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ADOPTION OF THE REVISED NAVTEX MANUAL

The Maritime Safety Committee, at its seventy-eighth session (12 to 21 May 2004), adopted the revised NAVTEX Manual, given at annex, and decided that it should enter into force on 1 January 2006.

ANNEX

NAVTEX Manual

200.... Edition



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Foreword

NAVTEX is an international automated direct-printing service for promulgation of navigational and meteorological warnings and urgent information to ships. It has been developed to provide a low-cost, simple and automated means of receiving maritime safety information on board ships at sea in coastal waters. The information transmitted may be relevant to all sizes and types of vessel and the selective message-rejection feature ensures that every mariner can receive a safety information broadcast which is tailored to his particular needs.

NAVTEX fulfils an integral role in the Global Maritime Distress and Safety System (GMDSS) which has been developed by the International Maritime Organization (IMO) and contributes to safety at sea.

The NAVTEX system is commended to Administrations having responsibility for maritime affairs and to mariners who require an effective maritime safety information service.

This manual is intended, primarily, for use by Maritime Administrations and others concerned with the preparation and broadcasting of safety information. It will also be of interest to seafarers, shipowners and others who need to receive such information in order to safely go about their business at sea. It should be used in conjunction with the IHO/IMO World-Wide Navigational Warning Service Guidance Document, Special Publication No. 53 (WWNWS), and the Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI), Special Publication S – 53, Appendix 1. These latter publications are available from the IHO. Maritime Administrations may obtain them free of charge through the IHO web-site (www.iho.shom.fr).

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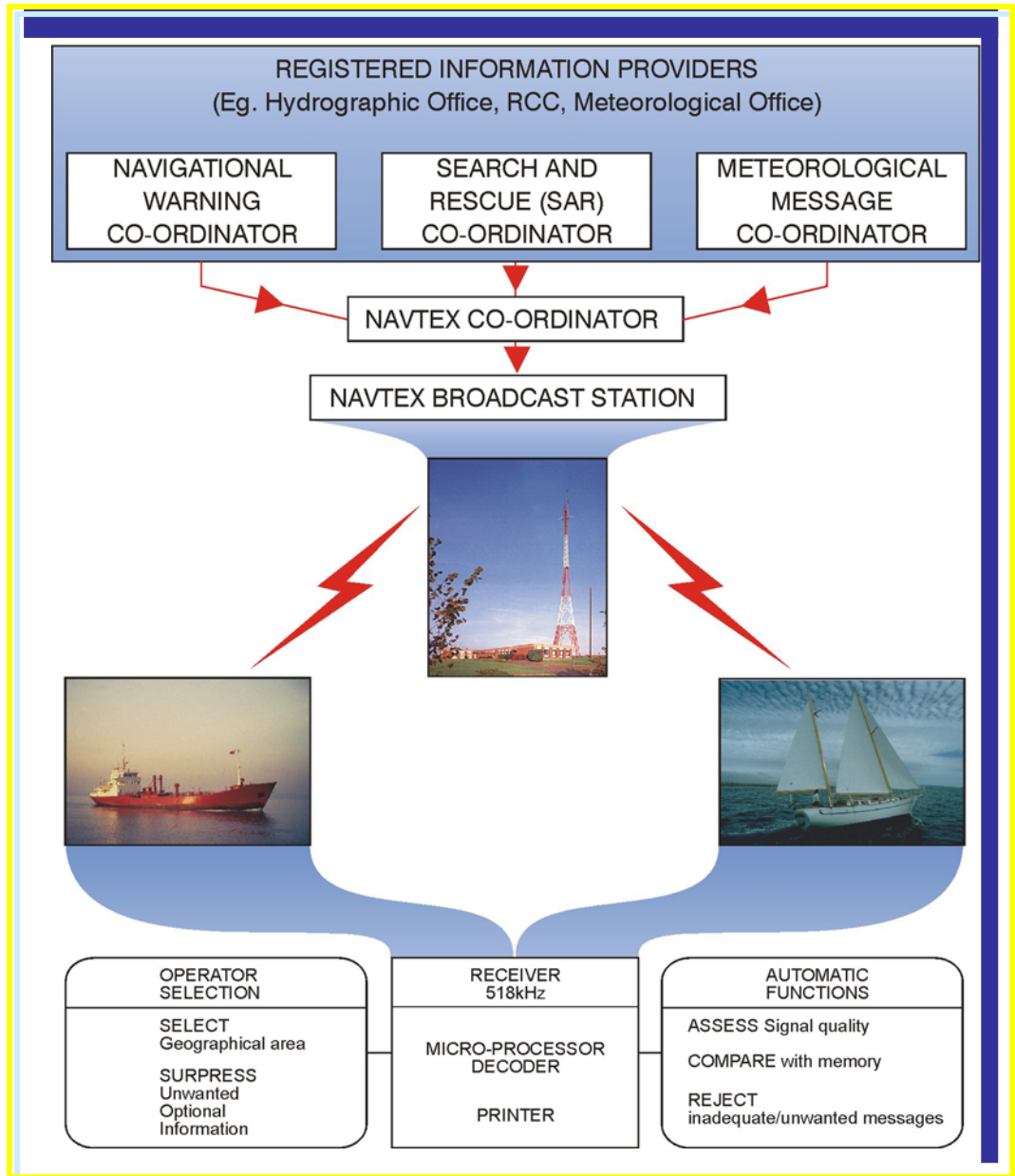


Figure 1 – The NAVTEX concept

NAVTEX Manual

1 - Introduction

This fourth edition of the manual includes all amendments up to and including those adopted at the seventy-eighth session of the Maritime Safety Committee (May 2004) and describes the structure, control and operation of the NAVTEX service. It is intended primarily for national Administrations, but may also be useful to the mariner who requires more details than are found in the operational handbooks.

NAVTEX provides shipping with navigational and meteorological warnings and urgent information as listed in paragraph 7.3, by automatic display or print-out from a dedicated receiver. It is suitable for use in all sizes and types of ships. Figure 1 illustrates the way the service is typically structured.

NAVTEX is a component of the IMO/IHO World-Wide Navigational Warning Service (WWNWS) defined by IMO Assembly resolution A.706(17), as amended, and the WMO Manual on Marine Meteorological Services, Part *1bis*, Provision of warnings and weather and sea bulletins (GMDSS application). It has also been included as an element of the Global Maritime Distress and Safety System (GMDSS).

In the GMDSS, a NAVTEX receiving capability is part of the mandatory equipment which is required to be carried in certain vessels under the provisions of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended in 1988.

Authority for co-ordinating the use of the frequencies 490 kHz, 518 kHz and 4209.5 kHz for NAVTEX services world-wide, was effectively delegated by ITU to IMO at WRC-95 through Resolution 339. This was re-affirmed at WRC-97. IMO has vested responsibility for the overall management and co-ordination of the global NAVTEX services in its NAVTEX Co-ordinating Panel. The terms of reference for this panel are attached at annex 1.

Details of operational and planned NAVTEX services are published periodically in the various national lists of radio signals, in an annex to the International Telecommunication Union's (ITU) list VI - List of Radiodetermination and Special Service Stations - and in the GMDSS Master Plan published by IMO (GMDSS/Circ.8 and Corrigenda).

2 - Definitions

2.1 *NAVTEX* means the system for the broadcast and automatic reception of maritime safety information by means of narrow-band direct-printing telegraphy.

2.2 *International NAVTEX service* means the co-ordinated broadcast and automatic reception on the frequency 518 kHz of maritime safety information by means of narrow-band direct-printing telegraphy using the English language.* It is important for the benefit of service users that the content format and criteria for including warnings and other messages on this frequency, are as consistent as possible world-wide.

2.3 *National NAVTEX services* means the broadcast and automatic reception of maritime safety information by means of narrow-band direct-printing telegraphy using frequencies other than 518 kHz and languages as decided by the Administrations concerned. These services may simply repeat the messages broadcast over the International NAVTEX service but in the national language, or they may be tailored to meet particular national requirements, for example by providing different or additional information to that broadcast on the International NAVTEX service targeted at recreational vessels or fishing fleets. These National NAVTEX services may be broadcast on 490 kHz or 4209.5 kHz (frequencies co-ordinated by IMO through the NAVTEX Co-ordinating Panel) or on nationally assigned frequencies.

* See also paragraph 7.5

3 - Planning a NAVTEX service

3.1 When planning to set up a NAVTEX service* it is essential that Administrations appreciate the high level of local and international co-ordination required by this single-frequency service. The central principles which should be borne in mind are as follows:

- .1 all NAVTEX stations, when operational, are part of the strategic infrastructure of both the GMDSS and WWNWS;
- .2 it is essential for the efficiency and effectiveness of the service that only a minimum number of stations are used to cover a sea area. This may require neighbouring States to either share facilities or be prepared to promulgate information provided by another State;
- .3 each station should contribute to the overall service of the particular region in a co-ordinated way, bearing in mind the geographical area logically covered by each station and the effective co-ordination and control of information to be transmitted. The information to be transmitted by NAVTEX should be routed between countries using the established communications channels;
- .4 each station will usually provide all the information for a unique and precisely defined sea area which takes full account of the character and volume of information and maritime traffic patterns in the region;
- .5 Member States, seeking to establish NAVTEX services, should undertake preliminary discussions with the NAVAREA Co-ordinator, METAREA Co-ordinator and neighbouring Administrations prior to formal application to IMO through the IMO NAVTEX Co-ordinating Panel. These discussions should consider the possible geographical locations for sites to ensure optimal coverage, service area boundaries and links with data providers. These initial discussions are particularly important when proposing to establish a new station as part of the International NAVTEX service. Should a Member State wish to move an existing site, once it is operational, or extend its range, then the whole co-ordination process outlined above, must be repeated, keeping the NAVTEX Co-ordinating Panel informed at all times;
- .6 Member States seeking to set up an International NAVTEX service will not receive approval from the NAVTEX Co-ordinating Panel unless the planned service includes all the MANDATORY elements i.e. Navigational Warnings, Meteorological Warnings and Search and Rescue information and pirate attack warnings;
- .7 when limitations on resources affect the rate of establishment of NAVTEX, every effort should be made to implement the NAVTEX service first in the areas of highest shipping density. If NAVTEX services are not established within 18 months of a B₁ character and time slot being issued by the NAVTEX Co-ordinating Panel, the Panel may after suitable notification, withdraw the allocation. The Member State would then need to submit a new application when ready to establish the service;
- .8 the range of a NAVTEX transmitter depends on the transmitted power and local propagational conditions. The actual range achieved should be adjusted to the minimum required for adequate reception in the specified service area^{*}, taking into account the needs of ships approaching from other areas. Experience indicates that the required range of 250 to 400 nautical miles will normally be attained by transmitted power of no more than 1KW during daylight with a 60% reduction during night-time;
- .9 after the choice of transmitter sites, the main need for co-ordination lies in the assignment of B₁ characters, time schedules and the agreement of proposed service areas (if appropriate). The IMO NAVTEX Co-ordinating Panel allocates B₁ characters and time schedules and will arbitrate on the service area limits if these cannot be agreed locally; and

* The criteria for use when providing a NAVTEX service and the definitions of *coverage area* and *service area* are given in annex 5 (annex 4 to resolution A.801(19), Provision of Radio Services for the Global Maritime Distress and Safety System (GMDSS))

- .10 the national NAVTEX Co-ordinator should make arrangements for a quality-control organization in its area which should include both the message-originating offices and the NAVTEX Co-ordinator/transmitting stations. This organization should aim at confirming, on a continuing basis, that:
- **MINIMUM** power is used to achieve satisfactory range performance;
 - time schedules are **not** exceeded; and
 - the co-ordinated service is operating satisfactorily.

3.2 Guidance on these and the many other factors to be considered when planning NAVTEX services should be obtained at an early stage from IMO, through its NAVTEX Co-ordinating Panel. Details of how to contact the Panel may be found at annex 1.

4 - Principal features of NAVTEX services

4.1 The operational and technical characteristics of the NAVTEX system are contained in Recommendation ITU-R M.540-2, reproduced in annex 2. Performance standards for shipborne narrow-band direct-printing equipment, if installed before 1 July 2005, are laid down in IMO Assembly resolution A.525(13). If installed on or after 1 July 2005, they should conform to IMO resolution MSC.148(77), reproduced in annex 3.

4.2 The principal features are:

- .1 the International NAVTEX service uses a single frequency with transmissions from nominated stations within each NAVAREA/METAREA being arranged on a time-sharing basis to reduce the risk of mutual interference. All necessary information is contained in each transmission. Similarly, broadcasts on other IMO co-ordinated frequencies are operated on a time-sharing basis;
- .2 the power of each transmitter is regulated so as to reduce the risk of interference between transmitters with the same B₁ character in different parts of the world;
- .3 a dedicated NAVTEX receiver which has the ability to select messages to be printed, according to:
- .3.1 a technical code (B₁B₂B₃B₄), which appears in the preamble of each message; and
 - .3.2 whether or not the particular message has already been printed;
- certain essential classes of safety information such as navigational and meteorological warnings and search and rescue information are non-rejectable to ensure that ships using NAVTEX always receive the most vital information; and
- .4 NAVTEX Co-ordinators exercise control of messages transmitted by each station according to the information contained in each message and the geographical coverage required. Thus a user may choose to accept messages, as appropriate, either from the single transmitter which serves the sea area around his position or from a number of transmitters. Ideally, the user should select the station within whose coverage his vessel is currently operating and the station into whose coverage area his vessel will transit next.

5 - The transmitter identification character (B₁)

5.1 The transmitter identification character B₁, is a single letter which is allocated to each transmitter. It is used to identify the broadcasts which are to be accepted by the receiver and those to be rejected, and also the time slot for the transmission.

5.2 In order to avoid erroneous reception of transmissions from two stations having the same B₁ character, it is necessary to ensure that such stations have a large geographical separation. Originally, this was achieved by allocating B₁ characters in line with the general global scheme given in figure 2, which shows the initial IMO-adopted strategy for allocating B₁ characters by alphabetical sequence through each NAVAREA/METAREA of the World-Wide Navigational Warning Service. Subsequent experience has shown that when traffic levels increase significantly, some NAVTEX Co-ordinators are unable to control the data volumes broadcast from their stations and transmissions may overrun their allocated timeslots. The impact of this is that if adjacent stations have adjacent B₁ characters, and the first station overruns, its signal masks the phasing signal of the second station. To the receiver, this seems as if the second station is off the air and vital safety information can be missed. Hence B₁ characters are now allocated in a more random manner with consecutive letters **not** allocated to adjacent stations, but still achieving the required separation between stations having the same B₁ character (see paragraph 5.3 below).

5.3 NAVTEX transmissions have a designed maximum range of about 400 nautical miles. The minimum distance between two transmitters with the same B₁ identifier must, therefore, be sufficient to ensure that a receiver cannot be within range of both at the same time.

5.4 Close co-ordination between transmitting stations in adjacent NAVAREAs/METAREAs is necessary to achieve this separation. For this reason, national Administrations should request the advice of the IMO NAVTEX Co-ordinating Panel at an early stage in the planning of a new NAVTEX service. The Panel will allocate B₁ characters in such a way as to minimize the risk of interference occurring.

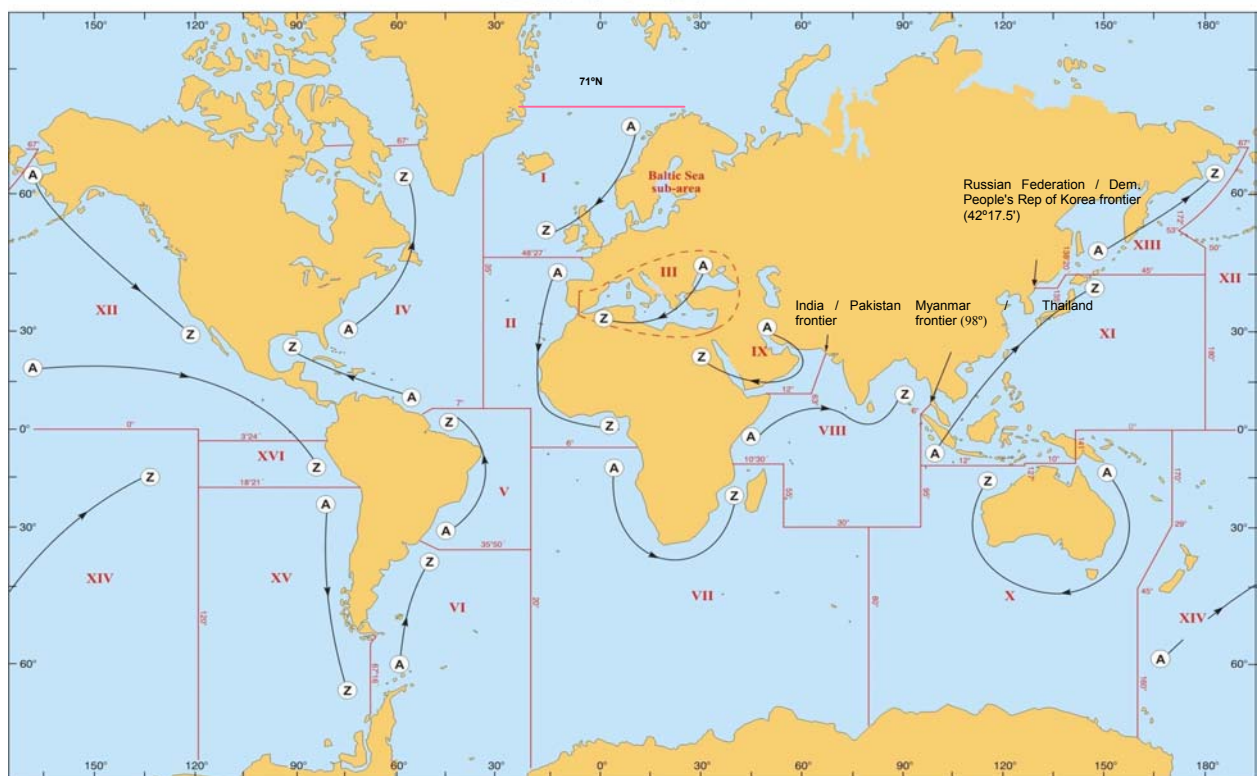


Figure 2 – NAVAREAs/METAREAs of the World-Wide Navigational Warning Service, showing the original scheme for allocation of transmitter identification (B₁) characters by the Organization. The delimitation of these NAVAREAs is not related and shall not prejudice the delimitations of any boundary between States.

6 - Allocation of transmission times

6.1 Figure 3 illustrates the basic organizational matrix which is used by the IMO NAVTEX Co-ordinating Panel to evaluate and allocate time schedules for each transmitter of a proposed new service. The table shows the breakdown of a representative NAVAREA/METAREA into four groups of transmitters. Each group has a potential capacity of six transmitters, each with a 10 minute allocated transmission time every 4 hours.

SCHEDULED TIMES (UTC)						TRANSMITTER IDENTIFICATION CHARACTERS (B ₁)																							
						GROUP 1						GROUP 2						GROUP 3						GROUP 4					
00	04	08	12	16	20	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
.10	-	-	-	-	-	■																							
.20	-	-	-	-	-		■																						
.30	-	-	-	-	-			■																					
.40	-	-	-	-	-				■																				
.50	-	-	-	-	-					■																			
01	05	09	13	17	21						■																		
.10	-	-	-	-	-							■																	
.20	-	-	-	-	-								■																
.30	-	-	-	-	-									■															
.40	-	-	-	-	-										■														
.50	-	-	-	-	-											■													
02	06	10	14	18	22												■												
.10	-	-	-	-	-													■											
.20	-	-	-	-	-														■										
.30	-	-	-	-	-															■									
.40	-	-	-	-	-																■								
.50	-	-	-	-	-																	■							
03	07	11	15	19	23																		■						
.10	-	-	-	-	-																			■					
.20	-	-	-	-	-																				■				
.30	-	-	-	-	-																					■			
.40	-	-	-	-	-																						■		
.50	-	-	-	-	-																							■	
04	08	12	16	20	24																								■

Figure 3 - Scheme for allocation of transmission schedules by the Organization

6.2 In some regions, it has become necessary to accommodate a large number of stations. In extreme cases, it has even been necessary to re-use some B₁ characters for a second time within a region. Where this occurs every effort is made to ensure stations with the same character are as far apart as possible to reduce the risk of mutual interference.

6.3 Whenever possible, the frequency should remain unused for a high percentage of the time, so as to allow for the immediate broadcast of vital information, e.g. search and rescue information, gale warnings, etc.

7 - Subject indicator characters (B₂)

7.1 Information is grouped by subject in the NAVTEX broadcast, and each subject group is allocated a subject indicator character, B₂.

7.2 The subject indicator character is used by the receiver to identify different classes of messages as listed in paragraph 7.3. The indicator is also used to reject messages concerning certain optional subjects which may not be required by the ship (e.g. LORAN messages may be rejected in a ship which is not fitted with a LORAN receiver). Receivers also use the B₂ character to identify messages which, because of their importance, may not be rejected (see paragraph 4.2.3).

7.3 The following subject indicator characters are in use:

A = Navigational warnings ¹	J = SATNAV messages
B = Meteorological warnings ¹	K = Other electronic navaid messages ²
C = Ice reports	L = Navigational warnings – Additional to letter A ³
D = Search and rescue information, and pirate attack warnings ¹	V }
E = Meteorological forecasts	W } – Special services allocation by the
F = Pilot service messages	X } NAVTEX Co-ordinating Panel
G = AIS	Y }
H = LORAN messages	Z = No messages on hand
I = spare	

7.4 National Authorities should obtain the agreement of IMO for all proposals for the use of special service subject indicator characters. Applications should be addressed to the IMO NAVTEX Co-ordinating Panel. Such proposals should meet the following criteria:

- .1 the full international service must remain unaffected;
- .2 the special service broadcasts should be transmitted only when time allows, and with due regard to the necessity for the frequency to remain unused for a high percentage of the time; and
- .3 the special service broadcast should be uniquely prepared for its intended purpose.

7.5 Language and national broadcast options

There is often a requirement for broadcasts to be made in national languages in addition to English and for subject matter other than that listed in paragraph 7.3. Methods of achieving these objectives are outlined below:

- .1 provision of national NAVTEX services on the internationally adopted frequencies for such services (490 kHz or 4209.5 kHz) or on a nationally allocated frequency, as defined in paragraph 2.3; and
- .2 use of additional subject indicator characters (B₂) V, W, X and Y on 518 kHz. (Subject to allocation by the NAVTEX Co-ordinating Panel.)

8 - Message format

8.1 The format of all messages should be in strict accordance with figure 4. This defines the essential elements of the messages which influence the operation of the receiver. Great care is required to avoid errors of syntax in the groups ZCZC, B₁B₂B₃B₄ and NNNN as they will cause receivers to operate incorrectly, and may well result in the loss of a vital message. Transmitting stations should be particularly aware of this when monitoring their own broadcasts.

8.2 The phasing signal, which appears at the top of figure 4, is critical to the effective operation of the system. It is this signal which enables a receiver to lock-on to a particular station's transmission. If another station within transmitting range and with a timeslot prior to the station selected overruns its slot, its transmission will blank the phasing signal of the subsequent transmitter. It will then seem to the receiver as if the second station is off the air and its broadcast will not be received, possibly denying the user significant safety information. Similarly if the phasing signal for a particular station is too short, some receivers will be unable to lock on to the transmission.

¹ Cannot be rejected by the receiver

² Messages concerning radionavigation services

³ Should not be rejected at the receiver (continuation of B₂ subject group A)

8.3 The following example illustrates the standard format for NAVTEX messages:

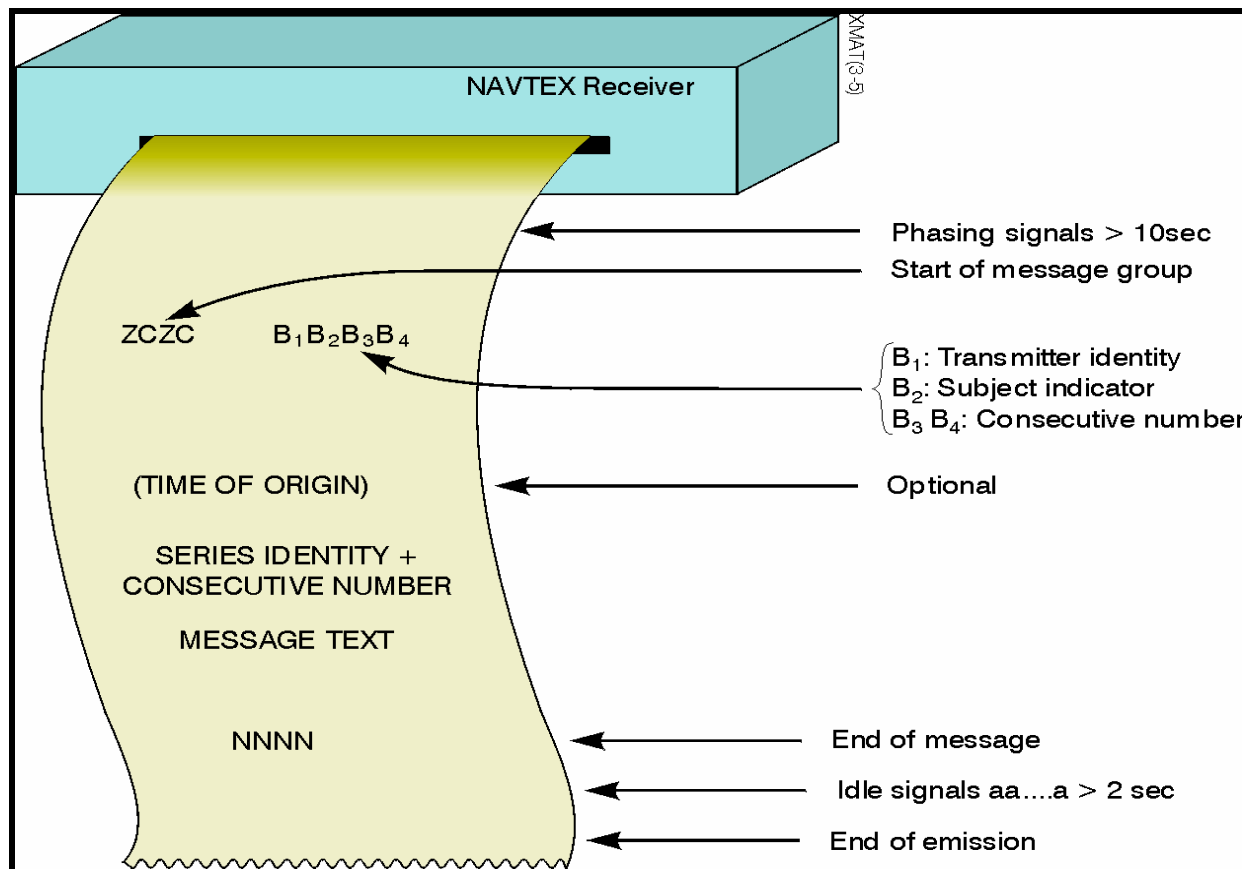
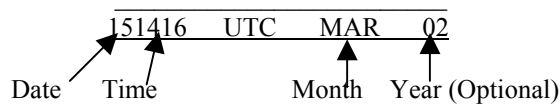


Figure 4 - Standard format for NAVTEX messages

8.4 Certain practices have been adopted for the textual content of NAVTEX messages. These contribute to the clarity and uniformity of the messages, and are recognized for use in all cases. They include:

- .1 the date, time (UTC) and month of origin may be given at the start of the message text, where this contributes to the value of the message, as follows:



The date, time and month of origin should always be followed immediately by a carriage return/line feed, so that it appears as a separate line at the start of the message text;

- .2 the first words of the text should invariably be the message series identity and consecutive number. Note that this consecutive number is not the same as the NAVTEX serial number B₃B₄, but instead identifies the source of the report (e.g. NAVAREA IX 274 or OOSTENDE Radio NAV WNG 767);
- .3 the clarity of a series of messages is improved by ensuring that the end of message group NNNN appears on a separate line at the end of each message; and
- .4 the text of the message must be in accordance with the Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI) IHO, Special Publication S-53 – Appendix 1 (IMO publication ISBN 92-801-5135-5).

9 - Message numbering

9.1 Each message within a subject group is allocated a serial number, B_3B_4 , between 01 and 99. On reaching 99, numbering should re-commence at 01 but avoid the use of message numbers still in force.

9.2 A shortage of numbers should, where possible, be alleviated by the allocation of messages to other relevant subject groups. It has been found that 99 messages are not always enough for some subject groups. $B_2 = L$ may be used for additional navigational warnings to receive the overflow from $B_2 = A$, when necessary.

9.3 Numbers should be allocated by the relevant NAVTEX Co-ordinator, the Authority responsible for the selection of information to be broadcast by each transmitter within each subject group. Each Co-ordinator may have one or more transmitters under its control.

9.4 Certain messages are allocated $B_3B_4 = 00$. Use of this number should be **strictly controlled** since messages carrying it will always be printed and may set off the alarm in the receiver, if the broadcast containing such messages is identified to be accepted by the receiver (see Recommendation ITU-R M.540-2, annex 2). Therefore, the number 00 must only be used for Initial Distress Messages. Other more routine messages and service messages should not be allocated the number 00. The fact that receivers are, in any case, unable to reject certain classes of vital safety information should be borne in mind when considering the exceptional use of $B_3B_4 = 00$.

10 - Information control

10.1 The time-shared nature of NAVTEX services imposes the need for strict discipline in controlling the information flow of the broadcast. To achieve this, it is necessary to co-ordinate the messages in each B_2 category at each transmitter. In general, all messages should be brief and clear and avoid duplication. Strict adherence to relevant guidelines such as those in IMO Assembly resolution A.706(17), as amended, the WMO Manual on Marine Meteorological Services, Part 1*bis*, Provision of warnings and weather and sea bulletins (GMDSS application) and the Joint IMO/IHO/WMO Manual on Maritime Safety Information is recommended, but certain additional operating procedures have also been found necessary:

- .1 messages in each category should be broadcast in reverse order of receipt, with the latest being broadcast first; and
- .2 cancellation messages should be broadcast once only. The cancelled message should be removed from the broadcast in which the corresponding cancellation message appears and the cancellation message should then be removed from the broadcast.

11 – Message content

11.1 It is important that Administrations operating a NAVTEX service and those intending to establish new services, are quite clear what sort of information may be included in the messages for broadcast and what should not.

11.2 **The International NAVTEX service** should NOT be used as a medium for providing Notices to Mariners. Similarly, Local Warnings (see paragraph 11.2.1.2) should not be broadcast on the International NAVTEX service. They should be transmitted locally on VHF R/T channels or perhaps through local AIS services. NAVTEX is essentially a medium for broadcasting information that is **needed** by vessels to safely navigate through the service area of the appropriate station, particularly those vessels engaged in coastal passages. More detailed guidance in respect to different classes of messages is given below. Examples of the content and layout of NAVTEX messages are shown in the Joint IMO/IHO/WMO Manual on Maritime Safety Information. This publication should be available to all personnel responsible for the drafting of messages to be broadcast by NAVTEX stations.

11.2.1 *Navigational warnings*

- .1 coastal warnings and NAVAREA warnings ($B_2 = A$ or L) issued under the guidance of IMO Assembly resolution A.706(17), as amended, which would be of concern to ships in the service area allocated to the transmitter should be included in the broadcast (see annex 4). Relevant Coastal warnings should normally be repeated at every scheduled transmission for as long as they remain in force or until permanent changes are promulgated as Notices to Mariners. NAVTEX Co-ordinators should arrange to receive NAVAREA warnings appropriate to their area for inclusion in their broadcasts. These should be broadcast at least twice each day - to avoid overloading the broadcast time slot, they should normally be scheduled for transmission during slots that do not include weather forecasts (see also paragraph 11.2.2.2);
- .2 local warnings, as defined by IMO Assembly resolution A.706(17), as amended, i.e. information relating to the sea area inshore of the fairway buoy/pilot station, should not be broadcast on NAVTEX (see annex 4);
- .3 negative tidal surge and tsunami warnings will normally be the subject of navigational warnings. They should be broadcast immediately on receipt and at subsequent scheduled transmissions; and
- .4 a summary of navigational warnings remaining in force should normally be broadcast each week.

11.2.2 *Meteorological messages*

- .1 meteorological warnings ($B_2 = B$) e.g. gale warnings are raised by nominated Meteorological authorities. They should be placed on the broadcast immediately on receipt by the NAVTEX Co-ordinator and at the next routine scheduled transmission only. These messages should contain **only** the appropriate warnings and should be separate from the sea area weather forecasts;
- .2 NAVTEX sea area weather forecasts ($B_2 = E$) should be broadcast at least twice each day. This service should be carefully co-ordinated where transmitters are geographically close together. It is important that such forecasts only appertain to the appropriate NAVTEX service area;
- .3 routine ice reports should normally be broadcast on NAVTEX once a day; and
- .4 ice accretion warnings should normally be included in the routine ice report but, when separately issued, they are to be treated as a meteorological warning using $B_2 = B$ and transmitted immediately on receipt and at the next routine scheduled transmission.

11.2.3 *Search and rescue information and pirate attack warnings*

- .1 the NAVTEX broadcast is not suitable for distress traffic. Therefore, the Initial Distress Message **only** should be retransmitted on NAVTEX, using $B_2 = D$, in order to alert mariners to a distress situation, by setting off an audio alarm. The use of $B_3B_4 = 00$ is only to be used for distress messages;
- .2 a single authority, which will normally be a maritime rescue co-ordination centre (MRCC), should be designated SAR Co-ordinator to input information to NAVTEX. Coast radio stations, where still extant, are deemed to have discharged their responsibility for retransmitting Initial Distress Messages on NAVTEX by passing the message to the designated SAR Co-ordinator for broadcast on NAVTEX. This does not affect a coast radio station's responsibility for retransmitting Initial Distress Messages on other frequencies; and
- .3 pirate attack warnings, given by an appropriate authority, should be transmitted under $B_2 = D$ immediately after a pirate attack happens.

11.2.4 *Pilotage service messages*

Category $B_2 = F$ is to be used only for broadcasting temporary alterations to the pilot service. This can include messages which notify the temporary movement or suspension of a pilot service due to stress of weather, etc.

This category is for the information of all ships approaching a port and is not to be used for specific instructions to individual ships or pilots.

11.2.5 *Electronic navaid messages*

B₂ categories are provided for the principal electronic navaids, which are suitable for use in the NAVTEX region. They should be used to advise mariners of significant degradation of the particular service. Short periods of transmission failure are seldom appropriate since they do not affect prudent navigation. The following thresholds have been found to be appropriate for the majority of users:

- .1 LORAN - off air > 1 hour; and
- .2 SATNAV - off air > 4 hours.

11.2.6 *No messages on hand*

This facility may be used by transmitting stations to confirm the correct operation of receivers and transmitters at scheduled times when no messages are on hand for transmitting. In accordance with the simple philosophy of NAVTEX services, the plain language text "NO MESSAGES ON HAND" should be used.

11.2.7 *Use of abbreviations*

Use of abbreviations should be strictly in accordance with internationally accepted usage.

11.3 On **national NAVTEX services** it is important to keep to the same basic message format as that required for the International NAVTEX service i.e. that shown in figure 4 and in paragraphs 7, 8 and 9 of this publication. It is also important to ensure that the complete broadcast does not overrun the allocated time slot, particularly when using 490 kHz or 4209.5 kHz. However, in order to meet national requirements, message content may deviate from the guidelines provided for the International Service (paragraphs 10 and 11.1-11.2 above) if required.

12 - Message Priorities and Broadcast Procedures

12.1 Message priorities

12.1.1 The message originator i.e. the navigational warning Co-ordinator, the search and rescue Co-ordinator or the meteorological message Co-ordinator, is responsible for assessing the urgency of the information and inserting the appropriate priority marking. One of three message priorities is used to dictate the timing of the first broadcast of a new warning in the NAVTEX service. In descending order of urgency, they are:

- .1 **VITAL** - for immediate broadcast;
- .2 **IMPORTANT** - for broadcast at the next available period when the frequency is unused; and
- .3 **ROUTINE** - for broadcast at the next scheduled transmission.

12.1.2 Both **VITAL** and **IMPORTANT** warnings are to be repeated, at the minimum, at the next scheduled transmission.

12.1.3 The priority marking is a procedural instruction to the transmitting station which consists of the word **VITAL**, **IMPORTANT** or **ROUTINE** added as a prefix to the NAVTEX message. It should form a separate line immediately before the groups ZCZC B₁B₂B₃B₄ and should **not** normally to be broadcast.

12.1.4 In order to avoid unnecessary disruption to the service, the priority marking **VITAL** is to be used only in cases of extreme urgency, i.e. Initial Distress Alerts. In addition, **VITAL** messages are to be kept as brief as possible. The message originator is responsible for ensuring that the NAVTEX Co-ordinator has its attention drawn to **VITAL** messages, either by use of the telex alarm or by other means.

12.2 Broadcast procedures

- .1 **VITAL warnings.** On receipt of a **VITAL** warning, the NAVTEX Co-ordinator will immediately commence monitoring the NAVTEX frequency. If the frequency is clear, the **VITAL** message is to be transmitted at once. If the frequency is in use, the Co-ordinator is to determine which other station is transmitting. He should then contact that station by any other means at his disposal with a request that they break their transmission to allow the sending of a **VITAL** warning. As soon as the frequency is clear, the **VITAL** warning is to be transmitted. Once the **VITAL** warning has been transmitted, the former station is free to resume scheduled transmissions;
- .2 **IMPORTANT warnings.** Messages bearing the priority marking **IMPORTANT** are to be broadcast during the next available period when the NAVTEX frequency is unused. This is to be identified by monitoring the frequency. It is expected that this level of priority will be sufficient for the majority of urgent information; and
- .3 **ROUTINE warnings.** **ROUTINE** messages are to be broadcast at the next scheduled transmission after receipt at the NAVTEX transmitting station. This level of priority will be appropriate for almost all messages broadcast on NAVTEX and is always to be used unless special circumstances dictate the use of a higher priority.

13 - Best practice for those using the service

13.1 *Setting watch*

It is recommended that, in order to ensure that all necessary maritime safety information has been received, the NAVTEX receiver should be switched on at least 8 hours before sailing, or left on at all times. To avoid excessive use of printer paper, the user should programme his receiver to print out only those classes of messages required and from only the stations selected.

13.2 *Logging*

The reception of weather forecasts or navigational warnings on NAVTEX does not require to be noted in the radio log. The NAVTEX printout replaces the log entries required by chapter IV of the 1974 SOLAS Convention, as amended in 1988. Where a printer is not provided, a log should be maintained electronically.

14 - Management of the service

14.1 *Data priority and formatting*

- .1 most information broadcast on NAVTEX services relates to either Navigational Warnings or Meteorological Information. These types of information often originate from different organizations within a country and it is not until they arrive with the NAVTEX Co-ordinator that an assessment can be made whether there is too much information for the relevant broadcast time slot. Each data provider may consider their data to be more important and therefore for transmission in full. However, the NAVTEX Co-ordinator needs to control the overall volume of data broadcast and may need to refer back to data providers to prioritize their information and reduce the amount of data to be broadcast. Some NAVTEX Co-ordinators utilize digital systems which include software that provides a readout of predicted transmission times for data held ready for broadcast. This enables the Co-ordinator to anticipate any problems and take action before the scheduled broadcast;
- .2 transmission times should be kept to a minimum by strictly formatting messages and avoiding the use of free text whenever possible;
- .3 data to meet purely national requirements should not be broadcast on the International NAVTEX service, but should be migrated to a national NAVTEX service (see annex 7 - COMSAR/Circ.28).

14.2 *Mutual interference between NAVTEX stations*

- .1 principal causes of interference are: transmission overruns and excessive power output. Transmission overruns lead to interference with adjacent stations with sequential B₁ characters/time slots. Excessive power output causes interference with remote stations with the same B₁ character time slot. Transmission overruns should be either eliminated by controlling the volume of data broadcast (see paragraph 13.1) or managed by liaison with adjacent stations. This can work in areas where there is both good co-operation and good communications. Where data volumes exceed the 10 minute time slot, broadcasts may be started early when there is no other traffic on the frequency or allowed to overrun with the agreement of the next station in sequence who will delay the start of their broadcast until the earlier station has finished;
- .2 when interference is detected, particularly when it affects the service to system users, the matter should be addressed immediately. When the interference is with adjacent stations, attempts should be made to resolve the problem locally. Advice may also be sought from the NAVAREA Co-ordinator. If this is unsuccessful, the IMO NAVTEX Co-ordinating Panel should be alerted to the problem and their advice sought. Occasionally it may be necessary to change the B₁ character/time slot of one of the stations to introduce more time separation between the broadcasts. However this should be viewed as a last resort as this may have a significant impact on data providers, particularly providers of meteorological information, as they may have to reschedule their services. When the interference is from a station with the same B₁ character in a different area, the NAVTEX Co-ordinating Panel should be contacted and they will initiate any necessary investigation/action.

14.3 *Balancing the volume of data to be broadcast throughout the daily transmission cycle*

- .1 each NAVTEX transmitter is allocated a 10 minute transmission slot every 4 hours; 6 slots each day. Within these slots there is a requirement to transmit the following information relevant for the service area of the transmitter:
 - .1 coastal navigation warnings - in every slot;
 - .2 NAVAREA warnings appropriate to the area of the NAVTEX transmitter - at least twice/day;
 - .3 summary of navigation warnings in force – weekly;
 - .4 meteorological warnings - on receipt and at next slot;
 - .5 sea area weather forecasts - at least twice/day;
 - .6 ice reports - at least once/day;
 - .7 SAR and pirate attack warnings - on receipt; and
 - .8 pilot service and electronic navaid messages - next routine slot; and
- .2 for many of these categories of message there is no option about when they should be transmitted. However, in order to minimize the risk of over-running the allocated 10 minute time slot, it is possible to balance the overall length of transmissions by broadcasting NAVAREA warnings at different times to sea area weather forecasts and the weekly summary of navigation warnings in force. An example of how this may be managed is given below for a station with a B₁ character of C:

Timeslot	Content
0020 - 0030	coastal navigational warnings NAVAREA warnings
0420-0430	coastal navigational warnings summary of navigational warnings in-force (once/week only)
0820-0830	coastal navigational warnings sea area weather forecast
1220-1230	coastal navigational warnings NAVAREA warnings

1620-1630	coastal navigational warnings ice reports
2020-2030	coastal navigational warnings sea area weather forecast

15 - Information for mariners and publicity

15.1 The widest publicity should be given to the establishment of a NAVTEX service within those countries concerned and within their respective NAVAREA.

15.2 National Administrations should ensure that mariners are informed of the establishment of a NAVTEX service by inclusion of full details in Notices to Mariners and lists of radio signals. In addition, full details of the service finally agreed should be forwarded to:

- International Maritime Organization
4 Albert Embankment
London SE1 7SR
United Kingdom
- International Telecommunication Union
Radiocommunication Bureau
Place des Nations
1211 Genève 20
Switzerland
- Those authorities known to produce international lists
of radio signals

ANNEX 1

IMO SUB-COMMITTEE ON RADIOCOMMUNICATIONS AND SEARCH AND RESCUE (COMSAR) Co-ordinating Panel on NAVTEX services

1 *Terms of reference*

- .1 advise Government Administrations planning to implement a NAVTEX service on the frequencies 518 kHz, 490 kHz or 4209.5 kHz, on the operational aspects of the system. In particular, advise on the optimum number of stations, the allocation of identifying characters (B₁), broadcast times and broadcast message criteria;
- .2 co-ordinate the operational aspects of NAVTEX in the planning stages to minimize the risk of mutual interference between States or regions owing to the number of stations, transmitter power, time of broadcasts, or B₁ character assignment;
- .3 remain aware of system problems which arise, through reports from sea and correspondence with operational NAVTEX Co-ordinators. When problems are identified, liaise with appropriate national Administrations involved, NAVAREA/METAREA Co-ordinators, the Sub-Committee, IHO or WMO, as appropriate, recommend solutions or mitigating measures and, when agreed, co-ordinate their implementation; and
- .4 prepare documentation supporting the system for the Sub-Committee, including both that needed by the broadcasting Authority to guide its operations, and that needed to inform the user of the service (mariner, shipowner and operator).

2 *Contact addresses*

The NAVTEX Co-ordinating Panel can be contacted at the following addresses:

The Chairman
IMO NAVTEX Co-ordinating Panel
International Maritime Organization
4 Albert Embankment
London SE1 7SR
United Kingdom

Telephone: (+)44 (0)20 7735 7611
Telefax: (+)44 (0)20 7587 3210
Email: info@imo.org

Any correspondence will then be forwarded to the Panel by the IMO Secretariat. Alternatively, correspondence may be sent directly to the present Chairman who is also the NAVAREA I Co-ordinator and United Kingdom National Co-ordinator for Radio Navigational Warnings, at the following address:

The Chairman
IMO NAVTEX Co-ordinating Panel
United Kingdom Hydrographic Office
Admiralty Way
Taunton
TA1 2DN
United Kingdom

3 *Panel membership and participation*

3.1 The membership of the NAVTEX Co-ordinating Panel should include experts designated by Administrations willing to participate in the Panel and representatives of concerned international organizations. Anyone with the necessary qualifications and experience who is interested in becoming a member of the Panel should contact the Chairman.

3.2 The work of the Panel is conducted mainly by correspondence, but it has been found useful to hold occasional meetings to discuss current issues. These meetings are usually scheduled to be held in the margins of IMO, WMO or IHO meetings when Panel members are in attendance. This also allows attendance by other experts in order to provide advice on specific matters.

ANNEX 2

RECOMMENDATION ITU-R M.540-2*

Operational and Technical Characteristics for an Automated Direct-Printing Telegraph System for Promulgation of Navigational and Meteorological Warnings and Urgent Information to Ships

(Question 5/8)

The CCIR,† (1978-1982-1990)

CONSIDERING

- (a) that the availability of navigational and meteorological warnings and urgent information on board ships is of great importance for safety;
- (b) that the existing radiocommunication system for promulgation of navigational and meteorological warnings and urgent information to ships can be improved by use of modern techniques;
- (c) that the IMO has established the following definitions on the promulgation of maritime safety information:
- *NAVTEX* means the system for the broadcast and automatic reception of maritime safety information by means of narrow-band direct-printing telegraphy;
 - *international NAVTEX service* means the co-ordinated broadcast and automatic reception on 518 kHz of maritime safety information by means of narrow-band direct-printing telegraphy using the English language, as set out in the NAVTEX manual, published by the IMO;
 - *national NAVTEX service* means the broadcast and automatic reception of maritime safety information by means of narrow-band direct-printing telegraphy using frequencies and languages as decided by the Administrations concerned;
- (d) that the 1988 Amendments to the International Convention for the Safety of Life at Sea, 1974, require that every ship to which the Convention applies shall be provided with a receiver capable of receiving international NAVTEX service broadcasts;
- (e) that several countries are operating a co-ordinated international NAVTEX service based on narrow-band direct-printing in accordance with Article 14A of the Radio Regulations;
- (f) that the system should be applicable to the maritime mobile service (both international and national);
- (g) that it is desirable that the service fulfils the requirements of all types of ships desiring to use it;
- (h) that although each area may need specific guidance, the use of standard technical and operational characteristics would facilitate the extension of the service,

* The Director, CCIR, is requested to bring this Recommendation to the attention of the International Maritime Organization (IMO), the International Hydrographic Organization (IHO), the World Meteorological Organization (WMO) and to the International Association of Lighthouse Authorities (IALA).

† The name "CCIR" was changed to "Radiocommunication Bureau" by the reorganization of the International Telecommunication Union on 1 March 1993.

UNANIMOUSLY RECOMMENDS

1. that the operational characteristics for the promulgation of navigational and meteorological warnings and urgent information using NBDP should be in accordance with Annex I;
2. that the technical characteristics for the promulgation of navigational and meteorological warnings and urgent information using NBDP should be in accordance with Annex II.

ANNEX I

OPERATIONAL CHARACTERISTICS

1 Narrow-band direct-printing techniques should be used for an automated telegraph system for promulgation of navigational and meteorological warnings and urgent information to ships. Common frequencies for such transmissions should be internationally agreed upon and the frequency 518 kHz has been designated for world-wide use in the international NAVTEX service (see Radio Regulations Nos. 474, 2971B and N2971B).

1.1 For national NAVTEX services Administrations should also utilize the format of this Recommendation on the appropriate frequencies as defined in the Radio Regulations.

2 The radiated power from the coast station transmitter should only be that sufficient to cover the intended service area of that coast station. The range extension occurring during night hours should also be considered.

3 The information transmitted should primarily be of the type used for coastal waters preferably using a single frequency (Resolution No. 324 (Mob-87)).

4 The transmission time allocated to each station should be restricted to that which is adequate for the anticipated messages to be broadcast to the area concerned.

5 Scheduled broadcasts should take place at intervals not exceeding eight hours and be co-ordinated, to avoid interference with broadcasts from other stations.

6 *Message priorities*

6.1 Three message priorities are used to dictate the timing of the first broadcast of a new warning in the NAVTEX service. In descending order of urgency they are:

- VITAL: for immediate broadcast, subject to avoiding interference to ongoing transmissions;
- IMPORTANT: for broadcast at the next available period when the frequency is unused; and
- ROUTINE: for broadcast at the next scheduled transmission period.

Note: Both VITAL and IMPORTANT warnings will normally need to be repeated, if still valid, at the next scheduled transmission period.

6.2 In order to avoid unnecessary disruption to the service, the priority marking VITAL is to be used only in cases of extreme urgency, such as some distress alerts. In addition, VITAL messages are to be kept as brief as possible.

6.3 Periods should be scheduled between the regular transmission periods permitting immediate/early transmission of VITAL messages.

6.4 By use of the message serial number 00 in the preamble of a message (see also Annex 11 § 6) it is possible to override any exclusion of coast stations or of message types which might have been made in the receiving equipment.

7 Initial shore-to-ship distress-related messages should first be broadcast on the appropriate distress frequency by coast stations in whose SAR area distress cases are handled.

8 Participating transmitting stations should be provided with monitoring facilities to enable them to:

- monitor their own transmissions as to signal quality and transmission format;
- confirm that the channel is not occupied.

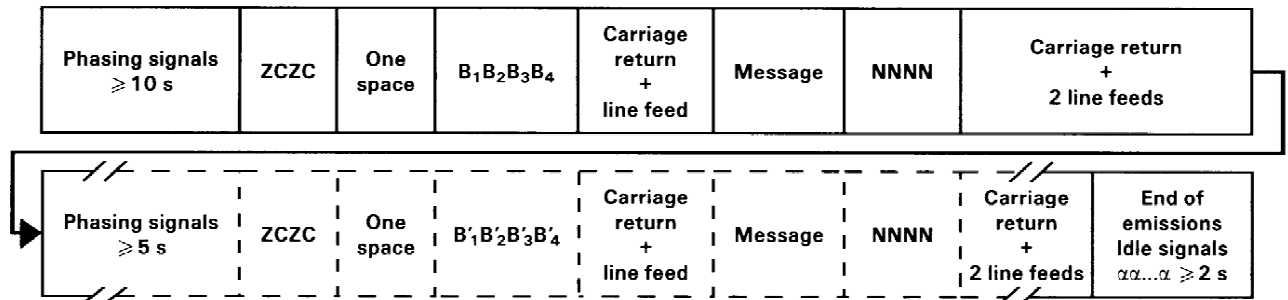
9 In case a message is repeated by more than one transmitting station within the same NAVTEX region (e.g. for better coverage) the original preamble B₁~B₄ (see annex II) should be used.

- 10** In order to avoid overloading of the channel it is desirable to use a single language and where a single language is used it shall be English.
- 11** Dedicated on-board equipment is recommended.
- 12** Other operational characteristics and detailed guidance are given in the NAVTEX Manual developed by the International Maritime Organization.

ANNEX II

TECHNICAL CHARACTERISTICS

- 1 The signals transmitted should be in conformity with the collective B-mode of the direct-printing system specified in Recommendations 476 and 625.
- 2 The technical format of the transmission should be as follows:



in which ZCZC defines the end of the phasing period,

the B₁ character is a letter (A-Z) identifying the transmitter coverage area,

the B₂ character is a letter (A-Z) for each type of message.

2.1 Both the B₁ characters identifying the different transmitter coverage areas and the B₂ characters identifying the different types of messages are defined by IMO and chosen from Table I of Recommendations 476 and 625, combination numbers 1-26.

2.1.1 Ship equipment should be capable of automatically rejecting unwanted information using character B₁.

2.1.2 Ship equipment should be capable of disabling print-out of selected types of messages using character B₂ with the exception of messages with B₂ characters A, B and D (see also § 2.1).

2.1.3 If any facility is rejected or disabled in § 2. 1.1 and 2.1.2 above, the extent of any such limitation must be clearly indicated to the user.

2.2 B₃B₄ is a two-character serial number for each B₂, starting with 01 except in special cases where the serial number 00 is used (see § 6 below).

2.3 The characters ZCZC B₁B₂B₃B₄ need not be printed.

3 The printer should only be activated if the preamble B₁~B₄ is received without errors.

4 Facilities should be provided to avoid printing of the same message several times on the same ship, when such a message has already been satisfactorily received.

5 The necessary information for the measures under § 4 above should be deduced from the sequence B₁B₂B₃B₄ and from the message.

6 A message should always be printed if B₃B₄ = 00.

7 Extra (redundant) letter and figure shifts should be used in the message to reduce garbling.

- 8** In case a message is repeated by another transmitting station (e.g. for better coverage) the original preamble B₁~B₄ should be used.
- 9** The equipment on board ships should be neither unduly complex or expensive.
- 10** The transmitter frequency tolerance for the mark and the space signals should be better than ± 10 Hz.

ANNEX 3

RESOLUTION MSC.148(77) (adopted on 3 June 2003)

ADOPTION OF THE REVISED PERFORMANCE STANDARDS FOR NARROW-BAND DIRECT-PRINTING TELEGRAPH EQUIPMENT FOR THE RECEPTION OF NAVIGATIONAL AND METEOROLOGICAL WARNINGS AND URGENT INFORMATION TO SHIPS (NAVTEX)

THE MARITIME SAFETY COMMITTEE,

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

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

NOTING the carriage requirement in SOLAS chapter IV/7.1.4 for a receiver capable of receiving International NAVTEX narrow-band direct-printing (NBDP) broadcasts for the promulgation of navigational and meteorological warnings to shipping,

NOTING FURTHER the success of the International NAVTEX service in the promulgation of Maritime Safety Information (MSI),

NOTING ALSO with regard to the enhanced storage, processing and display possibilities offered by recent technical advances,

CONSIDERING that further growth in information promulgated to ships will be constrained by the capacity of the International NAVTEX service and the increasing importance of National NAVTEX services,

HAVING CONSIDERED the recommendations on the revision of resolution A.525(13) made by the Sub-Committee on Radiocommunications and Search and Rescue at its seventh session,

1. ADOPTS the revised Recommendation on Performance Standards for Narrow-Band Direct-Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships (NAVTEX), set out in the Annex to the present resolution;
2. RECOMMENDS Governments to ensure that NAVTEX receiver equipment:
 - (a) if installed on or after 1 July 2005, conforms to performance standards not inferior to those specified in the Annex to the present resolution;
 - (b) if installed before 1 July 2005, conforms to performance standards not inferior to those specified in the Annex to resolution A.525(13).

ANNEX

**REVISED RECOMMENDATION ON PERFORMANCE STANDARDS FOR
NARROW-BAND DIRECT-PRINTING TELEGRAPH EQUIPMENT FOR
THE RECEPTION OF NAVIGATIONAL AND METEOROLOGICAL
WARNINGS AND URGENT INFORMATION TO SHIPS (NAVTEX)**

1 INTRODUCTION

1.1 The equipment, in addition to meeting the requirements of the Radio Regulations, the provisions of Recommendation ITU-R M.540 applicable to shipborne equipment and the general requirements set out in resolution A.694(17), should comply with the following performance standards.

2 GENERAL

2.1 The equipment should comprise radio receivers, a signal processor and:

either

- .1 an integrated printing device; or
- .2 a dedicated display device¹, printer output port and a non-volatile message memory; or
- .3 a connection to an integrated navigation system and a non-volatile message memory.

3 CONTROLS AND INDICATORS

3.1 Details of the coverage areas and message categories which have been excluded by the operator from reception and/or display should be readily available.

4 RECEIVERS

4.1 The equipment should contain one receiver operating on the frequency prescribed by the Radio Regulations for the International NAVTEX System. The equipment should contain a second receiver capable of working at the same time as the first one on at least two other frequencies recognized for the transmission of NAVTEX information. The first receiver should have priority in the display or printing of received information. Printing or displaying of messages from one receiver should not prevent reception by the other receiver.

4.2 The receiver sensitivity should be such that for a source with an e.m.f. of 2 μ V in series with a non-reactive impedance of 50 Ω , the character error rate is below 4%.

5 DISPLAY DEVICE AND PRINTER

5.1 The display device and/or printer should be able to display a minimum of 32 characters per line.

5.2 If a dedicated display device is used, the following requirements should be met:

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

5.3 The display device should be able to display at least 16 lines of message text.

¹ Where there is no printer, the dedicated display device should be located in the position from which the ship is normally navigated.

- 5.4 The design and size of the display device should be such that displayed information is easily read under all conditions by observers at normal working distances and viewing angles.
- 5.5 If automatic line feed entails division of a word, this should be indicated in the displayed/printed text.
- 5.6 When displaying received messages on a display device, a clear indication of the end of a message should be given by automatically adding line feeds after the message or including some other form of delineation. The printer or printer output should automatically insert line feeds after completing print of the received message.
- 5.7 The equipment should display/print an asterisk if the character is received corrupted.
- 5.8 Where the printer is not integrated, it should be possible to select the following data to be output to a printer:
- .1 all messages as they are received;
 - .2 all messages stored in the message memory;
 - .3 all messages received on specified frequencies, from specified locations or having specified message designators;
 - .4 all messages currently displayed; and
 - .5 individual messages selected from those appearing on the display.

6 STORAGE

6.1 Non-volatile message memory

6.1.1 For each receiver fitted it should be possible to record at least 200 messages of average length 500 characters (printable and non-printable) in non-volatile message memory. It should not be possible for the user to erase messages from memory. When the memory is full, the oldest messages should be overwritten by new messages.

6.1.2 The user should be able to tag individual messages for permanent retention. These messages may occupy up to 25% of the available memory and should not be overwritten by new messages. When no longer required, the user should be able to remove the tag on these messages which may then be overwritten in normal course.

6.2 Message identifications

6.2.1 The equipment should be capable of internally storing at least 200 message identifications for each receiver provided.

6.2.2 After between 60 h and 72 h, a message identification should automatically be erased from the store. If the number of received message identifications exceeds the capacity of the store, the oldest message identification should be erased.

6.2.3 Only message identifications which have been satisfactorily received should be stored; a message is satisfactorily received if the error rate is below 4%.

6.3 Programmable control memories

6.3.1 Information for location (B1)² and message (B2)² designators in programmable memories should not be erased by interruptions in the power supply of less than 6 h.

7 ALARMS

7.1 The receipt of search and rescue information (B2 = D) should give an alarm at the position from which the ship is normally navigated. It should only be possible to reset this alarm manually.

² Refer to Recommendation ITU-R M.540-2

8 TEST FACILITIES

8.1 The equipment should be provided with a facility to test that the radio receiver, the display device/printer and non-volatile message memory are functioning correctly.

9 INTERFACES

9.1 The equipment should include at least one interface for the transfer of received data to other navigation or communication equipment.

9.2 All interfaces provided for communication with other navigation or communication equipment should comply with the relevant international standards.³

9.3 If there is no integrated printer, the equipment should include a standard printer interface.

³ Refer to publication IEC 61162

ANNEX 4

IMO RESOLUTION A.706(17), as amended

World-Wide Navigational Warning Service

THE ASSEMBLY,

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

BEARING IN MIND the decisions of the XIth International Hydrographic Conference,

NOTING that the world-wide navigational warning service, adopted by resolution A.419(XI), has successfully been in existence since 1979,

NOTING FURTHER the provisions made for the promulgation of maritime safety information by the 1988 amendments to the International Convention for the Safety of Life at Sea, 1974, concerning radio-communications for the global maritime distress and safety system,

HAVING CONSIDERED the recommendations made by the Maritime Safety Committee at its fifty-ninth session,

1. ADOPTS the IMO/IHO World-Wide Navigational Warning Service - Guidance Document, as set out in annex 1 to the present resolution;
2. RECOMMENDS Governments to implement the world-wide navigational warning service;
3. AUTHORIZES the Maritime Safety Committee to amend the world-wide navigational warning service, as may be necessary, in accordance with the procedure set out in annex 2 to the present resolution;
4. REVOKES resolution A.419(XI).

ANNEX 1

IMO/IHO World-Wide Navigational Warning Service Guidance Document

1 INTRODUCTION

The original resolution of the tenth International Hydrographic Conference in 1972 recommended the formation of an *ad hoc* joint IMO/IHO Commission to study the "establishment of a co-ordinated, efficient global radio navigational warning service". Subsequently, this became a purely IHO Commission known as the Commission on Promulgation of Radio Navigational Warnings which nevertheless consulted continuously with IMO. In its report to the eleventh International Hydrographic Conference in 1977, the Commission submitted a Draft Plan for the Establishment of a World-Wide Navigational Warning System, also referred to as Plan for the Establishment of a Co-ordinated Radio Navigational Warning Service. The title *World-Wide Navigational Warning Service* or WWNWS used for this revised edition of the document reflects the evolution of the system from a proposed action to an effective co-ordinated service which now has all of its 16 NAVAREA in operation. This revised edition contains changes necessitated by the advent of the Global Maritime Distress and Safety System (GMDSS), as adopted by the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea, 1974, on the Global Maritime Distress and Safety System in November 1988, effective on 1 February 1992.

Future amendments to the guidance document will be considered formally and approved by IHO normally through the use of circular letters and by IMO through its Maritime Safety Committee in accordance with the procedures set out in Annex 2 to this document. Proposed amendments will normally be evaluated by the IHO Commission on Promulgation of Radio Navigational Warnings, which includes as an ex-officio member a representative of the IMO Secretariat, prior to any extensive IHO or IMO consideration.

World-Wide Navigational Warning Service (WWNWS)

1 INTRODUCTION

This document provides specific guidance for the promulgation of internationally co-ordinated NAVAREA and coastal warnings via NAVTEX and international SafetyNET services. It includes the situation where international SafetyNET is used in lieu of NAVTEX as the primary means of transmitting coastal warnings. Its guidance does not apply to purely national warning services which supplement those internationally co-ordinated services.

2 DEFINITIONS

2.1 For the purposes of this service, the following definitions apply:

2.1.1 *Navigational warning*: A broadcast message containing urgent information relevant to safe navigation. Types of information suitable for transmission as navigational warnings are described in 4.2.1.3.

2.1.2 *Maritime safety information (MSI)*: Navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages.

2.1.3 *NAVAREA*: A geographical sea area, as shown in the appendix, established for the purpose of co-ordinating the transmission of radio navigational warnings. Where appropriate, the term NAVAREA followed by an identifying roman numeral may be used as a short title. The delimitation of such areas is not related to and shall not prejudice the delimitation of any boundaries between States.

2.1.4 *Sub-area*: A subdivision of a NAVAREA in which a number of countries have established a co-ordinated system for the promulgation of coastal warnings. The delimitation of such areas is not related to and shall not prejudice the delimitation of any boundaries between States.

2.1.5 *Region*: The part of a NAVAREA or sub-area established for the purpose of co-ordinating the transmission of coastal warnings by NAVTEX or international SafetyNET broadcast.

2.1.6 *NAVAREA Co-ordinator*: The authority charged with co-ordinating, collating and issuing long range navigational warnings and NAVAREA warnings bulletins to cover the whole of the NAVAREA.

2.1.7 *Sub-area Co-ordinator*: The authority charged with the co-ordination of navigational warnings information within a designated sub-area.

2.1.8 *National Co-ordinator*: The national authority charged with collating and issuing coastal warnings in a region.

2.1.9 *NAVAREA warning*: A navigational warning issued by the NAVAREA Co-ordinator for the NAVAREA.

2.1.10 *NAVAREA warnings bulletin*: A list of serial numbers of those NAVAREA warnings in force issued and broadcast by the NAVAREA Co-ordinator during at least the previous six weeks.

2.1.11 *Coastal warning*: A navigational warning promulgated by a national Co-ordinator to cover a region. (Coastal warnings may also be broadcast by means other than those of the WWNWS as a national option.)

2.1.12 *Local warning*: A navigational warning which covers inshore waters, often within the limits of jurisdiction of a harbour or port authority.

3 BROADCAST SYSTEMS

3.1 Broadcast systems

3.1.1 The radio systems to be used internationally for the promulgation of maritime safety information are laid down in the International Convention for the Safety of Life at Sea, 1974 (SOLAS), as amended. These include:

- .1** NAVTEX: Single frequency time-shared broadcast system with automated reception and message rejection/selection facilities. Use of NAVTEX is regulated by the IMO NAVTEX Manual (IMO publication no. 951); and
- .2** international (enhanced group call) SafetyNET service: Dedicated satellite broadcast system with automated reception and message rejection/selection facilities. Use of this service is regulated by the International SafetyNET Manual (IMO publication no. 908).

3.2 Broadcast scheduling

3.2.1 Automated systems (SafetyNET/NAVTEX)

3.2.1.1 Navigational warnings should be transmitted as soon as possible or as dictated by the nature and timing of the event. Normally, the initial broadcast should be made as follows:

- .1** for SafetyNET, within 30 min of receipt of original information; and
- .2** for NAVTEX, at the next scheduled broadcast, unless circumstances indicate the use of procedures for VITAL or IMPORTANT warnings.

3.2.1.2 Navigational warnings should be repeated in scheduled broadcasts in accordance with the guidelines promulgated in the following documents, as appropriate:

- .1** International SafetyNET Manual (IMO publication no. 908); and
- .2** NAVTEX Manual (IMO publication no. IMO-951E).

3.2.1.3 At least two daily transmission times are necessary to provide adequate promulgation of NAVAREA warnings. When NAVAREAs may extend across more than six time zones, more than two broadcasts should be especially considered to ensure that warnings can be received.

3.2.2 Schedule changes

3.2.2.1 NAVAREA Co-ordinators should ensure that the times of HF broadcasting do not coincide with those in adjacent NAVAREAs. Times of scheduled broadcasts under the international SafetyNET service should be co-ordinated through the International SafetyNET Co-ordinating Panel.

3.2.2.2 Changes to broadcast schedules should be implemented only after the International Telecommunication Union (ITU) has been given at least three months' notice by the appropriate national authority, unless urgent operational considerations dictate more immediate action.

3.2.2.3 IMO and IHO should be informed of intended changes at the same time as they are communicated to ITU.

3.2.2.4 Arrangements should be made for informing mariners in good time of all changes.

4 NAVIGATIONAL WARNINGS

4.1 General

4.1.1 There are three types of navigational warnings: NAVAREA warnings, coastal warnings and local warnings. The WWNWS guidance and co-ordination are involved with only two of them: NAVAREA warnings and coastal warnings; of the latter, only with those coastal warnings which are broadcast under the internationally co-ordinated services using NAVTEX, or in lieu of NAVTEX, international SafetyNET service, as their primary means of transmission.

4.1.2 Navigational warnings should normally refer only to the area concerned.

4.1.3 Navigational warnings should be broadcast for as long as the information is valid or until it is made available by other means.

4.1.4 Navigational warnings should remain in force until cancelled by the originating Co-ordinator.

4.1.5 The duration of a navigational warning should be given in the text, if known.

4.2 The three types of navigational warnings are:

4.2.1 *NAVAREA warnings*

4.2.1.1 Generally speaking, NAVAREA warnings are concerned with the information detailed below which ocean-going mariners require for their safe navigation. This includes, in particular, failures of important aids to navigation, as well as information which may require changes to planned navigational routes.

4.2.1.2 Warnings for coastal areas may be provided by NAVTEX or the international SafetyNET service, when implemented in lieu of NAVTEX. From the date a NAVTEX receiver is mandatory on all ships sailing in areas of NAVTEX service (1 August 1993), it is intended that such information not be rebroadcast as a NAVAREA warning unless it is deemed of such significance that the mariner should be aware of it before entering the area of NAVTEX coverage. The national Co-ordinator will evaluate the significance of the information for consideration as a NAVAREA warning while the NAVAREA Co-ordinator will make the final determination (see 6.6.7 and 6.2.3 respectively).

4.2.1.3 The following subject areas are considered suitable for transmission as NAVAREA warnings. This list is not exhaustive and should be regarded only as a guideline. Furthermore, it presupposes that sufficiently precise information about the item has not previously been disseminated in a notice to mariners:

- .1** casualties to lights, fog signals and buoys affecting main shipping lanes;
- .2** the presence of dangerous wrecks in or near main shipping lanes and, if relevant, their marking;
- .3** establishment of major new aids to navigation or significant changes to existing ones when such establishment or change, might be misleading to shipping;
- .4** the presence of large unwieldy tows in congested waters;
- .5** drifting mines;
- .6** areas where search and rescue (SAR) and anti-pollution operations are being carried out (for avoidance of such areas);
- .7** the presence of newly discovered rocks, shoals, reefs and wrecks likely to constitute a danger to shipping, and, if relevant, their marking;
- .8** unexpected alteration or suspension of established routes;
- .9** cable- or pipe-laying activities, the towing of large submerged objects for research or exploration purposes, the employment of manned or unmanned submersibles, or other underwater operations constituting potential dangers in or near shipping lanes;

- .10 establishment of offshore structures in or near shipping lanes;
- .11 significant malfunctioning of radionavigation services and shore-based maritime safety information radio or satellite services;
- .12 information concerning special operations which might affect the safety of shipping, sometimes over wide areas, e.g. naval exercises, missile firings, space missions, nuclear tests, etc. It is important that where the degree of hazard is known, this information is included in the relevant warning. Whenever possible, such warnings should be originated not less than five days in advance of the scheduled event. The warning should remain in force until the event is completed;^{*} and
- .13 acts of piracy and armed robbery against ships.

4.2.1.4 NAVAREA warnings bulletins should be transmitted not less than once per week at a regularly scheduled time.

4.2.1.5 Arrangements should be made for the text of NAVAREA warnings in force to be available at port offices and, where appropriate, for their eventual inclusion in a generally available printed form.

4.2.2 *Coastal warnings*

4.2.2.1 Coastal warnings promulgate information which is necessary for safe navigation within a given region. Coastal warnings should normally provide sufficient information for safe navigation to seaward of the fairway buoy or pilot station and should not be restricted to main shipping lanes. Where the region is served by NAVTEX, it should provide navigational warnings for the entire IMO approved service area of the NAVTEX transmitter. Where the region is not served by NAVTEX, it is necessary to include all warnings relevant to the coastal waters up to 250 miles from the coast in the international SafetyNET service transmission.

4.2.2.2 Coastal warnings should include, at a minimum, the types of information required for NAVAREA warnings in 4.2.1.3.

4.2.3 *Local warnings*

4.2.3.1 Local warnings supplement coastal warnings by giving detailed information within inshore waters including the limits of a harbour or port authority on aspects which the ocean-going ship normally does not require.

5 INFORMATION CONTROL

5.1 Message numbering

5.1.1 Navigational warnings in each series should be consecutively numbered throughout the calendar year, commencing with 0001 at 0000 UTC on 01 January.

5.1.2 Navigational warnings should, as a general rule, be transmitted in reverse numerical order on scheduled broadcasts.

5.1.3 At the beginning of every navigational warning scheduled broadcast for which there are no warnings to be disseminated, a brief message should be transmitted to identify the broadcast and advise the mariner that there is no navigational warning message traffic on hand.

5.2 Priority message handling

5.2.1 The guidelines for the handling of navigational warnings are promulgated, as appropriate, in the following documents:

- .1 International SafetyNET Manual (IMO publication no. 908); and
- .2 NAVTEX Manual (IMO publication no. IMO-951E).

* The Maritime Safety Committee is authorized to review the provisions of this paragraph and, if appropriate, to provide for exemptions from this requirement, under special circumstances.

5.3 Language

5.3.1 All NAVAREA and coastal warnings must be transmitted in English in the internationally co-ordinated services.

5.3.2 In addition, NAVAREA warnings may be broadcast in one or more of the official languages of the United Nations.

5.3.3 Coastal warnings may also be broadcast in the national language, and local warnings may be issued only in the national language as a national service.

6 CO-ORDINATOR RESOURCES AND RESPONSIBILITIES

6.1 NAVAREA Co-ordinator resources

6.1.1 The NAVAREA Co-ordinator must have:

- .1** the expertise and information sources of a well established national hydrographic service;
- .2** effective communication links, e.g. telex, facsimile, e-mail, etc., with sub-area and national Co-ordinators in the NAVAREA and with other NAVAREA Co-ordinators; and
- .3** access to effective facilities for transmission to the entire NAVAREA. Reception normally should be possible 700 miles beyond the limit of the NAVAREA (24 hours' sailing by a fast ship).

6.2 NAVAREA Co-ordinator responsibilities

6.2.1 The NAVAREA Co-ordinator must:

- .1** endeavour to be informed of all events that could significantly affect the safety of navigation within the NAVAREA;
- .2** immediately upon receipt, assess all information in the light of expert knowledge for relevance to navigation in the NAVAREA;
- .3** select information for broadcast in accordance with the guidance given in 4.2.1 above;
- .4** draft NAVAREA warning messages in accordance with the Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI) for standardization of texts and message drafting;
- .5** direct and control the broadcast of NAVAREA warning messages, making full and efficient use of national broadcast facilities in keeping with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended;
- .6** pass NAVAREA warnings which warrant further promulgation in adjacent areas directly to the appropriate NAVAREA Co-ordinators, using the quickest possible means;
- .7** ensure that written copies of NAVAREA warnings likely to remain in force for more than six weeks are made available to those NAVAREA Co-ordinators or national authorities requesting them. Immediate transmission by telex, facsimile, or by high-speed communications is recommended in the absence of an alternative appropriate delivery arrangement, subject to agreement between the Co-ordinators concerned;
- .8** as soon as possible after the receipt of information concerning scheduled underwater operations as described in 4.2.1.3.9, or other scheduled operations such as in 4.2.1.3.3 and 4.2.1.3.10, pass such information to those national Co-ordinators in its own NAVAREA and other NAVAREA Co-ordinators who maintain a notices to mariners service covering the affected area and who have requested such information;
- .9** transmit periodical NAVAREA warnings bulletins;

- .10 promulgate the cancellation of NAVAREA warnings which contain information which is no longer valid;
- .11 arrange for the text of NAVAREA warnings in force to be available at port offices and, where appropriate, for their eventual inclusion in a generally available printed form;
- .12 act as the central point of contact on matters relating to navigational warnings within the NAVAREA;
- .13 promote the use of established international standards and practices in the promulgation of navigational warnings within the NAVAREA;
- .14 when notified by the authority designated to act on reports of piracy and armed robbery against ships, arrange for the broadcast of a suitable NAVAREA warning. Additionally, keep the national or regional piracy control centre informed of long-term broadcast action(s);
- .15 monitor the broadcasts which they originate to ensure that the messages have been correctly broadcast; and
- .16 co-ordinate preliminary discussions between Member States seeking to establish NAVTEX services and neighbouring Administrations, prior to formal application.

Note: Although arrangements made by the NAVAREA Co-ordinator should enable all ships to receive messages in force for an area either before reaching or on entering an area, nevertheless it should be possible, in exceptional cases, for ships to obtain, on request, texts of messages in force but not included in the current scheduled broadcasts.

6.3 Sub-area Co-ordinator resources

6.3.1 The sub-area Co-ordinator must have, or have access to:

- .1 expertise and information resources of a well established national hydrographic service;
- .2 effective communication links with national Co-ordinators in the sub-area; and
- .3 effective communication links with the NAVAREA Co-ordinator.

Note: Normally a sub-area Co-ordinator will serve also as a national Co-ordinator.

6.4 Sub-area Co-ordinator responsibilities

6.4.1 The sub-area Co-ordinator must:

- .1 endeavour to be informed of all events that could significantly affect the safety of navigation within the sub-area;
- .2 inform the NAVAREA Co-ordinator of any events in the sub-area which warrant the promulgation of a NAVAREA warning;
- .3 co-ordinate and promote the exchange of information between national Co-ordinators in the sub-area and the NAVAREA Co-ordinator;
- .4 act as the central point of contact on matters relating to navigational warnings within the sub-area;
- .5 promote the use of established international standards and practices in the promulgation of navigational warnings within the sub-area; and
- .6 monitor the broadcasts which they originated to ensure that the messages have been correctly transmitted.

6.5 National Co-ordinator resources

6.5.1 The national Co-ordinator must have:

- .1 established sources of information relevant to the safety of navigation within national waters;
- .2 effective communication links with the sub-area/NAVAREA Co-ordinator and adjacent national Co-ordinators; and
- .3 access to effective facilities for the transmission of navigational warnings to the region.

6.6 National Co-ordinator responsibilities

6.6.1 The national Co-ordinator must:

- .1 endeavour to be informed of all events that could significantly affect the safety of navigation within his region or national area of responsibility;
- .2 immediately upon receipt, assess all information in the light of expert local knowledge for relevance to safety of navigation in his area of responsibility;
- .3 select information for broadcast in accordance with the guidance given in paragraph 4.2.1.3 above;
- .4 draft coastal warnings in accordance with established international standards;
- .5 direct and control the broadcast of coastal warnings by a broadcast system adopted for the WWNWS;
- .6 arrange to receive NAVAREA warnings broadcast for its area of responsibility and, where appropriate, coastal warnings from other national Co-ordinators;
- .7 include relevant warnings in NAVTEX/SafetyNET broadcasts and, if appropriate, in notices to mariners;
- .8 arrange for the texts of NAVAREA warnings and relevant coastal warnings to be available at port offices and, where appropriate, for their eventual inclusion in a generally printed form and/or notice to mariners;
- .9 inform the NAVAREA Co-ordinator or, where established, the sub-area Co-ordinator of any events in his area of responsibility which warrant the promulgation of a NAVAREA warning;
- .10 act as the central point of contact on matters relating to navigational warnings within his area of responsibility;
- .11 pass coastal warnings that warrant further promulgation in adjacent regions to the appropriate national Co-ordinators;
- .12 when notified by the authority designated to act on reports of piracy and armed robbery against ships, arrange for the broadcast of a suitable NAVAREA warning. Additionally, keep the national or regional piracy control centre informed of long-term broadcast action(s); and
- .13 monitor the broadcasts which they originate to ensure that the messages have been correctly broadcast.

ANNEX 2

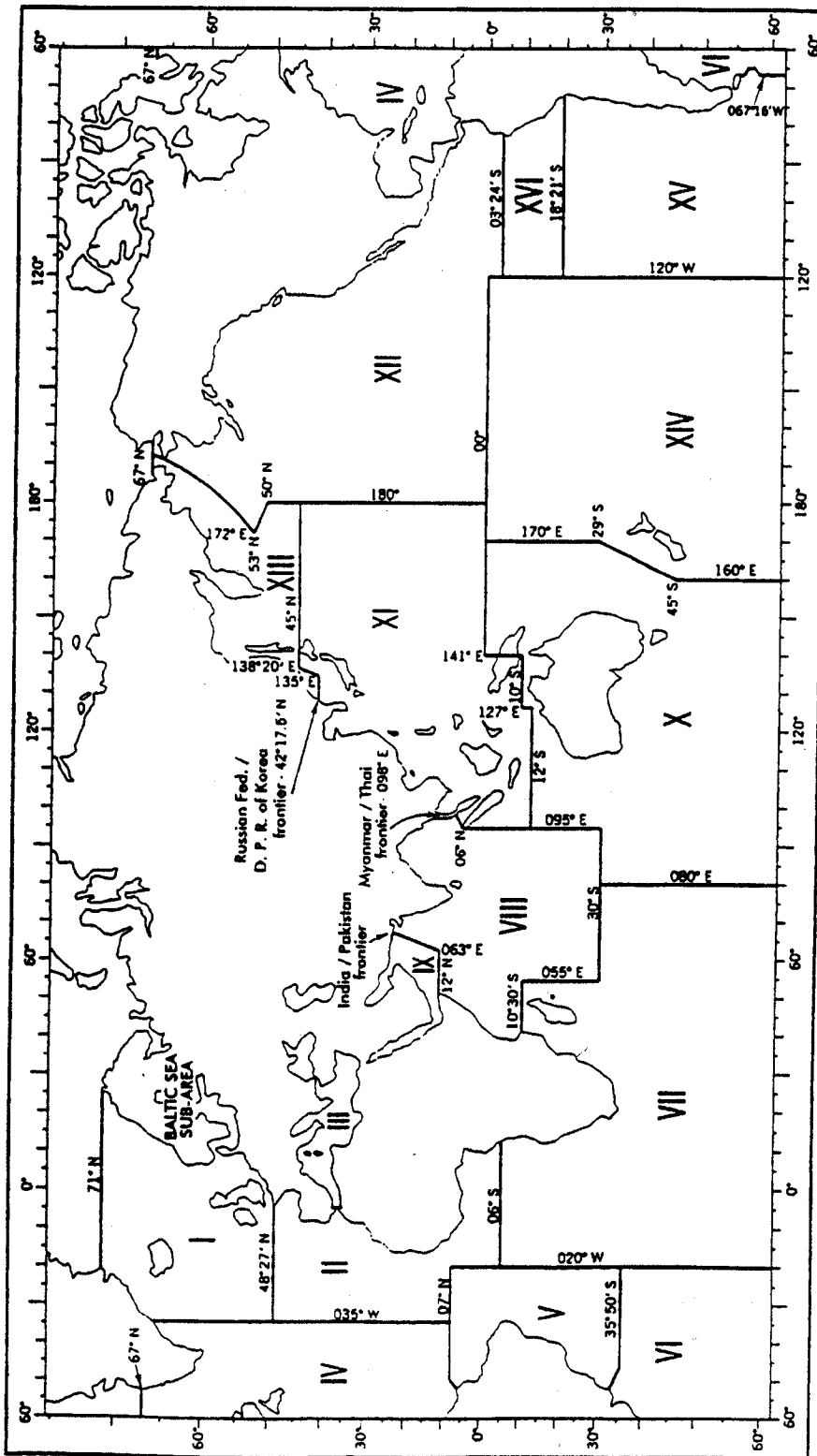
***IMO PROCEDURE FOR AMENDING THE WORLD-WIDE
NAVIGATIONAL WARNING SERVICE***

1 Proposed amendments to the world-wide navigational warning service should be submitted to the Maritime Safety Committee for evaluation.

- 2** Amendments to the service should normally come into force at intervals of approximately two years or at such longer periods as determined by the Maritime Safety Committee at the time of adoption. Amendments adopted by the Maritime Safety Committee will be notified to all concerned, will provide at least 12 months notification and will come into force on 1 January of the following year.
- 3** The agreement of the International Hydrographic Organization and the active participation of other bodies should be sought according to the nature of the proposed amendments.
- 4** When the proposals for amendment have been examined in substance, the Maritime Safety Committee will entrust the Sub-Committee on Radiocommunications and Search and Rescue with the ensuing editorial tasks.
- 5** The NAVAREA schedule of broadcast times and frequencies, not being an integral part of the service and being subject to frequent changes, will not be subject to the amendment procedures.

Appendix

GEOGRAPHICAL AREAS FOR CO-ORDINATING AND PROMULGATING RADIO-NAVIGATIONAL WARNINGS



THE DELIMITATION OF THESE NAVAREAS IS NOT RELATED AND SHALL NOT PREJUDICE THE DELIMITATIONS OF ANY BOUNDARIES BETWEEN STATES

ANNEX 5

IMO RESOLUTION A.801(19), annex 4

Criteria for use when providing a NAVTEX service

1 There are two basic areas which must be defined when establishing a NAVTEX service. They are:

Coverage area: An area defined by an arc of a circle having a radius from the transmitter calculated according to the method and criteria given in this annex.

Service area: A unique and precisely defined sea area, wholly contained within the coverage area, for which MSI is provided from a particular NAVTEX transmitter. It is normally defined by a line that takes full account of local propagation conditions and the character and volume of information and maritime traffic patterns in the region.

2 Governments desiring to provide a NAVTEX service should use the following criteria for calculating the coverage area of the NAVTEX transmitter they intend to install, in order to:

- determine the most appropriate location for NAVTEX stations having regard to existing or planned stations;
- avoid interference with existing or planned NAVTEX stations;
- establish a service area for promulgation to seafarers.

3 The ground-wave coverage may be determined for each coast station by reference to CCIR Recommendation 368 and CCIR Report 322 for the performance of a system under the following conditions:

Frequency	- 518 kHz
Bandwidth	- 500 Hz
Propagation	- ground-wave
Time of day ¹	
Season ¹	
Transmitter power ²	
Antenna efficiency ²	
RF S/N in 500 Hz bandwidth	- 8 db ³
Percentage of time	- 90

4 Full coverage of NAVTEX service area should be verified by field strength measurements.

¹ Administrations should determine time periods in accordance with NAVTEX time transmission table (NAVTEX Manual, figure 3) and seasons appropriate to their geographic area based on prevailing noise level.

² The range of a NAVTEX transmitter depends on the transmitter power and local propagation conditions. The actual range achieved should be adjusted to the minimum required for adequate reception in the NAVTEX area served, taking into account the needs of ships approaching from other areas. Experience has indicated that the required range of 250 to 400 nautical miles can generally be attained by transmitter power in the range between 100 and 1,000 W during daylight with a 60% reduction at night.

³ Bit error rate 1×10^{-2}

ANNEX 6

PROCEDURE FOR AMENDING THE NAVTEX MANUAL

1 Proposals for amendments to the NAVTEX Manual should be examined in substance by the Sub-Committee on Radiocommunications and Search and Rescue (COMSAR). Amendments will only be adopted after the approval of the Maritime Safety Committee.

2 Amendments to the Manual should normally be adopted at intervals of approximately two years or at such longer periods as may be determined by the Maritime Safety Committee. Amendments adopted by the Maritime Safety Committee will be notified to all concerned, will provide at least 12 months' notification and will come into force on 1 January of the following year.

3 The agreement of the International Hydrographic Organization and World Meteorological Organization, and the active participation of other bodies, should be sought according to the nature of the proposed amendments.

ANNEX 7

COMSAR/Circ.28 of 12 June 2001

INTERNATIONAL NAVTEX SERVICE

- 1 The Sub-Committee on Radiocommunications and Search and Rescue (COMSAR), at its fifth session (11 to 15 December 2000), agreed to a number of recommendations (reproduced at annex) aimed at reducing interference and volume of information in the International NAVTEX service.
- 2 In addition, COMSAR 5 agreed that it was important to encourage Administrations to migrate non-English language broadcasts and broadcasts of information provided specifically for non-SOLAS vessels from 518 kHz to 490 kHz or 4209.5 kHz, as appropriate.
- 3 The Maritime Safety Committee, at its seventy-fourth session (30 May to 8 June 2001), approved the recommendations made by COMSAR 5 and urged Administrations to complete this migration by 1 January 2005.
- 4 Member Governments are invited to bring this circular to the attention of all Maritime Safety Information (MSI) providers and National Telecommunication Administrations for consideration and action as appropriate.

ANNEX

Interference between stations and the use of 490 kHz

- 1 Although NAVTEX continues to be generally reliable and an effective medium for the promulgation of Maritime Safety Information, the world-wide infrastructure continues to expand and the volume of information that each Administration disseminates through a NAVTEX service on 518 kHz continues to increase. There is now a real danger that in some geographical areas, without firm management, both the system and system users may become overloaded with information on this frequency.
- 2 Many stations are filling their allotted 10 minute time slots and an increasing number are over-running. Instances of interference with neighbouring stations, as a result of over-running the time allocation, are also increasing. Where adjacent stations have B₁ characters which follow alphabetically (i.e. time slots abut), if the first station over runs, it may mask the phasing signal of the second station such that, to the user, it seems as if the second station is off the air. Safety-critical information from the second station, although broadcast, may not be received by the system users. Over-run is usually caused by one or more of the following:
 - .1 a significant increase in safety-critical activity such as cable laying. Navigational warnings promulgating such activity often include numerous waypoints which are listed by Latitude and Longitude;
 - .2 meteorological information provided in a manner which is not concise and easily assimilated by the system user or for a much wider area than is covered by the NAVTEX station;
 - .3 additional information provided for non-SOLAS system users e.g. longer-range weather forecasts for fishing and recreational vessels (see paragraph 3 below); and
 - .4 information to meet specific national requirements. This includes national language broadcasts and other information which is sometimes required to be broadcast by national statute rather than IMO resolutions.

3 As the GMDSS spreads to non-SOLAS mariners, their requirements for information are often different from the SOLAS ships and may be determined at a national level. SOLAS ships trading internationally usually pass through the area of coverage of a NAVTEX transmitter in a day; for them a 24-hour weather forecast usually suffices. However, fishing vessels and recreational vessels often remain in the same vicinity for several days and may require much longer range forecasts which take up more transmission time.

4 In order to keep the quantity of information that is broadcast on 518 kHz to manageable levels and to reduce avoidable interference on this frequency, it is recommended that:

- .1 Administrations monitor the volume of data broadcast and, together with adjacent Administrations, actively manage the system to ensure that interference caused by over-running allocated time slots is minimized; and
- .2 Administrations migrate non-English language broadcasts, and broadcasts of information provided specifically for non-SOLAS vessels from 518 kHz to a national broadcast on 490 kHz or 4209.5 kHz as required. B₁ characters for these frequencies will be allocated by the International NAVTEX Co-ordinating Panel, on request.

5 Interference between stations with the same B₁ character/time slot, but located in different regions is also increasing, particularly at night, as the number of operational NAVTEX stations increases. This is occasionally caused by atmospheric conditions, but is generally caused by excessive power output from one of the stations. It is recommended that Administrations restrict the power output from their transmitters to that required to cover the designated area, particularly at night, in order to avoid interference. As a general rule, transmitter power should never exceed 1 kW by day and 300 watts by night; use of as much as 7 kW has been noted in extreme cases of reported interference.
