

**ANNEX 14**

**RESOLUTION MSC.96(72)  
(adopted on 22 May 2000)**

**ADOPTION OF AMENDMENTS TO PERFORMANCE STANDARDS FOR DEVICES  
TO MEASURE AND INDICATE SPEED AND DISTANCE (RESOLUTION A.824(19))**

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,

HAVING CONSIDERED amendments to the existing performance standards for devices to indicate speed and distance adopted by the Assembly by resolution A.824(19) - Performance Standards for Devices to Indicate Speed and Distance, as prepared by the forty-fifth session of the Sub-Committee on Safety of Navigation,

1. ADOPTS the recommended amendments to resolution A.824(19) on Recommendation on Performance Standards for Devices to Indicate Speed and Distance, set out in the Annex to the present resolution;
2. RECOMMENDS Member Governments to ensure that:
  - (a) devices to measure and indicate speed and distance installed on or after 1 July 2002 conform to performance standards not inferior to those set out in the Annex to the present resolution;
  - (b) devices to indicate speed and distance installed on and after 1 January 1997 but before 1 July 2002 conform at least to the performance standards set out in resolution A.824(19).

## ANNEX

### **AMENDMENTS TO RESOLUTION A.824(19) ON PERFORMANCE STANDARDS FOR DEVICES TO INDICATE SPEED AND DISTANCE**

The existing text of the Annex is replaced by the following:

#### **“ANNEX**

#### **RECOMMENDATION ON PERFORMANCE STANDARDS FOR DEVICES TO MEASURE AND INDICATE SPEED AND DISTANCE**

### **1 INTRODUCTION**

1.1 Devices to measure and indicate speed and distance are intended for general navigational and ship manoeuvring use. The minimum requirement is to provide information on the distance run and the forward speed of the ship through the water or over the ground. Additional information on ship's motions other than in the forward axis may be provided. The equipment should comply fully with its performance standard at forward speeds up to the maximum speed of the ship. Devices measuring speed and distance through the water should meet the performance standard in water of depth greater than 3 m beneath the keel. Devices measuring speed and distance over the ground should meet the performance standard in water of depth greater than 2 m beneath the keel.

1.2 Radar plotting aids/track control equipment require a device capable of providing speed through the water in the fore and aft direction.

1.3 In addition to the general requirements in resolution A.694(17), devices to measure and indicate speed and distance should comply with the following minimum performance requirements.

### **2 METHODS OF PRESENTATION**

2.1 Speed information may be presented in either analogue or digital form. Where a digital display is used, its incremental steps should not exceed 0.1 knots. Analogue displays should be graduated at least every 0.5 knots and be marked with figures at least every 5 knots. If the display can present the speed of the ship in other than the forward direction, the direction of movement should be indicated unambiguously.

2.2 Distance run information should be presented in digital form. The display should cover the range from 0 to not less than 9999.9 nautical miles and the incremental steps should not exceed 0.1 nautical miles. Where practicable, means should be provided for resetting a readout to zero.

2.3 The display should be easily readable by day and by night.

2.4 Means should be provided for transmitting measured speed and distance run information to other equipment fitted on board. In this regard:

- .1 the information on all speed and distance parameters, including direction should be transmitted in accordance with the relevant international marine interface standards<sup>\*</sup>; and
- .2 additionally, when the equipment is used for measuring forward speed, then the information may be transmitted using closing contacts and, if so, this should be in the form of one contact closure each 0.005 nautical miles run.

2.5 If equipment is capable of being operated in either the "speed through the water" or "speed over the ground" mode, mode selection and mode indication should be provided.

2.6 If the equipment has provision for indicating speeds other than on a single fore and aft direction, then both the forward and athwart speeds should be provided either through the water or over the ground. Resultant speed and direction information may be provided as a display selectable option. All such information should clearly indicate the direction, mode and validity status of the displayed information.

### **3 ACCURACY OF MEASUREMENT**

3.1 Errors in the measured and indicated speed, when the ship is operating free from shallow water effect and from the effects of wind, sea bottom type, current and tide, should not exceed the following:

- .1 for a digital display - 2% of the speed of the ship, or 0.2 knots, whichever is greater;
- .2 for an analogue display – 2.5% of the speed of the ship, or 0.25 knots, whichever is greater; and
- .3 for output data transmission – 2% of the speed of the ship, or 0.2 knots, whichever is greater.

3.2 Errors in the indicated distance run, when the ship is operating free from shallow water effect and from the effects of wind, sea bottom type, current and tide, should not exceed 2% of the distance run by the ship in 1 h or 0.2 nautical miles in each hour, whichever is greater.

3.3 If the accuracy of devices to indicate speed and distance run can be affected in use by certain conditions (e.g. sea state and its effects, water temperature, salinity, sound velocity in water, depth of water under the keel, heel and trim of ship), details of possible effects should be included in the equipment handbook.

### **4 ROLL AND PITCH**

The performance of the equipment should be such that it will meet the requirements of these standards when the ship is rolling up to  $\pm 10^\circ$  and pitching up to  $\pm 5^\circ$ .

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\* Refer to IEC Publication 61162

## **5 CONSTRUCTION AND INSTALLATION**

5.1 The system should be so designed that neither the method of attachment of parts of the equipment to the ship nor damage occurring to any part of the equipment which penetrates the hull could result in the ingress of water to the ship.

5.2 Where any part of the system is designed to extend from and retract into the hull of the ship, the design should ensure that it can be extended, operated normally and retracted at all speeds up to the maximum speed of the ship. Its extended and retracted positions should be clearly indicated at the display position.

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