

GUIDE FOR

BRIDGE DESIGN AND NAVIGATIONAL EQUIPMENT/SYSTEMS

JANUARY 2000

(Updated June 2002)

NOTICE NO. 1 – December 2003 (Rev. on 7 July 2008)

The following Rule Changes are **EFFECTIVE AS OF 1 DECEMBER 2003**.

Part A General

A1 Application (2003)

(Add new A1.3 as follows)

A1.3 The design and layout of navigational equipment is to be based on sound ergonomic principles. The *Guidance Notes on Ergonomic Design of Navigation Bridges, 2003* may be used as a supplement.

(Number existing A5 as A3 and existing A3 as A5, as follows:)

A3 Operational Assumptions (2003)

The requirements contained in this Guide are based on the following assumptions:

- A3.1** Plans for emergencies and the conditions under which the vessel is intended to operate are clearly defined in an operational manual acceptable to the flag Administration. The manual should clearly state the bridge crew composition required under any particular set of circumstances.
- A3.2** The requirements of the International Conventions on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and other applicable statutory regulations are complied with.

A5 Optional Notations (2003)

A5.1 Notation NBL (Navigational Bridge Layout)

Where requested by the Owner, a vessel having its bridge found to comply with the requirements in Parts A and B of this Guide, as applicable, and which has been constructed and installed under survey by the Surveyor, will be assigned the notation **NBL**.

A5.2 Notation NBLES (Navigational Bridge Layout and Equipment/systems)

Where requested by the Owner, a vessel which is found to comply with the requirements specified in Parts A through C of this Guide and which has been constructed and installed under survey by the Surveyor, will be assigned the notation **NBLES**.

A5.3 Notation NIBS (Navigational Integrated Bridge System)

Where requested by the Owner, a vessel which is fitted with an integrated bridge system (IBS) for navigational purpose, is found to comply with the requirements specified in Parts A through D of this Guide, and which has been constructed and installed under survey by the Surveyor, will be assigned the notation **NIBS**.

(Revise definitions of “Conning Position” and “Ergonomics” and add new definitions, as follows:)

A11 Definitions (2003)

Conning Position – Place on the bridge with a commanding view and which is used by navigators, including pilots, when monitoring, maneuvering and controlling a vessel.

Course – The horizontal direction in which a vessel is steered or intended to be steered, expressed as an angular distance from north. Course applies to direction over the water.

Cross track Alarm – Comparison of the vessel’s position with the track (control error).

Ergonomics – The study and design of working environments and their components, work practices, and work procedures for the benefit of the worker’s productivity, health, comfort, and safety. Application of the human factor in the analysis and design of equipment and working environment

Heading – The horizontal direction in which the longitudinal axis of a ship actually points or heads at any instant, expressed in angular units from a referenced direction.

Heading Monitor – Comparison of the heading source in use with a second independent heading sensor.

Off Heading Alarm – Comparison of heading and preset heading (control error).

Operating/Technical Manual – Manuals or operational instructions for equipment/systems installed on the bridge for the use of bridge personnel.

Position Monitor – Comparison of the position source in use with a second independent position sensor or source.

Track – The intended or desired horizontal direction of travel with respect to earth.

A13 Plans and Data to be Submitted

A13.3 Applicable to NIBS Notation (2003)

(Correct numbering of A13.3.2, cross reference and “ECDIS”, as follows:)

A13.3.2 In addition to A13.2.5, the sea trial program is to include test details of the electronic chart display and information systems (ECDIS) and integrated bridge system (IBS).

Part B Requirements for Notation NBL (Navigational Bridge Layout)

B3 Equipment Design and Construction

(Revise text as follows:)

B3.1 General (2003)

The design of navigational equipment is to be based on sound ergonomic principles in accordance with the *Guidance Notes on Ergonomic Design of Navigation Bridges, 2003*, as applicable. Its construction is to be of robust, durable and flame retardant material incorporating the required degree of enclosure protection, i.e., IP 20 for bridge installation and IP 56 for open deck installation. The requirements in B3 are applicable to navigational related equipment required in this Guide

B5 Bridge Arrangement and Working Environment

B5.2 Control of Vessel

(Revise first sentence as follows:)

B5.2.2 Conning Position (2003)

An adequate conning position is to be provided in close proximity to the forward center window and is to be arranged so as to enable the navigator(s) to watch the area immediately in front of the bridge superstructure and observe all relevant information required to maintain a safe course and speed of the vessel in narrow waters, harbor areas and during final passages without interfering with the tasks of the bridge personnel. The rudder, propeller, thrust, pitch and operational mode indicators, or other means to determine and display rudder angle, propeller revolutions, direction of thrust and, if applicable, the force and direction of lateral thrust and the pitch and operational mode, are all to be readable from the conning position(s).

However, if the view in the center-line is obstructed by large masts, cranes, etc., two additional conning positions giving a clear view ahead are to be provided, one on the port side and one on the starboard side of the center-line, not more than 5 m (16 ft 5 in.) apart from each other.

Part C Requirements for Notation NBLES (Navigational Bridge Layout and Equipment/Systems)

C13 Navigational Systems (2003)

(Revise text as follows:)

C13.1 Heading Information System

The vessel is to be provided with continuous heading information at the appropriate workstations and at the main steering position. To this end, a magnetic compass and a gyro compass having the capability to determine the vessel's heading in relation to the geographic (true) North are to be provided. The magnetic compass and the gyro compass are to comply with IMO's Res. A.382(X), "Performance Standard for Magnetic Compass" and IMO's Res. A.424(XI), "Performance Standard for Gyro Compass", respectively. In addition, a pelorus or compass bearing repeater, or other means to take bearings over an arc of the horizon of 360 degrees, and a gyro compass heading repeater is to be provided. The following is to be complied with:

(C13.1.1 through C13.1.4 remain unchanged.)

C13.2 Steering System

Means for manual and automatic steering of the vessel are to be provided. The steering system is to comply with the following:

C13.2.1 The automatic pilot with an on/off indicator is to comply with IMO's Res. A.342(IX), as amended by Annex 3 to MSC.64(67) "Performance Standard for Automatic Pilots".

C13.2.2 The automatic pilot equipment is to be monitored by an off-heading alarm, which is to activate, when the actual heading deviates from a pre-set heading beyond a preset limit, in the wheelhouse. This alarm is to be derived from a system independent from the automatic steering system. The off-heading alarm is not to be released when setting a new course reference.

The off-heading alarm may receive input from the gyrocompass, provided the compass is independent of the automatic steering gear. The magnetic compass may be used as a signal input, provided that same is used as a back-up to the gyro compass.

A heading control system is to work together with a track control system, adjusting its heading for drift. The heading control system is to comply with IMO's Res. MSC.64(67), Annex 3 "Recommendation on Performance Standards for Heading Control Systems" and the track control system is to comply with IMO's Res. MSC.74(69), Annex 2 "Recommendation on Performance Standards for Track Control Systems".

(C13.2.3 through C13.2.5 remain unchanged.)

C13.3 Speed Measuring System

The vessel is to be fitted with the means for measuring speed and distance through the water. Vessels above 50,000 GT are also to be capable of measuring speed in the forward, aft and athwartship directions. The speed log is to comply with IMO's Res. MSC.96 (72), Annex 14 "Performance Standards for Devices to Indicate Speed and Distance".

C13.4 Depth Measuring System

The vessel is to be fitted with an echo sounder or equivalent for measuring the water depth under the keel. An alarm is to be initiated when the water depth beneath the vessel is less than the predetermined value. The echo sounder is to comply with IMO's Res. MSC.74(69), Annex 4 "Performance Standards for Echo-Sounding Equipment".

C13.5 Radar System

(First paragraph remains unchanged.)

C13.5.1 If the vessel's minimum reflective cross section area is less than 100 m², a radar reflector or other means is to be provided so that the vessel can be detected by another vessel navigating by radar. The radar reflector is to comply with IMO's Res. A 384(X) "Performance Standard for Radar Reflector".

(C13.5.2 remains unchanged.)

C13.6 Automatic Traffic Surveillance System

The vessel is to be fitted with an automatic traffic surveillance system to automatically plot the range and bearing of other vessels in order to determine collision risk. This traffic surveillance system is to comply with IMO's Res. A823(19), "Performance Standards for Automatic Radar Plotting Aids (ARPA)". The ARPA function may be independent or built into the radar equipment. The following is also to be complied with:

(C13.6.1 through C13.6.3 remain unchanged.)

C13.7 Position Fixing System

(First paragraph and C13.7.1 and C13.7.2 remain unchanged.)

C13.7.3 Decca receivers are to comply with IMO Res. A.816(19), "Performance Standard for Shipborne Decca Navigator Receivers"; Loran-C receivers are to comply with IMO Res. A.818(19), "Performance Standard for Shipborne Loran-C and Chayka Receivers"; GLONASS receivers are to comply with IMO Res. MSC. 113(73), Annex 26 "Performance Standard for Shipborne GLONASS Receiver Equipment".

C13.8 Watch Monitoring and Alarm Transfer System

(First paragraph and C13.8.1a, c and d remain unchanged.)

C13.8.1 Officer of the Watch Alertness-check System

- b **Periodic Verification:** The system used for periodic verification of the watch alertness system is to be adjustable up to 12 minute intervals, and it is to be arranged so that only the vessel's master has access for enabling and disabling it (i.e., removing the fuses or keeping the acknowledgment button permanently depressed) and for setting the appropriate intervals for a periodic verification.

C13.8.2 Alarm Transfer System

- a **General:** A fixed alarm transfer system is to be provided and connected to all vessel navigating officers' cabins and public rooms.
- b **Transfer of Alarms:** Alarms per the "Remark" column of item B17, a through h, in Table C1 are to be automatically transferred to the master's cabin if not acknowledged at the bridge within 30 seconds. Additionally, a selector switch is to be provided in the event the master deems it necessary to also transfer the aforementioned alarms to the selected back-up navigator's cabins and public rooms.

A wireless portable device capable of receiving watch alarms and allowing two-way communication with the officer of the watch is to be provided for use by the back-up navigator when attending locations not connected to the fixed installation.

(C13.8.2c remains unchanged.)

(Revise text as follows:)

C13.10 Vessel's Automatic Identification System

A vessel's automatic identification system (AIS) is to be fitted onboard the vessel to provide automatically to appropriately fitted shore stations and other vessels and aircraft, the needed navigational related information such as vessel's identity, type, position, course, speed, navigational status, etc., and other safety related information, and to automatically receive such information from similarly fitted vessels and to monitor and track vessels and to exchange data with shore based facilities. The automatic identification system (AIS) is to comply with IMO's Res. MSC.74(69), Annex 3 "Recommendation on Performance Standards for an Universal Shipborne Automatic Identification System".

C17 Automatic Telephone System

The vessel is to be fitted with an automatic telephone system, which is to comply with the following. In addition, a telephone system that can operate independently of the power supply from the vessel's main or emergency system is to be installed.

(C17.1 through C17.3 remain unchanged.)

(Revise Items A1, A31, A35, B1, B17, C1 and D1 and add Note 2 as follows.
All other Items are unchanged.)

TABLE C1 – Navigational Equipment for NBLES Notation

Workstation for	Main functions to be performed	Item	Equipment	Remarks
Navigation and Traffic Surveillance/ maneuvering . [See Note 1]	<ul style="list-style-type: none"> • Observation of all vessels and objects • Recognizing dangerous situations • Deciding on collision avoidance actions • Checking vessel's own signal • Checking own course and speed • Keeping and/or changing own course and speed (track keeping) • Checking own position • Handling own internal communication on board • Handling communication vessel/ vessel, and vessel/shore (VHF) • Releasing alarms • Perception of group alarms with aids for decision-making • Observation of weather and seaway • Acknowledging watch check-alertness alarm • Keeping deck log (a dictaphone may be used) • Sounding signals 	A1	Gyro compass heading indicator	For NIBS notation, two independent gyro compasses are to be provided on the bridge (See D13.1). See note 2.
		A2	Magnetic compass heading indicator	
		A3	Course reminder (set course) indicator	
		A4	Rudder pump selector switch	
		A5	Steering mode selector switch	
		A6	Steering position indicator	
		A7	Rudder angle indicator	
		A8	Pitch indicator	For controllable-pitch propeller
		A9	Rate-of-turn indicator and controller	For vessels 50,000 GT or greater. See C13.2.4 and .5
		A10	Speed and distance indicator	For NIBS notation, the speed measuring system is to be independent of the position-fixing systems. See D13.2
		A11	Depth water indicators with adjustment controls	See also C13.4
		A12	9 GHz radar	For vessels 3,000 GT and above, an additional independent radar together with a change-over switch is to be provided. See C13.5.2
		A13	Automatic traffic surveillance system including ARPA	See C13.6. For NIBS notation, see D13.3
		A14	Position fixing equipment/system including automatic visual position indicator	Two types of receivers are to be provided. One of the systems is to be GPS or equivalent, and the other: Decca, Loran-C, GLONASS, or other means. See C13.7
		A15	Officer of the watch check-alertness acknowledgment device	
		A16	Back-up navigator call alarm device	Two-way communication wireless portable device to be provided. See C13.8.2b
		A17	Facilities for use of navigation charts	This may be separated from the navigation and traffic surveillance/maneuvering workstation. See also C13.9
		A18	Vessel's automatic identification system (AIS)	
		A19	Propulsion engines/thrusters controls including emergency stops.	Compliance with Part 4, Chapter 9, Section 2 of the "Rules for Building and Classing Steel Vessels" is to be met
		A20	Propulsion engine revolution	If reduction geared engine
		A21	Propeller revolutions indicator	
		A22	Wind direction and velocity indicator	
		A23	Air and water temperature indicator	
		A24	Automatic telephone system	See C17
		A25	Radiocommunication equipment	See C19
		A26	NAVTEX automatic receiver and recorder	For navigational and meteorological warning purpose. To comply with IMO Res. A.617(15) - Implementation of the Navtex System as a Component of the Worldwide Navigational Warning Service

TABLE C1 – Navigational Equipment for NBLES Notation (cont'd)

Workstation for	Main functions to be performed	Item	Equipment	Remarks
		A27	Signal transmitter for: <ul style="list-style-type: none"> • whistle • automatic device for fog signal • general alarm • Morse signaling light 	
		A28	Search light controls	
		A29	Controls for windscreen wiper, washer, heater	
		A30	Night vision equipment	
		A31	Sound reception system	If required, see B5.6 3
		A32	Workstation lighting control device	
		A33	HVAC controls	
		A34	Clock	
		A35	Group alarms and reset controls	See also item B17 of this Table
Monitoring <i>[See Note 1]</i>	<ul style="list-style-type: none"> • Observation of all vessels and objects • Recognizing dangerous situations • Checking own course and speed • Handling own internal communication on board • Handling communication vessel/vessel, and vessel/shore • Perception of group alarms with aids for decision-making • Releasing alarms • Observation of weather and seaway • Acknowledging watch check-alertness alarm • Keeping deck log • When workstation is occupied by an additional navigator, provides assistance to navigator at the navigation and traffic surveillance/ maneuvering workstation • When workstation is occupied by a pilot, advises to vessel's command. 	B1	Gyro compass heading indicator	For NIBS notation, two independent gyro compasses are to be provided on the bridge (See D13.1). See Note 2.
		B2	Rudder angle indicator	
		B3	Pitch indicator	For controllable-pitch propeller
		B4	Rate-of-turn indicator	For vessels 50,000 GT or greater. See C13.2.4 and .5
		B5	Speed and distance indicator	For NIBS notation, the speed measuring system is to be independent of the position-fixing systems. See D13.2
		B6	Depth water indicators	See also C13.4
		B7	Radar	For vessels 3,000 GT and above, an additional independent radar together with a change-over switch is to be provided. See C13.5.2
		B8	Officer of the watch check-alertness acknowledgment device	
		B9	Propulsion engines/thrusters emergency stops	
		B10	Propeller revolutions indicator	
		B11	Automatic telephone system	See C17
		B12	Radiocommunication equipment	See C19
		B13	Signal transmitter for whistle	
		B14	Controls for windscreen wiper, washer, heater	
		B15	Workstation lighting control device	
		B16	Clock	

TABLE C1 – Navigational Equipment for NBLES Notation (cont'd)

Workstation for	Main functions to be performed	Item	Equipment	Remarks
		B17	Required alarms and reset controls	In addition to the alarms/indicators which may be required by the various IMO Resolutions referenced in this Guide and pertinent flag Administration, the following conditions are to be alarmed at the monitoring workstation a) Off-heading b) Off-track c) Planned route deviation d) Pre-warning of approach-way point, and closest point of approach e) Off-preset water depth f) Gyro compass failure g) Failure of alarms prescribed in C13.8.1 h) Failure of power supply to distribution panel serving relevant equipment <i>(Alarming of the above conditions at the monitoring workstation is not a substitute for alarming at the required relevant workstations)</i>
Manual steering (Helmsman's) [See Note 1]	<ul style="list-style-type: none"> Steering vessel according to rudder angle orders Steering vessel according to course instruction Steering vessel following landmark/ sea marks Acknowledging watch check-alertness alarm 	C1	Gyro compass heading indicator (repeater)	For NIBS notation, two independent gyro compasses are to be provided on the bridge (See D13.1). See Note 2.
		C2	Magnetic compass heading indicator	
		C3	Course reminder (set course) indicator	
		C4	Manual steering with override and selector control switches including steering wheel/steering lever	
		C5	Rudder angle indicator	
		C6	Rate-of-turn indicator	For vessels 50,000 GT or greater
		C7	Watch check-alertness acknowledgment device	
		C8	Automatic telephone system	See C17
		C9	Controls for windscreen wiper, washer, heater	
Docking (Bridge wings)	<ul style="list-style-type: none"> Giving instructions, performing and controlling change of course Giving instructions, performing and controlling change of speed Giving instructions, performing and controlling change of thruster Handling communication with maneuvering stations Handling communication with tugs, pilot boat Watching water surface along vessel's side Releasing signals Acknowledging watch check-alertness alarm 	D1	Gyro compass heading indicator	
		D2	Steering position selector switch	
		D3	Rudder controls	
		D4	Rudder angle indicator	
		D5	Pitch indicator	For controllable-pitch propeller
		D6	Rate-of-turn indicator	For vessels 50,000 GT or greater
		D7	Propulsion engines/thrusters controls.	
		D8	Propulsion engine revolution	If reduction geared engine
		D9	Propeller revolutions indicator	
		D10	Lateral thrust and lateral movement of vessel, indicator	If thrusters are fitted
		D11	Longitudinal movement of vessel, indicator	
		D12	Wind direction and velocity indicator	
		D13	Depth water indicators	See also C13.4
		D14	Officer of the watch check-alertness acknowledgment device	
		D15	Whistle controls	

TABLE C1 – Navigational Equipment for NBLES Notation (cont'd)

Workstation for	Main functions to be performed	Item	Equipment	Remarks
		D16	Search light and Morse lamp controls	
		D17	Automatic telephone system	See C17
		D18	Radiocommunication equipment	See C19
		D19	Workstation lighting control device	
<p><i>Notes:</i></p> <p>1 As the navigation and traffic surveillance/maneuvering, monitoring and manual steering workstations are functionally interrelated and usually installed in close proximity from each other, considerations will be given to the omission of duplicate required equipment at each of the aforementioned workstations.</p> <p>2 Master gyrocompass may be located in the electrical/instrumentation room and the gyrocompass repeaters on the bridge to meet this requirement.</p>				

Part D Requirements for Notation NIBS (Navigational Integrated Bridge System)

D13 Heading Information System

(Revise D13.1 and D13.4 as follows. D13.2 and D13.3 remain unchanged)

D13.1 Heading Information System (2003)

Notwithstanding C13.1, the heading information system is to include a magnetic compass and two independent gyro compasses.

D13.4 Electronic Chart Display and Information System (ECDIS) (2003)

Relevant equipment associated with the ECDIS (Electronic Chart Display and Information System) is to be installed on the centralized bridge workstation and at the route planning workstation. The ECDIS is to comply with IMO's Res. A.817(XIX), as amended by Annex 5 to MSC.64(67) "Performance Standard for Electronic Chart Display and Information Systems (ECDIS)", and Annex 4 to MSC.86 (70) "Performance Standard for Electronic Chart Display and Information Systems (ECDIS)".

D15 Operating/Technical Manual

(Correct "ECDIS", as follows:)

In addition to C23, the operating/technical manual is to include the following:

- D15.1** Simplified diagrams of the electronic chart display and information systems (ECDIS) and integrated bridge system (IBS).
- D15.2** Periodical testing procedures for electronic chart display and information systems (ECDIS) and integrated bridge system (IBS).

D19 Tests and Sea Trials

(Correct “ECDIS”, as follows:)

The sea trial program is to include test details of the electronic chart display and information systems (ECDIS) and integrated bridge system (IBS).

(Revise Items E8 and E9 and add Notes 2 and 3 as follows. All other Items are unchanged)

TABLE D1 – Navigational Equipment for NIBS Notation

Workstation/panel for	Main functions to be performed	Item	Equipment	Remarks
Centralized Bridge	<ul style="list-style-type: none"> See Table C1 	A1	Equipment required in Part C for the Navigation and Traffic Surveillance/maneuvering and monitoring workstations	See Table C1
		A2	Central alarm panel	See D7
		A3	ECDIS	See D13.4
Conning Information	<ul style="list-style-type: none"> To allow the navigator the easy reading of the maneuvering state of the vessel from the conning position 	B1	Display panel	See D11. This panel may be included within the centralized bridge station.
Manual steering (Helmsman's)	<ul style="list-style-type: none"> See Table C1 	C1	Equipment required in Part C for the manual steering workstation	See Table C1
Docking (Bridge wings)	<ul style="list-style-type: none"> See Table C1 	D1	Equipment required in Part C for the docking workstation	See Table C1
Route Planning	<ul style="list-style-type: none"> Determination of favorable course and optimum speed, taking into account weather conditions, current, etc. and route planning Giving instructions as to the course and speed Calculation of tidal data 	E1	ECDIS including navigation planning station	
		E2	Route planning devices	
		E3	Chart table	
	<ul style="list-style-type: none"> Handling nautical records, documents, publications Handling weather reports Determination of documentation of position in case of conventional operation Control of rate and error of chronometer, deviation, radio deviation, documentation of same Keeping deck log External communication for planning operation using the chart 	E4	Position-fixing receiver	
		E5	Retaining device for drawing triangles, dividers, magnifying lens, pencils, etc.	
		E6	Weather chart plotter	
		E7	Main clock	
		E8	Chronometer with receiving facility for time signals	See Note 2
		E9	Radio direction finder	See Note 3
		E10	Log, including distance indicator, course plotter	
		E11	Officer of the watch check-alertness acknowledgment device	
		E12	Barograph	
		E13	Command printer	
E14	Automatic telephone system	See C19		
<p>Notes:</p> <p>1 Attention is drawn to items A1, B1, B5, C1 and D1 of Table C1 under “Remarks” column.</p> <p>2 Chronometer is not required, if official universal time is obtained by other means.</p> <p>3 Radio Direction Finder is not required, if the vessel is provided with other radionavigation equipment suitable for use throughout its intended voyages.</p>				

(Revise and add new references as follows:)

Appendix A

IMO Resolutions Referenced in this Guide

IMO Res. MSC.74(69), Annex 4	Recommendation on Performance Standards for Echo-sounding Equipment
IMO Res. MSC.64(67), Annex 3	Recommendation on Performance Standards for Automatic Pilots
IMO Res. A.382(X)	Magnetic Compasses Carriage and Performance Standards
IMO Res. A.384(X)	Performance Standards for Radar Reflector
IMO Res. A.424(XI)	Performance Standards for Gyro-compasses
IMO Res. A.477(XII)	Performance Standards for radar Equipment [see also Res. MSC.64(67), Annex 4]
IMO Res. A.526(13)	Performance Standards for Rate-of-Turn Indicators
IMO Res. A.617(15)	Implementation of the Navtex System as a Component of the Worldwide Navigational Warning Service
IMO Res. A.665(16)	Performance Standards for Radio Direction-finding Systems [revokes Res. A223 (VII)]
IMO Res. A.694(17)	General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids [revokes Res. A574(14)]
IMO Res. A.816(19)	Recommendation on Performance Standards for Shipborne Decca Navigator Receivers
IMO Res. A.817(19)	Recommendation on Performance Standards for Electronic Chart Display and Information System (ECDIS) [see also Res. MSC.64(67), Annex 5]
IMO Res. A.818(19)	Performance Standards for Shipborne Loran-C and Chayka Receivers
IMO Res. A.823(19)	Recommendation on Performance Standards for Automatic Radar Plotting Aids (Arpas) [for installations before 1/1/97, see Res. A.422(IX)]
IMO Res. MSC.74(69), Annex 3	Performance Standards for Automatic Identification System
IMO Res. MSC.74(69), Annex 2	“Recommendation on Performance Standards for Track Control Systems”
IMO Res. MSC.64(67), Annex 3	“Recommendation on Performance Standards for Heading Control Systems”
IMO Res. MSC.96(72)	Performance Standards for Devices to indicate Speed and Distance [for installations before 1/1/97, see Res. A.478(XII)]
IMO Res. MSC.113(73)	Performance Standards for Shipborne GLONASS receiver Equipment
IMO Res. MSC.96(72), Annex 14	Performance Standards for Devices to Measure and Indicate Speed and Distance