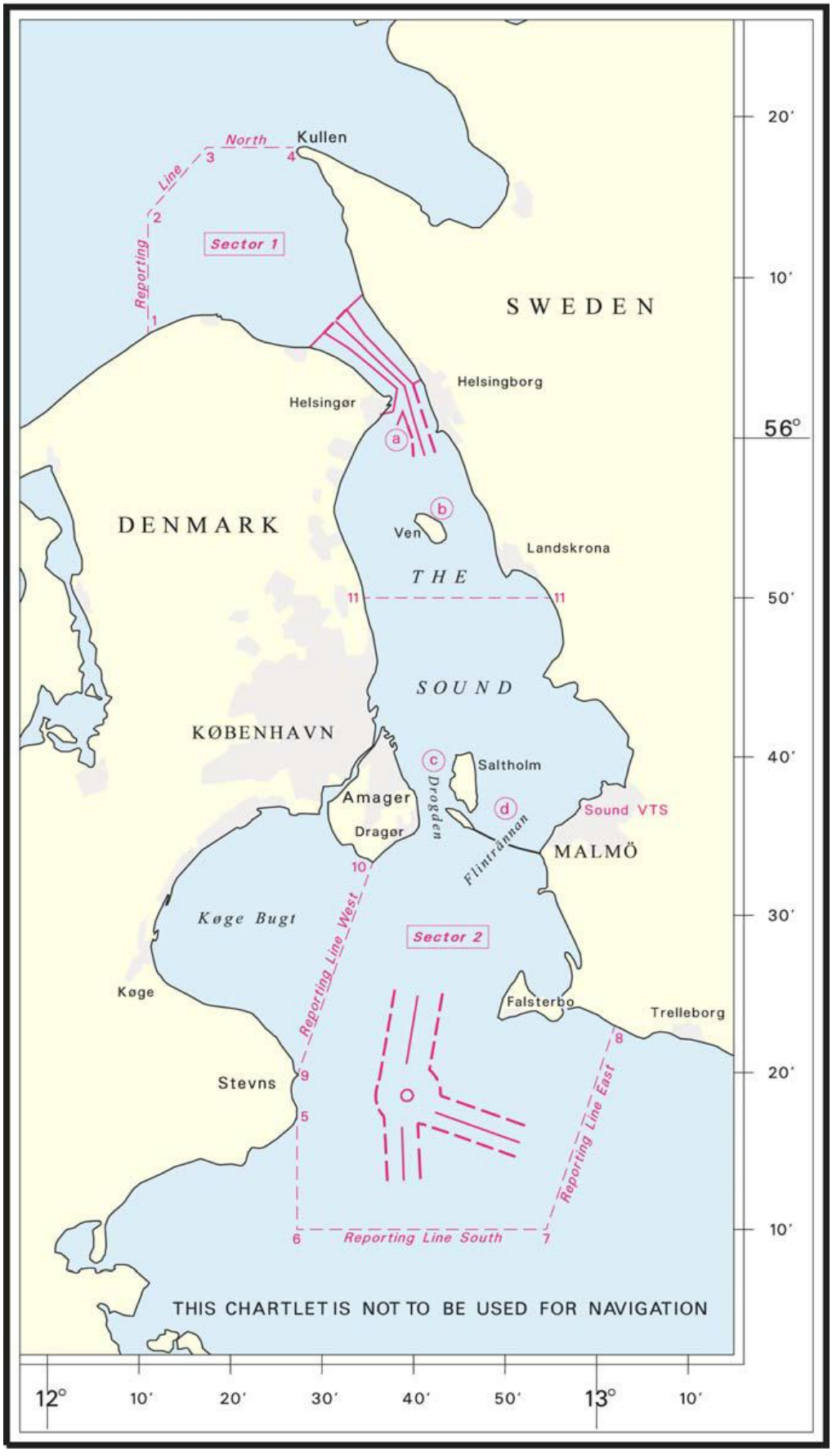
9 Measures to be taken if a ship fails to comply with the requirements of the system

9.1 The objective of the VTS Authority is to facilitate the exchange of information between the shipping and the shore in order to ensure safe passages of the bridges, support safety of navigation and the protection of the marine environment.

9.2 All means will be used to encourage and promote the full participation of ships required to submit reports under SOLAS regulation V/11. If reports are not submitted and the offending ship can be positively identified, then information will be passed to the relevant flag State Authority for investigation and possible prosecution in accordance with national legislation. Information will also be made available to Port State Control inspectors. With regard to Liability certificates, this action should be taken only if the flag State is party to the relevant Conventions.

APPENDIX 1

SOUNDREP Operational Area



APPENDIX 2

CONTACT INFORMATION AND ASSIGNED VHF CHANNELS FOR SECTORS IN THE MANDATORY SHIP REPORTING SYSTEM "IN THE SOUND BETWEEN DENMARK AND SWEDEN" (SOUNDREP)

SOUNDREP, radio call sign:	**"Sound Traffic"**

VHF Channels	Operational use
VHF Channel 73	Sound VTS – Sector 1 North
VHF Channel 71	Sound VTS – Sector 2 South
VHF Channel 79	Sound VTS – Broadcast 1, individual assistance
VHF Channel 68	Sound VTS – Broadcast 2, individual assistance and reserve channel

The Sound VTS operating SOUNDREP is located in Malmö, Sweden:

H24 contact information:

1 Sound VTS is monitoring VHF channels 73, 71 and 16 continuously.
2 Duty officer phone: +46 40 20 43 17 or +46 40 20 43 34
3 Fax: +46 40 20 43 45
4 Email: contact@soundvts.org

Address:

Sound VTS
Hans Michelsensgata 9
Box 855
S-201 80 Malmö Sweden

APPENDIX 3

DRAFTING OF REPORTS TO THE MANDATORY SHIP REPORTING SYSTEM "IN THE SOUND BETWEEN DENMARK AND SWEDEN" (SOUNDREP)

Designator	AIS	Function	Information required
A	Yes, and VHF	Ship	Name of the ship (VHF); call sign and if available IMO identification number and MMSI number (AIS)
B	Yes	Date and time of event	A 6-digit group event giving day of month and hours and minutes in Universal Co-ordinated Time (UTC).
C	Yes	Position	A 5-digit group giving latitude in degrees and minutes, decimal, suffixed with N and a 6-digit group giving longitude in degrees and minutes, decimal, suffixed with E.
E	Yes	True course	A 3-digit group
F	Yes	Speed in knots and tenths of knots	A 3-digit group
I	Yes	Destination and ETA	The name of next port of call given in UN LOCODE. For details see in IMO SN/Circ.244 and; www.unece.org/cefact/locode/service/main.htm. Date and time group expressed as in (B)
L	No	Route information	A brief description of the intended route as planned by the master. Ships navigating in The Sound have options on deciding route in the following areas (see appendix 1); a) Disken shoal b) Ven island c) Drogden channel d) Flintrännan channel The route information should be given coded by using the following local designators: • DW – Disken, west of • DE – Disken, east of • VW – Ven, west of • VE – Ven, east of • D – Drogden • F – Flintrännan See examples below.
O	Yes	Maximum present draught in metres	A 2-digit or 3-digit group giving the present maximum draught in metres (e.g.: 6.1 or 10.4)
P	Yes	Cargo on board	Cargo; and quantity and IMO class of dangerous goods, if applicable. (see 3.4.1, note c)

Designator	AIS	Function	Information required
Q	VHF	Defects and deficiencies or other limitations	Details of defects and deficiencies affecting the equipment of the ship or any other circumstances affecting normal navigation and manoeuvrability.
T	No	Ship's representative and or owner	Address and particulars from which detailed information on the cargo may be obtained.
U	VHF	Ship's size	Information of maximum air draught when exceeding 35 metres, required for all ships, including ships towing or other floating equipment. This information shall be given by voice transmissions when entering the SOUNDREP area, irrespectively of, if the information also is given by, e.g. AIS; details in paragraph 6.6.
W	Yes	Total number of persons on board	State number.
X	No	Miscellaneous	-Type and estimated quantity of bunker fuel, for ships of 1,000 gross tonnage and above. - One or more Convention certificates of insurance issued by a party to the Conventions and carried on board the ship, providing evidence of existence of insurance for maritime claims, as well as civil liability certificates, as applicable, issued in accordance with: • the International Convention on Civil Liability for Oil Pollution Damage, 1992, as amended (1992 Civil Liability Convention); • the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (2001 Bunkers Convention); and, • the Nairobi International Convention on the Removal of Wrecks, 2007 (2007 Nairobi WRC).

Examples of routes as given under designator L

A northbound ship leaving Malmö Port planning to sail, east of Ven, TSS In the Sound (UN LOCODE format for Malmö Port is SE MMA):

L: SE MMA, VE

A southbound ship in transit planning to sail TSS In the Sound, east of Disken, west of Ven, Drogden channel and TSS Off Falsterbo:

L: DE, VW, D

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ANNEX 4

DRAFT RESOLUTION MSC.332(90)/REV.1

**MANDATORY SHIP REPORTING SYSTEM
"IN THE STOREBÆLT (GREAT BELT) TRAFFIC AREA" (BELTREP)**

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the adoption of mandatory ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20), which authorizes the Committee to perform the function of adopting ship reporting systems on behalf of the Organization,

TAKING INTO ACCOUNT the *Guidelines and criteria for ship reporting systems* adopted by resolution MSC.433(98),

HAVING CONSIDERED the recommendations of the Sub-Committee on Navigation, Communications and Search and Rescue, at its twelfth session,

1 ADOPTS, in accordance with SOLAS regulation V/11, the revised mandatory ship reporting system "In the Storebælt (Great Belt) traffic area" (BELTREP), described in the annex to the present resolution, which revises in its entirety the existing text of the annex to resolution MSC.332(90);

2 DECIDES that the said revised mandatory ship reporting system will be implemented at 0000 hours UTC on […];

3 REQUESTS the Secretary-General to bring this resolution and its annex to the attention of Member States and Contracting Governments to the 1974 SOLAS Convention;

4 REVOKES annex 1 to resolution MSC.63(67), and resolution MSC.332(90), as from 0000 hours UTC on […].

ANNEX

DESCRIPTION OF THE MANDATORY SHIP REPORTING SYSTEM "IN THE STOREBÆLT (GREAT BELT) TRAFFIC AREA" (BELTREP)

1 Categories of ships required to participate in the system

1.1 Ships passing through or proceeding to and from ports and anchorages in the BELTREP area are required to participate in the ship reporting system as follows:

.1 ships with a gross tonnage of 50 and above;

.2 all ships with an air draught of 15 m or more; and

.3 pleasure craft with a length less than 15 m or with a gross tonnage less than 50 are exempted from participation.

2 Geographical coverage of the system and the number and edition of the reference chart used for delineation of the system

2.1 The mandatory ship reporting system BELTREP is operated by Great Belt VTS. The call sign is "Belt Traffic".

2.2 The operational area of BELTREP covers the central and northern part of the Storebælt (Great Belt) and the Hatter Barn area north of Storebælt (Great Belt) at the entrance to the Baltic Sea, as shown below and on the chartlet given in appendix 1-A. The area includes the routeing systems at Hatter Barn, in the Storebælt (Great Belt) area and Langelandsbælt, all adopted by the Organization. The BELTREP area also includes the central part of route Tango. Datum; World Geodetic System 1984 (WGS 84):

2.2.1 Report- and borderline West (RW)

Fyn:	1)	55° 36′.00 N, 010° 38′.00 E (Korshavn)
Samsø:	2)	55° 47′.00 N, 010° 38′.00 E (East coast of Samsø)

2.2.2 Report- and borderline North (RN)

Samsø:	2)	55° 47′.00 N, 010° 38′.00 E (East coast of Samsø)
	3)	56° 00′.00 N, 010° 56′.00 E (At sea near Marthe Flak)
Sjælland:	4)	56° 00′.00 N, 011° 17′.00 E (Sjællands Odde)

2.2.3 Report- and borderline South (RS)

Stigsnæs:	5)	55° 12′.00 N, 011° 15′.40 E (Gulfhavn)
Omø:	6)	55° 08′.40 N, 011° 09′.00 E (Ørespids, Omø)
	7)	55° 05′.00 N, 011° 09′.00 E (At sea south of Ørespids)
Langeland E:	8)	55° 05′.00 N, 010° 56′.10 E (Snøde Øre)

2.2.4 Report- and borderline Southwest (RSW)

Langeland W:	9)	55° 00′.00 N, 010° 48′.70 E (South of Korsebølle Rev)
Thurø Rev:	10)	55° 01′.20 N, 010° 44′.00 E (Thurø Rev Light buoy)

2.2.5 Sector division

The BELTREP area is divided into two sectors at latitude 11) 55°35′.00 N; sector 1 northerly and sector 2 southerly. Each sector has an assigned VHF channel as shown in appendix 2.

2.3 The reference charts (Datum: World Geodetic System 1984, WGS 84), which include the operational area of BELTREP, are Danish charts nos. 112 (15th edition 2010), 128 (10th edition 2009), 141 (21st edition 2010), 142 (18th edition 2010), 143 (19th edition 2009) and 160 (7th edition 2007).

3 Format, content of reports, times and geographical positions for submitting reports, authority by whom reports should be sent and available services

3.1 *Procedures of reporting*

3.1.1 All BELTREP reports must be made to Great Belt VTS using VHF voice transmissions. However, ships are encouraged to fulfil certain reporting requirements of the reporting system by the use of correct and updated AIS information (Automatic Identification System) class A as approved by the Organization and by non-verbal means as email or similar, prior to entering the ship reporting area. Details are given in appendix 3.

3.1.2 The use of correct and updated AIS information can accomplish the reporting requirements for designators A, B, C, E, F, G and I, O and W. Details are given in appendix 3.

3.1.3 To minimize the time reporting on the VHF radio channels and to avoid interference with essential navigational duties, ships are encouraged to forward the reporting requirements for designators L, P, T and X by email or similar prior to entering the ship reporting area. Such non-verbal partial reports must also state designators A and H. Reporting designators L, P, T and X prior to entry using mobile phone is also accepted as a means of communication. Details are given in sub-paragraph 3.5 and appendix 3. Information on liability certificates may be presented by the company as defined by SOLAS regulation IX/1.2.

3.1.4 A ship which fulfils the reporting requirements of the BELTREP mandatory ship reporting system by the use of correct and updated AIS information and prior non-verbal means must, as a minimum, carry out a VHF voice transmission to communicate the name of the ship (part of designator A), air draught and deadweight tonnage (designator U) and the report line of entry to the Great Belt VTS when actually entering the area. The same procedure must be followed before departing a port or leaving an anchorage in the BELTREP area. Details are given in appendix 3.

3.1.5 Designator Q or R, if applicable, shall at all times be given using VHF voice transmission to Great Belt VTS. Details are given in appendix 3.

3.2 Verbal reporting is not required when a ship passes the BELTREP sector line at latitude 55° 35′.00 N. However, sector change of VHF frequency is required according to appendix 2.

3.3 ***Format***

3.3.1 The mandatory ship report shall be drafted in accordance with the format shown in appendix 3. The information requested from ships is derived from the Standard Reporting Format shown in paragraph 2 of the appendix to resolution A.851(20).

3.4 ***Content***

3.4.1 A report from a ship to BELTREP by AIS, non-verbal means or by voice transmission or combinations thereof must contain the following information; details are given in appendix 3:

A name of the ship, call sign, MMSI no. and, if available, IMO identification number;

B date and time;

C position expressed in latitude and longitude;

E true course;

F speed;

G and I last port of call, destination and ETA;

H date, time (UTC) and report line of entry into the BELTREP area;

L route information on the intended route through the BELTREP area;

O maximum present draught;

P cargo and, if dangerous goods present on board, quantity and IMO class. Dangerous goods information must be summarized in total tonnes per IMO class;

Q or R defects, deficiencies, limitations – pollution or dangerous goods lost overboard;

T address for the communication of cargo information;

U air draught, deadweight tonnage;

W total number of persons on board; and

X - type and estimated quantity of bunker fuel, for ships of 1,000 GT and above. Must be summarized in total tonnes per type.
- One or more Convention certificates of insurance issued by a party to the Conventions and carried on board the ship, providing evidence of existence of insurance for maritime claims, as well as civil liability certificates, as applicable, issued in accordance with:

- the International Convention on Civil Liability for Oil Pollution Damage, 1992, as amended (1992 Civil Liability Convention);

- the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (2001 Bunkers Convention); and,

- the Nairobi International Convention on the Removal of Wrecks, 2007 (2007 Nairobi WRC).

Note:

a) The master of the ship must forthwith inform the Great Belt VTS concerned of any change in navigational status or in previous information notified, particularly in relation to designator Q or R.

3.5 *Geographical position for submitting reports*

3.5.1 Ships entering the BELTREP operational area shall submit a report when crossing the report line or on departure from a port or anchorage within the operational area.

3.5.2 Previously forwarded reports can be submitted at any time after entering the Danish Exclusive Economic Zone (EEZ) and until in reach of VHF range of Great Belt VTS at an approximate distance of 20 NM from the BELTREP area. As the Great Belt VTS must be able to timely handle incoming prior reporting, it will not be possible to undertake pre-entry reports within the 20 NM VHF range. The reporting option is then verbal reporting by VHF when crossing the report line of entry. Details of areas are shown on the chartlet in appendix 1-B. The Danish EEZ border lines are shown in nautical charts.

3.5.3 Ships departing a port or leaving an anchorage within the 20 NM range of the BELTREP area or in the BELTREP area, may submit a pre-entry report for designators H, L, P, T and X if transmitted one hour before departure for enabling the Great Belt VTS to timely handle incoming prior reports.

3.6 *Crossing traffic*

3.6.1 Ferries frequently cross route Tango in sector 1, including high-speed ferries. The ferries generally operate according to published schedules; special reporting arrangements can be authorized.

3.7 *Authority*

The Admiral Danish Fleet is the VTS Authority for Great Belt VTS which operates the BELTREP system with call sign "Belt Traffic". Details in appendix 2.

4 Information to be provided to ships and procedures to be followed

4.1 Ships are required to keep a continuous listening watch in the BELTREP area on the relevant VHF sector channels and VHF channel 16.

4.2 Great Belt VTS will provide information service to ships about specific and urgent situations which could cause conflicting traffic movements as well as other information concerning safety of navigation, for instance, information about weather, current, ice, water level, navigational problems or other hazards.

4.2.1 Information of general interest to ships in the area will be broadcast by the Great Belt VTS on VHF channel as specified by the VTS operator or will be given upon request. A broadcast will be preceded by an announcement on VHF channel 16 and sector channels. All ships navigating in the area should listen to the announced broadcast.

4.2.2 If necessary, Great Belt VTS can provide individual information to a ship particularly in relation to positioning or local conditions.

4.2.3 If deemed necessary by the Great Belt VTS or upon request of a ship, navigational assistance can be provided. Great Belt VTS will inform the identifiable ship when the navigational assistance starts and subsequently terminates.

4.2.4 The following IMO Standard Marine Communication Phrases (SMCP), section A1/6, for VTS message markers can be used: ADVICE, WARNING, INFORMATION, QUESTION, ANSWER, REQUEST and INTENTION.

4.3 If a ship needs to anchor owing to breakdown, low visibility, adverse weather, changes in the indicated depth of water, etc., Great Belt VTS can recommend suitable anchorages or other places of refuge within the operational area. The anchorages in the vicinity of the Storebælt (Great Belt) bridges are marked on the nautical charts covering the area and are shown on the chartlet in appendix 1-A.

5 Communication required for the BELTREP system

5.1 The language used for communication shall be English, using IMO Standard Marine Communication Phrases, when deemed necessary by Great Belt VTS.

5.2 Ship-to-ship communication of navigational intentions should be carried out on the BELTREP working channels enabling the Great Belt VTS and other ships to be kept informed.

5.3 Details of communication and contact information are given in appendix 2.

6 Rules, regulations and recommendation in force in the area of the system

6.1 *Regulation for preventing collisions at sea*

The International Regulations for Preventing Collisions at Sea (COLREGs) are applicable throughout the operational area of BELTREP.

6.2 *Traffic separation scheme "At Hatter Barn" (TSS-T5)*

6.2.1 The separation scheme, "At Hatter Barn", is situated in Samsø Bælt north of the Storebælt (Great Belt) between the islands of Sjælland and Samsø. It has been adopted by IMO and rule 10 of the International Regulations for Preventing Collisions at Sea applies.

6.2.2 The minimum depth in the traffic separation scheme is 15 metres at mean sea level. Ships with a draught of more than 13 metres should use the deep-water route "Between Hatter Rev and Hatter Barn", which lies north-west of the traffic separation scheme.

6.3 *Deep-water route "Between Hatter Rev and Hatter Barn" (DW-T3)*

6.3.1 The IMO-adopted deep-water route "Between Hatter Rev and Hatter Barn" has a minimum depth of water below mean sea level of 19 metres. Ships which are not obliged by reason of their draught (13 metres or less) to use the deep-water route should use the traffic separation scheme which lies southeast of the deep-water route, where there is a minimum depth of water below mean sea level of 15 metres.

6.3.2 Ships should be aware that other ships sailing in the deep-water route can be constrained by draught and exhibit signals according to COLREGs.

6.4 *Traffic separation scheme "Between Korsoer and Sprogoe" (TSS-T6)*

6.4.1 The traffic separation scheme "Between Korsoer and Sprogoe", situated in the narrows of the Eastern Channel in Storebælt (Great Belt) between the islands of Fyn and Sjælland, have been adopted by the IMO, and rule 10 of the International Regulations for Preventing Collisions at Sea applies.

6.4.2 The minimum free water depth in the northbound traffic lane is 17 metres and in the southbound traffic lane, 19 metres, both below mean sea level.

6.4.3 There is a recommended speed limit of 20 knots in the traffic separation scheme.

6.5 *The Great Belt Bridges – Safety regulations*

6.5.1 Passage through the marked spans at the West Bridge (a combined road and rail bridge), is allowed only for ships below 1,000 tonnes deadweight and with an air draught of less than 18.00 metres. This passage has route designator BW.

6.5.2 Passage through the traffic separation scheme under the East Bridge (a suspension bridge for road traffic), is allowed only for ships with an air draught of less than 65.00 metres. This passage has route designator BE and includes route T.

6.6 *Deep-water route "Off the east coast of Langeland" (DW-T4)*

6.6.1 The deep-water route *"Off the east coast of Langeland"* has a minimum depth of water below mean sea level of 19 metres. Ships with draughts in excess of 10 metres are recommended to use the deep-water route because of navigational difficulties for such ships in following the national recommended route Hotel which lies to the east of the deep-water route.

6.6.2 Ships should be aware that other ships sailing in the deep-water route can be constrained by draught and exhibit signals according to COLREGs.

6.7 *Route Hotel*

6.7.1 East of the deep-water route "Off the east coast of Langeland", the national route H is established, which has a minimum depth of 12 metres below mean sea level. Ships with a draught of 10 metres or less should follow route H.

6.8 *IMO Recommendation on Navigation through the entrances to the Baltic Sea*

6.8.1 The recent amendment of the IMO Recommendation on Navigation through the entrances to the Baltic Sea was adopted by MSC in October 2007 and promulgated in SN.1/Circ.263, section 1.9 and is given in the IMO publication Ships' Routeing, Part C. It recommends, among other things, that ships with a draught of 11 metres or more navigating route T or ships, irrespective of size or draught carrying a shipment of irradiated nuclear fuel, plutonium or high-level radioactive wastes (INF-cargoes), should use the pilotage services established locally by the coastal States for passing ships.

6.8.2 Ship masters should, in due time, when planning the passage, carefully note the content as regards route Tango in the IMO Recommendation on Navigation through the entrances to the Baltic Sea.

6.9 *Mandatory pilotage*

6.9.1 Harbours within the BELTREP area are covered by provisions on the subject of mandatory pilotage for certain ships bound for or coming from Danish harbours.

7 Shore-based facilities to support the operation of the system

7.1 *System capability*

7.1.1 The VTS centre is situated at the Naval Logistic Support Regional Centre at Korsør. The VTS system comprises several remote sensor sites. The sites provide surveillance of the VTS area using a combination of radar, radio direction finding, Automatic Identification System (AIS) and electro-optic sensors. An integrated network system of eight radar sensors integrated with AIS provides surveillance of the VTS area.

7.1.2 All the sensors mentioned will be controlled or monitored by the VTS operators.

7.1.3 There are a number of operator consoles in the control centre, one of which is intended for system maintenance and diagnostic purposes, which allows these activities to be carried out without disruption of normal operations. The operator can from each of the consoles control and display the status of the sensors. The VTS centre will, at all times, be manned with a duty officer and three operators.

7.1.4 Recording equipment automatically stores information from all tracks which can be replayed. In case of incidents, the VTS authority can use records as evidence. VTS operators have access to different ship registers, pilot information and hazardous cargo data.

7.2 *Radar, electro-optic facilities and other sensors*

7.2.1 Information necessary to evaluate the traffic activities within the operational area of BELTREP is compiled via VTS area remote controlled sensors comprising:

- high-resolution radar systems;
- infrared sensor systems;
- daylight TV systems;
- VHF communications systems; and
- DF systems.

7.3 *Radio communication facilities*

7.3.1 Radio communication equipment in the VTS centre consists of six VHF radios, including DSC facilities. The VHF channels used are given in appendix 2.

7.4 *AIS facilities*

7.4.1 BELTREP is linked to the national shore-based AIS network and can continually monitor AIS information on ships such as identity and position. The information is displayed as part of the VTS system and covers the VTS area.

7.5 *Personnel qualifications and training*

7.5.1 The VTS centre is staffed with civilian personnel, all experienced, as officers at a competency level required in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, chapter II, section A-II/1 or A-II/2.

7.5.2 Training of personnel will meet the standards recommended by the IMO. Furthermore, it will comprise an overall study of the navigation safety measures established in Danish waters and, in particular, the operational area of BELTREP, including a study of relevant international and national provisions with respect to safety of navigation. The training also includes real-time training in simulators.

7.5.3 Refresher training is carried out at least every third year.

8 Information concerning the applicable procedures if the communication facilities of the shore-based Authority fail

8.1 The system is designed with sufficient system redundancy to cope with normal equipment failure.

8.2 In the event that the radio communication system or the radar system at the VTS centre breaks down, communication will be maintained via a standby VHF system. To continue the VTS operation in order to avoid collisions in the bridge area, Great Belt VTS has an emergency back-up VTS centre at Sprogø covering sector 2. The VTS emergency centre is equipped with radar, VHF radio sets and CCTV cameras.

8.3 If the radar system or other essential equipment suffers a breakdown, information of reduced operational capability will be given by Great Belt VTS or broadcast as national navigational warnings.

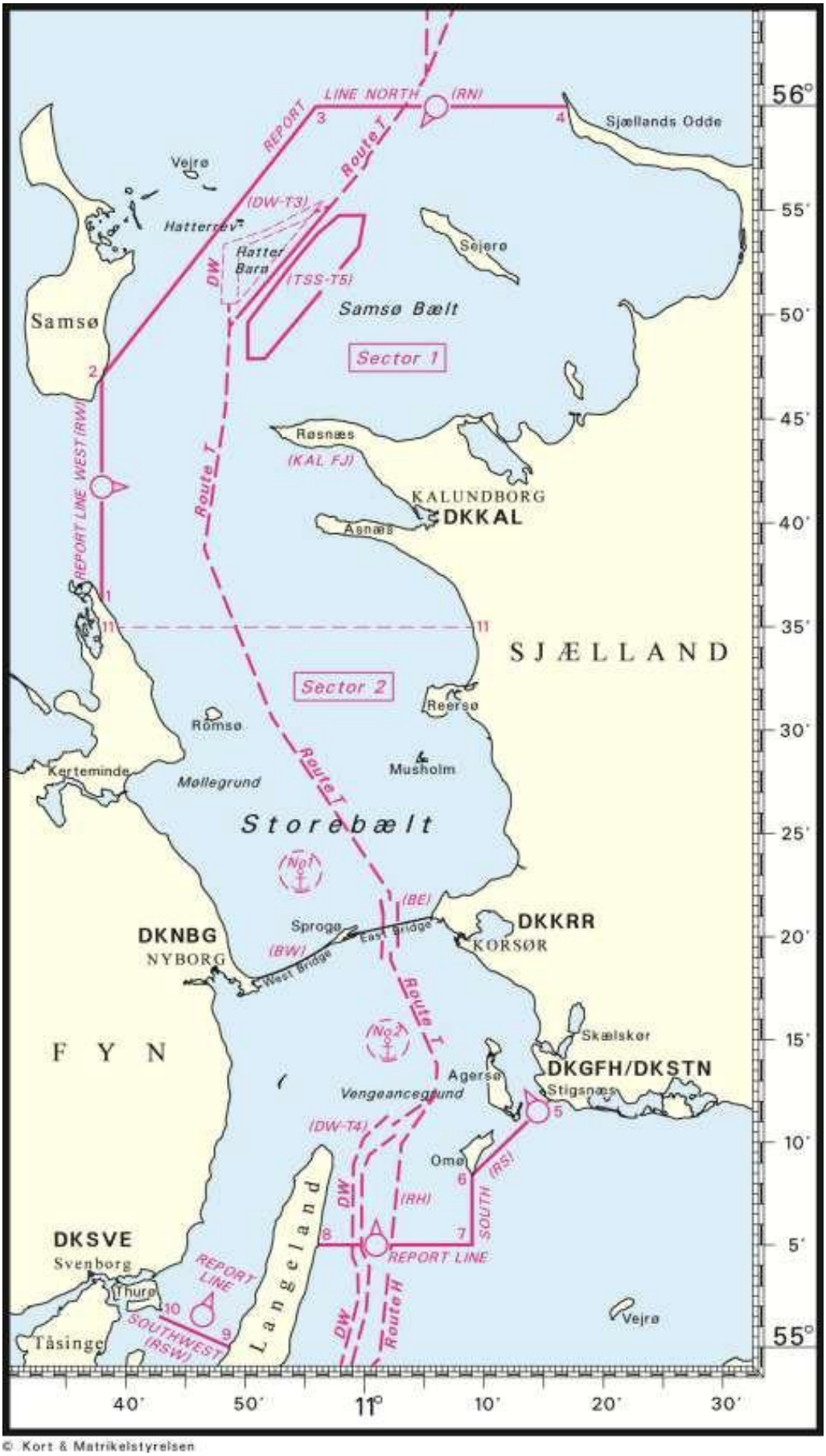
9 Measures to be taken if a ship fails to comply with the requirements of the system

9.1 The objective of Great Belt VTS is to facilitate the exchange of information between the ship and the shore in order to ensure safe passages of the bridges, support safety of navigation and protect the marine environment.

9.2 Great Belt VTS seeks to prevent ship collisions with the bridges crossing Storebælt (Great Belt). If a ship appears to be on a collision course with one of the bridges, Great Belt VTS will arrange for an emergency stop for road and rail traffic on the bridges.

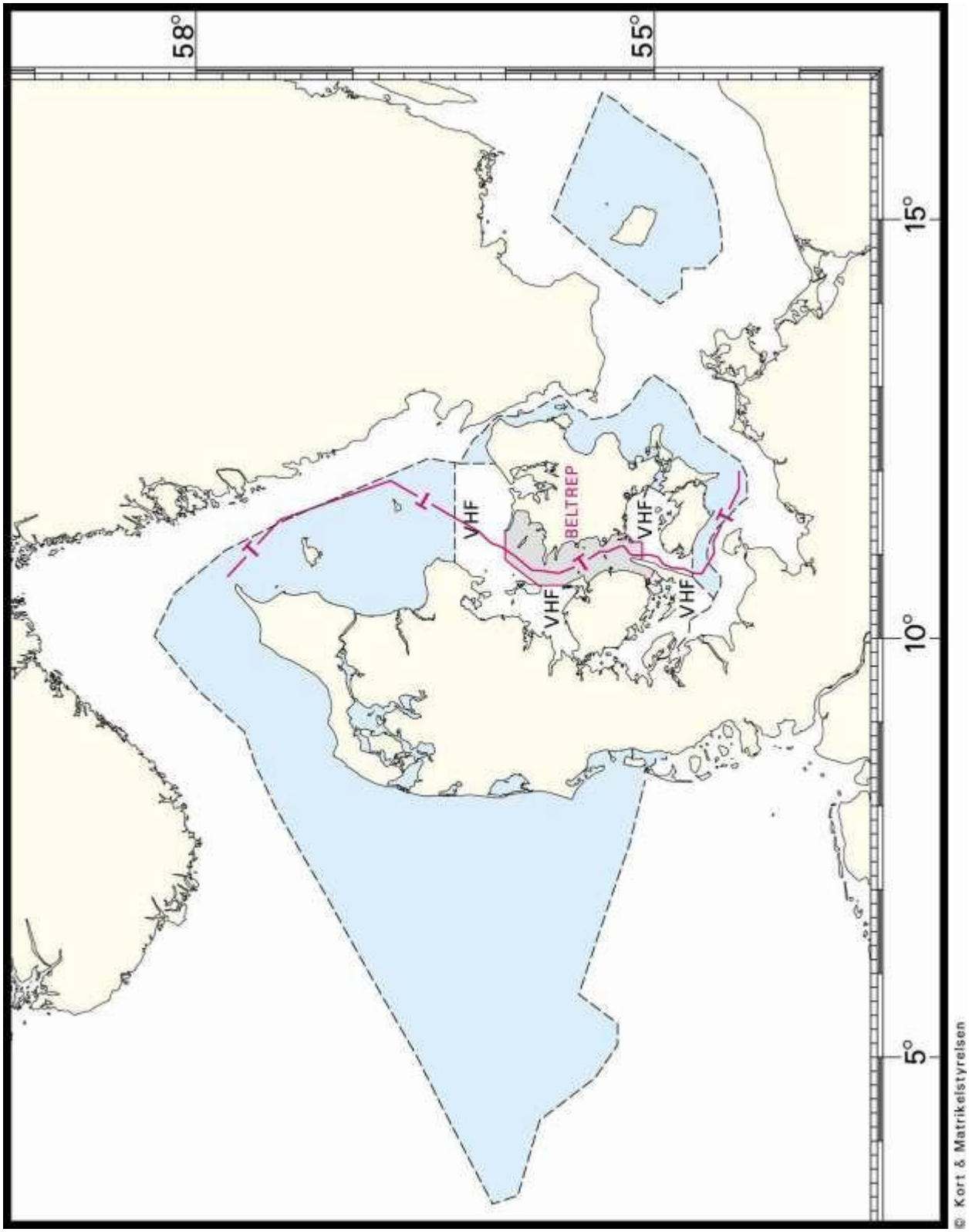
9.3 All means will be used to encourage and promote the full participation of ships required to submit reports under SOLAS regulation V/11. If reports are not submitted or contraventions are made of the safety regulations in sections 6.5.1 and 6.5.2 for passing the bridges and the offending ship can be positively identified, then information will be passed to the relevant flag State Authority for investigation and possible prosecution in accordance with national legislation. Information will also be made available to port State Control inspectors. With regard to liability certificates, this action should be taken only if the flag State is party to the relevant Conventions.

APPENDIX 1-A



APPENDIX 1-B

PRE-ENTRY REPORTING AREAS – DANISH EEZ



APPENDIX 2

CONTACT INFORMATION AND ASSIGNED VHF CHANNELS FOR SECTORS IN THE MANDATORY SHIP REPORTING SYSTEM "BELTREP"

BELTREP radio call sign:	**"Belt Traffic"**

VHF Channels	**Operational use**
VHF Channel 74	Great Belt VTS – Sector 1 North
VHF Channel 11	Great Belt VTS – Sector 2 South
VHF Channel 10	Great Belt VTS – Broadcast, individual assistance, reserve channel
VHF Channel 16	Great Belt VTS – Continuous monitoring

The Great Belt VTS operating BELTREP is located in Korsør at the bridge area:

H24 contact information:

1 Great Belt VTS is monitoring VHF channels 74, 11 and 16 continuously.
2 Duty officer phone: +45 58 37 68 68
3 Fax: +45 58 37 28 19
4 MMSI: 002190001
5 Email: beltrep@sok.dk Web page: www.beltrep.org

Address:

Great Belt VTS Sylowsvej 8
DK – 4220 Korsør Denmark

APPENDIX 3

DRAFTING OF REPORTS TO THE MANDATORY SHIP REPORTING SYSTEM "BELTREP"

Summary:
Reporting is to be done by VHF, but can also be accomplished partly by the use of AIS and pre-entry non-verbal means as, e.g. email.

- Correct and updated AIS information can accomplish reporting of designators A, B, C, E, F, G and I, O and W.

- Non-verbal means can accomplish reporting of designators (A, H), L, P, T and X.

- VHF must as a minimum be used for accomplishing designators A (part of) and U. The scheme below gives the optimal use of reporting combined by AIS, non-verbal and VHF.

1 Designator	2 AIS	3 Non-verbal (e.g. email)	4 VHF	5 Function	6 Information required
A	Yes	Yes	Yes	Ship	1) Name of ship: AIS, non-verb, VHF 2) MMSI number: AIS 3) Call sign: AIS – and when available – 4) IMO number: AIS, non-verbal
B	Yes	-	-	Date and time	A 6-digit group event giving day of month and hours and minutes in Universal Coordinated Time (UTC).
C	Yes	-	-	Position	A 5-digit group giving latitude in degrees and minutes, decimal, suffixed with N and a 6-digit group giving longitude in degrees and minutes, decimal, suffixed with E.
E	Yes	-	-	True course	A 3-digit group
F	Yes	-	-	Speed in knots and tenths of knots	A 3-digit group
G and **I**	Yes	-	-	Last port of call Destination and ETA	The name of last port of call and next port of call; both given in UN LOCODE by AIS. For details and procedures see IMO SN/Circ.244 and www.unece.org/cefact/locode/service/main.htm. ETA date and time group expressed as in (B)
H	-	Yes	-	Date, time (UTC) and report line of entry into the BELTREP area	This information is only required if reporting designators L, P, T and X are transmitted non-verbally (e.g. email) prior to entry of the BELTREP

1 Designator	2 AIS	3 Non-verbal (e.g. email)	4 VHF	5 Function	6 Information required
L	-	Yes	-	Route information in the BELTREP area	A brief description of the intended route in the BELTREP area as planned by the master and stated by coded designators as given below (see also chartlet in appendix 1-A for references): Report lines: RN – *report line North* RW – *report line West* RS – *report line South* RSW – *report line Southwest* Routeing systems: DW-T3 – *Deep-water Hatter* TSS-T5 – *Separation At Hatter Barn* Bridges: BE – *East bridge/Route T* BW – *West bridge* Routeing system: DW-T4 – *Deep-water Langeland* Route: RH – *Route Hotel* Anchorage – Kalundborg Fjord KAL FJ See examples below.
O	Yes	-	-	Maximum present draught in metres	A 2-digit or 3-digit group giving the present maximum draught in metres (e.g. 6.1 or 10.4).
P	-	Yes	-	Cargo on board	Cargo and, if dangerous goods present on board, quantity and IMO class. Dangerous goods information must be summarized in total tonnes per IMO class when transmitted.
Q or **R**	-	-	Yes	Defects and deficiencies Pollution or dangerous goods overboard	Q: Details of defects and deficiencies affecting the equipment of the ship or any other circumstances affecting normal navigation and manoeuvrability. R: Pollution or dangerous goods lost overboard.
T	-	Yes	-	Ship's representative and/or owner	Address and particulars from which detailed information on the cargo may be obtained.
U	-	-	Yes	Ship's size	Information of maximum air draught and deadweight tonnage, required for all ships, including ship's tow or other floating equipment. This information shall be given by voice transmissions when entering the BELTREP area, irrespective of whether the information has also been given by, e.g. non-verbal means.

1 Designator	2 AIS	3 Non-verbal (e.g. email)	4 VHF	5 Function	6 Information required
W	Yes	-	-	Total number of persons on board	State number
X	-	Yes	-	Miscellaneous	- Type and estimated quantity of bunker fuel, for ships of 1,000 gross tonnage and above. Must be summarized in total tonnes per type when transmitted. - One or more Convention certificates of insurance issued by a party to the Conventions and carried on board the ship, providing evidence of existence of insurance for maritime claims, as well as civil liability certificates, as applicable, issued in accordance with: • the International Convention on Civil Liability for Oil Pollution Damage, 1992, as amended (1992 Civil Liability Convention); • the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (2001 Bunkers Convention); and, • the Nairobi International Convention on the Removal of Wrecks, 2007 (2007 Nairobi WRC).

Examples of reporting route, coded in the format as given under designator L

1) A northbound ship leaving the port of Gulfhavn planning to sail north route T via deep-water route "Between Hatter Rev and Hatter Barn" leaving at report line North (UN LOCODE format for Gulfhavn is DK GFH):

L: DK GFH, BE, DW-T3, RN

2) A southbound ship in passage and planning to enter at report line North, sailing through TSS "At Hatter Barn", then route T, route H and leaving at report line South:

L: RN, TSS-T5, BE, RH, RS

3) *A northbound ship entering via deep-water route "Off the east coast of Langeland", route Tango, East Bridge and leaving through report line West, bound for the port of Fredericia:*

L: RS, DW-T4, BE, RW

4) A ship entering at report line North sailing via TSS "At Hatter Barn", route T and then anchoring in Kalundborg fjord:

L: RN, TSS-T5, KAL FJ

***

ANNEX 5

DRAFT AMENDMENTS TO SOLAS REGULATIONS IV/5, V/4 AND V/5

CHAPTER IV
RADIOCOMMUNICATIONS

Part B
Undertakings by Contracting Governments

Regulation 5

Provision of radiocommunication services

1 The following new paragraph is added after the existing paragraph 2:

"3 Each Contracting Government undertakes to use all operational recognized mobile satellite services in their area of responsibility when disseminating maritime safety information and search and rescue related information via the Enhanced Group Call Service."

CHAPTER V
SAFETY OF NAVIGATION

Regulation 4

Navigational Warnings

2 Regulation 4 is amended, as follows:

"Each Contracting Government shall take all steps necessary to ensure that, when intelligence of any danger is received from whatever reliable source, it shall be promptly brought to the knowledge of those concerned and communicated to other interested Governments, with due regard to regulation IV/5.3*.

* Refer to the *Guidance on the IMO/IHO World-Wide Navigational Warning Service* (resolution A.706(17), as amended)."

Regulation 5

Meteorological services and warnings

3 The chapeau of paragraph 2 is amended, as follows:

"2 In particular, Contracting Governments undertake to carry out, in cooperation, the following meteorological arrangements, with due regard to regulation IV/5.3."

APPENDIX 1

CHECK/MONITORING SHEET FOR THE PROCESS OF AMENDING THE CONVENTION AND RELATED MANDATORY INSTRUMENTS (PROPOSAL/DEVELOPMENT)

Part III – Process monitoring to be completed during the work process at the Sub-Committee and checked as part of the final approval process by the Committee (refer to paragraph 3.2.1.3)

1	The Sub-Committee, at an initial engagement, has allocated sufficient time for technical research and discussion before the target completion date, especially on issues needing to be addressed by more than one sub-committee and for which the timing of relevant sub-committees meetings and exchanges of the result of consideration needed to be carefully examined.	N/A
2	The scope of application agreed at the proposal stage was not changed without the approval of the Committee.	N/A
3	The technical base document/draft amendment addresses the proposal's issue(s) through the suggested instrument(s); where it does not, the Sub-Committee offers the Committee an alternative method of addressing the problem raised by the proposal.	Yes
4	Due attention has been paid to the *Interim guidelines for the systematic application of the grandfather clauses* (MSC/Circ.765-MEPC/Circ.315).	N/A
5	All references have been examined against the text that will be valid if the proposed amendment enters into force.	Yes
6	The location of the insertion or modified text is correct for the text that will be valid when the proposed text enters into force on a four-year cycle of entry into force, as other relevant amendments adopted might enter into force on the same date.	Yes
7	There are no inconsistencies in respect of the scope of application between the technical regulation and the application statement contained in regulation 1 or 2 of the relevant chapter, and application is specifically addressed for existing and/or new ships, as necessary.	Yes
8	Where a new term has been introduced into a regulation and a clear definition is necessary, the definition is given in the article of the Convention or at the beginning of the chapter.	N/A
9	Where any of the terms "fitted", "provided", "installed" or "installation" are used, consideration has been given to clarifying the intended meaning of the term.	N/A
10	All necessary related and consequential amendments to other existing instruments, including non-mandatory instruments, in particular to the forms of certificates and records of equipment required in the instrument being amended, have been examined and included as part of the proposed amendment(s).	Yes
11	The forms of certificates and records of equipment have been harmonized, where appropriate, between the Convention and its Protocols.	N/A

12	It is confirmed that the amendment is being made to a currently valid text and that no other bodies are concurrently proposing changes to the same text.	Yes
13	All entry-into-force criteria (building contract, keel laying and delivery) have been considered and addressed.	N/A
14	Other impacts of the implementation of the proposed/approved amendment have been fully analysed, including consequential amendments to the "application" and "definition" regulations of the chapter.	Yes
15	The amendments presented for adoption clearly indicate changes made with respect to the original text, so as to facilitate their consideration.	Yes
16	For amendments to mandatory instruments, the relationship between the Convention and the related instrument has been observed and addressed, as appropriate.	Yes
17	The related record format has been completed or updated, as appropriate.	Yes

RECORD FORMAT

The following records should be created and kept updated for each regulatory development.

The records can be completed by providing references to paragraphs of related documents containing the relevant information, proposals, discussions and decisions.

1 Title (number and title of regulation(s))
Draft amendments to SOLAS regulations IV/5, V/4 and V/5
2 Origin of the requirement (original proposal document)
NCSR 11 instructed the Joint IMO/ITU Experts Group, at its twentieth meeting, to prepare draft amendments to the SOLAS Convention, including any necessary consequential amendments to related instruments, to state clearly the requirement for dissemination of maritime safety information and search and rescue related information through all operational recognized mobile satellite services as soon as possible. The Joint IMO/ITU Experts Group, at its twentieth meeting, prepared draft amendments to SOLAS regulations IV/5, V/4 and V/5 for consideration by NCSR 12.
3 Main reason for the development (extract from the proposal document)
By introducing new recognized mobile satellite services, it needs to clearly state the requirement for dissemination of maritime safety information and search and rescue related information through all operational recognized mobile satellite services.
4 Related output
"Developments in GMDSS services, including guidelines on maritime safety information (MSI)"
5 History of the discussion (approval of work programmes, sessions of sub-committees, including CG/DG/WG arrangements)
NCSR 11 instructed the Joint IMO/ITU Experts Group, at its twentieth meeting, to prepare draft amendments to the SOLAS Convention, including any necessary consequential amendments to related instruments, to state clearly the requirement for dissemination of maritime safety information and search and rescue related information through all operational recognized mobile satellite services as soon as possible.

The Joint IMO/ITU Experts Group, at its twentieth meeting, prepared draft amendments to SOLAS regulations IV/5, V/4 and V/5 for consideration by NCSR 12.
6 Impact on other instruments (codes, performance standards, guidance circulars, certificates/records format, etc.)
Res.A.705(17), as amended, Res.A.706(17), as amended, Res.A.1051(27), as amended, MSC.1/Circ.1310/Rev.2, MSC.1/Circ.1364/Rev.2, MSC.1/Circ.1613/Rev.2, MSC.1/Circ.1645, MSC.1/Circ.1659
7 Technical background
7.1 Scope and objective (to cross-check with items 4 and 5 in part II of the checklist)
Not applicable
7.2 Technical/operational background and rationale (e.g. summary of FSA study, if available, or engineering challenge posed)
Not applicable
7.3 Source/derivation of requirement (non-mandatory instrument, industry standard, national/regional requirement)
Not applicable
7.4 Short summary of requirement (what is the new requirement – in short and lay terms)
Addition of a statement for the requirement for dissemination of maritime safety information and search and rescue related information through all operational recognized mobile satellite services
7.5 Points of discussions (controversial points and conclusion)
Not applicable

APPENDIX 2

CHECKLIST FOR THE IDENTIFICATION OF CAPACITY-BUILDING IMPLICATIONS

1 For Administrations

☐ Is new legislation required? No.

☐ Is there a requirement for new equipment and/or systems? No

- Does equipment manufacturing capacity exist internationally?
- Do equipment repair/servicing facilities exist internationally?
- Is there capacity to develop new systems?

☐ Will the implementation require additional financial resources? No

☐ Is there a need for additional human resources or new skills? No

☐ Will there be a need to upgrade current infrastructure? Maybe

☐ Is there enough lead time towards implementation? Yes

☐ Will a rapid implementation procedure be adopted? No

☐ Is there a substantial modification of existing standards? No

☐ Will a guide to implementation be needed? No

2 For the industry

☐ Would the industry require new and/or enhancement of existing systems? Maybe

- Does capacity exist internationally to develop new systems? Yes

☐ Is there a need for additional training of seafarers? No

- Do related and validated training courses exist?
- Are sufficient simulation training courses available internationally?

☐ Will there be a requirement for new equipment? No

- Does manufacturing capacity exist internationally?

☐ Is there repair/servicing and/or retrofitting and does maintenance capacity exist internationally? Yes

***

ANNEX 6

DRAFT RESOLUTION MSC.509(105)/REV.2

PROVISION OF RADIO SERVICES FOR THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

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 the Assembly, at its nineteenth session, adopted resolution A.801(19) on *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)*, authorizing the Maritime Safety Committee to keep the resolution under review and to adopt amendments thereto, as necessary,

RECALLING FURTHER resolution MSC.509(105), by which it adopted, at its 105th session, a revision of resolution A.801(19), as amended by resolution MSC.199(80), superseding the latter resolutions from 1 January 2024,

RECALLING resolution MSC.509(105)/Rev.1, adopted at its 109th session, which introduced a new annex on Criteria for use when providing a NAVDAT service, superseding resolution MSC.509(105),

TAKING INTO ACCOUNT the amendments to chapters IV and V of the Convention for the Safety of Life at Sea, 1974 ("the Convention"), adopted by resolution MSC.[…(…)],

NOTING, in particular, regulation IV/5 of the Convention concerning the provision of radiocommunication services,

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

1 ADOPTS the revised *Recommendation on provision of radio services for the GMDSS*, the *Criteria for use when providing shore-based digital selective calling (DSC) facilities for use in the GMDSS*, the *Criteria for establishing GMDSS sea areas*, the *Criteria for use when providing a NAVTEX service*, the *Criteria for use when providing a NAVDAT service* and the *Criteria for use when providing an international Enhanced Group Call service in the GMDSS,* set out in annexes 1 to 6, respectively, to the present resolution;

2 RECOMMENDS that Governments ensure that provision of radio services for the GMDSS established on or after the date of adoption of the present resolution conforms to criteria not inferior to those set out in the annexes to the present resolution;

3 INVITES Governments to:

.1 provide, either individually or in cooperation with other Governments, the radio services deemed practicable and necessary for the proper operation of the GMDSS; and

.2 inform the Secretary-General of the shore-based facilities to be provided in support of the GMDSS in response to this resolution through the Organization's Global Integrated Shipping Information System (GISIS);

4 REVOKES resolution MSC.509(105)/Rev.1.

ANNEXES 1 TO 5

(Annexes 1 to 5 to resolution MSC.509(105)/Rev.1 should be inserted here.)

ANNEX 6

CRITERIA FOR USE WHEN PROVIDING AN INTERNATIONAL ENHANCED GROUP CALL SERVICE IN THE GMDSS

1 The following criteria should be taken into consideration for the broadcast of maritime safety information (MSI) by MSI providers, and the broadcast of search and rescue (SAR) related information by SAR authorities.

Maritime safety information

2 Contracting Governments should ensure that MSI broadcast via Enhanced Group Call (EGC) is appropriately disseminated through all operational recognized mobile satellite services (RMSS) providing coverage within their areas of responsibility. This will ensure that all ships navigating within those areas receive the information regardless of the type of the EGC equipment installed on board.

3 MSI providers should obtain an authorization from the relevant international organization to access EGC services directly.

SAR-related information

4 Contracting Governments should ensure that SAR-related information is appropriately disseminated through all operational RMSSs providing coverage within the SAR regions under their responsibility. This will ensure that all ships navigating within those areas receive the information regardless of the type of EGC equipment installed on board.

5 SAR authorities requiring to disseminate information through RMSSs should either:

.1 establish arrangements with an existing authorized EGC information provider that can disseminate the information on their behalf; or

.2 obtain an authorization from the IMO EGC Coordinating Panel to access EGC services directly, including through their designated rescue coordination centres (RCCs).

6 Guidance for the dissemination of SAR-related information through the international EGC service is provided in MSC.1/Circ.1659, as may be revised.

Obtaining an authorization to access EGC services directly

7 The processes for authorization, certification and registration of EGC information providers are described in MSC.1/Circ.1635, annex 2. These processes have been established to protect the integrity of the international EGC service and the GMDSS.

***

ANNEX 7

DRAFT IMO POSITION ON ITU WRC-27 AGENDA ITEMS CONCERNING MATTERS RELATING TO MARITIME SERVICES

General

Maritime transport serves as the main artery of global trade and the backbone of international commerce. Maritime trade volumes reached 12,292 million tons in 2023 and it is predicted to increase by an average annual rate of 2.4% between 2025 and 2029. This growth will be further supported by technological advancements, the transition to cleaner energy and infrastructure developments.

However, ensuring consistent growth in maritime trade and future-proofing of global supply chains depends on strengthening the maritime industry as a whole. Achieving more robust, reliable and resilient maritime industry requires, inter alia, strong regulatory arrangements established by international bodies such as IMO and ITU, which jointly play a key role in ensuring safe, secure, environmentally friendly and efficient maritime operations.

Harmonized communication standards, spectrum management, and digitalization initiatives supported by ITU 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 1.2

1.2 to consider possible revisions of sharing conditions in the frequency band 13.75-14 GHz to allow the use of uplink fixed-satellite service earth stations with smaller antenna sizes, in accordance with Resolution **129 (WRC-23)**;

Background

Vessel traffic services use radars operating in the frequency band 13.75-14 GHz under the radiolocation and radionavigation services. The protection of these services relies on the application of antenna size limitation and of power limits at the low-water mark and at the border of national territories.

This agenda item considers possible relaxations to those antenna size and power limits, under the condition of ensuring the protection of the radiolocation and radionavigation services.

Actions to be taken

To monitor studies (the responsible group is ITU-R WP 4A)

Draft IMO position

To ensure that any change to the regulatory provisions and technical conditions resulting from this agenda item does not adversely impact shipborne and shore-based radars operating under the radionavigation and radiolocation services.

Agenda item 1.5

1.5 to consider regulatory measures, and implementability thereof, to limit the unauthorized operations of non-geostationary-satellite orbit earth stations in the fixed-satellite and mobile-satellite services and associated issues related to the service area of non-geostationary-satellite orbit satellite systems in the fixed-satellite and mobile-satellite services, in accordance with Resolution **14 (WRC-23)**;

Background

This agenda item addresses the following issues:

- regulatory measures to limit unauthorized operations of non-GSO earth stations operating in the Earth-to-space direction in the fixed-satellite and mobile-satellite services; and

- regulatory measures allowing to exclude administration's territory from the service area of a non-GSO satellite system without adversely affecting the rest of the service area of such system.

Concerning the first issue above, the existing ITU-R regulatory measures under Article 18 of the Radio Regulations and Resolutions **22 (Rev.WRC-23)** and **25 (Rev.WRC-23)** address unauthorized Earth-to-space transmissions of non-GSO earth stations, and impose mandatory licensing and authorization obligations, while respecting the sovereignty and regulatory responsibilities of individual Member States, provide adequate frameworks for addressing Earth-to-space unauthorized operations of non-GSO earth stations.

Concerning the second issue, it is noted that ITU Member States have the right to exclude its territory from the service area of any non-GSO satellite system. Such exclusion of the territory of a country may negatively impact the provision of the services in the rest of the service area.

In this respect, there are a number of non-GSO systems providing critical communication services, including essential safety-of-life communications for maritime services, which could be potentially affected by the outcomes of this agenda item.

Actions to be taken

To monitor studies (the responsible group is ITU-R WP 4A)

Draft IMO position

It is important to avoid unnecessary overregulation and ensure that the regulatory measures adopted under this agenda item do not impose any additional constraints, nor negatively impact the continuity of essential communication services, particularly in emergency and distress scenarios.

Agenda item 1.9

1.9 to consider appropriate regulatory actions to update Appendix **26** to the Radio Regulations in support of aeronautical mobile (OR) high frequency modernization, in accordance with Resolution **411** (**WRC-23)**;

Background

RR Appendix **26** contains frequency allotment plan for the aeronautical mobile (Off-Route) service (AM(OR)S) in the bands between 3 025 kHz and 18 030 kHz. Currently, the utilization of this frequency plan is limited to narrow-band aeronautical systems with the bandwidth not exceeding 3 kHz.

This agenda item seeks to introduce "wideband" systems by combining both contiguous and non-contiguous channels within RR Appendix **26** and to identify any potential regulatory changes required to that Appendix. Agenda Item 1.9 shall not modify any existing frequency allotments. The current use of narrowband systems shall remain unchanged and not be impacted by any revision of Appendix **26**.

RR Appendix **15**, which lists GMDSS frequencies, contains several frequencies located near the Appendix **26** bands. There are also 2 frequencies, namely 3 023 kHz and 5 680 kHz, which may be used by stations of the maritime mobile service engaged in coordinated search and rescue operations, pursuant to RR No. **5.115**. These two frequencies are included in Appendix **26**. There is a need to ensure the protection of those frequencies.

Actions to be taken

To monitor studies (the responsible group is ITU-R WP 5B)

Draft IMO position

Any regulatory changes to Appendix **26** should neither reduce protection of the carrier frequencies 3 023 kHz and 5 680 kHz used by stations of the maritime mobile service engaged in coordinated search and rescue operations nor negatively impact the operations of other Appendix **15** GMDSS frequencies.

Agenda item 1.11

1.11 To consider the technical and operational issues, and regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in the frequency bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, 1 670-1 675 MHz and 2 483.5-2 500 MHz allocated to the mobile-satellite service, in accordance with Resolution **249 (Rev.WRC-23)**;

Background

Frequencies for distress and safety communications for the Global Maritime Distress and Safety System (GMDSS) are listed in Appendix 15 of the Radio Regulations. Among them, the bands 1 530-1 544 MHz, 1 544-1 545 MHz, (1 614.4225-1 618.725 or 1 616.3-1 620.38 MHz)[Note 1], 1 621.35-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 645.5-1 646.5 MHz and 2 483.59-2 499.91 MHz are overlapping with or adjacent to the bands considered under WRC-27 agenda item 1.11.

Note 1: According to resolves 5 of Resolution **365 (WRC-23)**) a review of these frequency bands in Appendix **15** and some other RR provisions in the Earth-to-space direction for GMDSS shall be conducted at the first World Radiocommunication Conference following the completion of coordination of the GSO satellite system (Beidou) with the relevant non-GSO systems prior to the commencement of GMDSS services.

Actions to be taken

To monitor studies (the responsible group is ITU-R WP 4C)

Draft IMO position

The integrity of GMDSS should be protected.

IMO supports the development of appropriate technical and regulatory provisions at WRC-27 to address Resolution **249 (Rev. WRC-23)** and provide for accommodating space-to-space links in the frequency bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, 1 670-1 675 MHz and 2 483.5-2 500 MHz while ensuring the protection of, and without imposing additional regulatory or technical constraints on, maritime safety services in these bands and adjacent frequency bands.

Agenda item 1.12

1.12 to consider, based on the results of studies, possible new allocations to the mobile-satellite service and possible regulatory actions in the frequency bands 1 427-1 432 MHz (space-to-Earth), 1 645.5-1 646.5 MHz (space-to-Earth) (Earth-to-space), 1 880-1 920 MHz (space-to-Earth) (Earth-to-space) and 2 010-2 025 MHz (space-to-Earth) (Earth-to-space) required for the future development of low-data-rate non-geostationary mobile-satellite systems, in accordance with Resolution **252 (WRC-23)**;

Background

The L-Band satellite EPIRB service was withdrawn on 1 December 2006 and is no longer available for such use. Nevertheless, the frequency band 1 645.5-1 646.5 MHz is still in Appendix **15** to the RR which lists the frequencies for GMDSS and according to Article RR No. 5.375: The use of the frequency band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress, urgency and safety communications (see Article 31 of the Radio Regulations).

IMO position on WRC-23 agenda item 1.11 presented support for regulatory actions to ensure continued use of the L-Band frequencies for maritime operations and GMDSS following the removal of L-band EPIRBs.

Actions to be taken

To monitor studies and liaise with ITU-R WP 4C (the responsible group for this agenda item)

Draft IMO position

To retain the frequency band 1 645.5-1 646.5 MHz for the use of GMDSS.

Agenda item 1.16

1.16 to consider studies on the technical and regulatory provisions necessary to protect radio astronomy operating in specific Radio Quiet Zones, and in frequency bands allocated to the radio astronomy service on a primary basis globally, from aggregate radio-frequency interference caused by non-geostationary-satellite orbit systems, in accordance with Resolution **681 (WRC-23)**;

Background

This agenda item addresses the protection of radioastronomy from unwanted emissions of non-GSO satellite systems operating in the frequency bands adjacent and immediately adjacent to the following bands: 10.7 – 10.95 GHz, 42 – 42.5 GHz, 74 – 76 GHz, 95 – 100 GHz, 116 – 119.98 GHz, 123 – 130 GHz. Satellite communications supported by non-GSO satellites networks operating in bands listed in table 1 of Resolution **681 (WRC-23)** are used for maritime activities.

Actions to be taken

To monitor studies (the responsible group is ITU-R WP 7D)

Draft IMO position

IMO supports regulatory provisions to protect radio astronomy operation in specific Radio Quiet Zones, and in frequency bands allocated to the Radio Astronomy Service (RAS) on a primary basis without putting undue constraints on non-GSO satellites networks providing maritime services.

Agenda item 1.19

1.19 to consider possible primary allocations in all Regions to the Earth exploration-satellite service (passive) in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz, in accordance with Resolution **674 (WRC-23)**;

Background

Sea surface temperature measurements are important for detecting and forecasting meteorological events that drastically impact the safety and security of maritime activities.

Actions to be taken

To monitor studies (the responsible group is ITU-R WP 7C)

Draft IMO position

IMO supports appropriate regulatory provisions to safeguard the operation of Earth exploration satellite service (EESS) (passive) to perform sea surface temperature measurements, possibly with a new EESS primary allocation in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz.

Agenda item 2

2 to examine the revised ITU Radiocommunication Sector 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.

Actions to be taken:

None identified

Draft IMO position

1 IMO has examined the Recommendations of relevance and commented on each as given in Annex 1;

2 Incorporation by reference is of importance to IMO because of the close relationship between the ITU-R Recommendations related to GMDSS equipment and their operation and the related IMO performance standards; and

3 IMO requests an early indication of any changes proposed by ITU to the mechanism of incorporation by reference and to the list of incorporated ITU-R 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 a number of Resolutions and Recommendations in the Radio Regulations.

Actions to be taken:

None identified

Draft IMO position

IMO has reviewed 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;

9.1 on the activities of the Radiocommunication Sector since WRC-23:

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and

9.3 on action in response to Resolution **80 (Rev.WRC-07)**;

Agenda item 10

10 to recommend to the ITU Council items for inclusion in the agenda for the next world radiocommunication conference, and items for the preliminary agenda of future conferences, in accordance with Article 7 of the ITU Convention and Resolution **804 (Rev.WRC-23)**,

Background

WRC-23 developed a preliminary agenda for the 2031 world radiocommunication conference (WRC-31) as contained in Resolution **814 (WRC-23)**. Agenda Item 2.7 listed below is important for the development of maritime communication systems. The inclusion of Agenda Item 2.7 was supported by IMO in its Position on WRC-23 for inclusion in the preliminary agenda for WRC-31.

"2.7 to consider improving the utilization of VHF maritime radiocommunication, in accordance with Resolution **363 (Rev.WRC-23)**"

IMO has initiated considerations to develop a transition scheme for the introduction of digital technology for very high frequency (VHF) voice communications with a target completion year of 2027.

IMO has noted that the preliminary agenda for WRC-31 includes an item on maritime HF communications under agenda item 2.8.

Actions to be taken:

None identified

Draft IMO position

IMO supports the inclusion of the issue of improving the utilization of VHF maritime radiocommunication in the agenda of WRC-31.

ANNEX 1

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. Likely to be needed by the maritime community in 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)

Needed by IMO to support the reception of MSI by ships as required by SOLAS chapter IV.

RECOMMENDATION ITU-R M.541-11
Operational procedures for the use of digital selective-calling equipment in the maritime mobile service
(1978-1982-1986-1990-1992-1994-1995-1996-1997-2004-2015-2023)

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

RECOMMENDATION ITU-R M.585-9
Assignment and use of identities in the maritime mobile service
(1982-1986-1990-2003-2007-2009-2012-2015-2022)

Required by IMO and useful for the maritime community.

RECOMMENDATION ITU-R M.633-5
Transmission characteristics of a satellite emergency position-indicating radio beacon (satellite EPIRB) system operating through a satellite system in the 406 MHz band
(1986-1990-2000-2004-2010-2023)

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)

Used by IMO to define the homing signal characteristics for the 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.1171-1
Radiotelephony procedures in the maritime mobile service
(1995-2023)

Required by IMO and the maritime community.

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 in 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 for IMO.

RECOMMENDATION ITU-R M.1652-1
Dynamic frequency selection in wireless access systems including radio local area networks for the purpose of protecting the radiodetermination service in the 5 GHz band
(2003-2011)

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-23)
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-23)
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 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 radiocommunication operations between SOLAS ships and non-SOLAS ships.

RESOLUTION 344 (REV.WRC-19)
Management of the maritime identity numbering resource

Retain.

RESOLUTION 349 (REV.WRC-23)
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 (REV. WRC-23)
Distress and safety radiotelephony procedures for 2 182 kHz

Retain.

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

Retain.

RESOLUTION 363 (REV. WRC-23)
Considerations to improve utilization of the VHF maritime frequencies in Appendix 18

Retain. The item is in the preliminary agenda for WRC-31.

RESOLUTION 364 (WRC-23)
Coordination of services provided by the NAVDAT system

Retain.

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 (REV. WRC-23)
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 8

DRAFT MSC.1/CIRC.1657/REV.1

PROCEDURE FOR RESPONDING TO DSC DISTRESS ALERTS BY SHIPS

1 The Maritime Safety Committee, at its [111th] session ([date]), approved the revised *Procedure for responding to DSC distress alerts by ships,* as set out in the annex, prepared by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR), at its twelfth session (13 to 22 May 2025).

2 This circular contains a procedure to be followed by radio personnel on board ships when responding to DSC distress alerts on the appropriate VHF, MF and HF channels, in accordance with chapter IV of the International Convention for the Safety of Life at Sea, 1974. Flow diagrams 1 and 2 in the annex are recommended to be displayed on ships' bridges as A4 size posters.

3 Member States are invited to bring the annexed Procedure to the attention of seafarers and all other parties concerned.

4 This circular supersedes MSC.1/Circ.1657.

ANNEX

PROCEDURE FOR RESPONDING TO DSC DISTRESS ALERTS BY SHIPS

1 Introduction

This document provides a procedure for responding to distress alerts on the appropriate VHF, MF and HF channels, given in flow diagrams 1 and 2, which are recommended to be displayed on the ship's bridge as A4 size posters. It also provides the following guidance.

2 Distress alert relays

2.1 Radio personnel serving on ships should be made aware of the consequences of transmitting a distress alert relay and of routeing a distress alert relay to destinations other than coast stations (CS).

2.2 The number of unintended activations of DSC distress alerts and DSC distress alert relays creates extra workload and confusion for (M)RCCs and also causes delay in the response-time. The original distress alert from a ship in distress should not be disrupted by other ships, by transmitting a DSC distress alert relay.

2.3 Recommendation ITU-R M.541 on *Operational procedures for the use of digital selective-calling equipment in the maritime mobile service* identifies only two situations in which a ship would transmit a distress call relay (distress alert relay):

.1 on receiving an HF DSC distress alert, which is not acknowledged by a coast station within five minutes, the ship should inform a coast station or a rescue coordination center and, if instructed by the coast station or the rescue coordination center, transmits the distress alert relay (annex 1, paragraph A1-3.4.2 and annex 3, paragraph A3-6.1.4); and

.2 on knowing that another ship in distress is not itself able to transmit the distress alert and the master of the ship considers that further help is necessary. The distress alert relay should preferably be addressed to an individual coast station or rescue coordination centre (annex 3, paragraph A3-1.4.2).

2.4 In no case is a ship permitted to transmit an all ships DSC distress alert relay on receipt of a DSC distress alert on either VHF or MF channels.

2.5 Distress alert relay on HF channels should be initiated manually.

2.6 Compliance with operational and technical provisions above would prevent transmissions of inappropriate distress alert relays.

3 All coast stations call

3.1 Recommendation ITU-R M.493 on *Digital selective-calling system for use in the maritime mobile service* provides for calling a group of stations having a common interest (i.e. "group calls"). In this context, Recommendation ITU-R M.585 on *Assignment and use of identities in the maritime mobile service* defines the following group call coast station identities:

.1 $0_1 0_2 M_3 I_4 D_5 X_6 X_7 X_8 X_9$: group coast station identity assigned by an administration;

.2 $0_1 0_2 M_3 I_4 D_5 0_6 0_7 0_8 0_9$: reserved for *all* $0_1 0_2 M_3 I_4 D_5 X_6 X_7 X_8 X_9$ identities assigned by an administration;

.3 $0_1 0_2 9_3 9_4 9_5 0_6 0_7 0_8 0_9$: reserved for the all-coast stations identity and addresses all VHF 00XXXXXX stations (it is not applicable to MF or HF coast stations).

3.2 A number of Administrations have already assigned a "group call" MMSI to their coast stations in addition to the coast station's individual MMSI. For the purpose of the GMDSS, the details of these MMSI assignments should be made available on a 24 hours per day 365 days per year basis to authorized entities such as, but not limited to, RCCs.

3.3 By multilateral agreements, a "group call" MMSI could be assigned to all coast stations within a specific region, e.g. an RCC area, and could comply with IMO's requirement without need of introducing further modifications to GMDSS equipment.

4 Authorization

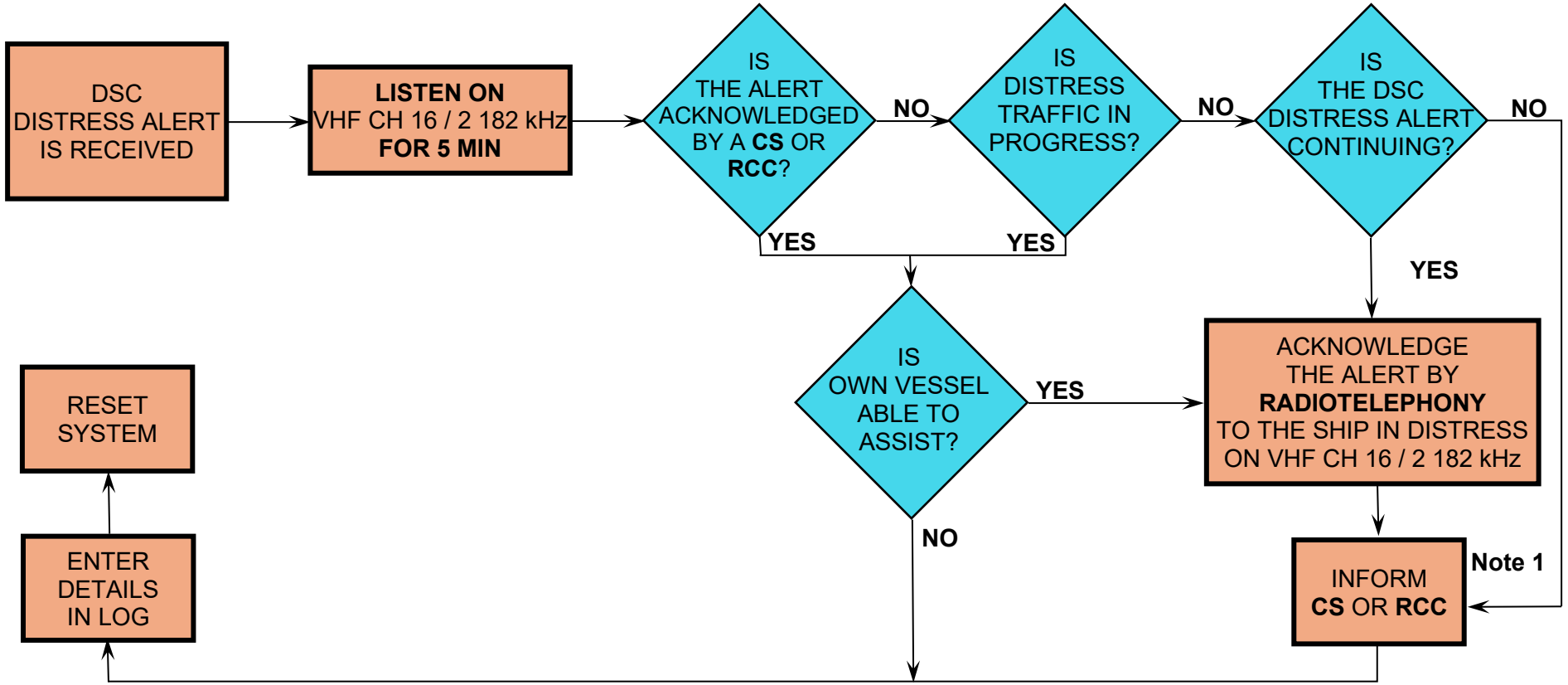
It should be noted that on ships, distress alerts, distress alert acknowledgements and distress alert relays can only be transmitted with the permission of the master of the ship.

5 Flow diagrams

5.1 The enclosed flow diagrams 1 and 2 describe actions to be taken aboard ships upon receipt of DSC distress alerts from other ships.

FLOW DIAGRAM 1

ACTIONS BY SHIPS UPON RECEPTION OF A **VHF / MF** DSC DISTRESS ALERT



REMARKS:

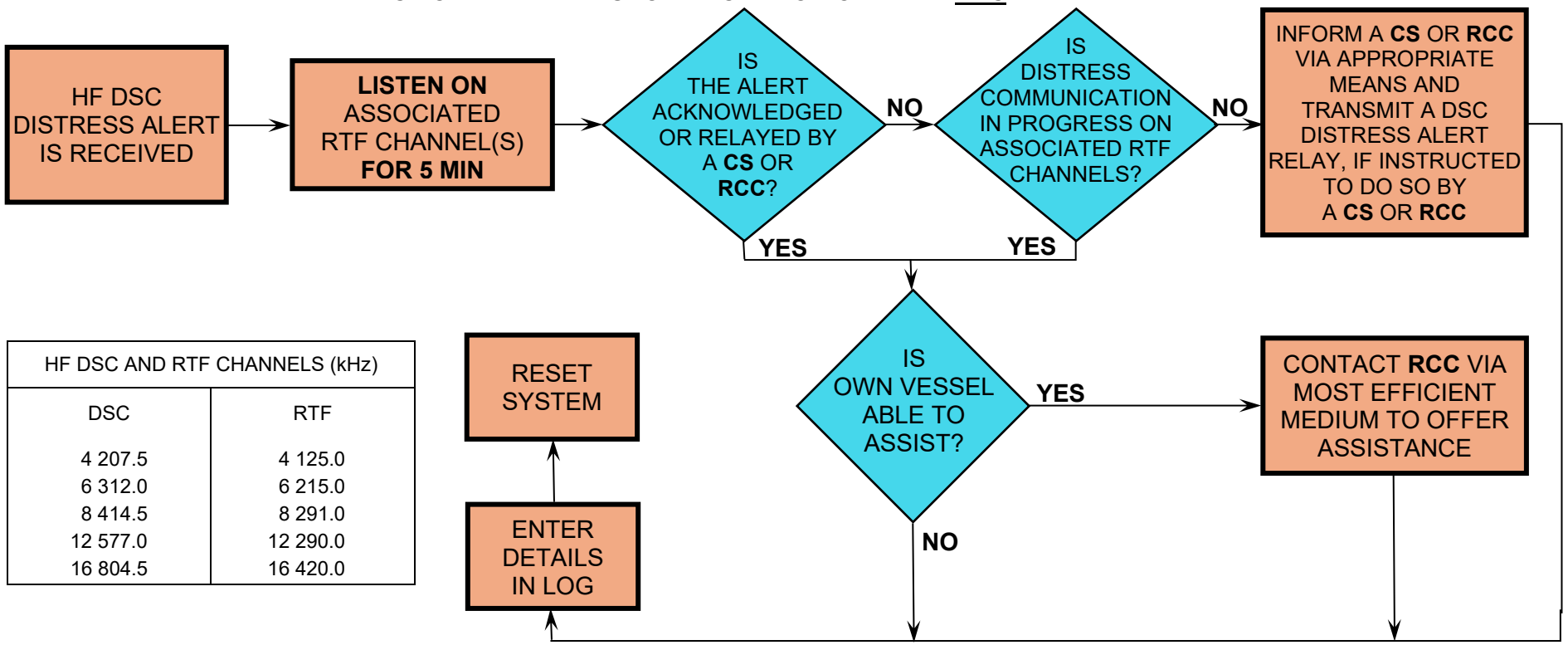
Note 1: An appropriate coast station or RCC should be informed accordingly. If further DSC distress alerts are received from the same station and the ship in distress is beyond doubt in the vicinity, a DSC acknowledgement may be transmitted to terminate the call, only if directed to do so by a coast station or RCC.

Note 2: In no case is a ship permitted to transmit an all ships DSC distress alert relay on receipt of a DSC distress alert on either VHF channel 70 or MF channel 2 187.5 kHz.

CS = coast station RCC = rescue coordination centre

FLOW DIAGRAM 2

ACTIONS BY SHIPS UPON RECEPTION OF AN **HF** DSC DISTRESS ALERT



HF DSC AND RTF CHANNELS (kHz)	
DSC	RTF
4 207.5	4 125.0
6 312.0	6 215.0
8 414.5	8 291.0
12 577.0	12 290.0
16 804.5	16 420.0

REMARKS:

NOTE 1: If it is clear the ship or persons in distress are not in the vicinity and/or other craft are better placed to assist, superfluous communications, which could interfere with search and rescue activities, are to be avoided. Details should be recorded in the appropriate logbook.

NOTE 2: The ship should establish communications with the station controlling the distress as directed and render such assistance as required and appropriate.

NOTE 3: Distress alert relays should be initiated manually.

CS = coast station

RCC = rescue coordination centre

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ANNEX 9

DRAFT MSC RESOLUTION

AMENDMENTS TO THE WORLDWIDE RADIONAVIGATION SYSTEM (RESOLUTION A.1046(27))

THE MARITIME SAFETY COMMITTEE,

RECALLING article 28(b) of the Convention on the International Maritime Organization regarding the functions of the Committee,

RECALLING ALSO resolution A.1046(27), by which the Assembly adopted the *Revised Report on the Study of a Worldwide Radionavigation System*,

RECALLING FURTHER resolution A.915(22), by which the Assembly adopted the *Revised maritime policy and requirements for a future global navigation satellite system (GNSS)*,

RECOGNIZING the need for a worldwide radionavigation system to provide ships with navigational position-fixing throughout the world,

RECOGNIZING ALSO the need for an augmentation system, where required, to provide ships with a higher accuracy than what may be provided by a stand-alone worldwide radionavigation system,

RECOGNIZING FURTHER that radionavigation and augmentation systems share common technical features, however they are different and separate systems,

RECOGNIZING that a radionavigation system as a stand-alone system allows a user equipped with the appropriate receiver to compute a positioning, navigation and timing (PNT) solution,

RECOGNIZING ALSO that an augmentation system cannot alone provide a position, however complements the radionavigation system by enhancing the accuracy of the computed PNT solution and providing integrity warnings,

RECOGNIZING FURTHER that resolution A.915(22), while acknowledging available augmentation techniques which enhance navigation performance, does not address the recognition of augmentation techniques for GNSS,

RECOGNIZING the need to amend the aforementioned revised report, and that by resolution A.1046(27), the Assembly requested the Maritime Safety Committee to keep the above-mentioned revised report under review for adjustment as necessary,

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

1 ADOPTS, as the revised IMO policy for the recognition and acceptance of suitable radionavigation systems intended for international use, the revised "Report on the Study of a Worldwide Radionavigation System", as set out in the annex to the present resolution, which revises in its entirety the existing text of the annex to resolution A.1046(27);

2 INVITES Governments to keep the Organization informed of the operational development of any suitable radionavigation systems conforming to the policy referred to above which might be considered by the Organization for use by ships worldwide;

3 INVITES ALSO Governments and organizations providing radionavigation systems to consent to recognition of these systems by the Organization;

4 INVITES FURTHER the Assembly to endorse the action taken by the Maritime Safety Committee.

ANNEX

~~REVISED~~ REPORT ON THE STUDY OF A WORLDWIDE RADIONAVIGATION SYSTEM

1 INTRODUCTION

1.1 Studies on a worldwide radionavigation system have been taking place since 1983. These studies have provided a basis on which chapter V of the 1974 SOLAS Convention has been amended to include a requirement for ships to carry means of receiving transmissions from suitable radionavigation systems throughout their intended voyage.

1.2 It is understood that the worldwide radionavigation system includes global and regional radionavigation systems and may include corresponding augmentations systems.

1.~~2~~3 The operational requirements for worldwide radionavigation systems and augmentation systems, which may have global or regional coverage, are given in the appendix.

1.~~3~~4 It is not considered feasible for IMO to fund a worldwide radionavigation system. Existing and planned systems which are being provided and operated by Governments or organizations have therefore been studied, in order to ascertain the conditions under which such systems might be recognized or accepted by IMO.

1.5 The *Revised Maritime Policy and Requirements for a Future Global Navigation Satellite System (GNSS)* (resolution A.915(22)) sets out that IMO will recognize a GNSS as a system which meets the carriage requirements for position-fixing equipment for a Worldwide Radionavigation System (WWRNS).

1.6 Although augmentation systems do not require recognition by IMO, when used by ships for position-fixing, they should also meet the operational requirements set out in the appendix to this document to be accepted by flag Administrations, and should be taken into account by organizations providing these augmentation services.

2 PROCEDURES AND RESPONSIBILITIES CONCERNING THE RECOGNITION OF SYSTEMS

2.1 Procedures and functions of IMO

2.1.1 The recognition by IMO of a radionavigation system would mean that the Organization recognizes that the system is capable of providing adequate position information within its coverage area and that the carriage of receiving equipment for use with the system satisfies the relevant requirements of the 1974 SOLAS Convention~~, as amended~~.

2.1.2 IMO should not recognize a radionavigation system without the consent of the Government or organization which has provided and is operating the system.

2.1.3 In deciding whether or not to recognize a radionavigation system, IMO should consider whether:

.1 the Government or organization providing and operating the system has stated formally that the system is operational and available for use by merchant shipping;

.2 its continued provision is assured;

.3 it is capable of providing position information within the coverage area declared by the Government or organization operating and providing the system with a performance not less than that given in the appendix;

.4 adequate arrangements have been made for publication of the characteristics and parameters of the system and of its status, including amendments, as necessary; and

.5 adequate arrangements have been made to protect the safety of navigation should it be necessary to introduce changes in the characteristics or parameters of the system that could adversely affect the performance of shipborne receiving equipment.

2.1.4 In deciding, in the light of any changes to a recognized system, whether the system should continue to be recognized, the criteria listed in paragraph 2.1.3 should be applied.

2.2 Responsibilities of Governments or organizations

2.2.1 The provision and operation of a radionavigation system is the responsibility of the Governments or organizations concerned.

2.2.2 Governments or organizations willing to have a radionavigation system recognized by IMO should formally notify IMO that the system is operational and available for use by merchant shipping. The Government or organization should also declare the coverage area of the system and provide as much other information as practicable to assist IMO in its consideration of the factors identified in paragraph 2.1.3.

2.2.3 Governments or organizations that have a system recognized by IMO should not allow changes to the operational characteristics of the system under which the system was recognized without notifying IMO (see resolution A.577(14)).

3 SHIPBORNE RECEIVING EQUIPMENT

3.1 To avoid the necessity of carrying more than one set of receiving equipment on a ship, the shipborne receiving equipment should be suitable for operating either with a worldwide radionavigation system, or with radionavigation systems which cover the area in which the ship trades.

3.2 Shipborne receiving equipment should conform to the relevant performance standards not inferior to those adopted by the Organization.

3.3 Radionavigation systems should make it possible for shipborne receiving equipment automatically to select the appropriate stations for determining the ship's position with the required performance.

3.4 Shipborne receiving equipment should be provided with at least one output[1] from which position and augmentation information can be supplied in a standard form to other equipment.

[1] Refer to the recommendation of the International Electrotechnical Commission, in particular, IEC publication 61162, *Digital interface for Navigational Equipment within a ship*.

APPENDIX

OPERATIONAL REQUIREMENTS

1 INTRODUCTION

1.1 The operational requirements for ~~a~~ worldwide radionavigation and augmentation systems should be general in nature and capable of being met by a number of systems. All systems should be capable of being used by an unlimited number of ships.

1.2 The requirements may be met by individual radionavigation systems or by a combination of such systems, including the combination of stand-alone global or regional navigation satellite systems and augmentation systems.

1.3 For the purpose of these requirements, the term *radionavigation system* refers to a stand-alone radionavigation system or a combination of a radionavigation system and an augmentation system.

1.~~3~~4 The radionavigation system ~~is~~ should be considered ~~to be~~ available when it provides the required integrity for the given accuracy level.

2 NAVIGATION IN OCEAN WATERS

2.1 Where a radionavigation system is used to assist in the navigation of ships in ocean waters, the system should provide positional information with an error not greater than 100 m with a probability of 95%. This degree of accuracy is suitable for purposes of general navigation and provision of position information in the GMDSS.

2.2 In view of the fact that merchant fleets operate worldwide, the information provided by a radionavigation system must be suitable for use for general navigation by ships engaged on international voyages in any ocean waters within the system's coverage area.

2.3 Taking into account the radio frequency environment, the coverage of the radionavigation system should be adequate to provide position-fixing throughout this phase of navigation.

2.4 The radionavigation system should permit an update rate of the computed position data not less than once every 2 s[2].

2.5 Signal availability should exceed 99.8%.

2.6 An integrity warning of radionavigation system malfunction, non-availability or discontinuity should be provided to users as soon as practicable by maritime safety information (MSI) systems.

2.7 Augmentation systems may also provide notification of radionavigation system integrity or malfunction. However these should not override, or replace the requirement for, integrity warnings provided to users by MSI systems in accordance with paragraph 2.6 above.

[2] This applies to the computed and displayed position data, but not to the update rate of any correction data, which may remain valid for 30s or more.

3 NAVIGATION IN HARBOUR ENTRANCES, HARBOUR APPROACHES AND COASTAL WATERS[3]

3.1 Where a radionavigation system is used to assist in the navigation of ships in such waters, the system should provide positional information with an error not greater than 10 m with a probability of 95%.

3.2 Taking into account the radio frequency environment, the coverage of the radionavigation system should be adequate to provide position-fixing throughout this phase of navigation.

3.3 The radionavigation system should permit an update rate of the computed position data not less than once every 2 s^2.

3.4 Signal availability should exceed 99.8%.

3.5 When the radionavigation system is available, the service continuity should be ≥99.97% over a period of 15 minutes.

3.6 An integrity warning of radionavigation system malfunction, non-availability or discontinuity should be provided to users within 10 s.

3.7 The radionavigation system should be considered available when it provides the required integrity for the given accuracy level.

***

[3] SOLAS regulation V/13 requires each contracting Government to provide, as it deems practical and necessary either individually or in cooperation with other contracting Governments, such aids to navigation as the volume of traffic justifies and the degree of risk requires.

ANNEX 10

DRAFT AMENDMENTS TO SOLAS CHAPTER V AND THE APPENDIX

CHAPTER V
SAFETY OF NAVIGATION

Regulation 18
Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder

1 In the footnote to paragraph 18.2, the following new entry is added after "*Recommendation on performance standards for universal shipborne automatic identification system (AIS)* (resolution MSC.570(109));" and before "*Recommendation on performance standards for echo-sounding equipment* (resolution A.224(VII), as amended);":

"*Performance standards for VHF data exchange system (VDES)* (resolution MSC.[…]);".

2 Paragraph 9 is amended as follows:

"9 The automatic identification system (AIS) or VHF data exchange system (VDES) shall be subjected to an annual test. The test shall be conducted by an approved surveyor or an approved testing or servicing facility. The test shall verify the correct programming of the ship's static information, correct data exchange with connected sensors as well as verifying the radio performance by radio frequency measurement and on-air test using e.g. a Vessel Traffic Service (VTS). A copy of the test report shall be retained on board the ship".

Regulation 19
Carriage requirements for shipborne navigational systems and equipment

2 Shipborne navigational equipment and systems

3 Paragraph 2.4 is amended as follows:

"2.4 All ships of 300 gross tonnage and upwards engaged on international voyages and cargo ships of 500 gross tonnage and upwards not engaged on international voyages and passenger ships irrespective of size shall be fitted with an automatic identification system (AIS) or VHF data exchange system (VDES), as follows:

~~.1 ships constructed on or after 1 July 2002;~~

~~.2 ships engaged on international voyages constructed before 1 July 2002:~~

~~.2.1 in the case of passenger ships, not later than 1 July 2003;~~

~~.2.2 in the case of tankers, not later than the first survey for safety equipment* on or after 1 July 2003;~~

~~.2.3 in the case of ships, other than passenger ships and tankers, of 50,000 gross tonnage and upwards, not later than 1 July 2004;~~

~~.2.4 in the case of ships, other than passenger ships and tankers, of 300 gross tonnage and upwards but less than 50,000 gross tonnage, not later than the first safety equipment survey** after 1 July 2004 or by 31 December 2004, whichever occurs earlier; and~~

~~.3 ships not engaged on international voyages constructed before 1 July 2002, not later than 1 July 2008;~~

~~.4 the Administration may exempt ships from the application of the requirements of this paragraph when such ships will be taken permanently out of service within two years after the implementation date specified in sub-paragraph .2 and .3;~~

.~~5~~1 AIS or VDES shall:

.1 provide automatically to appropriately equipped shore stations, other ships and aircraft information, including the ship's identity, type, position, course, speed, navigational status and other safety-related information;

.2 receive automatically such information from similarly fitted ships;

.3 monitor and track ships; and

.4 exchange data with shore-based facilities.

.~~6~~2 the requirements of paragraph 2.4.1~~5~~ shall not be applied to cases where international agreements, rules or standards provide for the protection of navigational information; and

.~~7~~3 AIS or VDES shall be operated taking into account the guidelines adopted by the Organization.* Ships fitted with AIS or VDES shall maintain AIS or VDES in operation at all times except where international agreements, rules or standards provide for the protection on navigational information.

* Refer to *Revised guidelines for the onboard operational use of shipborne Automatic Identification Systems (AIS)* (resolution A.1106(29)) and *Guidelines for the operational use of VHF data exchange system (VDES)* (MSC.1/Circ. […])"

Regulation 19-1
Long-range identification and tracking of ships

4 Paragraph 4.2 is amended as follows:

"4.2 Ships, irrespective of the date of construction, fitted with an automatic identification system (AIS) or VHF data exchange system (VDES), as defined in regulation 19.2.4, and operated exclusively within sea area A1, as defined in regulation IV/2.1.1~~2~~5, shall not be required to comply with the provisions of this regulation.

APPENDIX

CERTIFICATES

Record of equipment for passenger ship safety (Form P)

5 In section 5 (*Details of navigational systems and equipment*), item 4.1 is amended as follows:

"Automatic identification system (AIS) or VHF data exchange system (VDES)".

Record of equipment for cargo ship safety (Form E)

6 In section 3 (*Details of navigational systems and equipment*), item 4.1 is amended as follows:

"Automatic identification system (AIS) or VHF data exchange system (VDES)".

Record of equipment for cargo ship safety (Form C)

7 In section 5 (*Details of navigational systems and equipment*), item 4.1 is amended as follows:

"Automatic identification system (AIS) or VHF data exchange system (VDES)".

APPENDIX 1

CHECK/MONITORING SHEET FOR THE PROCESS OF AMENDING THE CONVENTION AND RELATED MANDATORY INSTRUMENTS (PROPOSAL/DEVELOPMENT)

Part I – Submitter of proposal (refer to paragraph 3.2.1.1)

1	*Submitted by (document number and submitter)* MSC 102/21/4 (Japan, Singapore and Norway)
2	*Meeting session* MSC 102
3	*Date (date of submission)* 10 February 2020

Part II – Details of proposed amendment(s) or new mandatory instrument (refer to paragraphs 3.2.1.1 and 3.2.1.2)

1	*Strategic direction*
Strategic direction: 2	
2	*Title of the output*
Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce a VHF data exchange system (VDES)	
3	*Recommended type of amendments* (MSC.1/Circ.1481) (delete as appropriate)
• Exceptional circumstances	
4	*Instruments intended for amendment (SOLAS, LSA Code, etc.) or developed (new code, new version of a code, etc.)*
SOLAS and developments of performance standards and guidelines for the introduction of VDES into SOLAS	
5	*Intended application (scope, size, type, tonnage/length restriction, service (International/non-international), activity, etc.)*
All ships of 300 gross and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages, passenger ships irrespective of size	
6	*Application to new/existing ships*
Both	
7	*Proposed coordinating sub-committee*
Sub-Committee on Navigation, Communications and Search and Rescue	

8	*Anticipated supporting sub-committees*
None	
9	*Timescale for completion*
two sessions, extended to 2025	
10	*Expected date(s) for entry into force and implementation/application, taking into account assessment of capacity-building implications in accordance with annex 2 to MSC-MEPC.1/Circ.5/Rev.6*
Originally 1 January 2024, now recommended to be on 1 January 2028	
11	*Any relevant decision taken or instruction given by the Committee*
Advise MSC on appropriate guidance for early implementation, if required	

Part III – Process monitoring to be completed during the work process at the sub-committee and checked as part of the final approval process by the Committee (refer to paragraph 3.2.1.3)

1	The sub-committee, at an initial engagement, has allocated sufficient time for technical research and discussion before the target completion date, especially on issues needing to be addressed by more than one sub-committee and for which the timing of relevant sub-committees' meetings and exchanges of the result of consideration needed to be carefully examined.	yes
2	The scope of application agreed at the proposal stage was not changed without the approval of the Committee.	yes
3	The technical base document/draft amendment addresses the proposal's issue(s) through the suggested instrument(s); where it does not, the sub-committee offers the Committee an alternative method of addressing the problem raised by the proposal.	yes
4	Due attention has been paid to the *Interim guidelines for the systematic application of the grandfather clauses* (MSC/Circ.765-MEPC/Circ.315).	yes
5	All references have been examined against the text that will be valid if the proposed amendment enters into force.	yes
6	The location of the insertion or modified text is correct for the text that will be valid when the proposed text enters into force on a four-year cycle of entry into force, as other relevant amendments adopted might enter into force on the same date.	yes
7	There are no inconsistencies in respect of the scope of application between the technical regulation and the application statement contained in regulation 1 or 2 of the relevant chapter, and application is specifically addressed for existing and/or new ships, as necessary.	yes
8	Where a new term has been introduced into a regulation and a clear definition is necessary, the definition is given in the article of the Convention or at the beginning of the chapter.	yes

9	Where any of the terms "fitted", "provided", "installed" or "installation" are used, consideration has been given to clarifying the intended meaning of the term.	yes
10	All necessary related and consequential amendments to other existing instruments, including non-mandatory instruments, in particular to the forms of certificates and records of equipment required in the instrument being amended, have been examined and included as part of the proposed amendment(s).	yes
11	The forms of certificates and records of equipment have been harmonized, where appropriate, between the Convention and its Protocols.	yes
12	It is confirmed that the amendment is being made to a currently valid text and that no other bodies are concurrently proposing changes to the same text.	yes
13	All entry-into-force criteria (building contract, keel laying and delivery) have been considered and addressed.	N/A
14	Other impacts of the implementation of the proposed/approved amendment have been fully analysed, including consequential amendments to the "application" and "definition" regulations of the chapter.	yes
15	The amendments presented for adoption clearly indicate changes made with respect to the original text, so as to facilitate their consideration.	yes
16	For amendments to mandatory instruments, the relationship between the Convention and the related instrument has been observed and addressed, as appropriate.	yes
17	The related record format, the checklist for the identification of capacity-building implications (MSC-MEPC.1/Circ.5/Rev.6, annex 2, appendix 1) and the checklist of issues requiring special focus when developing capacity-building related to the implementation of new measures (MSC-MEPC.1/Circ.5/Rev.6, annex 2, appendix 2) have been completed or updated, as appropriate.	yes

RECORD FORMAT

The following records should be created and kept updated for each regulatory development.

The records can be completed by providing references to paragraphs of related documents containing the relevant information, proposals, discussions and decisions.

1	**Title (number and title of regulation(s))**
	SOLAS regulation V/18 (Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder) SOLAS regulation V/19 (Carriage requirements for shipborne navigational systems and equipment) SOLAS regulation V/19-1 (Long-range identification and tracking of ships) SOLAS appendix (Form P, E, C)
2	**Origin of the requirement (original proposal document)**
	MSC 102/21/4 (Japan, Singapore and Norway)
3	**Main reason for the development (extract from the proposal document)**
	Introduction of VHF Data Exchange System (VDES) as equivalent of AIS

4	**Related output**
	Performance standards for shipborne VDES Guidelines for the operational use of VDES Consequential amendments to HSC Codes MSC resolution facilitating the introduction of VDES into the IMO regulatory framework and its implementation, and allowing the use of VDES in lieu of AIS
5	**History of the discussion (approval of work programmes, sessions of sub-committees, including CG/DG/WG arrangements)**
	• MSC 103 approved the new work • MSC 106 approved the output • NCSR 10 established the correspondence group • NCSR 11 agreed not to amend SOLAS chapter IV because it was premature, extended the target completion year and re-established the correspondence group • NCSR 12 finalized the SOLAS amendments to chapter V and SOLAS forms to introduce VDES, and the draft amendments, along with a MSC resolution facilitating the introduction of VDES into the IMO regulatory framework and its implementation, and allowing the use of VDES in lieu of AIS. In so doing, the Sub-Committee agreed that there is no need to effect consequential amendments to every single non-mandatory instrument in view of the resolution.
6	**Impact on other instruments (codes, performance standards, guidance circulars, certificates/records format, etc.)**
	The following instruments (non-exhaustive) may be impacted when the carriage requirement and use of AIS is referenced and VDES is carried in lieu of AIS, without clarifying that carriage of VDES meets the AIS carriage requirement: • International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code) (resolution MSC.97(73)) • International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code) (resolution MSC.119(74)) • International Code for Ships Operating in Polar Waters (Polar Code) (resolution MSC.385(94)) • Proper use of VHF channels at sea (resolution A.954(23)) • Guidelines for ships operating in polar waters (resolution A.1024(26)) • Survey guidelines under the harmonized system of survey and certification (HSSC), 2023 (resolution A.1186(33)) • Procedures for port state control, 2023 (resolution A.1185(33)) • Recommendation on performance standards for a universal shipborne automatic identification system (AIS) (resolution MSC.74(69), annex 3, as amended) • Performance standards for shipborne simplified voyage data recorders (S-VDRs) (resolution MSC.163(78)) • Performance standards for the presentation of navigation-related information on shipborne navigational display (resolution MSC.191(79), as amended) • Revised performance standards for radar equipment (resolution MSC.192(79)) • Adoption of amendments to the code of safety for dynamically supported craft, as amended (resolution MSC.224(82)) • Revised performance standards for electronic chart display and information system (ECDIS) (resolution MSC.232(82)) • Revised performance standards for integrated navigation system (resolution MSC.252 (83) and resolution MSC.452 (99)) • Code of safety for special purpose ships, 2008 (resolution MSC.266(84)) • Revised performance standards for shipborne voyage data recorders (VDRS) (resolution MSC.333 (90))

- Recommendation for the protection of AIS VHF Link (resolution MSc.347(91))
- Performance standards for a shipborne integrated communication system (ICS) when used in the global maritime distress and safety system (GMDSS) (resolution MSC.517 (105))
- Performance standards for electronic chart display and navigation system (ECDIS) (resolution MSC.530 (106))
- Guidelines on ergonomic criteria for bridge equipment and layout (MSC.1/Circ.982)
- General principles and recommendations for knowledge, skills and training for officers on wing-in-ground (WIG) craft operating in both displacement and ground effect modes (MSC.1/Circ.1162)
- Guidelines on annual testing of voyage data recorders (VDR) and simplified voyage data recorders (S-VDR) (MSC.1/Corc.1222/Rev.1)
- Guidelines on annual testing of the automatic identification system (AIS) (MSC.1/Circ.1252)
- Non-mandatory guidelines on security aspects of the operation of vessels which do not fall within the scope of SOLAS chapter XI-2 and the ISPS code (MSC.1/Circ.1283)
- Guidance in relation to certain types of ships which are required to transmit LRIT information on exemptions and equivalents and on certain operational matters (MSC.1/Circ.1295)
- ECDIS – guidance for good practice (MSC.1/Circ.1503/Rev.1)
- Guidelines for shipborne position, navigation and timing (PNT) data processing (MSC.1/Circ.1575)
- Unified interpretation of the provisions of SOLAS relating to the annual testing of the VDR, S-VDR, AIS and EPIRB (MSC.1/Circ.1576)
- Guidelines for wing-in ground craft (MSC.1/Circ.1592)
- Guidelines for standardization of user interface design for navigation equipment (MSC.1/Circ.1609)
- Guidance for navigation and communication equipment intended for use on ships operating in polar waters (MSC.1/Circ.1612)
- Guidelines for safety measures for fishing vessels of 24 M in length and over operating in polar waters (MSC.1/Circ.1641)
- Guidelines for safety measures for pleasure yachts of 300 gross tonnage and above not engaged in trade operating in polar waters (MSC.1/Circ.1642)
- List of certificates and documents required to be carried on board ships, 2022 (FAL.2/Circ.133, MEPC.1/Circ.902, MSC.1/Circ.1646, LEG.2/Circ.4)
- Guidelines for the harmonization of GMDSS requirements for radio installations on board SOLAS ships (COMSAR.1/Circ.32/Rev.2)
- AIS safety-related messaging (COMSAR.1/Circ.46)
- Guidelines for the installation of a shipborne automatic identification system (AIS), as amended (SN.1/Circ.227 and SN.1/Circ.245)
- Guideline for the presentation of navigation-related symbols, terms and abbreviations (SN.1/Circ.243/Rev.2)
- Guidance on the use of the UN/LOCODE in the destination field in AIS message (SN.1/Circ.244)
- Guidance on the use of AIS application-specific messages (SN.1/Circ.289)
- Guidance for the presentation and display of AIS application-specific messages information (SN.1/Circ.290)

7 Technical background

7.1 Scope and objective (to cross check with items 4 and 5 in part II of the checklist)

Amendments to SOLAS chapter IV and V and developments of performance standards and guidelines for the introduction of VDES into SOLAS.

7.2 Technical/operational background and rationale (e.g. summary of FSA study, if available, or engineering challenge posed)
The concept of VDES was originally developed by ITU and IALA for digital data exchange in maritime mobile VHF band as enhancement of AIS. After various studies, experiments and test beds including launch of satellite, ITU WRC-15 and 19 allocated all necessary channels for VDES. IMO considered VDES as one of the methods for implementing e-navigation (MSC.1/Circ.1595). IEC is now developing the test standard for VDES and it is expected to be completed in 2027 on the basis that IMO performance standards are adopted for 2028 implementation. VDES are now available in the market for trials. Since VDES includes AIS as one of the components, VDES can be used as AIS.
7.3 Source/derivation of requirement (non-mandatory instrument, industry standard, national/regional requirement)
SOLAS regulation V/19.2.4
7.4 Short summary of requirement (what is the new requirement – in short and lay terms)
Existing requirements in SOLAS regulation V/19.2.4 requires carriage of AIS for all ships of 300 gross tonnage and upwards engaged on international voyage and cargo ships of 500 gross tonnage and upwards not engaged on international voyage and passenger ships irrespective of size. New resolution with amendments to SOLAS chapter V allow carriage of VDES as equivalent of AIS and is expected to enter into force on 1 January 2028.
7.5 Points of discussions (controversial points and conclusion)
It was premature to amend SOLAS chapter IV to introduce VDES, noting that VDES could be used only for general radiocommunications. New resolution with amendments to SOLAS chapter V and relevant SOLAS Forms will allow carriage of VDES as equivalent of AIS and is expected to enter into force on 1 January 2028.

APPENDIX 2

CHECKLIST FOR THE IDENTIFICATION OF CAPACITY-BUILDING IMPLICATIONS

1 For Administrations

☑ Is new legislation required? Yes

- Is there a requirement for new equipment and/or systems?
  Yes, but not the mandatory requirement for the carriage if AIS is installed.
  - Does equipment manufacturing capacity exist internationally? Yes
  - Do equipment repair/servicing facilities exist internationally? Yes
  - Is there capacity to develop new systems? Yes
- Will the implementation require additional financial resources?
  Yes, when the shipowner decides to opt for the VDES option rather than AIS.
- Is there a need for additional human resources or new skills?
  Yes, users onboard as well as ashore would need familiarization.
- Will there be a need to upgrade current infrastructure?
  Yes, when decision is made to install VDES in addition to existing AIS equipment.
- Is there enough lead time towards implementation?
  Yes IEC test standards are being developed with a view to finalization by 2027.
- Will a rapid implementation procedure be adopted? No
- Is there a substantial modification of existing standards? No
- Will a guide to implementation be needed?
  Yes, operational guidelines therefore developed to be adopted in conjunction with the adoption of SOLAS amendments.

2 For the industry

- Would the industry require new and/or enhancement of existing systems?
  Yes, but optional.
  - Does capacity exist internationally to develop new systems? Yes
- Is there a need for additional training of seafarers?

  No, however, when new VDES is installed, familiarization would be required based on instructions made by manufacturers.
  - Do related and validated training courses exist?

    Yes. Model Course 1.34 Operational Use of AIS exists and for AIS component of VDES, this course should continue to be used. At the next revision of this course, it may benefit of some inclusion of references to VDES.

- Are sufficient simulation training courses available internationally?

  No. No training course using simulators envisaged as a requirement when used in lieu of AIS.

- Will there be a requirement for new equipment?

  Yes, VDES would need to satisfy the newly developed VDES performance standards.

  - Does manufacturing capacity exist internationally?

  Yes, for which IEC test standards are being developed.

- Is there repair/servicing and/or retrofitting and does maintenance capacity exist internationally?

  Yes.

Having assessed implications as above, there is no capacity-building activities foreseen as long as the carriage of VDES remains optional, and thus Form for Capacity-Building Measures is not completed.

***

ANNEX 11

DRAFT AMENDMENTS TO 1994 HSC CODE

CHAPTER 13
SHIPBORNE NAVIGATIONAL SYSTEMS AND EQUIPMENT AND VOYAGE DATA RECORDER

13.15 Automatic identification system (AIS)

1 Paragraphs 13.15.1 to 13.15.4 are amended as follows:

"13.15.1 Craft should be provided with an automatic identification system (AIS) or VHF data exchange system (VDES).

13.15.2 AIS or VDES should:

.1 provide automatically to appropriately equipped shore stations, other vessels and aircraft information, including the craft's identity, type, position, course, speed, navigational status and other safety-related information;

.2 receive automatically such information from similarly fitted vessels;

.3 monitor and track vessels; and

.4 exchange data with shore-based facilities.

13.15.3 The requirements of 13.15.2 should not be applied to cases where international agreements, rules or standards provide for the protection of navigational information.

13.15.4 AIS or VDES should be operated taking into account the guidelines developed by the Organization."

ANNEX 1
FORM OF HIGH-SPEED CRAFT SAFETY CERTIFICATE

Record of Equipment for High-Speed Craft Safety Certificate

5 Details of navigational systems and equipment

2 In section 13, the entry is amended as follows:

"13 Automatic identification system (AIS) or VHF data exchange system (VDES)"

***

ANNEX 12

DRAFT AMENDMENTS TO 2000 HSC CODE

CHAPTER 13
NAVIGATIONAL EQUIPMENT

13.15 Automatic identification system

1 Paragraphs 13.15.1 to 13.15.4 are amended as follows:

"13.15.1 Craft shall be provided with an automatic identification system (AIS) or VHF data exchange system (VDES).

13.15.2 AIS or VDES shall:

.1 provide automatically to appropriately equipped shore stations, other vessels and aircraft information, including the craft's identity, type, position, course, speed, navigational status and other safety-related information;

.2 receive automatically such information from similarly fitted vessels;

.3 monitor and track vessels; and

.4 exchange data with shore-based facilities.

13.15.3 The requirements of 13.15.2 shall not apply where international agreements, rules or standards provide for the protection of navigational information.

13.15.4 AIS or VDES shall be operated taking into account the guidelines adopted by the Organization."

ANNEX 1
FORM OF HIGH-SPEED CRAFT SAFETY CERTIFICATE

Record of Equipment for High-Speed Craft Safety Certificate

5 Details of navigational systems and equipment

2 In section 13, the entry is amended as follows:

"13 Automatic identification system (AIS) or VHF data exchange system (VDES)"

***

ANNEX 13

DRAFT MSC RESOLUTION

INTRODUCTION OF VHF DATA EXCHANGE SYSTEM (VDES) INTO THE IMO REGULATORY FRAMEWORK

THE MARITIME SAFETY COMMITTEE

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

TAKING INTO ACCOUNT resolution MSC.[…] by which the Committee adopted amendments to chapter V and the appendix (Certificates) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), introducing the VHF data exchange system (VDES) as an alternative shipborne navigational equipment and system to the automatic identification system (AIS),

TAKING ALSO INTO ACCOUNT resolution MSC.[…] on *Performance standards for VHF data exchange system (VDES)* and MSC.1/Circ.[…] on *Guidelines for the operational use of VHF data exchange system (VDES)*,

RECOGNIZING that AIS is one of the four components of VDES, which allows the existing AIS to coexist with VDES,

RECOGNIZING ALSO that existing AIS requirements, guidelines and recommendations should be considered as also applicable to the AIS component of VDES,

RECOGNIZING FURTHER that any additional functionalities or communication capabilities provided by VDES beyond its AIS component, even if offering similar functions or services to AIS, are not to be considered equivalent to AIS nor a substitute for the AIS equipment required under SOLAS regulations,

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

1 DECIDES that, in order to facilitate the introduction and implementation of the VHF data exchange system (VDES) into the IMO regulatory framework, references made to the carriage and use of "automatic identification system" or "AIS" in the IMO regulatory framework should also be understood as references to the AIS component of VDES, as defined in resolution MSC.[…] on *Performance standards for VHF data exchange system (VDES)*;

2 INVITES Member States and international organizations to apply the above decision in the implementation and use of VDES.

***

ANNEX 14

DRAFT MSC RESOLUTION

PERFORMANCE STANDARDS FOR SHIPBORNE VHF DATA EXCHANGE SYSTEM (VDES)

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 and technical specifications, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

RECALLING FURTHER resolution MSC.570(109), by which the Committee adopted the *Performance standards for a universal automatic identification system (AIS)* to improve the safety of navigation,

TAKING INTO ACCOUNT resolution MSC.[…] by which the Committee adopted amendments to chapter V of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), introducing VHF data exchange system (VDES) as an alternative shipborne navigational equipment and system to comply with the existing requirements of the automatic identification system (AIS),

TAKING ALSO INTO ACCOUNT MSC.1/Circ.[…] on *Guidelines for the operational use of VHF data exchange system (VDES)*,

RECOGNIZING that AIS is one of the four components of VDES, which allows the existing AIS to coexist with VDES,

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

1 ADOPTS *Performance standards for a shipborne VHF data exchange system (VDES)*, set out in the annex to the present resolution;

2 RECOMMENDS that Governments ensure that shipborne VDES equipment conforms to performance standards not inferior to those specified in the present resolution.

ANNEX

PERFORMANCE STANDARDS FOR SHIPBORNE VHF DATA EXCHANGE SYSTEM (VDES)

1 Scope

1.1 These performance standards specify the requirements for the shipborne VHF data exchange system (VDES) for the use of VDES equipment on board vessels.

1.2 The VDES equipment integrates four components and their functions. These components are the automatic identification system (AIS) component, application-specific messages (ASM) component, terrestrial component of VHF data exchange (VDE-TER) and the satellite component of VHF data exchange (VDE-SAT).

1.3 VDES should be capable of providing information exchange between ships, ships and shore authorities and services, automatically with minimal involvement of the ship's personnel and with a high level of availability and security[1].

1.4 VDES should be capable of providing the following functions:

.1 exchanging data to improve safety, security and efficiency of navigation and protection of the marine environment;

.2 means for coastal States to request and obtain information about a ship and its cargo and/or passengers;

.3 means for providing maritime services in the context of e-navigation; and

.4 means for standardized and automated reporting in accordance with MSC.1/Circ.1595 and MSC.1/Circ.1610, as amended.

1.5 The installations, in addition to meeting the requirements of the Radio Regulations, applicable ITU-R Recommendations and the general requirements set out in resolutions A.694(17) and MSC.191(79), as amended should comply with these performance standards.

2 Equipment functionalities

2.1 The general functions of VDES equipment (see figure 1) are as follows:

.1 The AIS component should not be interfered with by other communication means within the VDES, ensuring accurate AIS position reporting and the provision of safety-related information;

.2 VDES should allow the flexibility to prioritize some applications and, consequently, adapt some parameters of the transmission (robustness or capacity) while minimizing system complexity;

[1] High level of security can be achieved by implementing authentication of data and encryption where necessary.

.3 VDES should give its highest priority to AIS position reporting and safety related information, followed by second priority to ASM, third priority to VDE-TER and then to VDE-SAT;

.4 The AIS component of VDES should be capable of providing all modes of operation as described in Recommendation ITU-R M.1371;

.5 VDES should be capable of exchanging data between ship-to-ship, ship-to-shore, shore-to-ship, ship-to-satellite and satellite-to-ship;

.6 VDES should be capable of implementing software/firmware updates;

.7 VDES should be capable of separately disabling VDE-SAT, VDE-TER, or ASM;

.8 VDES should be capable of changing its transmission power from the default setting to a low setting (1 W) or stopping transmission except for the AIS component when operations such as loading or discharging dangerous cargo require it; and

.9 VDES should be capable of temporarily disabling VDE-SAT transmission when receiving a message from AIS or VDES shore station within its coverage area.

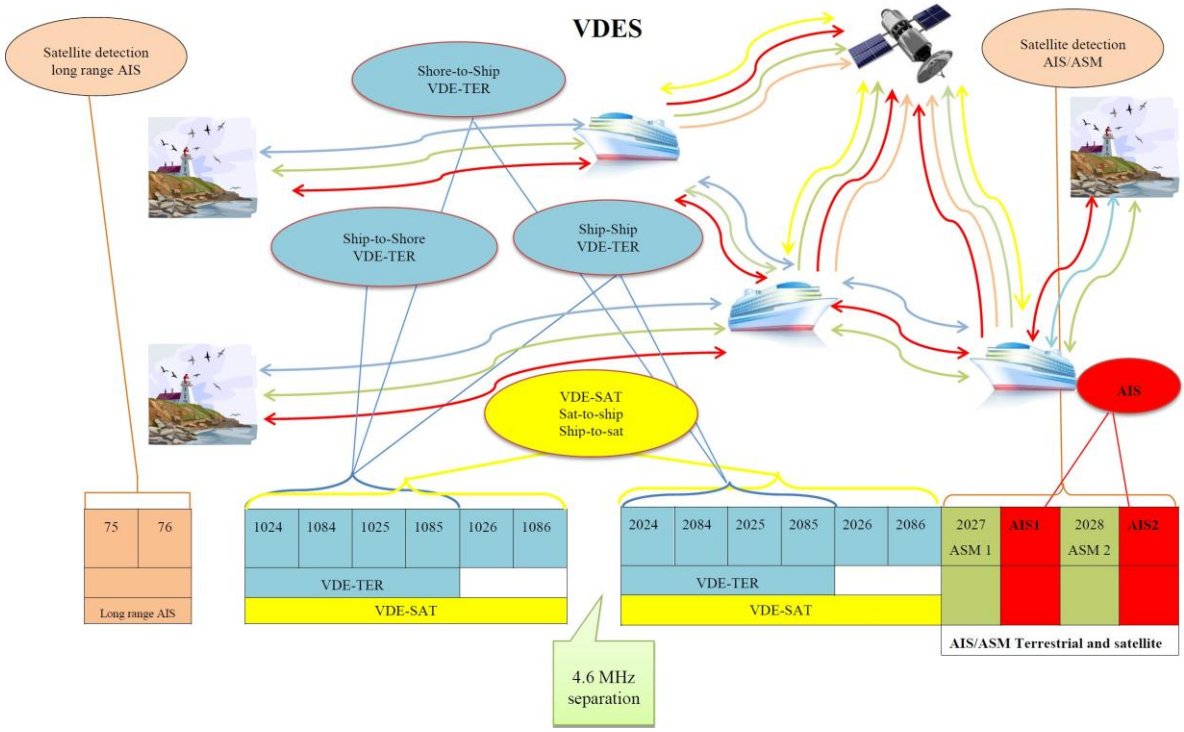

Figure 1: VDES functions

2.2 The AIS component of VDES should comply with the requirements set out in resolution MSC.570(109) and Recommendation ITU-R M.1371.

2.3 The ASM component of VDES should provide a robust and efficient terrestrial data transfer link, enabling the transmission of a wide variety of messages, including application-specific messages currently transmitted by AIS[2]. These messages should be encoded in accordance with Recommendation ITU-R M.1371 annexes on *Application-specific messages* and *Automatic identification system messages,* as well as Recommendation ITU-R M.2092 annex on *Common technical elements of VHF data exchange system* and the technical characteristics should meet the requirements specified in Recommendation ITU-R M.2092 annex on *Technical characteristics of the application-specific message channels for the VHF data exchange system in the VHF maritime band*.

2.4 The VDE-TER function of VDES should provide an efficient terrestrial data transfer link. The technical characteristics should comply with Recommendation ITU-R M.2092 annex on *Common technical elements of VHF data exchange system* and with the annex on *Technical characteristics of VHF data exchange-terrestrial in the maritime mobile band*.

2.5 The VDE-SAT function of VDES should provide an efficient satellite data transfer link. The technical characteristics should meet the requirements specified in Recommendation ITU-R M.2092 annex on *Common technical elements of VHF data exchange system* and with the annex on *Technical characteristics of VHF data exchange-satellite operating in the VHF maritime mobile satellite band*.

3 Capability

3.1 VDES should support the functions of ASM, VDE-TER and VDE-SAT specified in this performance standard in addition to the AIS functions specified in resolution MSC.570(109).

3.2 In addition, VDES should be capable of:

.1 selecting the communication component which is controlled through the user interface;

.2 receiving digital data according to Recommendation ITU-R M.2092 and output through the user interface;

.3 transmitting digital data according to Recommendation ITU-R M.2092 as input via the user interface; and

.4 operating continuously under all modes of operations.

4 User interface

4.1 The human-machine interface should include a keyboard and display for configuration, monitoring and control.

4.2 To enable a user to access, select and display the information on a separate system, the VDES should be provided with at least one interface conforming to an appropriate international marine interface standard[3].

[2] See SN.1/Circ.289 and those identified by IALA List of reference for ASM.

[3] IEC 61162 series.

5 Identification

5.1 Shipborne VDES stations should be uniquely identified with a unique numerical identifier as defined by the most recent version of Recommendation ITU-R M.585 on *Assignment and use of identities in the maritime mobile services*.

6 Information

6.1 VDES information consists of AIS, ASM and other information

6.2 AIS information is defined by resolution MSC.570(109) and should be exchanged by the AIS component of VDES.

6.3 Other information is information other than AIS and ASM and should be exchanged by VDE-TER and VDE-SAT component of VDES[4].

7 Security

7.1 Cybersecurity

.1 Since VDES is networked with other navigational/communication equipment or systems on board, appropriate cybersecurity measures conforming to international standards such as IEC 61162-460 and IEC 63154 should be provided.

7.2 Integrity and authentication

.1 VDES should be capable of verifying a digital signature to ensure the integrity of the data and the identity of the sender; and

.2 VDES should be capable of providing authentication of AIS messages.

8 Operational readiness time

The system should be operational within two minutes of being switched on by the user.

9 Power supply

VDES and associated equipment should be powered by the ship's main and emergency sources of electrical energy. In addition, it should be possible to operate VDES and associated equipment from a reserve source of electrical energy.

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[4] *Guidelines for the operational use of VHF Data Exchange System (VDES)* (MSC.1/Circ.[…]).

ANNEX 15

DRAFT MSC CIRCULAR

GUIDELINES FOR THE OPERATIONAL USE OF SHIPBORNE VHF DATA EXCHANGE SYSTEM (VDES)

1 The Maritime Safety Committee, at its […] session [(date)], adopted by resolution MSC.[…(..)], amendments to chapter V of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), introducing VHF data exchange system (VDES) as an alternative shipborne navigational equipment and system to comply with the existing requirements of the automatic identification system (AIS). Relevant performance standards for VDES were also developed and disseminated by resolution MSC.[…(...)].

2 Recognizing that AIS is one of the four components of VDES, which allows the existing AIS to coexist with VDES, with a view to providing a timely guidance for the onboard operational use of VDES, the Committee approved the "Guidelines for the onboard operational use of shipborne VHF data exchange system (VDES)" set out in the annex.

3 Member States are invited to bring these Guidelines to the attention of all concerned, and take into account the Guidelines when using shipborne VDES for the operational use.

ANNEX

GUIDELINES FOR THE OPERATIONAL USE OF SHIPBORNE VHF DATA EXCHANGE SYSTEM (VDES)

Purpose

1 These guidelines have been developed for the safe and effective use of shipborne VHF Data Exchange System (VDES), in particular to inform the mariner and shore-based station operators about the operational use, limits and potential use of VDES including the international sharing of VDES applications. Consequently, VDES should be operated taking into consideration the information contained within these guidelines.

2 VDES has four components comprising of Automatic Identification System (AIS), Application-Specific Messages (ASM), VHF Data Exchange terrestrial (VDE-TER) and VHF Data Exchange satellite (VDE-SAT).

3 The AIS component of VDES is equivalent to AIS as defined in SOLAS regulation V/19 and should be operated and used in accordance with the *Revised guidelines for the onboard operational use of shipborne automatic identification systems (AIS)* (resolution A.1106(29)).

4 Although VDES is capable of transmitting and receiving digital data on safety/security related information, the frequencies allocated for VDES are not used for distress and safety communication under the Global Maritime Distress and Safety System (GMDSS) that are protected by the ITU Radio Regulations, including appendix 15. Moreover, the frequencies used by VDE-SAT (Earth-to-space and space-to-Earth) are only allocated on a secondary basis. The user should not consider the data and information received by VDES as GMDSS information.

5 VDES itself is a communication equipment and exchanges digital data between other VDES stations. VDES equipment may be connected with other navigational equipment or systems such as radar, Electronic Chart Display and Information System (ECDIS), INS and may also be connected to other equipment such as an onboard computer in order to work as a communication system. Therefore, these guidelines are aimed at users, operators and stakeholders of VDES both on board and ashore for providing guidance to ensure the safe and efficient operational use of VDES as a whole communication system.

6 AIS is a stand-alone system which is also a component of VDES, however any additional functionalities or communication capabilities provided by VDES beyond its AIS component, even if offering similar functions or services to AIS, are not to be considered equivalent to AIS under SOLAS regulations.

CAUTION

Not all ships carry AIS or VDES

The officer of the watch (OOW) should always be aware that other ships, in particular leisure craft, fishing boats and warships, and some coastal shore stations including Vessel Traffic Service (VTS) centres, might not be fitted with VDES even when transmitting AIS information.

The OOW should always be aware that AIS or VDES fitted on other ships, under certain circumstances, may be switched off on the master's professional judgement.

7 The SOLAS Convention requires AIS or VDES to be fitted on certain ships. In addition, specific ship types (e.g. warships, naval auxiliaries and ships owned/operated by Governments) are not required to be fitted with AIS or VDES. Also, small ships (e.g. leisure craft, fishing boats) and certain other ships may be exempt from carrying AIS or VDES. Moreover, ships fitted with AIS or VDES might have the equipment switched off. Users should note that the information provided by AIS or VDES may not be complete and may not accurately represent the location and movement of all shipping in the vicinity. Caution on the inherent limitations of AIS or VDES and their use in collision avoidance should therefore be observed.

Objective of VDES

8 VDES is intended to enhance the safety of life at sea, the safety and efficiency of navigation and the protection of the marine environment by means of exchange of data between maritime stations, ship-to-ship, ship-to-shore, shore-to-ship, ship-to-satellite and satellite-to-ship. Therefore, the purpose of VDES is to exchange digital data between ships, ship to shore directly or via satellite in addition to fulfilling the requirements of AIS. The digital data exchanged by VDES will be processed using applications installed in other equipment or system connected to VDES and portrayed on appropriate displays such as ECDIS.

Description of VDES

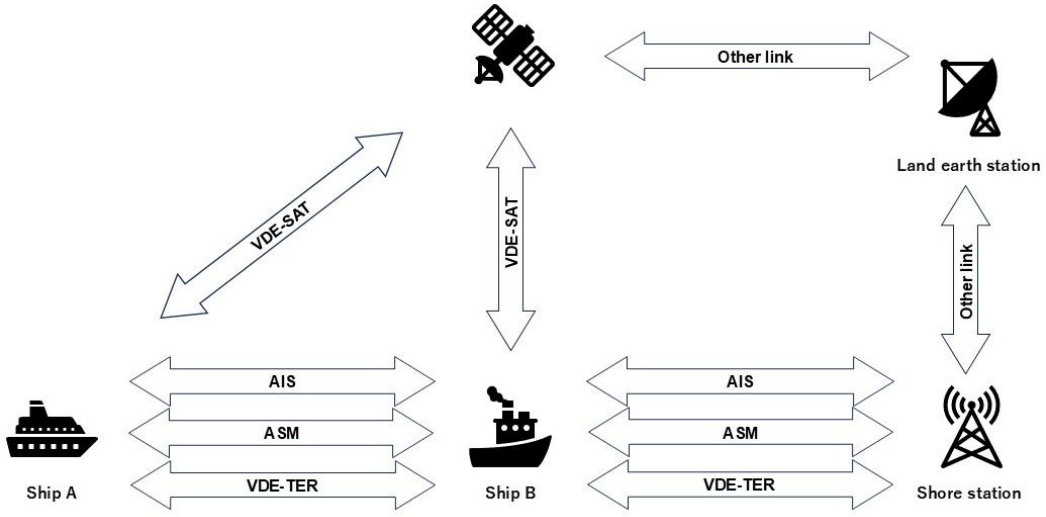

Figure 1 – VDES overview

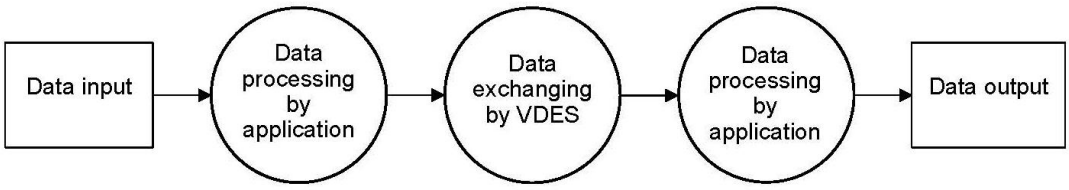

Figure 2 – Data flow using VDES

9 VDES can exchange digital data by automatically selecting one of its four components between ship and ship, ship and shore and ship and satellite (see figure 1). The data exchanged by VDES will be processed by application installed in the external equipment or system for human-to-machine or machine-to-machine communication (See figure 2).

10 VDES should give the highest priority to the AIS position reporting and safety related information

11 VDES generally achieves higher data transmission rates than AIS by employing wider bandwidths and advanced modulation methods. In a 100 kHz channel, VDE-TER, specifically, achieves a maximum raw data rate up to 32 times greater than AIS.

12 VDES is able to communicate with other VDES stations within VHF range. However, when advanced modulation methods are used, the range may be reduced. Additionally, when the transmission power of shipborne VDES is set to low (1 W) or disabled (except for AIS), owing to safety reasons such as port or harbour operations, the communication range may be reduced or limited to AIS-only communication.

13 The VDE-SAT has the potential to offer global coverage, contingent on satellite orbits and the number of satellites deployed and earth/ground stations. If VDE-SAT is used, then interference to terrestrial signals needs to be considered in relation to the service area of the VDE-SAT.

Application-Specific Messages (ASM)

14 VDES, like AIS, can send and receive Application-Specific Messages (ASM) using AIS channels (AIS 1 and AIS 2). For ASM, reference should be made to the *Guidance on the use of AIS Application-Specific Messages* (SN.1/Circ.289) and the *Guidance for the presentation and display of AIS Application-Specific Messages information* (SN.1/Circ.290).

15 VDES contains a designated ASM component using designated VHF channels (ASM 1 and ASM 2) with a transmission rate of 19.2 kbps, which is higher than AIS. This ASM component was originally designed to migrate ASM in AIS to ASM component of VDES in order to avoid the overload of AIS VHF Data Link (VDL).

16 Therefore, administrations are encouraged to use VDES ASM when the overload of AIS VDL is observed. However, since not all ships carry VDES even when transmitting AIS information, the administration should take careful consideration before using VDES ASM.

Operational use of VDES

17 The use of VDES is implemented by the operation of the external equipment or system using its applications. Therefore, the ship's crew should be familiarized with the operation of the equipment or system in accordance with regulation I/14 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and with the International Safety Management (ISM) Code. In addition, the shoreside users should be familiarized with its operation through education and training of the equipment and system.

Human machine interface

18 Navigational information sent via VDES and presented on a display for navigation-related data should comply with the *Performance standards for the presentation of navigational information on shipborne navigation displays* (resolution MSC.191(79), as amended) and the *Interim guidelines for the harmonized display of navigation information received via communication equipment* (MSC.1/Circ.1593). The symbols used in the display are defined in the G*uidelines for the presentation of navigation-related symbols, terms and abbreviations* (SN.1/Circ.243, as revised), or other relevant international standards[1], therefore, the user should be familiarized with these symbols.[1]

Messages and applications

19 Messages exchanged through VDES are AIS messages defined in the most recent version of the Recommendation ITU-R M.1371, ASM messages defined in the *Guidance on the use of AIS application-specific messages* (SN.1/Circ.289), or regionally or locally registered by authorities or the International Organization for Marine Aids to Navigation (IALA)[2] and other data or message structure approved by the authorities.

20 In order to ensure the worldwide harmonized implementation of message exchange among VDES, these data or message structure should be approved by the authority and the authority is encouraged to share the data or message structure with its associated application to other authorities.

21 A core capability of VDES is to provide secure AIS functionality by ensuring the integrity and authenticity of transmitted AIS messages. VDES also supports the use of virtual aids to navigation (vAtoN), extending their coverage by utilizing satellite capabilities. In addition to these core functions, VDES can be used as a communication platform for various other services, contributing to improved maritime safety, security, and operational efficiency.

22 When a message is related to Maritime Services in the context of e-navigation listed in the *E-navigation strategy implementation plan – update 1* (MSC.1/Circ.1595), the authority is encouraged to contact the domain coordinating body before submitting to the Organization for the coordination with other similar messages in order to avoid the duplication of similar messages.

23 Applications to the messages should be developed in accordance with the *Guideline on software quality assurance and human-centred design for e-navigation* (MSC.1/Circ.1512).

Cybersecurity

24 In order to ensure the appropriate cyber risk management on VDES, the user should understand and comply with the *Guidelines on maritime cyber risk management* (MSC-FAL.1/Circ.3, as revised).

25 In order to secure communication through VDES, it is recommended to utilize digital identities to authenticate and encrypt messages (when necessary), ensuring data integrity and trust between users of the system.

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1 IHO Publication S-52 – Specifications for Chart Content and Display Aspects of ECDIS and S-101 – Portrayal Catalogue (see appendix 1) and S-98 and IEC 62288/Ed.3

2 IALA Guideline R0144 and G1095 Harmonized Implementation of Application-Specific Messages (ASM)

Integrity and Authentication

26 When VDES is used for ensuring the integrity of the data and the identity of the sender by verifying digital signature, the provision of the digital signature should be implemented by the authority.

Reference documents

- International Convention for the Safety of Life at Sea, 1974, chapter V
- *Revised guidelines for the onboard operational use of shipborne automatic identification systems (AIS)* (resolution A.1106(22))
- Introduction of VHF data exchange system (VDES) into the IMO regulatory framework (resolution MSC.[….])
- Performance standards for shipborne VHF data exchange system (VDES) (resolution MSC.[….])
- ITU Radio Regulations, appendix 18, table of transmitting frequencies in the VHF maritime mobile band
- Technical characteristic for a VHF data exchange system in the VHF maritime mobile band (The most recent version of Recommendation ITU-R M.2092)

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ANNEX 16

DRAFT MSC CIRCULAR

GUIDELINES FOR SOFTWARE MAINTENANCE OF SHIPBOARD COMPUTER-BASED NAVIGATION AND COMMUNICATION EQUIPMENT AND SYSTEMS

1 The Maritime Safety Committee, at its […] session ([date]), approved the *Guidelines for software maintenance of shipboard computer-based navigation and communication equipment and systems*, as set out in the annex, prepared by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR), at its twelfth session (13 to 22 May 2025).

2 The aim of these Guidelines is to ensure that software maintenance carried out on shipboard computer-based navigation and communication equipment and systems is conducted in accordance with a controlled and standardized process.

3 Member States and international organizations are invited to bring these Guidelines to the attention of shipping companies, shipboard navigation and communication equipment manufacturers, service providers, mariners and all parties concerned.

ANNEX

GUIDELINES FOR SOFTWARE MAINTENANCE OF SHIPBOARD COMPUTER-BASED NAVIGATION AND COMMUNICATION EQUIPMENT AND SYSTEMS

1 Introduction

1.1 These Guidelines provide guidance for software maintenance of shipboard equipment and systems specified in paragraph 2.1.

1.2 The detailed procedures covered by these Guidelines are provided in sections 5 to 12.

2 Application

2.1 These Guidelines apply to shipboard computer-based equipment and systems specified or referred to in chapters IV (Radiocommunications) and V (Safety of Navigation) of the International Convention for the Safety of Life at Sea, 1974, that are capable of undergoing software maintenance.

2.2 These Guidelines apply to the methods of software maintenance defined in paragraph 3.8.

2.3 These Guidelines may be applied on a voluntary basis to any shipboard computer-based equipment and system not included under paragraph 2.1 that is capable of undergoing software maintenance, including those listed in appendix 3.

3 Definitions

3.1 *Category of software maintenance* means the type of software maintenance event based on the reason for undertaking the maintenance, which may be one or more of the following:

.1 bug fix (resolving software errors and improving performance/stability);

.2 feature release (adding functionality);

.3 compliance maintenance (maintaining conformity with regulations);

.4 security update (protecting against cyber threats); and

.5 obsolescence maintenance (addressing software and/or hardware that is no longer supported).

3.2 *Contracted Service Provider* means the entity contracted by the Company to facilitate the planning and execution of a software maintenance event. The Contracted Service Provider may be the Manufacturer or a third-party organization

3.3 *Certified Service Technician* means the employee of the Contracted Service Provider who is trained and certified by the Manufacturer in accordance with section 5 and who executes the software maintenance event.

3.4 *Company*, for the purpose of these Guidelines, means the shipowner or any other entity or person, such as the manager or the bareboat charterer, which has assumed the responsibility for the operation of the ship from the shipowner.

3.5 *Controlled network* means a shipboard network that has been designed to operate such that it does not pose any security risks to any connected network nodes.

3.6 *Critical update* means a software maintenance event that the Manufacturer has identified as critical to restoring or maintaining proper performance of the shipboard computer-based equipment or system.

3.7 *Manufacturer* means the original manufacturer of a shipboard computer-based equipment or system, or any entity which has taken legal and legitimate responsibilities for such equipment or system when the original manufacturer no longer exists or supports the equipment or system.

3.8 *Method of software maintenance* means the method by which software maintenance is undertaken, which may be:

.1 on board (carried out on the ship);

.2 onshore (carried out off the ship, for example, at the premises of the Contracted Service Provider); or

.3 remote (executed by accessing the shipboard computer-based system or equipment from a location external to the ship via communication links).

3.9 *Plan of approach* means a detailed description of the work to be undertaken in support of software maintenance, including appropriate assessments of the risks involved.

3.10 *Removable media/storage devices* means portable equipment used during software maintenance, including but not limited to USB memory sticks, laptop computers and external disk drives.

3.11 *Shipboard computer-based equipment and systems*, for the purpose of these Guidelines, means operational technology-comprising hardware and software installed or fitted on ships.

3.12 *Software* means programs and operating instructions used in shipboard computer-based equipment and systems, including firmware.

3.13 *Software maintenance* means updating, re-configuring, and associated checking of the software within shipboard computer-based equipment and systems.

3.14 *Uncontrolled equipment* means a device that is not part of a controlled network.

3.15 *Uncontrolled network* means a shipboard network that does not meet the definition of a controlled network.

4 General provisions

4.1 The Company should ensure that software maintenance of computer-based communication and navigation equipment and systems on board its ships is conducted in accordance with these Guidelines.

4.2 The Company should establish and implement health, safety and environmental (HSE) procedures covering all activities set out in these Guidelines.

4.3 All persons carrying out software maintenance should be trained and certified in accordance with the guidance in section 5. When performing such activities on board ships, they should comply with instructions and procedures established by the Company.

4.4 The Manufacturer, the Contracted Service Provider, the Certified Service Technician and the Company should ensure that all software maintenance-related training and operations are conducted in accordance with *Guidelines on maritime cyber risk management* (MSC-FAL.1/Circ.3, as revised), as well as the specific cybersecurity recommendations provided in these Guidelines.

4.5 Software installed in accordance with these guidelines should not compromise the type approval of the equipment or systems concerned.

5 Guidance for training and certification of service technicians by Manufacturers

5.1 Software maintenance of shipboard computer-based equipment and systems should be carried out by service technicians trained and certified in accordance with this section.

5.2 Training in the software maintenance procedures and functions of shipboard computer-based equipment and systems should be provided by the Manufacturer to the service technician. This should include cybersecurity aspects of software maintenance, including:

.1 security controls and their validation (e.g. firewall settings);

.2 countermeasures (e.g. network port plugs);

.3 integrity checking of shipboard computer-based equipment and systems including how to identify that an equipment or system has been compromised;

.4 recovery procedures, including those for user data; and

.5 procedure for reporting security events to the manufacturer.

5.3 Upon successful completion of the training, a certificate should be issued by the Manufacturer to the service technician, specifying:

.1 the issuing Manufacturer;

.2 date of issue;

.3 date of expiry;

.4 name of the Certified Service Technician;

.5 name of the Contracted Service Provider;

.6 list of shipboard computer-based equipment and systems produced by the Manufacturer which the Certified Service Technician is trained to maintain; and

.7 method(s) of software maintenance covered for each shipboard computer-based equipment and system produced by the Manufacturer (onboard, onshore, and/or remote).

5.4 The certificate should:

.1 have a validity of no more than five years from the date of issue;

.2 become invalid if the Certified Service Technician changes employer; and

.3 have its validity suspended in the event the Manufacturer becomes aware of any shortfall in performance and should only be revalidated after the issuing Manufacturer is satisfied that suitable corrective action has been taken.

5.5 The Manufacturer should keep a record of all Certified Service Technicians with valid certificates and make that information available to the relevant parties upon request.

5.6 The Contracted Service Provider should make a copy of the certificate available to the Company.

6 Reports and records

6.1 Upon completion of software maintenance, an electronic service report should be completed and signed by the Certified Service Technician, who carried out the work. The electronic service report should also be countersigned by the Company's representative. The minimum content of an electronic service report is defined in appendix 1.

6.2 The Company should ensure that an onboard software log is available on the ship listing the current and previous software maintenance events conducted on shipboard computer-based equipment and systems, in accordance with appendix 2. Each software maintenance event should be recorded in the onboard software log and linked to the associated electronic service report provided by the Certified Service Technician.

6.3 Records of software maintenance events, including electronic service reports, should be stored in the onboard software log for a minimum of five years.

6.4 The onboard software log can be incorporated into an existing inventory management system.

7 Guidance for the Manufacturer

7.1 The Manufacturer should have a quality assurance system for software lifecycle activities, which documents relevant procedures, responsibilities and configuration management, including deliveries from suppliers, taking into account cyber risk management and cyber threats in connection with software maintenance.

7.2 Arrangements for software maintenance of shipboard computer-based equipment and systems should be specified in the maintenance manuals, containing detailed technical information and instructions intended for service personnel. Timely access to maintenance manuals and any other relevant technical documentation should be provided to Contracted Service Providers and/or Certified Service Technicians.

7.3 User manuals should specify how the user can report a software error or system malfunction.

7.4 Shipboard computer-based equipment and systems should:

.1 provide the means to display, at least on demand, the current software version or, where there is no display, provide version information by alternative means such as labelling or a standardized external interface;

.2 allow access for maintenance purposes;

.3 provide protection against unauthorized access[1];

.4 where applicable[2], support rollback procedures which may be implemented by a full back-up of software, configuration parameters and data stored by the user; and

.5 where applicable[2], include a mechanism, described in the maintenance manual along with the method of execution, to generate an on-the-spot diagnostic report after software maintenance has been performed. This mechanism should identify the software version running on the shipboard computer-based equipment and system and provide a means to check that interfaces and functionality are operating as intended after the software maintenance or a rollback has been completed.

7.5 Where shipboard computer-based equipment and systems do not support rollback procedures, the Manufacturer should make replacement equipment or systems, as appropriate, available to the Certified Service Technician.

7.6 Timely access to information pertaining to the availability of new software versions for shipboard computer-based equipment and systems should be provided to Contracted Service Providers and/or Certified Service Technicians, together with:

.1 the category of software maintenance;

.2 the supported method of software maintenance;

.3 where applicable, any compatibility requirements for the hardware platform;

.4 instructions on how to confirm the software maintenance has been successfully applied;

.5 a description of changes as specified in paragraph 7.9; and

.6 where applicable, updated manuals as specified in paragraph 7.9.

7.7 If the Manufacturer has identified the need for software maintenance on a specific shipboard computer-based equipment or system, this information should be made available to the Contracted Service Provider and the Company, as necessary. The information should include affected software versions and guidance on how the user may check to determine if the installed software version is affected. Means for updating should be made available. If the Manufacturer does not know where the equipment or system is installed, and is therefore unable to relay the information to the Contracted Service Provider or the Company, the

[1] IEC 60945 imposes limitations on access to shipboard equipment by the end user.

[2] The phrase "where applicable" is included as there are types of shipboard computer-based equipment and systems that cannot feasibly support this requirement.

Manufacturer should relay the information to the known purchaser of the equipment or system concerned.

7.8 If the software maintenance is designated as a critical update by the Manufacturer, this information should be accompanied by a recommendation that the software maintenance should be performed as soon as practicable. Means should be provided for undertaking the software maintenance in a way that ensures minimal downtime of the shipboard computer-based equipment or system.

7.9 The software maintenance should be assessed to determine and describe new functionalities, changes and improvements. A summary of new functionalities, changes and improvements should be provided to the Contracted Service Provider as necessary, and the Manufacturer should provide updates to maintenance and user manuals, where applicable.

7.10 Following completion of software maintenance, any feedback received regarding the result of the maintenance should, if appropriate, be addressed and used for improving maintenance procedures.

8 Guidance for the Contracted Service Provider and Certified Service Technician

8.1 The Contracted Service Provider should ensure that maintenance-related operations are carried out in accordance with a quality assurance system, covering, as a minimum:

.1 competence management;

.2 remote maintenance procedures, if applicable (see section 11);

.3 reporting procedures;

.4 shipboard operations safety briefing; and

.5 cybersecurity.

8.2 Quality standards and internal training for Certified Service Technicians should be established by the Contracted Service Provider in line with maintenance and competency requirements of the Manufacturer and should be specified in a quality assurance system manual.

8.3 The cybersecurity competencies and internal cybersecurity training of Certified Service Technicians should be documented by the Contracted Service Provider, and should address:

.1 general cybersecurity awareness, including system architecture, phishing attacks, password security, physical security, social engineering and remote working security;

.2 integrity checking of removable media/storage devices; and

.3 procedures for incident response.

8.4 The Contracted Service Provider should make the Manufacturer aware of any shortfall in performance of its Certified Service Technicians.

8.5 When planning the software maintenance, the Certified Service Technician, in consultation with the Company, should prepare a Plan of approach which should:

.1 provide a description of the work expected to be undertaken;

.2 be shared with and agreed to by the Company;

.3 include information on any risks to the ship and shipboard equipment, alongside associated mitigations;

.4 adhere to the HSE instructions provided by the Company, to ensure that the specific HSE requirements are known, understood and followed; and

.5 include procedures for validating the operation of the shipboard computer-based equipment and systems after completion.

8.6 Where the Manufacturer has determined the need for a critical update and provided the necessary means, this software maintenance should be planned between the Contracted Service Provider and the Company to ensure that it will be undertaken as soon as practicable and that downtime of the equipment or system is minimized.

8.7 Before the Certified Service Technician arrives on board to perform software maintenance, the Contracted Service Provider should ensure that:

.1 date, place and maintenance requirements, including port information and agent details, are planned and agreed with the Company;

.2 the Certified Service Technician(s) is assigned to undertake the work, with the basis of the appointment documented and the certificate (paragraph 5.3 refers) shared with the Company;

.3 information from the Company about the ship's equipment, system architecture, related configurations and software version(s) has been received and is sufficient;

.4 a shipboard operations safety briefing for the Certified Service Technician(s) is undertaken to ensure that any specific requirements related to safety, security and environmental protection that have been communicated by the Company are understood;

.5 the applicable software version(s) for the shipboard computer-based equipment or system are identified and prepared for installation;

.6 the identity of the Certified Service Technician(s) assigned to undertake the work is forwarded to the ship for ISPS clearance and, where the assigned person(s) is subsequently unable to come on board, the Company is informed in advance about any replacement person(s) or about cancellation in case a Certified Service Technician is not available; and

.7 all necessary tools and resources needed to access the shipboard computer-based equipment or system for software maintenance are prepared (for example: laptop, media device, specific tools recommended by the Manufacturer).

8.8 Where shipboard computer-based equipment and systems have been designed with recovery procedures, these should be utilized when required, for example if errors occur during software maintenance.

8.9 Procedures to protect against cybersecurity incidents during a software maintenance event should be agreed with the Company, including measures for demonstrating that removable media/storage devices have been checked for malware.

8.10 Uncontrolled equipment used during software maintenance, other than removable media/storage devices (as defined in these Guidelines), should not be directly connected to a controlled network. Such uncontrolled equipment should only be connected to a controlled network through a firewall or similar gateway device[3].

8.11 In order to complete the software maintenance event, the Certified Service Technician should:

.1 ensure that the equipment or system functions as intended after the software maintenance (subject to agreement with the Company, the Certified Service Technician may remain onboard to verify correct operation of the shipboard computer-based equipment during voyage);

.2 where the shipboard computer-based equipment or system provides a mechanism to generate an on-the-spot diagnostic report, execute this process and include the report in the electronic service report;

.3 complete and sign an electronic service report in accordance with section 6, and provide a copy to the Company for countersignature of the electronic service report by the representative of the Company and for inclusion into the onboard software log;

.4 demonstrate in the presence of the ship's master and/or relevant crew member(s) that the shipboard equipment or system functions and operates as intended;

.5 if applicable, demonstrate to the master and/or relevant crew member(s) any new/changed functionality; and

.6 if applicable, provide updated user manuals to the ship.

8.12 Following completion of a software maintenance event, the Certified Service Technician should advise the Manufacturer of any issues or potential improvements to be considered for future software maintenance.

9 Guidance for the Company

9.1 The Company should ensure safe practices for the ship's safe navigation and operation during software maintenance and assess identified possible risks to the ship. Procedures should be in place to ensure that shipboard computer-based equipment and system software is maintained taking into consideration the guidance of the Manufacturer. Such procedures could, for example, include annual performance tests, clean-ups, diagnostics and instructions for when this should take place.

[3] For example, IEC 61162-460 specifies a device called a "-460 Gateway" and a device called a "-460 Wireless gateway" for the purpose of connecting controlled and uncontrolled networks.

9.2 Where an operational anomaly or software defect has been identified on a shipboard computer-based equipment or system, the Company should provide the Contracted Service Provider with information concerning the equipment or the system, connections, related configurations and software versions, along with port information and agent details.

9.3 When planning a software maintenance event, the Company should prepare a procedure, taking into account the following considerations as well as the category and method of software maintenance:

.1 identification of the need for additional familiarization, changes to operating procedures, and changes to onboard documentation;

.2 description of how to avoid security risks including preventing unauthorized access, inappropriate assignment of user privileges, and spread of malware;

.3 identification of the software, shipboard equipment, system and network to be maintained;

.4 identification of all shipboard equipment and systems affected, taking into account the interface connections to the shipboard computer-based equipment and/or systems requiring the software maintenance;

.5 identity of Certified Service Technician assigned to undertake the software maintenance;

.6 preparation for remote access if this is agreed to be undertaken during the software maintenance (see section 12);

.7 identification of appropriate crew member(s) to assist with the software maintenance; and

.8 coordination with the master to ensure the safety of navigation during the software maintenance event.

9.4 During operational planning of a software maintenance event, the Company should ensure that:

.1 date, place and maintenance requirements for the shipboard computer-based equipment or system, including port information and agent details, are planned and agreed upon with the assigned Certified Service Technician;

.2 information is sent to the Certified Service Technician about the ship's equipment, system architecture, related configurations, and software version(s);

.3 where the Manufacturer has determined the need for a critical update and provided the necessary means, the software maintenance is planned with the Contracted Service Provider(s) to ensure that it will be undertaken as soon as practicable and that downtime of the shipboard computer-based equipment or system is minimized;

.4 any specific HSE instructions are communicated to the Certified Service Technician so that these may be adhered to in the Plan of approach; and

.5 a copy of the Certified Service Technician's certificate(s) is/are requested.

9.5 Procedures should be in place to protect shipboard computer-based equipment and systems from malicious or unintentional security threats during software maintenance and they should include the following considerations:

.1 identity of the Certified Service Technician coming on board to undertake the software maintenance; and

.2 the Certified Service Technician access management.

9.6 When removable media/storage devices are used during software maintenance, the Company should ensure that the Certified Service Technician demonstrates that such devices have been checked for malware before the maintenance is carried out.

9.7 Each software maintenance event should be recorded in the onboard software log and linked to the associated electronic service report, in accordance with appendices 1 and 2. Such records should be made available on request to the Certified Service Technician in support of future software maintenance.

9.8 Following the conclusion of a software maintenance event, the master should be responsible for confirming that the shipboard computer-based equipment or system functions as intended.

9.9 On completion of a software maintenance event, the Company should advise the Contracted Service Provider of any issues or potential improvements to be considered for future software maintenance.

9.10 Following a software maintenance event, crew familiarization should be ensured for any new functionalities, changes or improvements.

10 Additional guidance for the Manufacturer – remote software maintenance

Shipboard computer-based equipment and systems that support remote software maintenance should:

.1 provide multi-factor authentication to verify the identity of remote users;

.2 have the capabilities necessary to manage interruptions to remote access sessions without compromising their integrity and availability;

.3 provide measures to terminate a remote software maintenance event;

.4 provide measures to ensure the integrity of the maintenance, including any data transferred; and

.5 include programs to enable testing of the remote access feature, including functional tests and failure tests.

11 Additional guidance for the Contracted Service Provider and Certified Service Technician – remote software maintenance

11.1 Planning for remote software maintenance should be coordinated with the Company and the ship's master.

11.2 Remote software maintenance should only be carried out on shipboard computer-based equipment or systems connected to a controlled network.

11.3 Remote access to any shipboard computer-based equipment or system must only be carried out with the express permission of the Company. Additionally, permission should be obtained from the ship's master before initiating each remote software maintenance session.

11.4 The shore-side external access points of remote connections should be secured to prevent unauthorized access. Procedures to ensure the identity of the Certified Service Technician should be in place.

11.5 Where the remote software maintenance involves real-time communication and/or monitoring, the means of communication should be arranged between the Certified Service Technician and the ship before initiating the remote maintenance.

11.6 A time slot for when the shipboard computer-based system or equipment is connected and powered up should be agreed with the ship's master. After concluding the maintenance, procedures for how to determine when the shipboard connection can be closed should be agreed in advance.

11.7 The Plan of approach should document:

.1 how the remote maintenance will be carried out in a safe and secure way including a description of the work expected to be undertaken, and any communications between the Certified Service Technician and the ship;

.2 how all cybersecurity related aspects of remote maintenance will be controlled from the start to the end of the remote software maintenance event, including but not limited to data integrity and security, access rights and operational state of the shipboard computer-based equipment or system;

.3 the communications channel(s) to be used for the remote software maintenance event and its essential technical requirements (e.g. bandwidth);

.4 what measures will be taken if the remote connection is lost or disrupted during the remote software maintenance event; and

.5 how and in which circumstances the responsible crew member(s) on board can terminate the remote connection during remote software maintenance.

11.8 In the event of an error or disruption during the remote software maintenance event, an assessment will be conducted jointly with the Certified Service Technician, the ship and the Company, as appropriate, as to whether the event should be continued with, or recovery procedures should be undertaken.

12 Additional guidance for the Company – remote software maintenance

12.1 Remote access should only be allowed to shipboard computer-based equipment and systems on a controlled network.

12.2 The remote access connection should be restricted to the shipboard computer-based equipment or system undergoing software maintenance.

12.3 For the purposes of planning and executing a remote software maintenance event, the Company should ensure that:

.1 permission is provided to the Certified Service Technician to undertake remote maintenance, specifying who has access, when they have access, and what equipment they have access to;

.2 permission is provided by the ship's master before every remote maintenance session;

.3 procedures are in place to ensure that those service technicians certified to remotely access shipboard computer-based equipment and systems for the purposes of software maintenance can do so;

.4 procedures are in place detailing the measures to be taken if the remote connection is lost or disrupted during the remote software maintenance event;

.5 procedures are in place to ensure that remote software maintenance takes place during safe and suitable conditions; and

.6 confirmation is received from the ship's master that the remote software maintenance event has been completed successfully.

12.4 In the event of an error or disruption during the remote software maintenance event, an assessment will be conducted jointly with the Certified Service Technician and the ship, as to whether the event should be continued with or recovery procedures should be undertaken.

APPENDIX 1

ELECTRONIC SERVICE REPORTS

This appendix specifies the minimum content of an electronic service report which is to be completed by the Certified Service Technician at the end of a software maintenance event.[4]

Format

The format of electronic service reports should be standardized, where practical, noting that its detailed content is dependent on the business system used by the Contracted Service Provider. The format of the electronic service report should be suitable for electronic filing and its content should be searchable. As minimum, it should be possible to store these electronic service report documents in individual electronic folders.

Content

The following template identifies the minimum content of an electronic service report (pages should be numbered as, for example, 1 of 10):

"1 General information

Information about the ship:

.1 Company name;

.2 ship name;

.3 IMO number; and

.4 MMSI.

Information about the Contracted Service Provider and Certified Service Technician:

.1 name and contact information of the Contracted Service Provider;

.2 name of the Certified Service Technician;

.3 number and expiry date of the Certified Service Technician's certificate; and

.4 employee ID of the Certified Service Technician.

2 Information about the shipboard computer-based equipment and software

For each piece of equipment and system undergoing software maintenance, the following details should be provided:

.1 Manufacturer;

[4] Refer to the most recent edition of the ISO 24060 series for requirements related to electronic service reports.

.2 model (revision or edition number, if applicable);

.3 type;

.4 serial number;

.5 software version prior to maintenance; and

.6 date of previous software maintenance (installation date if no prior maintenance).

3 Details and purpose of the software maintenance event

.1 date and time of start of the software maintenance event;

.2 date and time of the end of the software maintenance event;

.3 location of the ship at the time of completion of the software maintenance event;

.4 method of software maintenance (onboard, onshore or remote);

.5 category of software maintenance (indicate as appropriate):

.1 bug fix;

.2 feature release;

.3 compliance maintenance;

.4 security update;

.5 obsolescence maintenance;

.6 combination of the above (specify);

.7 other (specify); and

.6 if it was a critical update (Yes/No).

4 Cybersecurity

The following information should be recorded for any removable media/storage device used to perform software maintenance:

.1 version and the make of the anti-virus/malware software used;

.2 last update of the anti-virus/malware database; and

.3 confirmation and date of clean anti-virus/malware scan.

5 Technical report

.1 detailed description of the work performed;

.2 outcome of the maintenance event; and

.3 for each piece of equipment and system undergoing software maintenance, record the software version after completion.

6 Hardware changes

Should a hardware component of a shipboard computer-based equipment or system be added, removed or replaced, the following information should be recorded for the new hardware and any hardware that has been replaced:

.1 Manufacturer;

.2 model (revision or edition number, if applicable);

.3 type; and

.4 serial number.

7 Operational status after software maintenance event

For each shipboard computer-based equipment and system undergoing software maintenance indicate [Yes]/[No]/[N/A] for the following:

.1 all available self-test mechanisms have been completed successfully;

.2 there was a demonstration in the presence of the ship's master and/or relevant crew member(s) that the shipboard computer-based equipment or system functions and operates as intended after the software maintenance;

.3 additional new functionalities were demonstrated to the ship's master and/or relevant crew member(s);

.4 an on-the-spot diagnostic report was generated after completion of the software maintenance event and is appended to the electronic service report; and

.5 should a follow-up be deemed necessary (if yes, provide reasons/details).

8 Post-event acceptance

.1 has the software maintenance event been completed to the satisfaction of the ship's master? (Yes/No); and

.2 capture feedback and comments from the ship's master and/or relevant crew member(s) about the software maintenance event.

9 Signatures

.1 Certified Service Technician; and

.2 Company representative.

Digital signatures that prevent tampering and confirm the originality of the content of the report should be considered."

APPENDIX 2

ONBOARD SOFTWARE LOG

1 The onboard software log is a repository of information relating to the software installed on shipboard computer-based equipment and systems, including associated software maintenance events and the related electronic service reports.[5]

2 Electronic service reports should be linked to individual software maintenance event records.

3 The onboard software log should be implemented and maintained by the Company and made available on board. The onboard software log should be updated after each software maintenance event.

4 Each onboard software log should include the following fields as a minimum:

.1 Ship details:

.1 ship name;

.2 IMO number;

.3 MMSI; and

.4 Company name.

.2 Shipboard computer-based equipment or software details:

.1 Manufacturer;

.2 model (revision or edition number, if applicable);

.3 type;

.4 serial number;

.5 previous software version;

.6 current software version; and

.7 software maintenance event details:

.1 date of the software maintenance event;

.2 initiator (Manufacturer/Contracted Service Provider/Company);

.3 method of software maintenance (onboard, onshore or remote);

.4 category of software maintenance;

[5] ISO 24060-1 specifies requirements for a Ship Software Logging System (SSLS).

.5 status of equipment or system prior to software maintenance;

.6 status of equipment or system on completion of software maintenance; and

.7 Contracted Service Provider and Certified Service Technician details:

.1 name and contact information of the Contracted Service Provider;

.2 name of the Certified Service Technician;

.3 number and expiry date of the Certified Service Technician's certificate; and

.4 employee ID of the Certified Service Technician.

APPENDIX 3

ADDITIONAL SHIPBOARD COMPUTER-BASED SYSTEMS TO WHICH THESE GUIDELINES MAY BE APPLIED

1 These Guidelines may be applied, on a voluntary basis, to any shipboard computer-based system not included under paragraph 2.1 of these Guidelines.

2 A list of such systems is provided as follows (note that this list is not intended to be exhaustive):

.1 alarm and monitoring systems for propulsion systems;

.2 ballast transfer valve remote control system;

.3 bilge level detection and associated control of pumps;

.4 bunkering control system;

.5 drilling systems;

.6 dynamic positioning system of equipment classes 2 and 3 according to MSC/Circ.645 on Guidelines for vessels with dynamic positioning systems;

.7 electric power system (including power management system);

.8 fuel oil treatment system;

.9 liquid cargo transfer control system;

.10 propulsion system of a ship, meaning the means to generate and control mechanical thrust in order to move the ship;

.11 security, access control and surveillance system;

.12 ship safety systems covering fire detection and fighting, flooding detection and fighting, internal communication systems involved in evacuation phases, ship systems involved in the operation of life-saving appliances equipment;

.13 ship to shore integrated systems (e.g. remote control systems);

.14 stabilization and ride control systems; and

.15 steering system control system.

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ANNEX 17

DRAFT MSC CIRCULAR

GUIDELINES ON CARRIAGE AND USE OF ELECTRONIC NAUTICAL PUBLICATIONS (ENP) SYSTEM

1 The Maritime Safety Committee, at its […] session ([…]), with a view to promoting safe use of electronic nautical publications, approved the *Guidelines for the carriage and use of electronic nautical publications (ENP) system*, as set out in the annex, prepared by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) at its twelfth session (13 to 22 May 2025).

2 The aim of these Guidelines is to provide guidance on the carriage and use of ENP on board, ensuring a standardized implementation of SOLAS regulations V/19.2.1.4 and 19.2.1.5.

3 Member States are invited to bring this circular to the attention of all parties concerned.

ANNEX

GUIDELINES FOR THE CARRIAGE AND USE OF ELECTRONIC NAUTICAL PUBLICATIONS (ENP) SYSTEM

1 General

1.1 Background

1.1.1 In accordance with SOLAS regulations V/19.2.1.4 and V/27 all ships shall have nautical charts and nautical publications, as defined in SOLAS regulation V/2.2, to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage. SOLAS regulation V/19.2.1.5 allows electronic means to partly or fully fulfil the functional requirements of SOLAS regulation V/19.2.1.4, provided that there are appropriate back-up arrangements.

1.1.2 In this regard, the *IMO requirements on carriage of publications on board ships* (MSC-MEPC.2/Circ.2) expressly states that "publications may be carried in the form of electronic media such as CD-ROM in lieu of hard copies". Therefore, Electronic Nautical Publications (hereinafter referred to as ENP) may be used as a means to meet the carriage requirement of nautical publications.

1.2 Purpose

1.2.1 This document provides guidelines for the carriage and use of ENP system on board in order to unify the implementation of SOLAS regulations V/19.2.1.4, V/19.2.1.5 and V/27.

1.2.2 If the contents of nautical publications are provided by the ship's Electronic Chart Display and Information Systems (ECDIS), this document should not apply to such ECDIS equipment and does not override any ECDIS performance standards requirements.

1.2.3 Additionally, any instruction and/or guidance from national hydrographic offices or the ship's flag State, if any, should be adhered to.

1.3 Definitions

1.3.1 *Nautical Publication* or *nautical chart* means a special-purpose map or book, or a specially compiled database from which such a map or book is derived, that is issued officially by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, which:

.1 is designed to meet the requirements of marine navigation;

.2 is to be used on board to plan the ship's route for the intended voyage and to monitor positions throughout the voyage; and

.3 may include sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage.

1.3.2 *Electronic Nautical Publication (ENP)* means a nautical publication which is in an electronic form.

1.3.3 *ENP system* means a system and equipment, including hardware, software, and the ENP, on which electronic nautical publications are installed, displayed, accessed and updated.

2 Requirements on system and carriage

2.1 Publications included in ENP and issuing authority

ENP should be issued officially by or on the authority of a Government, authorized hydrographic office, or other relevant government institution in accordance with SOLAS regulation V/2.2.

2.2 Hardware and software

2.2.1 The ENP system should meet the data format and processing requirements of the ENP.

2.2.2 Type approval for the ENP system is not required, however, ENP system should not interfere with the operation of other navigation and radiocommunication equipment and electromagnetic compatibility with other systems should be taken into account[*].

2.2.3 Where the ENP system is to be used to run other software applications to support the ship's operations, it should be checked to ensure that there is no conflict between these and the software for ENP.

2.3 Power supply

As the ENP system should be available at all times during the voyage, the power should be supplied from the ship's main source of electrical power and also emergency source of electrical power. However, if the ENP system has a built-in battery for portable devices, it is sufficient for the charging facilities to be supplied from both the ship's main source of electrical power and the emergency source of electrical power. The installation and use of a built-in battery or an uninterruptible power supply (UPS) is recommended, in order to eliminate fluctuations in the ship's main supply that would cause interruption to the ENP system.

2.4 Display

The size and resolution of the screen of an ENP system should provide a clear display of navigation information. A minimum screen size of 10 inches (diagonal) is recommended. Also, when used on the navigation bridge the screen should be able to adjust in brightness and contrast to enable viewing in all ambient light conditions. Especially for use in the darkness, the brightness of the screen and keyboard, as applicable, should not adversely affect the night vision of bridge watch personnel.

2.5 Location of ENP system

Nautical publications are required for voyage planning and should also be easily accessible by the master and officers of watch at all times during the voyage. Therefore, the ENP system should be located in close proximity to the navigation bridge.

[*] Refer to resolution A.813(19).

2.6 Back-up arrangement

2.6.1 In accordance with SOLAS regulation V/19.2.1.5, an appropriate back-up arrangement for the ENP system should be provided. The back-up arrangement may be a secondary ENP system or official hard copies of nautical publications. If a secondary ENP system is provided as a back-up arrangement, it also should satisfy all requirements in these guidelines.

2.6.2 If it is not possible to locate the back-up arrangement in, or in the vicinity of, the navigation bridge, it may be located at another location easily accessible to officers of the watch.

2.6.3 In case the hard copies of nautical publications are provided as a back-up arrangement, they should be issued officially by or on the authority of a Government, authorized hydrographic office, or other relevant government institution in accordance with SOLAS regulation V/2.2.

3 Requirements on operation

3.1 Update

In accordance with SOLAS regulation V/27, ENP, for both primary and back-up arrangement, should have a facility for updating information at least at the same interval as that provided in any hard copies of nautical publications. Nautical publications used for back-up should remain updated at all times. A record of updates should be kept on board.

3.2 System malfunctions

The procedure for troubleshooting in case of malfunctioning of the ENP system should be provided onboard. In the event of a serious malfunction which cannot be resolved by the ship's crew, repairs or remote support by shore personnel should be carried out as soon as possible. If immediate repair is not possible for both primary and back-up ENP system, all data and information, which can be acquired from nautical publications necessary to sail to a port where repairs can be made, should be provided from shore side.

3.3 Familiarization

The crew using the ENP system should be familiarized on board with these guidelines and user manuals, if provided, to ensure that ship's master and officers of watch are able to use and maintain the ENP safely and effectively.

3.4 Cyber risk management

3.4.1 Cyber risk management procedures should be implemented to protect the primary and back-up ENP systems (including a network system, if used) against cyber threats.

3.4.2 It should be possible for the user to verify that ENP is authentic in accordance with paragraph 2.1 of these guidelines. This functionality should allow users to confirm that the data was issued by the relevant authority or data producer.

4 Documented procedure for operation

A documented procedure, which can be part of the ship's Safety Management System, for using and managing the ENP and ENP system should be provided on board, including but not limited to:

- Instructions for use;
- Maintenance procedure including in case of ENP system malfunction;
- Periodical update;
- Back-up arrangement and its management; and
- Familiarization.

5 References

- MSC-MEPC.2/Circ.2 – *IMO requirements on carriage of publications on board ships*
- MSC.1/Circ.891 – *Guidelines for on board use and application of computers*
- MSC.1/Circ.982 – *Guidelines on ergonomic criteria for bridge equipment and layout*
- MSC-FAL.1/Circ.3, as revised – *Guidelines on maritime cyber risk management*

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ANNEX 18

DRAFT RESOLUTION MSC.379(93)/REV.1

PERFORMANCE STANDARDS FOR SHIPBORNE BEIDOU SATELLITE NAVIGATION SYSTEM (BDS) RECEIVER EQUIPMENT

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 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,

RECALLING FURTHER that, in accordance with resolution A.1046(27), containing the IMO policy for the recognition and acceptance of suitable radionavigation systems intended for international use, the BeiDou satellite navigation system (BDS) had been recognized as a component of the worldwide radionavigation system (SN.1/Circ.329),

NOTING that shipborne receiving equipment for the worldwide radionavigation system should be designed to satisfy the detailed requirements of the particular system concerned,

RECOGNIZING the need to revise the performance standards for shipborne BDS receiver equipment (resolution MSC.379(93)) in order to ensure the operational reliability of such equipment and taking into account the technological progress and experience gained,

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

1 ADOPTS the revised *Performance standards for shipborne BeiDou Satellite Navigation System (BDS) receiver equipment*, set out in the annex to the present resolution;

2 RECOMMENDS that Governments ensure that BDS receiver equipment:

.1 if installed on or after 31 July 2028, conforms to performance standards not inferior to those specified in the annex to the present resolution; and

.2 if installed before 31 July 2028, conforms to performance standards specified in resolution MSC.379(93);

3 AGREES that, for the purpose of this resolution, the expression *installed on or after 31 July 2028* means:

.1 for ships for which the building contract is placed on or after 31 July 2028, or in the absence of the contract, the keels of which are laid or which are at a similar stage of construction on or after 31 July 2028, any installation date on the ship; or

.2 for ships other than those specified in sub-paragraph .1 above, a contractual delivery date for the equipment or, in the absence of a contractual delivery date, the actual delivery date of the equipment to the ship on or after 31 July 2028.

ANNEX

PERFORMANCE STANDARDS FOR SHIPBORNE BEIDOU SATELLITE NAVIGATION SYSTEM (BDS) RECEIVER EQUIPMENT

1 Introduction

1.1 As a global navigation satellite system compatible with other navigation satellite systems worldwide, the BDS is a system independently developed and operated by China and is comprised of three major components: space constellation, ground control segment and user terminals. The space constellation consists of three geosynchronous earth orbit (GEO) satellites and 24 medium-earth orbit (MEO) satellites and three inclined geosynchronous satellite orbit (IGSO) satellites. The GEO satellites are positioned at longitudes of 080° E, 110.5° E, 140° E, respectively. The MEO satellites are operating in an orbit with an altitude of 21,528 km and an inclination of 55°, which are evenly distributed in three orbital planes. The IGSO satellites are operating in an orbit with an altitude of 35,786 km and an inclination of 55°, which are evenly distributed in three inclined geosynchronous orbital planes. The subsatellite track for the three IGSO satellites are coincided while the longitude of the intersection point is at 118° E. This geometry ensures that a minimum of four satellites are visible to users worldwide with a position dilution of precision (PDOP) ≤ 6.

1.2 The BDS Open Service (OS) provides positioning, navigation and timing services, free of direct user charges. Meanwhile, BDS is capable of providing Satellite based Augmentation Service (SBAS) and Precise Point Positioning (PPP) services for maritime within its coverage area. The BDS receiver equipment should be capable of receiving and processing the open service signal.

1.3 BDS transmits five Open Service navigation signals. Each satellite transmits B1I (1561.098MHz) and B3I (1268.520MHz) signals. The MEO and IGSO satellites transmit B1C (1575.42MHz), B2a (1176.45 MHz), and B2b (1207.14MHz) signals. The Open Service can be used on one (B1I or B1C), two (B1C and B2a or B1I and B3I) or three frequencies.

1.4 BDS SBAS provides the Single-Frequency (SF) service through BDSBAS-B1C (1575.42MHz) signal and the Dual-Frequency Multi-Constellation (DFMC) service through BDSBAS-B2a (1176.45 MHz) signal for users by the BDS GEO satellites in China and surrounding areas.

1.5 BDS PPP Service Signal PPP-B2b(1207.14MHz) is transmitted by the BDS GEO satellites, with the PPP-B2b signal I-component serving as the data broadcasting channel for correction parameters, such as satellite precise orbit and clock offset parameters of BDS and other GNSS, and provides PPP services for users in China and surrounding areas, with the precise position service accuracy at decimetre level.

1.6 BDS receiver equipment intended for navigational purposes on ships with a speed not exceeding 70 knots, in addition to the general requirements specified in resolution A.694(17)[1], should comply with the following minimum performance requirements.

[1] Refer to publication IEC 60945.

1.7 The standards cover the basic requirements of position fixing, determination of course over ground (COG), speed over ground (SOG) and timing, either for navigation purposes or as input to other functions. The standards do not cover other computational facilities which may be in the equipment nor cover the requirements for other systems that may take input from the BDS receiver.

2 BDS receiver equipment

2.1 The term "BDS receiver equipment" as used in the performance standards includes all the components and units necessary for the system to properly perform its intended functions. The BDS receiver equipment should include the following minimum facilities:

.1 antenna capable of receiving BDS signals;

.2 BDS receiver and processor;

.3 means of accessing the computed latitude/longitude position;

.4 data control and interface; and

.5 position display and, if required, other forms of output.

If BDS forms part of an approved Integrated Navigation System (INS), requirements of 2.1.3, 2.1.4, 2.1.5 may be provided within the INS.

2.2 The antenna design should be suitable for fitting at a position on the ship which ensures a clear view of the satellite constellation, taking into consideration any obstructions that might exist on the ship.

3 Performance standards for BDS receiver equipment

The BDS receiver equipment should:

.1 be capable of receiving and processing the BDS positioning and velocity, and timing signals by using a single-frequency or a dual-frequency receiver, and should use the ionospheric model broadcast to the receiver by the constellation to generate ionospheric corrections：

.1 a BDS single-frequency receiver should use the B1I or B1C signal alone and correct ionospheric propagation effects with the ionospheric model broadcast to the receiver by the satellite; or

.2 a BDS dual-frequency receiver should use either the B1C and B2a frequencies or the B1I and B3I frequencies; and using dual-frequency processing to correct ionospheric propagation effects.

.2 provide position information in latitude and longitude in degrees, minutes and thousandths of minutes[2];

[2] BeiDou uses BeiDou Coordinate System (BDCS) which is a realization of the International Terrestrial Reference Frame (ITRF) system and differs from WGS 84 by less than 5 cm world-wide. BDCS is consistent with the definition of the China Geodetic Coordinate System 2000 (CGCS2000). BDCS and CGCS2000 have the same ellipsoid parameters. Conversion to WGS 84 is not needed for maritime navigation.

.3 provide time referenced to universal time coordinated UTC (NTSC)[3];

.4 be provided with at least two outputs from which position information, UTC, course over ground (COG), speed over ground (SOG) and alarms can be supplied to other equipment. The output of position information should be based on the WGS 84 datum and should be in accordance with international standards[4]. The output of UTC, course over ground (COG), speed over ground (SOG) and alarms should be consistent with the requirements of 3.15 and 3.17;

.5 have static accuracy such that, for PDOP $\leqslant$ 6, the position of the antenna is determined to within:

.1 10 m horizontal (95%) and 22 m vertical (95%) for single-frequency operations on the B1I or B1C frequency; and

.2 9 m horizontal (95%) and 10 m vertical (95%) for dual-frequency operation on B1C and B2a or B1I and B3I operation;

.6 have dynamic accuracy equivalent to the static accuracy specified in .5 above under the normal sea states and motion experienced in ships[5];

.7 have position information in latitude and longitude in degrees, minutes and thousandths of minutes with a position resolution equal to or better than 0.001 min of latitude and longitude;

.8 be capable of selecting automatically the appropriate satellite-transmitted signals to determine the ship's position and velocity, and time with the required accuracy and update rate;

.9 be capable of acquiring satellite signals with input signals having carrier levels in the range of -133dBm to -119dBm. Once the satellite signals have been acquired, the equipment should continue to operate satisfactorily with satellite signals having carrier levels down to -136dBm;

.10 be capable of operating satisfactorily under normal interference conditions consistent with the requirements of resolution A.694(17);

.11 be capable of acquiring position, velocity and time to the required accuracy within 5 min where there is no valid almanac data;

.12 be capable of acquiring position, velocity and time to the required accuracy within 1 min where there is valid almanac data;

.13 be capable of reacquiring position, velocity and time to the required accuracy within 1 min when there has been a service interruption of 60 s or less;

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3 China National Time Service Centre.

4 Publication IEC 61162.

5 Refer to resolution A.694(17), publications IEC 6721-3-6 and IEC 60945.

.14 generate and output to a display and digital interface[6] a new position solution at least once every 1 s for conventional craft and at least once every 0.5 s for high-speed craft;

.15 provide the COG, SOG and UTC outputs, with a validity mark aligned with that on the position output. The accuracy requirements for COG and SOG should not be inferior to the relevant performance standards for heading[7] and speed and distance measuring equipment (SDME)[8] and the accuracy should be obtained under the various dynamic conditions that could be experienced on board ships;

.16 provide at least one normally closed contact, which should indicate failure of the BDS receiver equipment;

.17 have a bidirectional interface to facilitate communication so that alarms can be transferred to external systems and so that audible alarms from the BDS receiver can be acknowledged from external systems; the interface should comply with the relevant international standards[6]; and

.18 if applicable, have the facilities to process differential BDS (DBDS) data fed to it in accordance with the standards of ITU-R[9] and the appropriate RTCM standard and provide indication of the reception of DBDS signals and whether they are being applied to the ship's position.

4 Integrity checking, failure warnings and status indications

4.1 The BDS receiver equipment should also indicate whether the performance of BDS is outside the bounds of requirements for general navigation in the ocean, coastal, port approach and restricted waters, and inland waterway phases of the voyage as specified in either resolution A.1046(27) or appendix 2 to resolution A.915(22) and any subsequent amendments, as appropriate.

4.2 The BDS receiver equipment should, as a minimum:

.1 provide a warning within 5 s of loss of position or if a new position based on the information provided by the BDS constellation has not been calculated for more than 1 s for conventional craft and 0.5 s for high-speed craft. Under such conditions the last known position and the time of last valid fix, with the explicit indication of the state allowing for no ambiguity, should be output until normal operation is resumed;

.2 use Receiver Autonomous Integrity Monitoring (RAIM) to provide integrity performance appropriate to the operation being undertaken; and

.3 provide a self-test function.

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6 Publication IEC 61162.

7 Resolution A.424(XI) for conventional craft and resolution A.821(19) for high-speed craft.

8 Resolution A.824(19), as amended by resolution MSC.96(72).

9 ITU-R Recommendation M.823.

5 Protection

Precautions should be taken to ensure that no permanent damage can result from an accidental short circuit or grounding of the antenna or any of its input or output connections or any of the BDS receiver equipment inputs or outputs for a duration of five minutes.

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ANNEX 19

TERMS OF REFERENCE FOR THE REVISION OF MODEL COURSE 3.15 ON SAR ON-SCENE COORDINATOR (IAMSAR MANUAL VOLUME III)

Terms of reference for the course developer and the Review Group

Introduction

1 The Organization, in accordance with resolution 4 of the 1979 SAR Conference, and in collaboration with the International Civil Aviation Organization, developed the three volumes of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual to assist States in meeting their own search and rescue (SAR) needs, and the obligations they accepted under the Convention on International Civil Aviation, the International Convention on Maritime Search and Rescue (SAR Convention), and the International Convention for the Safety of Life at Sea (SOLAS Convention).

2 Each volume of the three volumes of the IAMSAR Manual is written with specific SAR system duties in mind, and can be used as a stand-alone document, or, in conjunction with the other two volumes, as a means to attain an overall view of the SAR system.

3 The SAR On-Scene Coordination volume (Volume III) assists vessels and aircraft in the performance of a search, rescue or on-scene coordinator function and with aspects of SAR that pertain to their own emergencies. It is intended to be carried on board rescue units, aircraft and vessels.

4 It is worth noting that an up-to-date copy of Volume III shall be carried on all SOLAS-certified ships and there are certain requirements for STCW certified officers. The STCW Convention requires qualified officers for navigation at the management level (masters and chief mates) to have a thorough knowledge of and ability to apply the procedures for SAR coordination contained in the IAMSAR Manual.

Scope and objectives

5 The revision of Model Course 3.15 on SAR On-Scene Coordinator (IAMSAR Manual Volume III) aims to incorporate new developments and align the model course with the latest edition of IAMSAR Manual Volume III.

6 The model course should cover the subject areas outlined in IAMSAR Manual Volume III, not exceeding the competencies and subjects covered in the manual. However, it may incorporate the latest technological developments and best practices of the industry, bearing in mind that Volume III of the Manual is intended to be used by seafarers in general, not necessarily professionally trained for SAR skills.

Activities

7 The course developer will develop Model Course 3.15 based on the previous edition of the same publication, and on the IAMSAR Manual Volume III, taking into account the model course development guidance for course developers in MSC-MEPC.2/Circ.15/Rev.2, appendix 3. The references and bibliography should make citations using the Harvard Style of Referencing while the common abbreviations for IMO model courses in part C – Detailed outline should be retained, e.g. R1 for SOLAS 1974.

8 The course developer, Review Group and the IMO Secretariat should take into account the time frame set out in the table in paragraph 9 when undertaking the following activities and specific actions:

.1 The course developer will submit the initial draft to the Operational Safety Section, Maritime Safety Division (MSD) of the IMO Secretariat, who is the designated representative of IMO for review and development of model courses under the purview of the NCSR Sub-Committee. The course developer will then prepare a revised draft taking into account any suggested changes by the IMO-designated representative and forward it again to the Secretariat.

.2 The Secretariat will forward the draft model course to its Review Group, which will then provide any comments and guidance to the course developer for inclusion as appropriate in the third draft, which will then be returned by the course developer to the Review Group for final evaluation and comments, if any.

.3 The course developer will then finalize the draft model course and submit it to the Operational Safety Section, MSD, for subsequent submission to the relevant session of the Sub-Committee, for consideration and validation.

9 Time frame:

Deadline	Action to be taken
30 January 2026	The course developer prepares an initial draft to be forwarded to the designated representative of the IMO Secretariat.
31 March 2026	The IMO Secretariat may conduct a review of the first draft of the course for adequacy and consistency with instructions, and suggests changes, where appropriate.
30 June 2026	The course developer will then prepare a draft, including revisions from the IMO Secretariat. The IMO Secretariat receives the second draft and forwards the draft model course to the Review Group.
30 August 2026	The Review Group returns any additional comments and guidance to the course developer for additional edits and development, as appropriate.
30 November 2026	The course developer submits the final revised draft of the model course to the IMO Secretariat for forwarding to the Review Group for final comments.
30 January 2027	The Review Group coordinator submits a report to the IMO Secretariat, including the evaluation questionnaire as contained in appendix 6 of MSC-MEPC.2/Circ.15/Rev.2.

Reporting

10 The model course should be drafted in English, and IMO should be provided with an electronic version compatible with Microsoft Word, to be submitted to the Operational Safety Section, MSD, with the deadlines for submission for the first and final draft, as outlined in the above time frame. All those who are parties to the development and review process are encouraged to exchange comments and information and seek feedback at any appropriate time. The dates and deadlines given in the time frame should be observed and adhered to, however, they should not be considered as limiting the exchange of information.

11 All material shall be prepared in accordance with intellectual property rights and the copyright remains with IMO.

COURSE DEVELOPER – SPECIFIC INSTRUCTIONS/TERMS OF REFERENCE

Course developer – specific instructions/terms of reference

MODEL COURSE 3.15 SAR ON-SCENE COORDINATOR

1) The overall goal of this model course is to assist States in their efforts to provide appropriate training to their officials undertaking the functions and responsibilities of a SAR On-Scene coordinator, in accordance with the IAMSAR Manual Volume III. IMO model courses are intended for a global audience and must be adaptable to a wide range of candidates and teaching resources.

2) This model course will be validated by the **Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) at its fourteenth session (NCSR 14)**. The final revised draft of the model course should be submitted to the Operational Safety Section (NCSR@imo.org) no later than 30 January 2027 with the following subject line:

Model Course 3.15 SAR On-Scene Coordinator for submission to NCSR 14

3) The following countries, organizations and subject matter experts (SME) have indicated their availability to work with the course developer on this project. Their contact information is listed below. The course developer is also encouraged to use other resources as may also be available to it.

Country, Organization, SME	Contact information

4) This model course has some common and same level training requirements (if applicable) as are found in the listed model courses. The training requirements must use similar vernacular and be based upon the same information. However, alterations to reflect individual national arrangements are expected.

Model course	Training requirement
3.13 SAR Administration (IAMSAR Manual, Volume I); and 3.14 SAR Mission Coordinator (IAMSAR Manual, Volume II)	

5) This model course has some common, but lower-level training requirements than those found in the listed model courses. These training requirements must use simpler taxonomy or topics to reflect their lower-level nature.

Model course	Training requirement
3.13 SAR Administration 3.14 SAR Mission Coordinator	

Course developer – specific instructions/terms of reference **MODEL COURSE 3.15 SAR ON-SCENE COORDINATOR**	
3.17 Standard Marine Communication Phrases (SMCP)	
6) This model course has some common, but higher-level education and training requirements than those found in the listed model courses. The education and training requirements must use a more advanced taxonomy or topics to reflect the advanced nature of the material presented.	
Model course	Training requirement
N/A	
7) This model course is to incorporate within these other model courses.	
Model course	Training requirement
N/A	
8) This model course is to include these other model courses.	
Model course	Training requirement
N/A	
9) This model course is to include education and training requirements from other IMO instruments.	
Convention, and Codes	training requirement
SAR Convention ICAO Convention, Annex 12 IAMSAR Manual, volume I, II and III SOLAS Convention	
These specific instructions are to provide the course developer with guidelines to use during the development of a model course. They are as inclusive as possible. However, the course developer may, at his or her discretion, and in consultation and agreement with the IMO Secretariat, adapt these instructions to meet the intent and goals of the Committee/Sub-Committee concerned.	

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ANNEX 20

DRAFT REVISED TERMS OF REFERENCE OF THE NCSR SUB-COMMITTEE

1 Under the direct instructions of the Maritime Safety Committee and as may be requested by the Marine Environment Protection Committee, the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) will consider technical and operational matters related to the following subjects, including the development of any necessary amendments to relevant conventions and other mandatory and non-mandatory instruments, as well as the preparation of new mandatory and non-mandatory instruments, guidelines and recommendations, for consideration by the Committees, as appropriate:

.1 obligations of Governments and operational measures related to safety of navigation, including hydrographic and meteorological services, ships' routeing, ship reporting systems, aids to navigation, radionavigation systems, vessel traffic services, and ~~pilotage~~ pilot transfer arrangements, including the role of such measures in the protection of the marine environment;

.2 operational requirements and guidelines relating to navigational safety and associated issues, such as regulations for the prevention of collisions and groundings, bridge procedures, voyage planning, avoidance of dangerous situations, places of refuge including maritime assistance services and relevant aspects of maritime security;

.3 carriage requirements, performance standards and operational guidelines for the use of shipborne navigational equipment and other navigational requirements, including bridge design, bridge visibility and ~~pilot transfer arrangements~~ nautical publications;

.4 obligations of Governments and operational measures related to the Global Maritime Distress and Safety System (GMDSS), ~~in particular matters relating to GMDSS Master Plan~~ including the establishment of shore-based facilities and the dissemination of maritime safety information (MSI), as reported in the GMDSS Master Plan;

.5 obligations of Governments and operational measures related to search and rescue, including the development and maintenance of the Global SAR Plan and the harmonization of aeronautical and maritime search and rescue procedures, in cooperation with ICAO;

.6 obligations of Governments and operational measures related to LRIT;

.7 technical and operational requirements and guidelines relating to radiocommunications and search and rescue, in cooperation with ITU~~, such as operational safety measures related to maritime mobile radiocommunications and security, including LRIT, operational and technical coordination provisions of maritime safety information (MSI) services, in cooperation with ICAO harmonization of aeronautical and maritime search and rescue procedures, including SAR training matters, and procedures for routeing distress information in the GMDSS~~;

.8 carriage requirements, performance standards and operational guidelines for the use of shipborne radiocommunication and search and rescue equipment; ~~and~~

.9 matters related to the ITU maritime ~~mobile radiocommunication matters~~ services and liaison with ITU technical bodies on ~~the~~ related issues~~.~~; and

.10 evaluation for recognition of mobile satellite services for use in the GMDSS and satellite navigation systems as components of the World-Wide Radionavigation System.

2 The conventions and other mandatory instruments (as may be amended from time to time) referred to above include, but are not limited to:

.1 1974 SOLAS Convention (chapters ~~III,~~ IV and V and other relevant chapters, as appropriate) and the 1978 and 1988 Protocols relating thereto;

.2 MARPOL annexes, as appropriate;

.3 International Regulations for Preventing Collisions at Sea (COLREG), 1972;

.4 International Code of Signals;

.5 International Codes of Safety for High-Speed Craft (HSC Code), 1994 and 2000, as appropriate; and

.6 International Convention on Maritime Search and Rescue (SAR), 1979.

3 The Sub-Committee may be also called upon to review non-mandatory instruments, in particular those related to mandatory instruments referred to in paragraph 1~~, which the Sub-Committee may be called upon to review, include, but are not limited to:~~

~~.1 Recommendations on performance standards for various shipborne navigational, radiocommunications and search and rescue equipment;~~

~~.2 *General provisions on ships' routeing*;~~

~~.3 *Guidelines and criteria for ship reporting systems*;~~

~~.4 *General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants*~~

~~.5 *Guidelines for vessel traffic services*;~~

~~.6 *Guidelines for the onboard operational use of shipborne automatic identification systems*;~~

~~.7 *IMO standard marine communication phrases*;~~

~~.8 Operational and technical coordination provisions of maritime safety information (MSI) services, including related documents;~~

~~.9 *Guidelines on radiocommunication procedures*;~~

~~.10 *Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)*;~~

~~.11 *Guidelines to facilitate efficient and effective search and rescue operations*;~~

~~.12 *International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual*; and~~

~~.13 *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas* (resolution A.982(24)).~~

4 Any other relevant technical and operational issues referred to it by the Committees or other technical bodies of the Organization.

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ANNEX 21

BIENNIAL STATUS REPORT FOR THE 2024-2025 BIENNIUM

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1. Ensure implementation of IMO instruments supported by capacity development	1.3	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))	2024	MSC	NCSR		Completed		MSC 101/24, para. 21.33; MSC 107/20, para. 17.77.2, MSC 108/20, section 12, MSC 109/22, para. 13.11 and annex 14 NCSR 9/24, section 11; NCSR 10/22, section 11; NCSR 11/19, section 11 and annex 7
1. Ensure implementation of IMO instruments supported by capacity development	1.11	Measures to harmonize port State control (PSC) activities and procedures worldwide	Continuous	MSC / MEPC	HTW / PPR / NCSR	III	No work requested	No work requested	MSC 101/24, para. 21.48; MEPC 75/18, paras. 11.10 and 11.11; MSC 104, para.13.7.1; MSC 108/20, para.13.7.1; MSC 109/22, 15.7 MEPC 78/17, paras.7.73 and 9.8; MEPC 79/15, paras. 9.5 and 9.6; MEPC 81/16, para.10.9.1

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1. Ensure implementation of IMO instruments supported by capacity development	1.34	Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures and amendments to the IAMSAR Manual	Continuous	MSC	NCSR		Ongoing	Completed	MSC 108/20, section 12; MSC 109/22, para. 13.4 and annex 11, MSC.1/Circ.1686; NCSR 12/20, section 7
1. Ensure implementation of IMO instruments supported by capacity development	1.35	Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)	2025	MSC	NCSR		Completed		MSC 106/19, para. 16.37; MSC 107/20, para. 17.78.3; MSC 109/22, para. 13.10 NCSR 11/19, section 10
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.1	Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference	Continuous	MSC	NCSR		Ongoing	Completed	MSC 106/19, paras. 13.28 to 13.33; MSC 107/20, paras 15.4 and 15.5 and annex 36; NCSR 12/20, section 6 and annexes 7 and 8
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.12	Development of guidance to establish a framework for data distribution and global IP-based connectivity between shore-based facilities and ships for ECDIS S100 products	2026	MSC	NCSR			Ongoing	NCSR 12/20, section 14

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.14	Development of procedures and requirements for the recognition of augmentation systems in the World-wide radionavigation system	2025	MSC	NCSR			Completed	MSC 107/20, para. 17.58.1 NCSR 12/20, section 8 and annex 9
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.17	Development of guidelines for software maintenance of shipboard navigation and communication equipment and systems	2026		NCSR			Completed	MSC 107/20, para. 17.33 NCSR 12/20, section 10 and annex 16
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.18	Development of guidelines for EPIRB which implement the two-way communication service via the SAR/Galileo Return Link service as a complement to EPIRB performance standards (resolution MSC.471(101))	2026		NCSR				MSC 107/20, para. 17.35
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.19	Revision of the Performance Standards for Shipborne BeiDou Satellite Navigation System (BDS) Receiver Equipment (resolution MSC.379(93))	2025	MSC	NCSR			Completed	MSC 107/20, para. 17.55 NCSR 12/20, section 13 and annex 18

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.27	Development of performance standards for a digital navigational data system (NAVDAT)	2024	MSC	NCSR		Completed		MSC 103/21, para. 18.18; MSC 106/19, para. 16.47.1.2, MSC 108/20, para. 12.19, MSC 109/22, paras 13.9 and 19.43; resolutions MSC.569 (109) and MSC.509(105)/Rev.1. NCSR 10/22, section 8, MSC 108/20, para. 12.19; NCSR 11/19, section 8, annexes 5 and 6
2. Integrate new, emerging and advancing technologies in the regulatory framework	2.28	Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES)	2025	MSC	NCSR		Extended	Completed	MSC 103/21, para. 18.12; MSC 106/19, para. 16.47.1.1; MSC 109/22, para.19.43. NCSR 11/19, section 9; NCSR 12/20, section 9 and annexes 10 to 15

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
4. Continue to engage in ocean governance	4.1	Identification and protection of Special Areas, Emission Control Areas and PSSAs and associated protective measures	Continuous	MEPC	NCSR		No work requested	No work requested	MEPC 79/15, para. 10.10 MEPC 78/17, section 11; MEPC 79/15, section 10; MEPC 80/17, section 11
6. Address the human element	6.1	Role of the human element	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW	No work requested	No work requested	MSC 89/25, paras. 10.10, 10.16 and 22.39 and annex 21; MEPC 78/17, paras. 10.4 and 13.
6. Address the human element	6.2	Validated model training courses	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW	Ongoing	Completed	MSC 100/20, paras. 10.3 to 10.6 and 17.28; MSC 105/20, section 16, MSC 108/20 PPR 9/21, section 12; MEPC 79/15, paras. 9.1, 9.14 to 9.15; MEPC 81/16, para.10.1 NCSR 12/20, section 14 and annex 19
7. Ensure the regulatory effectiveness of international shipping	7.1	Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions	Continuous	MSC / MEPC / FAL / LEG	III / PPR / CCC / SDC / SSE / NCSR		Ongoing	Completed	MSC 76/23, para. 20.3; MSC 78/26, para. 22.12; MSC 108/20, para. 18.13, section 19, MSC.1/Circ.1456/Rev.1, MSC.1/Circ.1572/Rev.2, MSC.1/Circ.1509/Rev.1, MSC.1/Circ.1511/Rev.1,

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
									MSC.1/Circ.1680; MEPC 78/17, section 4, and paras. 5.6 and 5.7; MEPC 79/15, paras. 4.8, 4.26, 4.27, 6.26 to 6.29; MEPC 80/17, paras. 4.11 and 5.24
7. Ensure the regulatory effectiveness of international shipping	7.2	Developments in GMDSS services, including guidelines on maritime safety information (MSI)	Continuous	MSC	NCSR		Ongoing	Completed	MSC 108/20, section 12, MSC.1/Circ.1310/Rev.2; NCSR 12/20, section 5, and annexes 5 and 6
7. Ensure the regulatory effectiveness of international shipping	7.20	Develop measures to prevent the loss of containers at sea	2025	MSC	III / HTW / SDC / NCSR	CCC	No work requested	No work requested	MSC 108/20, para. 3.9 to 3.12 and 3.70, MSC.550(108)
7. Ensure the regulatory effectiveness of international shipping	7.22	Routeing measures and ship reporting systems	Continuous	MSC	NCSR		Ongoing	Completed	MSC 108/20, para. 12.4, SN.1/Circ.343; MSC 109/22, para.13.3, COLREG.2/Circ.81, SN.1/Circ.344 NCSR 12/20, section 3 and annexes 1 to 4
7. Ensure the regulatory effectiveness of international shipping	7.23	Updates to the LRIT system	Continuous	MSC	NCSR		Ongoing	Completed	NCSR 12/20, section 4

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
7. Ensure the regulatory effectiveness of international shipping	7.44	Revision of SOLAS regulation V/23 and associated instruments to improve the safety of pilot transfer arrangements	2024	MSC	NCSR		Completed		MSC 106/19, para. 16.12 to .14; MSC 109/22, paras.13.14 to 13.19 and annexes 15 to 22 NCSR 11/19, section 13 and annexes 8 to 13
7. Ensure the regulatory effectiveness of international shipping	7.47	Review of the 2009 Code on Alerts and Indicators	2026	MSC	SSE / NCSR	SDC	No work requested	No work requested	MSC 108/20, para. 18.24.2
7. Ensure the regulatory effectiveness of international shipping	7.49	Development of guidelines for the use of electronic nautical publications (ENP)	2025	MSC	NCSR		In progress	Completed	MSC 104/15/4, MSC 105/20, para. 18.11 NCSR 12/20, section 12 and annex 17
7. Ensure the regulatory effectiveness of international shipping	7.50	Identification of measures to improve the security and integrity aspects of AIS	2025	MSC	NCSR		Completed		MSC 107/20, para. 17.77; MSC 109/22, para.13.20; Res.MSC.570(109) NCSR 11/19, section 14 and annex 14

OUTPUTS ON THE COMMITTEE'S POST-BIENNIAL AGENDA THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)								
Number	**Biennium (when the output was placed on the post-biennial agenda)**	**Reference to strategic direction**	**Description**	**Parent organ(s)**	**Associated organs(s)**	**Coordinating organ(s)**	**Timescale (sessions)**	**References**
201	2022-2023	2	Consideration of descriptions of Maritime Services in the context of e-navigation	MSC	FAL/ NCSR		1	MSC 107/20, para. 17.77.1 MSC.1/Circ.1610/Rev.1
202	2022-2023	2	Development of generic performance standards for shipborne satellite navigation system receiver equipment	MSC	NCSR		1	MSC 107/20, para. 17.76
204	2022-2023	2	Development of performance standards for dual frequency multi-constellation satellite-based augmentation systems (DFMC SBAS) and advanced receiver autonomous integrity monitoring (ARAIM) in shipborne radionavigation receivers	MSC	NCSR		2	MSC 107/20, para. 17.58.2
Note: Output 204 is proposed to be included in the biennial agenda of the Sub-Committee for 2026-2027 and in the provisional agenda of NCSR 13.								
207	2022-2023	2	Revision of the Performance standards for gyro-compasses (resolution A.424(XI)) and Guidance for navigation and communication equipment intended for use on ships operating in polar waters (MSC.1/Circ.1612)	MSC	NCSR		2	MSC 107/20, para. 17.47
Note: Output 207 is proposed to be included in the biennial agenda of the Sub-Committee for 2026-2027 and in the provisional agenda of NCSR 13.								

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)								
Number	**Biennium (when the output was placed on the post-biennial agenda)**	**Reference to strategic direction**	**Description**	**Parent organ(s)**	**Associated organs(s)**	**Coordinating organ(s)**	**Timescale (sessions)**	**References**
220	2024-2025	2	Development of operational guidance for route exchange	MSC	NCSR		1	MSC 109/22, para. 19.44
Note: Output 220 is proposed to be included in the biennial agenda of the Sub-Committee for 2026-2027 and in the provisional agenda of NCSR 13.								
211	2022-2023	6	Revision of the IMO Standard Marine Communication Phrases (resolution A.918(22))	MSC	HTW	NCSR	2	MSC 107/20, para. 17.53
Note: Output 211 is proposed to be included in the biennial agenda of the Sub-Committee for 2026-2027.								

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ANNEX 22

PROPOSED BIENNIAL AGENDA FOR THE 2026-2027 BIENNIUM

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)						
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ(s)**
~~1~~	~~1.3~~	~~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))~~	~~2024~~	~~MSC~~	~~NCSR~~	
1	1.11	Measures to harmonize port State control (PSC) activities and procedures worldwide	Continuous	MSC / MEPC	HTW / PPR / NCSR	III
1	1.34	**Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures and amendments to the IAMSAR Manual**	Continuous	MSC	NCSR	
~~1~~	~~1.35~~	~~Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)~~	~~2025~~	~~MSC~~	~~NCSR~~	
2	2.1	**Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference**	Continuous	MSC	NCSR	
2	2.12	**Development of guidance to establish a framework for data distribution and global IP-based connectivity between shore-based facilities and ships for ECDIS S-100 products**	2026	MSC	NCSR	
~~2~~	~~2.14~~	~~Development of procedures and requirements for the recognition of augmentation systems in the World-wide radionavigation system~~	~~2025~~	~~MSC~~	~~NCSR~~	
2	~~2.17~~	~~Development of guidelines for software maintenance of shipboard navigation and communication equipment and systems~~	~~2026~~	~~MSC~~	~~NCSR~~	
2	2.18	**[Development of guidelines for EPIRB which implement the two-way communication service via the SAR/Galileo Return Link service as a complement to EPIRB performance standards (resolution MSC.471(101))]**	2026	MSC	NCSR	
~~2~~	~~2.19~~	~~Revision of the Performance Standards for Shipborne BeiDou Satellite Navigation System (BDS) Receiver Equipment (resolution MSC.379(93))~~	~~2025~~	~~MSC~~	~~NCSR~~	

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)						
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ(s)**
~~2~~	~~2.27~~	~~Development of performance standards for a digital navigational data system (NAVDAT)~~	~~2024~~	~~MSC~~	~~NCSR~~	
~~2~~	~~2.28~~	~~Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES)~~	~~2025~~	~~MSC~~	~~NCSR~~	
2	2.[…]	**[Development of performance standards for dual frequency multi-constellation satellite-based augmentation systems (DFMC SBAS) and advanced receiver autonomous integrity monitoring (ARAIM) in shipborne radionavigation receivers]**	[2027]	MSC	NCSR	
2	2.[…]	**Development of a transition scheme for the introduction of digital technology for Very High Frequency (VHF) voice communications**	2027	MSC	NCSR	
2	2.[…]	**[Development of operational guidance for route exchange]**	2026	MSC	NCSR	
2	2.[…]	**[Revision of the Performance standards for gyro-compasses (resolution A.424(XI)) and Guidance for navigation and communication equipment intended for use on ships operating in polar waters (MSC.1/Circ.1612)]**	2028	MSC	NCSR	
4	4.1	Identification and protection of Special Areas, Emission Control Areas and PSSAs and associated protective measures	Continuous	MEPC	NCSR	
6	6.1	Role of the human element	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW
6	6.2	Validated model training courses	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW
6	6.[…]	Revision of the IMO Standard Marine Communication Phrases (resolution A.918(22))	2028	MSC	HTW	NCSR
7	7.1	**Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions**	Continuous	MSC / MEPC / FAL / LEG	III / PPR / CCC / SDC / SSE / NCSR	
7	7.2	**Developments in GMDSS services, including guidelines on maritime safety information (MSI)**	Continuous	MSC	NCSR	

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)						
Reference to SD, if applicable	**Output number**	**Description**	**Target completion year**	**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ(s)**
7	7.20	Develop measures to prevent the loss of containers at sea	2025	MSC	III / HTW / SDC / NCSR	CCC
7	7.22	**Routeing measures and ship reporting systems**	Continuous	MSC	NCSR	
7	7.23	**Updates to the LRIT system**	Continuous	MSC	NCSR	
~~7~~	~~7.44~~	~~Revision of SOLAS regulation V/23 and associated instruments to improve the safety of pilot transfer arrangements~~	~~2024~~	~~MSC~~	~~NCSR~~	
7	7.47	Review of the 2009 Code on Alerts and Indicators	2026	MSC	SSE / NCSR	SDC
~~7~~	~~7.49~~	~~Development of guidelines for the use of electronic nautical publications (ENP)~~	~~2025~~	~~MSC~~	~~NCSR~~	
~~7~~	~~7.50~~	~~Identification of measures to improve the security and integrity aspects of AIS~~	~~2025~~	~~MSC~~	~~NCSR~~	

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ANNEX 23

PROPOSED PROVISIONAL AGENDA FOR NCSR 13

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Routeing measures and ship reporting systems (7.22)

4 Updates to the LRIT system (7.23)

5 Developments in GMDSS services, including guidelines on maritime safety information (MSI) (7.2)

6 Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference (2.1)

7 Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures and amendments to the IAMSAR Manual (1.34)

~~8 Development of procedures and requirements for the recognition of augmentation systems in the Worldwide Radionavigation System (2.14)~~

~~9 Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES) (2.28)~~

~~10 Development of guidelines for software maintenance of shipboard navigation and communication equipment and systems (2.17)~~

~~11~~8 [Development of guidelines for EPIRB which implement the two-way communication service via the SAR/Galileo Return Link service as a complement to EPIRB performance standards (resolution MSC.471(101)) (2.18)]

~~12 Development of guidelines for the use of electronic nautical publications (ENP) (7.49)~~

~~13 Revision of the Performance Standards for Shipborne BeiDou Satellite Navigation System (BDS) Receiver Equipment (resolution MSC.379(93)) (2.19)~~

~~14~~9 Development of guidance to establish a framework for data distribution and global IP-based connectivity between shore-based facilities and ships for ECDIS S-100 products (2.12) [and operational guidance for route exchange (2.[…])]

10 [Development of performance standards for dual frequency multi-constellation satellite-based augmentation systems (DFMC SBAS) and advanced receiver autonomous integrity monitoring (ARAIM) in shipborne radionavigation receivers (2.[…])]

11 Development of a transition scheme for the introduction of digital technology for Very High Frequency (VHF) voice communications (2.[…])

12 [Revision of the Performance standards for gyro-compasses (resolution A.424(XI)) and Guidance for navigation and communication equipment intended for use on ships operating in polar waters (MSC.1/Circ.1612) (2.[…])]

~~15 Validated model training courses (6.2)~~

~~16~~13 Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions (7.1)

~~17~~14 Biennial status report and provisional agenda for NCSR 14

~~18~~15 Election of Chair and Vice-Chair for 2027

~~19~~16 Any other business

~~20~~17 Report to the Maritime Safety Committee

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ANNEX 24

STATEMENTS BY DELEGATIONS AND OBSERVERS

AGENDA ITEM 1

Statement by the delegation of Oman

الأمين العام صباح الخير
السيد الرئيس صباح الخير لك
وصباح الخير جميعا،
تسعد سلطنة عُمان بأنه وبعد المناقشات والاتصالات التي أجرتها مؤخراً مع الولايات المتحدة الأمريكية والسلطات المعنية في صنعاء بالجمهورية اليمنية بهدف تحقيق خفض التصعيد، فقد أسفرت الجهود عن التوصل إلى اتفاق على وقف إطلاق النار بين الجانبين، وفي المستقبل، لن يستهدف أي منهما الآخر، بما في ذلك السفن الأمريكية في البحر الأحمر وباب المندب، وبما يؤدي لضمان حرية الملاحة وانسيابية حركة الشحن التجاري الدولي. وتعرب سلطنة عُمان عن شكرها لكلا الطرفين على نهجهما البناء الذي أدى إلى هذه النتيجة المرحب بها، وتأمل أن يؤدي ذلك إلى مزيد من التقدم على العديد من المسائل الإقليمية في سبيل تحقيق العدالة والسلام والازدهار للجميع.

أشكرك السيد الرئيس

Statement by the delegation of Palau

Thank Chairman for give me the floor.

As you know, on Friday 2 of May the ship named ***CONSCIENCE*** , Palau flag IMO No. 7211440 has suffered for a fire on board out of Malta territorial waters. No injured has been reported.

This delegation, in light of the incident would like to inform that:

On the 28th of April 2025, PISR received notification from the Class/RO of the yacht, PHOENIX REGISTER OF SHIPPING, that all her class and statutory certificates are withdrawn on the reasoning that the captioned p/y was "allegedly involved in illegal activities as per EU directives".

On the same date PISR issued Official Notice of Interim Suspension Letter and invited the owners to Administrative hearing. PISR suspended the subject pleasure yacht's registration certificates on April 28th, 2025, following the notification received by PHOENIX REGISTER OF SHIPPING that withdrawn all her class and statutory certificates.

On the 30th of April PISR held an Administrative Hearing via zoom videoconference and advise owners to submit their written submissions/information to the Flag State. Up to date, PISR has received no update at all.

On the 6th of May 2025 PISR proceeded with the permanent revocation of the subject pleasure yacht's registration certificates, effective immediately.

After this, all certificates issued to ***CONSCIENCE*** with IMO No 7211440 are not valid and cannot be verified as true and valid certificates in our system. Owners have been requested to proceed with the Permanent Closure of Registry (Deletion) of the subject vessel from Palau International Ship Registry (PISR) on an urgent basis.

AGENDA ITEM 3

Statement by the observer delegation of ICS

ICS thanks the cosponsors for their submission in document NCSR 12/3/3.

ICS notes with concern that the proposal includes the addition of a miscellaneous designator requiring vessels to provide at least four - and possibly more - separate insurance certificates as part of the mandatory reporting process across the ten named mandatory ship reporting systems.

ICS further notes that the proposal strives to introduce regional requirements to provide evidence of the existence of insurance for maritime claims that apply under an EU Directive, which are mandatory only when a vessel enters an EU port, and which would now apply to all vessels in innocent passage, transit passage or while exercising freedom of navigation.

Such proposal imposes new reporting obligations on vessels, introduces compliance elements not traditionally associated with SOLAS, navigational safety or environmental protection and may create conflicts with the international legal framework established under UNCLOS.

ICS emphasizes that if vessels are required to transmit certificates of insurance prior to entering or transiting territorial waters, international straits or parts of exclusive economic zones (EEZs), this could impede the overarching principle of freedom of navigation, as well as navigational rights that have been long recognized and codified in UNCLOS, including the right to innocent passage, the right to transit passage, and exceed a coastal State's regulatory competence under international law.

ICS is further concerned that the proposal includes two alternative methods for transmitting insurance certificates, through the Union Maritime Information and Exchange System or via email as a last resort. However, both methods are reliant on Internet-based submission and that could impose inequitable or impractical burdens upon vessels, particularly those without inconsistent access to reliable connectivity.

Finally, ICS stresses that Mandatory Ship Reporting Systems are primarily designed for navigational safety and environmental protection. ICS is concerned that adding a new reporting requirement to transmit insurance certificates would shift the system towards administrative or regulatory enforcement, a function that does not align with the intended purpose of chapter V of SOLAS.

For the reasons stated above, ICS believes that this proposal constitutes a substantive amendment that goes beyond the scope of a minor administrative or technical update, and urges that this proposal be submitted for full consideration through the appropriate IMO procedures, including review by the NCSR Sub-Committee and endorsement by MSC, to ensure consistency with the legal and operational framework established under SOLAS Regulation V/11 and UNCLOS.

Statement by the delegation of Denmark

This delegation will have to agree with the delegation that spoke before us on the notion that the report of the Experts Group is not presented in a balanced manner with regard to the deliberations on document NCSR 12/3/3. We too find that it does not properly reflect the views expressed by a majority of the Group.

In particular, we do not agree, that the amendments to the SOUNDREP and BELTREP ship reporting systems would require further consideration at a later session.

The Experts Group reviewed the SOUNDREP and BELTREP ship reporting systems. Explanations and clarifications were given by the operating authorities, Sweden and Denmark. The footnotes in document NCSR 12/WP.3 were addressed. This included:

- methods of reporting, including in cases of lack of Internet;

- reduction of burdens;

- clarified that the proposed amendments do not restrict navigation or impose unilateral standards. It simply enforces already existing international obligations, with due respect to flag State jurisdiction and coastal State rights under international law; and

- clarified, that the objective of the resolutions pertaining to these systems remains unchanged. It continues to be in line with SOLAS regulation V/11 referring to the function of ship reporting systems as contributing to safety of life at sea, safety and efficiency of navigation, and protection of the marine environment.

Further issues put forward by certain delegations in relations to the proposed amendments were also addressed:

- including reporting by third party;

- clarification of types of certificates required; and

- actions taken on the ships flying flags of States non-party to the conventions.

Adjustments were made to the text to accommodate these issues.

Furthermore, it was emphasized by the proponents, that Denmark and Sweden made a review of SOUNDREP and BELTREP in 2023 as recommended and acknowledged by this committee.

As no further comments were received the group agreed on the amendments on the technical aspects of those two systems reviewed. The changes are shown in the annex 3 and 4 to the report in track changes to the current resolutions.

On this basis, it is not clear to this delegation what there is further to be considered.

We find, that the proposed amendments to SOUNDREP and BELTREP have been properly reviewed in accordance with established procedure and we propose that the amendments to the resolutions of the two systems as set out in annex 3 and 4 is approved by the Sub-Committee and referred to MSC for adoption.