

ANNEX 12**RESOLUTION MSC.74(69)
(adopted on 12 May 1998)****ADOPTION OF NEW AND AMENDED PERFORMANCE STANDARDS**

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.825(19), 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,

HAVING CONSIDERED new performance standards and amendments to existing performance standards adopted by the Assembly and prepared by the forty-third session of the Sub-Committee on Safety of Navigation,

1. ADOPTS the following new and recommended performance standards, set out in Annexes 1 to 3 to the present resolution:
 - (a) Recommendation on Performance Standards for Shipborne Combined GPS/GLONASS Receiver Equipment (Annex 1);
 - (b) Recommendation on Performance Standards for Track Control Systems (Annex 2); and
 - (c) Recommendation on Performance Standards for Universal Automatic Identification System (AIS) (Annex 3);
2. ADOPTS ALSO the amendments to the following performance standards adopted by the Assembly, set out in Annex 4 to the present resolution:
 - (a) Resolution A.224(VII) - Recommendation on Performance Standards for Echo-Sounding Equipment (Annex 4);
3. RECOMMENDS Member Governments to ensure that:
 - (a) shipborne combined GPS/GLONASS receiver equipment, track control systems and AIS installed on or after 1 January 2000 conform to performance standards not inferior to those set out in the Annexes 1 to 3 to the present resolution;
 - (b) echo-sounding equipment installed on or after 1 January 2001 conform respectively to performance standards not inferior to those set out in Annex 4 to the present resolution;
 - (c) echo-sounding equipment installed before 1 January 2001 conform at least to the performance standards set out in resolution A.224(VII).

ANNEX 3

RECOMMENDATION ON PERFORMANCE STANDARDS FOR AN UNIVERSAL SHIPBORNE AUTOMATIC IDENTIFICATION SYSTEM(AIS)

1 Scope

1.1 These performance standards specify the requirements for the universal AIS.

1.2 The AIS should improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services (VTS), by satisfying the following functional requirements:

- .1 in a ship-to-ship mode for collision avoidance;
- .2 as a means for littoral States to obtain information about a ship and its cargo; and
- .3 as a VTS tool, i.e. ship-to-shore (traffic management).

1.3 The AIS should be capable of providing to ships and to competent authorities, information from the ship, automatically and with the required accuracy and frequency, to facilitate accurate tracking. Transmission of the data should be with the minimum involvement of ship's personnel and with a high level of availability.

1.4 The installation, in addition to meeting the requirements of the Radio Regulations, applicable ITU-R Recommendations and the general requirements as set out in resolution A.694 (17), should comply with the following performance standards.

2 Functionality

2.1 The system should be capable of operating in a number of modes:

- .1 an "autonomous and continuous" mode for operation in all areas. This mode should be capable of being switched to/from one of the following alternate modes by a competent authority;
- .2 an "assigned" mode for operation in an area subject to a competent authority responsible for traffic monitoring such that the data transmission interval and/or time slots may be set remotely by that authority; and
- .3 a "polling" or controlled mode where the data transfer occurs in response to interrogation from a ship or competent authority.

3 Capability

3.1 The AIS should comprise:

- .1 a communication processor, capable of operating over a range of maritime frequencies, with an appropriate channel selecting and switching method, in support of both short and long range applications;
- .2 a means of processing data from an electronic position-fixing system which provides a resolution of one ten thousandth of a minute of arc and uses the WGS-84 datum.;
- .3 a means to automatically input data from other sensors meeting the provisions as specified in paragraph 6.2;
- .4 a means to input and retrieve data manually;
- .5 a means of error checking the transmitted and received data; and
- .6 built in test equipment (BITE).

3.2 The AIS should be capable of:

- .1 providing information automatically and continuously to a competent authority and other ships, without involvement of ship's personnel;
- .2 receiving and processing information from other sources, including that from a competent authority and from other ships;
- .3 responding to high priority and safety related calls with a minimum of delay; and
- .4 providing positional and manoeuvring information at a data rate adequate to facilitate accurate tracking by a competent authority and other ships.

4 User interface

To enable a user to access, select and display the information on a separate system, the AIS should be provided with an interface conforming to an appropriate international marine interface standard.

5 Identification

For the purpose of ship and message identification, the appropriate Maritime Mobile Service Identity (MMSI) number should be used.

6 Information

6.1 The information provided by the AIS should include

.1 Static:

- IMO number (where available)
- Call sign & name
- Length and beam
- Type of ship
- Location of position-fixing antenna on the ship (aft of bow and port or starboard of centerline)

.2 Dynamic:

- Ship's position with accuracy indication and integrity status
- Time in UTC*
- Course over ground
- Speed over ground
- Heading
- Navigational status (e.g. NUC, at anchor, etc. - manual input)
- Rate of turn (where available)
- Optional - Angle of heel (where available)**
- Optional - Pitch and roll (where available)**

.3 Voyage related:

- Ship's draught
- Hazardous cargo (type)***
- Destination and ETA (at masters discretion)
- Optional - Route plan (waypoints)**

.4 Short safety-related messages

6.2 Information update rates for autonomous mode

The different information types are valid for a different time period and thus need a different update rate:

- | | | |
|---|-----------------------------|---------------------------------------------------------------|
| - | Static information: | Every 6 min and on request |
| - | Dynamic information: | Dependant on speed and course alteration according to Table 1 |
| - | Voyage related information: | Every 6 min, when data has been amended and on request |
| - | Safety-related message: | As required |

* Date to be established by receiving equipment.

** Field not provided in basic message.

*** As required by competent authority.

TABLE 1

Type of ship	Reporting interval
Ship at anchor	3 min
Ship 0-14 knots	12 sec
Ship 0-14 knots and changing course	4 sec
Ship 14-23 knots	6 sec
Ship 14-23 knots and changing course	2 sec
Ship > 23 knots	3 sec
Ship > 23 knots and changing course	2 sec

Ship Reporting Capacity - the system should be able to handle a minimum of 2000 reports per min to adequately provide for all operational scenarios envisioned.

6.3 Security

A security mechanism should be provided to detect disabling and to prevent unauthorised alteration of input or transmitted data. To protect the unauthorized dissemination of data, the IMO guidelines (Guidelines and Criteria for Ship Reporting Systems^{*}) should be followed.

7 Permissible initialization period

The installation should be operational within 2 min of switching on.

8 Power supply

The AIS and associated sensors should be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the AIS and associated sensors from an alternative source of electrical energy.

9 Technical characteristics

The technical characteristics of the AIS such as variable transmitter output power, operating frequencies (dedicated internationally and selected regionally), modulation, and antenna system should comply with the appropriate ITU-R Recommendations.

^{*}Resolution MSC.43(64)