U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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FEB 6 2009

COMDTPUB P16700.4
NVIC **8 01,** Ch-2

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. **8 01,** CHANGE 2

Subj: CH-2 to NVIC 8-01, APPROVAL OF NAVIGATION EQUIPMENT FOR SHIPS

1. PURPOSE. This Circular revises Navigation and Vessel Inspection Circular (NVIC) No. 8-01, CH 1 to amend the guidance provided for a Coast Guard approval program for navigation equipment, as required under Chapter V, Regulation 18, of the 2000 amendments to the 1974 International Convention for the Safety of Life at Sea (SOLAS). These changes are needed to update navigation equipment standards amended by SOLAS, and to reflect the source of this guidance. Specifically, it adds the approval processes for the simplified voyage data recorder (S-VDR), the automatic identification system (AIS) Class B, and long range identification and tracking (LRIT) equipment. The changes also reflect new performance standards that went into effect since the previous version of the NVIC was issued.

2. ACTION. Operators of U.S. vessels and Coast Guard Officers in Charge, Marine Inspection should note that SOLAS Chapter V requires that SOLAS ships be equipped with type approved navigation equipment. This requirement was effective with the coming into force of the 2000 SOLAS amendments on 1 July 2002, and it applies to all navigation equipment installed on board a ship subject to SOLAS on or after that date. This Circular will be distributed by electronic means only and is available on the World Wide Web at <http://www.uscg.mil/hq/cg5/nvic>

3. DIRECTIVES AFFECTED. None.

DISTRIBUTION SDL No. 149

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NON-STANDARD DISTRIBUTION

4. BACKGROUND. The 2000 SOLAS amendments came into force on 1 July 2002. Regulations V/18.1, 18.5 and 19.1 of these amendments require navigation equipment installed on ships on or after this date to be type approved by the Administration. They also call for Administrations to require manufacturers to produce approved navigation equipment under a quality system audited by a competent authority. Since the 2000 amendments, further equipment requiring type approvals have been added in SOLAS Chapter V. The S-VDR requirement was added by a 2004 amendment to Chapter V, Regulation 20.2 of SOLAS by Maritime Safety Committee (MSC) resolution MSC.170(79). Before this amendment, the VDR was exempted by Regulation 20.2 for existing ships. The S-VDR is a modified platform suitable for installation on existing ships. The LRIT requirement was added by a 2006 amendment to Chapter V, Regulation 19-1 of SOLAS by Maritime Safety Committee (MSC) resolution MSC.202(81). This requirement calls for all new vessels and certain existing vessels subject to Chapter V of SOLAS to transmit the identity and position of the ship during ocean voyages to centers that may share this information with authorized governments. AIS Class B units are not intended to meet SOLAS AIS carriage requirements. However, these units are being Coast Guard type approved in accordance with the standards in table 2 of enclosure (4) of this circular, per MSC Resolution MSC.140(76) "Recommendation for the Protection of the AIS VHF Data Link (2002)".

5. DISCUSSION. The Coast Guard, as the U.S. Maritime Safety Administration under SOLAS, has established an interim approval program using standards, regulations, and processes already in place to meet the United States' obligations under SOLAS Regulation V/18. The Coast Guard intends to propose federal regulations to establish a permanent approval program. This change 02 to NVIC 8-01 addresses the addition of long range identification and tracking (LRIT), simplified voyage data recorder (S-VDR) and the automatic identification system (AIS) Class B equipment. It also explains the unique process for LRIT equipment type approval.

6. IMPLEMENTATION. Enclosure (1) lists equipment for which manufacturers may obtain approval. Enclosure (2) describes the standard equipment approval process. Enclosure (3) describes the quality system requirements for manufacturers. Enclosure (4) lists the standards that apply to navigation equipment. Enclosure (5) describes the procedure for service providers to receive Coast Guard approval to perform the annual certification testing for Voyage Data Recorders (VDRs) and Simplified Voyage Data Recorders (S-VDRs). Enclosure (6) describes an alternate Coast Guard approval process for navigation equipment wheelmarked by a European notified body and tested by a non-Coast Guard accepted laboratory. Enclosure (8) lists the equipment approval process unique to Long Range Information Tracking (LRIT) equipment. U.S. Coast Guard approved navigation equipment can be found at http://cgmix.uscg.mil.

7. This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is not intended to nor does it impose legally-binding requirements on any party. It represents the Coast Guard's current thinking on this topic and may assist industry, mariners, the general public, and the Coast Guard, as well as other federal and state regulators, in applying statutory and regulatory requirements. You can use an alternative approach for complying with these requirements if the approach satisfies the requirements of the applicable statutes and regulations. If you want to discuss an alternative approach (you are not required to do so), you may contact the Coast Guard Headquarters Systems Engineering Division (CG-5213), who is responsible for implementing this guidance. The contact information is:

Commandant (CG-5213)
2100 Second Street, S.W.
Washington, DC 20593-0001
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BRIAN M. SALERNO
REAR ADMIRAL, U.S. COAST GUARD
ASSISTANT COMMANDANT FOR MARINE SAFETY,
SECURITY & STEWARDSHIP

Encl: (1) Coast Guard Approved Navigation Equipment
(2) Coast Guard Approval Process for Navigation Equipment
(3) Manufacturer's Quality System Requirements
(4) Standards for Approved Navigation Equipment
(5) Coast Guard Approval Process for Voyage Data Recorder and Simplified Voyage Data Recorders Service Providers
(6) Alternate Coast Guard Approval Process for Navigation Equipment Wheelmarked by a European Notified Body and Tested by a Non U.S Coast Guard Accepted Laboratory
(7) U.S. Coast Guard Type-Approval Contingency re: Shipborne Automatic Identification System (AIS)
(8) Coast Guard Approval Process for Long Range Identification and Tracking (LRIT) Equipment.

Non-Standard Distribution:

D:d Except Baltimore, Moriches, and Grand Haven.

D:l CG Liaison Officer MILSEALIFTCOMD (Code N-7CG), CG Liaison Officer RSPA (DHM-22), CG Liaison Officer MARAD (MAR-742), CG Liaison Officer JUSMAGPHIL, CG Liaison Officer ABS, Maritime Liaison Office Commander U.S. Naval Forces Central Command (1).
ABS (1).
NOAA Fleet Inspection Office (1).
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Coast Guard Approved Navigation Equipment

Approval series [1]	Equipment [2]
165.101	Magnetic Compass
165.102	Transmitting Magnetic Heading Device, TMHD (formerly Electromagnetic compass)
165.103	Gyrocompass
165.105	Speed and Distance Measuring Equipment (SDME)
165.106	Rate of Turn Indicator
165.107	Echosounding equipment
165.110	Heading Control System
165.111	Auto-Tracking Aid (ATA) [3]
165.112	Track Control System
165.115	Radar Equipment with Automatic Radar Plotting Aid (ARPA)
165.116	Radar Equipment with Automatic Tracking Aid (ATA)
165.117	Radar Equipment with Electronic Plotting Aid (EPA)
165.120	Automatic Radar Plotting Aid (ARPA) [3]
165.121	Electronic Plotting Aid (EPA) [3]
165.122	Chart Facilities for Shipborne Radar
165.123	Electronic Chart Display and Information System (ECDIS)
165.124	ECDIS Back-up Equipment
165.125	Raster Chart Display Systems (RCDS)
165.130	Global Positioning System (GPS) equipment
165.131	Global navigation Satellite System (GLONASS) equipment
165.132	Differential Global Position System (DGPS) equipment
165.133	Differential Global Navigation Satellite System (DGLONASS) equipment
165.134	Combined Global Position System and Global Navigation Satellite System (GPS/GLONASS) receiver equipment

[1] "Approval series" means the first six digits of a number assigned by the Coast Guard to approved equipment.
[2] SOLAS Chapter V navigation equipment which includes a radio transmitter is authorized by the Federal Communications Commission, including Radar Equipment and Automatic Identification Systems (AIS).
[3] Collisions avoidance equipment will no longer be approved to this series. New series for radar equipment approvals are 165.115, 165.116 and 165.117.

Approval series [1]	Equipment [2]
165.135	Loran-C equipment
165.136	Chayka equipment
165.140	Integrated Bridge System
165.141	Integrated Navigational System
165.150	Voyage Data Recorder (VDR)
165.151	Simplified Voyage Data Recorder (S-VDR)
165.155	Shipborne Automatic Identification System (AIS) Class A
165.156	Shipborne Automatic Identification System (AIS) Class B
165.160	Radar Reflector
165.165	Sound Reception System
165.166	Daylight Signaling Lamp
165.203	Gyrocompass for High Speed Craft
165.207	Long Range Identification Tracking (LRIT)
165.210	Heading Control System for High Speed Craft (formerly automatic pilot)
165.216	Radar Equipment with Automatic Plotting Aid (ARPA) for High Speed Craft
165.251	Night Vision Equipment for High Speed Craft

Coast Guard Approval Process for Navigation Equipment

1 Purpose.

This document describes the procedure for Coast Guard approval of navigation equipment for ships.

2 Independent laboratory.

Examinations, tests and inspections described in section 4, are to be conducted by an independent laboratory accepted by the Coast Guard under Title 46 of the Code of Federal Regulations (46 CFR), Subpart 159.010. A list of accepted laboratories is available from the Commandant at the address in the letterhead of this NVIC, or on the World Wide Web at http://cgmix.uscg.mil/EQLabs/EqLabsSearch.aspx

3 Quality system.

Manufacturers produce approved navigation equipment under an approved quality system as described in enclosure (3).

4 Approval procedure.

(a) The Coast Guard approves navigation equipment under the procedures in 46 CFR Subpart 159.005. Pre-approval review by the Coast Guard is not required.

(b) The independent laboratory should evaluate and test a sample of the navigation equipment presented for approval to determine whether the equipment meets each performance standard and testing standard listed for the equipment in enclosure (4). The independent laboratory's test report should show the test results as well as include a statement as to whether the navigation equipment meets each performance and testing standard listed.

(c) In addition to the inspection and test report and the plans required under 46 CFR §§ 159.005-11 and 159.005-12, the manufacturer should ensure that Commandant (CG-5213) receives the results of the quality system assessment described in enclosure (3).

(d) The manufacturer may request Commandant (G-5213) to renew a certificate of approval that is about to expire. The request for renewal should include --

(1) A statement that the navigation equipment continues to meet the description on the certificate of approval; and

(2) Evidence that the manufacturer's quality system has been audited and continues to meet the requirements in enclosure (3).

5 Marking and labeling.

(a) Whatever other languages they may be in, the markings required for an item of navigation equipment should be in English.

(b) The navigation equipment should be marked with the –

(1) Name and address of the manufacturer;

(2) Description of the equipment, using the title of the section in part 2 of enclosure (4) of this NVIC;

(3) Manufacturer's model identification;

(4) Serial number or an indication of the manufacturing date, such as month and year, or lot number; and

(5) U.S. Coast Guard approval number.

(c) The manufacturer should identify the performance and testing standards which the equipment meets; either on the item of navigation equipment or in an operations manual intended to be kept on the ship.

(d) All required markings should be in a place where they are visible without removal or disassembly of the equipment.

6 Checklist for application submittal.

New application for Coast Guard approval certificate should include:

(a) Copy of evaluation and complete test report performed by an independent laboratory.

(b) Copy of all certifications received as a result of the test report in (a).

(c) Example of the marking and labeling of the equipment.

(d) Copy of the manufacturer's quality system manual / guidelines.

Manufacturer's Quality System Requirements

1 Purpose.

This enclosure contains guidance on meeting the quality system requirements of Chapter V, Regulation 18.5 of SOLAS. This includes the procedures under which production control of approved equipment is maintained through the manufacturer's audited quality system. Manufacturers currently arrange for continuing quality system assessment and audit as described in this enclosure.

2 Application for assessment.

The manufacturer applies to an organization to assess the quality system covering the equipment concerned. The organization should be eligible for listing in the National Institute of Standards and Technology's (NIST) list of North American Quality System Registration Organizations (NAorganization), and accredited by a signatory to the International Accreditation Forum (IAF) Multilateral Recognition Agreement (MLA). The U.S. accreditation body is:

American National Standards Institute - Registrar Accreditation Board
National Accreditation Program - ANSI-RAB NAP
P.O. Box 586
Milwaukee, Wisconsin WI 53201-0586
414 347 9858
http://www.anab.org/

The organizations in the NAorganization list have informed NIST about their quality system registration according to ISO 9001, or other quality system registration standard. The manufacturer is not required to be registered to ISO 9001 for the purposes of this quality system assessment. The listing may be obtained from the National Institute of Standards and Technology, Technical Standards Activities Program, Office of Standards Services, Technology Services, Gaithersburg, MD 20899-2150, http://ts.nist.gov/standards/conformity/iso9000.cfm The equipment should be of a type which is within the organization's scope of accreditation. The application should include to the extent required by the organization–

(1) All relevant information for the equipment category;

(2) Documentation concerning the quality system; and

(3) The technical documentation of the equipment covered.

3 Quality system requirements.

(a) The quality system should ensure that the equipment conforms to the documentation submitted for the equipment's approval, and is subjected to all inspections and tests required by the standards under which the equipment is approved. All the elements, requirements and provisions adopted by the manufacturer should be documented in a systematic and orderly manner in the form of written policies, procedures and instructions.

(b) The quality-system documentation should permit a consistent interpretation of the quality programs, plan, manuals and records. It should, in particular, include an adequate description of:

(1) The quality objectives and the organizational structure, responsibilities and powers of the management with regard to equipment quality;

(2) The manufacturing, quality control and quality-assurance techniques, processes and systematic actions that will be used;

(3) The examinations and tests that will be carried out before, during and after manufacture, and the frequency with which they will be carried out;

(4) The quality records, such as inspection reports and test data, calibration data, qualification reports of the personnel concerned, etc.; and

(5) The means of monitoring the achievement of the required equipment quality and the effective operation of the quality system.

4 Assessment of quality system by organization.

(a) The organization should assess the quality system to determine whether it satisfies the requirements in section 3. It should determine compliance with those requirements in respect of quality systems that implement the approval standard.

(b) The auditing team should have at least one member from the independent laboratory responsible for the inspections and tests conducted for approval of the equipment. The assessment procedure should include a visit to the manufacturer's premises. In the event that an independent laboratory representative is not available, the organization will propose an alternate member who has knowledge and experience in the relevant technology. The alternate member is subject to the acceptance of Commandant (CG 521).

(c) The manufacturer and Commandant (CG 521) should be notified of the results of the assessment. The notification should include the conclusions of the examination and the reasoned assessment decision.

5 Obligations under the quality system.

(a) The manufacturer should fulfill the obligations arising out of the quality system as approved and to maintain it so that it remains adequate and efficient.

(b) The manufacturer should keep the organization that has approved the quality system informed of any intended revision of that quality system.

(c) The organization should assess the revisions proposed and decide whether the revised quality system will still satisfy the requirements in section 3 or whether a reassessment is required.

(d) The manufacturer should be notified of the organization's decision. The notification will include the conclusions of the examination and the reasoned assessment decision.

7 Quality system surveillance.

(a) The manufacturer should arrange for continuing quality system surveillance by the organization. The purpose of surveillance is to make sure that the manufacturer meets the obligations of the approved quality system.

(b) The manufacturer should allow the organization access for inspection purposes to the locations of manufacture, inspection, testing and storage, and should provide it with all necessary information, in particular:

(1) The quality-system documentation; and

(2) The quality records, such as inspection reports and test data, calibration data, qualification reports of the personnel concerned, and other relevant data.

(c) The organization should periodically carry out audits to make sure that the manufacturer maintains and applies the quality system and should provide the manufacturer with audit reports. In addition, the organization may pay unannounced visits to the manufacturer. During such visits the organization may carry out tests or cause tests to be carried out to check that the quality system is functioning correctly, if necessary. The organization should provide the manufacturer with a visit report and, if a test has taken place, with a test report.

Standards for Approved Navigation Equipment

1 Referenced standards.

The following standards are referenced in this enclosure:

International Electrotechnical Commission (IEC)

Bureau Central de la Commission Electrotechnique Internationale, 3 rue de Varembé, P.O. Box 131, 1211 Geneva 20, Switzerland

IEC 60447 – Basic and safety principles for man-machine interface, marking and identification –Actuating Principles: Edition 3.0 (2004-01)

IEC 60945 - Maritime navigation and radiocommunication equipment and systems general requirements - methods of testing and required test results, Edition 4.0 (2002-08)

IEC 61023 - Maritime navigation and radiocommunication equipment and systems marine speed and distance measuring equipment (SDME) – performance requirements - methods of testing and required test results, Edition 2.0 (1999-07)

IEC 61075 – LORAN-C receivers for ships - Minimum performance standards - methods of testing and required test results, Edition 1.0 (1991-07)

IEC 61108-1 - Global navigation satellite systems (GNSS) - part 1: global positioning system (GPS) - receiver equipment - performance standards, methods of testing and required test results, Edition 2.0 (2003-07)

IEC 61108-2 - Maritime navigation and radiocommunication equipment and systems global navigation satellite systems (GNSS) - Part 2: Global navigation satellite system (GLONASS) - receiver equipment - performance standards, methods of testing and required test result, Edition 1.0 (1998-06).

IEC 61108-4 – Maritime navigation and radiocommunication equipment and systems - Global navigation satellite systems (GNSS) - Part 4: Differential global positioning system (GPS)/Differential global navigation satellite system (GLONASS) - Receiver equipment - Performance standards, methods of testing and required test results, Edition 1.0 (2004-07)

IEC 61162-1 - - Maritime navigation and radiocommunication equipment and systems - Digital interfaces- Part 1: Single talker and multiple listeners, Edition 2.0 (2000-07)

IEC 61162-2 - - Maritime navigation and radiocommunication equipment and systems - Digital interfaces- Part 2: Single talker and multiple listeners, high speed transmission, Edition 1.0 (1998-09)

IEC 61174 – Maritime navigation and radiocommunication equipment systems - Electronic chart display and information system (ECDIS) - Operational and performance requirements, methods of testing and required test results, Edition 2.0 (2001-10)

IEC 61209 – Maritime navigation and radiocommunication equipment and systems - Integrated bridge systems (IBS) - Operational and performance requirements, methods of testing and required test results, Edition 1.0 (1999-04)

IEC 61993-2 – Maritime navigation and radiocommunication equipment and systems - Part 2: Universal shipborne automatic identification system - Performance requirements, methods of testing and required test results, Edition 1.0 (2001-12)

IEC 61996 – Maritime navigation and radiocommunication equipment and systems shipborne voyage data recorder (VDR) - Performance requirements methods of testing and required test results, Edition 1.0 (2000-07).

IEC/ PAS 61996-2 – Maritime navigation and radiocommunication equipment and systems- Shipborne voyage data recorder (VDR) - Part 2: Simplified voyage data recorder (S-VDR)- Performance requirements- Methods of testing and required test results, Edition 1.0 (2005-07).

IEC 62065 – Maritime navigation and radiocommunication equipment and systems – Track control systems – Operational and performance requirements, methods of testing and required test results, Edition 1.0 (2002-03)

IEC 62287-1 – Maritime navigation and radiocommunication equipment and systems – Class B shipborne equipment of the automatic identification system (AIS)- Part 1: Carrier-sense time division multiple access (CSTDMA) techniques, Edition 1.0 (2006-03).

IEC 62388 – Maritime navigation and radiocommunication equipment and systems – Shipborne Radar – Performance requirements, methods of testing and required test results, Edition 1.0 (2007-12).

International Maritime Organization (IMO)

Publications Section, 4 Albert Embankment, London SE1 7SR, England

MSC.1/Circ.1296- Guidance on the Survey and Certification of Compliance of ships with the requirements to Transmit LRIT information, December 2008.

Resolution A.224(VII) – Performance standards for echo-sounding equipment, 12 October 1971

Resolution A.342(IX) – Recommendation on performance standards for automatic pilots, 12 November 1975

Resolution A.382(X)-- Recommendation on Performance standards for magnetic compasses, 14 November 1977

Resolution A.384(X)-- Performance standards for radar reflectors, 14 November 1977

Resolution A.424(XI) – Performance standards for gyro-compasses, 15 November 1979

Resolution A.526(13) – Performance standards for rate of turn indicators (ROTI), 17 November 1983

Resolution 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, 6 November 1991

Resolution A.789(19): Specification on the survey and certification functions of recognized organizations on behalf of the administration.

Resolution A.817(19) -- Recommendation on performance standards for Electronic Chart Display and Information Systems (ECDIS), 23 November 1995; as amended by resolution MSC.64(67), Annex 5, 4 December 1996

Resolution A.818(19) – Performance standards for shipborne Loran-C and Chayka receivers, 23 November 1995

Resolution A.819(19) – Performance standards for shipborne global position system(GPS) receiver equipment, 23 November 1995

Resolution A.821(19) – Performance standards for gyro-compasses for High Speed Craft, 23 November 1995

Resolution A.822(19) – Performance standards for automatic steering aids (automatic pilots) for High Speed Craft, 23 November 1995

Resolution A.823(19) – Performance standards for automatic radar plotting aids, 23 November 1995

Resolution A.824(19), as amended – Recommendations on performance standards for devices to indicate speed and distance, 23 November 1995

Resolution A.861(20) – Recommendation on Performance Standards for Voyage Data Recorders (VDRs), November 1997.

Resolution MSC.53(66) – Performance standards for shipborne GLONASS receiver equipment, 30 May 1996

Resolution MSC.64(67), Annex 1 – Performance standards integrated bridge system, 4 December 1996

Resolution MSC.64(67), Annex 2 – Recommendation on performance standards for shipborne DGPS and DGLONASS maritime radio beacon receiver equipment, 4 December 1996

Resolution MSC.64(67), Annex 3 – Recommendation on performance standards for heading control systems, 4 December 1996

Resolution MSC.64(67), Annex 5 – Amendment to Resolution A.817(19)- Performance standards for electronic chart display and information systems, 4 December 1996.

Resolution MSC.74(69), Annex 1 – Recommendation on performance shipborne combined GPS/GLONASS equipment, 12 May 1998.

Resolution MSC.74(69), Annex 2 – Recommendations on performance standards for track control systems, 12 May 1998

Resolution MSC.74(69), Annex 3 – Recommendations on performance standards for a universal shipborne automatic identification system (AIS), 12 May 1998

Resolution MSC.74(69), Annex 4 – Recommendations on performance standards for echo-sounding equipment, 12 May 1998

Resolution MSC.86(70), Annex 1 – Performance standard for sound reception systems, 8 December 1998

Resolution MSC.86(70), Annex 2 – Performance standard for marine transmitting magnetic heading devices (TMHDs), 8 December 1998

Resolution MSC.86(70), Annex 3 – Performance standard for integrated navigational systems, 8 December 1998

Resolution MSC.86(70), Annex 4 – Amendments to the Recommendation on Performance Standards for Electronic Chart Display and Information Systems (ECDISs), 8 December 1998

Resolution MSC.94(72) – Recommendation on performance standards for night vision equipment for High-Speed Craft (HSC), 31 May 2000

Resolution MSC.95(72) – Performance Standards For Daylight Signalling Lamps, 22 May 2000

Resolution MSC.96(72) – Adoption of Amendments to Performance Standards for Devices to Measure and Indicate Speed and Distance (Resolution A.824(19)), 22 May 2000

Resolution MSC.163(78) – Performance Standards for Shipborne Simplified Voyage Data Recorders (S-VDRs), 17 May 2004 as amended by resolution MSC.214(81).

Resolution MSC.192(79) – Adoption of the Revised Performance Standards for Radar Equipment, 06 December 2004.

Resolution MSC.263(84) – Revised Performance Standards and Functional Requirements for the Long-Range Identification and Tracking of Ships.

International Organization for Standardization (ISO)

1, rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland

ISO 449: 1997 - Ships and marine technology - Magnetic compasses, binnacles and azimuth reading devices - Class A, June 19, 1997

ISO 694: 2000 - Positioning of magnetic compasses in ships

ISO 1069: 1973 - Magnetic compasses and binnacles for sea navigation - Vocabulary

ISO 2269: 1992 - Shipbuilding - Class A magnetic compasses, azimuth reading devices and binnacles - Tests and certification

ISO 8728: 1997 - Ships and marine technology - Marine gyro-compasses

ISO 8729: 1997 - Ships and marine technology - Marine radar reflectors

ISO/IEC 9126-1: 2002 - Software engineering- Product quality – Part 1: Quality model

ISO 9875: 2000 - Ships and marine technology - Marine echo-sounding equipment

ISO 11606: 2000 - Ships and marine technology - Marine electromagnetic compasses

ISO 11674: 2000 - Ships and marine technology - Heading control systems

ISO 16328: 2001 - Ships and marine technology -- Gyro-compasses for high-speed craft

ISO 16329: 2003 - Ships and marine technology -- Heading control systems for high speed craft

International Telecommunication Union (ITU)

Place des Nations, CH-1211 Geneva 20, Switzerland

ITU-R M.1371-3 - Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band, Jan 07.

2 Standards applying to approved navigation equipment.

Approval series [4]	Equipment [5]	Applicable Standards
165.101	Magnetic Compass	IMO Resolution A.382(x) and A.694(17); ISO Standards: ISO 449, ISO 694, ISO 1069, and ISO 2269; IEC 60945.
165.102	Transmitting Magnetic Heading Device, TMHD (formerly Electromagnetic Compass)	IMO Resolution A.694(17) and MSC.86(70) Annex 2; ISO 11606; IEC 61162 (applicable part) and IEC 60945.
165.103	Gyrocompass	IMO Resolution A.694(17) and A.424(XI); ISO 8728; IEC 61162 (applicable part) and IEC 60945.
165.105	Speed and Distance Measuring Equipment (SDME)	IMO Resolution A.694(17) and A.824(19) as amended by MSC.96(72); IEC 61023; IEC 61162 (applicable part) and IEC 60945.
165.106	Rate of Turn Indicator	IMO Resolution A.694(17) and A.526(13); IEC 61162 (applicable part); IEC 60945.
165.107	Echosounding equipment	IMO Resolutions A.224(VII) as amended by IMO Resolution MSC74(69) Annex 4, and A.694(17); ISO 9875 IEC 61162 (applicable part); and IEC 60945.
165.110	Heading control system	IMO Resolutions A.342(IX) as amended by IMO Resolution MSC64(67) Annex 3, and A.694(17); ISO 11674; IEC 61162 (applicable part); and IEC 60945.
165.111	Auto-Tracking Aid[6]	See Section 3 of this enclosure.
165.112	Track Control System	IMO Resolutions A.694(17) and MSC74(69) Annex 2; IEC 62065;

[4] "Approval series" means the first six digits of a number assigned by the Coast Guard to approved equipment.
[5] SOLAS Chapter V navigation equipment which includes a radio transmitter is authorized by the Federal Communications Commission, including Radar Equipment and Automatic Identification Systems (AIS).
[6] Type approval series 165.115, 165.116 and 165.117 will supersede type approval series 165.111, 165.120 and 165.121. For new requirements for Radars, see Section (3) of this Enclosure.

Approval series [4]	**Equipment** [5]	**Applicable Standards**
		IEC 60945; and IEC 61162 (applicable part).
165.115	Radar Equipment with Automatic Radar Plotting Aid (ARPA)	IMO Resolution A.694(17), MSC.191(79) and MSC.192(72); IEC 62388; IEC 60945; and IEC 61162 (applicable part).
165.116	Radar Equipment with Automatic Tracking Aid (ATA)	IMO Resolution A.694(17), MSC.191(79) and MSC.192(72); IEC 62388; IEC 60945; and IEC 61162 (applicable part).
165.117	Radar Equipment with Electronic Plotting Aid	IMO Resolution A.694(17), MSC.191(79) and MSC.192(72); IEC 62388; IEC 60945; and IEC 61162 (applicable part).
165.120	Automatic Radar Plotting Aid (ARPA)[6]	See Section (3) of this enclosure..
165.121	Electronic Plotting Aid (EPA)[6]	See Section (3) of this enclosure..
165.122	Chart Facilities for Shipborne Radar	IMO Resolutions A.694(17) and A.817(19) as amended by IMO Resolution MSC64(67) Annex 5; IEC 60936-3; IEC 60945; and IEC 61162 (applicable part).
165.123	Electronic Chart Display and Information System (ECDIS)	IMO Resolutions A.694(17), MSC232(83) and A.817(19) as amended by IMO Resolution MSC64(67) Annex 5. IEC 61174; IEC 60945; and IEC 61162 (applicable part).
165.124	ECDIS Back-up Equipment	IMO Resolutions A.694(17) and A.817(19) as amended by IMO Resolution MSC64(67) Annex 5 and by MSC.86(70), Annex 4; IEC 61174, Annex G; IEC 60945; and IEC 61162 (applicable part).

Approval series [4]	Equipment [5]	Applicable Standards
165.125	Raster Chart Display Systems (RCDS)	IMO Resolutions A.694(17) and A.817(19) as amended by IMO Resolution MSC64(67) Annex 5 and by MSC.86(70), Annex 4; IEC 61174, Annex H; IEC 60945; and IEC 61162 (applicable part).
165.130	Global Positioning System (GPS) equipment	IMO Resolutions A.694(17) and A.819(19); IEC 61108-1, edition 2; IEC 60945; and IEC 61162 (applicable part).
165.131	Global Navigation Satellite System (GLONASS) equipment	IMO Resolution A.694(17) and MSC53(66); IEC 61108-2; IEC 60945; and IEC 61162 (applicable part).
165.132	Differential Global Position System (DGPS) equipment	IMO Resolution A.694(17) and MSC64(67); IEC 61108-4; IEC 60945; and IEC 61162 (applicable part).
165.133	Differential Global Navigation Satellite System (DGLONASS) equipment	IMO Resolution A.694(17) and MSC64(67) Annex 2; IEC 61108-4; IEC 60945; and IEC 61162 (applicable part).
165.134	Combined Global Position System and Global Navigation Satellite System (GPS/GLONASS) receiver equipment	IMO Resolution A.694(17) and MSC74(69) Annex 1; IEC 60945; and IEC 61162 (applicable part).
165.135	Loran-C equipment	IMO Resolutions A.694(17) and A.818(19); IEC 61075; IEC 60945; and IEC 61162 (applicable part).
165.136	Chayka equipment	IMO Resolutions A.694(17) and A.818(19); IEC 61075; IEC 60945; and IEC 61162 (applicable part).

Approval series [4]	Equipment [5]	Applicable Standards
165.140	Integrated Bridge System	IMO Resolution A.694(17) and MSC64(67) Annex 1; IEC 61209; IEC 60945; and IEC 61162 (applicable part).
165.141	Integrated Navigational System	IMO Resolution A.694(17) and MSC86(70) Annex 3; IEC 60945; and IEC 61162 (applicable part).
165.150	Voyage Data Recorder (VDR)[7]	IMO Resolution A.694(17) and A.861(20); IEC 61996; IEC 60945; and IEC 61162 (applicable part). See section (3) of this Enclosure.
165.151	Simplified Voyage Data Recorder (S-VDR)[7]	IMO Resolution A.694(17), A.861(20)(applicable parts) and MSC.163(78); IEC 61996-2, Part 2; IEC 60945 IEC 61162 (serial interface) ; and See section (3) of this Enclosure.
165.155	Shipborne Automatic Identification System (AIS)[8]	IMO Resolution A.694(17) and MSC74(69) Annex 3; IEC 61993-2; IEC 60945; IEC 61162 (applicable part) ITU Recommendation ITU-R M.1371-3; and See Enclosure (7).
165.156	Shipborne Automatic Identification System (AIS)[8] Class B	IEC 62287-1; IEC 60945; IEC 61162 (applicable part); and ITU Recommendation ITU-R M.1371-3; and See Enclosure (7).
165.160	Radar Reflector	IMO Resolution A.384(x); IEC 60945; and ISO 8729.
165.165	Sound Reception System	IMO Resolution A.694(17) and MSC86(70) Annex 1;

[7] See 165.150 Voyage Data Recorder annual performance test see Section (3) of this Enclosure.
[8] See Section (3) of this Enclosure.

Approval series [4]	Equipment [5]	Applicable Standards
		IEC 61162 (applicable part); and IEC 60945.
165.166	Daylight Signaling Lamp	IMO Resolutions A.694(17) and MSC.95(72); and IEC 60945.
165.203	Gyrocompass for High Speed Craft	IMO Resolutions A.694(17) and A.821(19); ISO 16328; IEC 61162 (applicable part); and IEC 60945.
165.207	Long Range Information Tracking (LRIT)	See Enclosure (8).
165.210	Heading Control System for High Seed Craft (formerly Automatic Pilot)	IMO Resolutions A.694(17), A.822(19), and A.342(IX) as amended by IMO Resolution MSC64(67) Annex 3; ISO 16329; IEC 60945; and IEC 61162 (applicable part).
165.216	Radar Equipment with Automatic Radar Plotting Aid (ARPA) for High Speed Craft[9]	See Section (3) of this Enclosure.
165.217	Radar Equipment with Automatic Tracking Aid (ATA) for High Speed Craft[9]	See Section (3) of this Enclosure.
165.218	Radar Equipment with Automatic Radar Plotting Aid (ARPA) for High Speed Craft[9]	IMO Resolution A.694(17), MSC.192(79) and MSC.192(72), MSC.36(63) (1994 High Speed Craft Code) and MSC.97(73) (2000 High Speed Craft Code); IEC 62388; IEC 60945; and IEC 61162 (applicable part).
165.219	Radar Equipment with Automatic Tracking Aid (ATA) for High Speed Craft [9]	IMO Resolution A.694(17), MSC.192(79) and MSC.192(72), MSC.36(63) (1994 High Speed Craft Code) and MSC.97(73) (2000 High Speed Craft Code); IEC 62388; IEC 60945; and IEC 61162 (applicable part).
165.251	Night Vision Equipment for High Speed Craft	IMO Resolutions A.694(17) and MSC.94(72); ISO 60447;

[9] Type approval series 165.218 and 165.219 will supersede type approval series 165.216 and 165.217. See section (3) of this Enclosure.

Approval series [4]	Equipment [5]	Applicable Standards
		ISO / IEC 9126; IEC 61162 (applicable part); and IEC 60945.

3 Performance standards for Voyage Data Recorders (VDR), Simplified Voyage Data Recorders (S-VDR), Automatic Identification Systems (AIS) and radars.

VDR/ S-VDR - 165.150/ 151.

Annual performance test. Regulation V/20.4 of the International Convention for the Safety of Life at Sea (SOLAS) requires Administrations to ensure each VDR/S-VDR installed on a vessel undergoes an annual performance test. A service provider meeting the requirements of enclosure (5) of this NVIC and accepted by the Coast Guard for testing VDRs/ S-VDRs should conduct the performance test.

(a) The VDR/S-VDR system should be tested to verify the accuracy, duration and recoverability of the recorded data. In addition, tests and inspections should be conducted to determine the serviceability of all protective enclosures and devices fitted to aid location.

(b) The service provider should issue a certificate of compliance if the VDR/ S-VDR successfully passes the test. The certificate should be retained on board the ship. The certificate includes:

(i) The words "Certificate of Compliance for Voyage Data Recorder" or "Certificate of Compliance for Simplified Voyage Data Recorder", as appropriate.

(ii) The name of the ship and its official number.

(iii) The make, model, approval number, and serial number of the VDR/ S-VDR.

(iv) The date of the testing.

(v) The applicable performance standards applied.

(vi) The name and address of the service provider who performed the testing.

(vii) The name and signature of the service provider representative responsible for the testing.

(viii) Date and file identification of the Coast Guard letter accepting the service provider for testing of VDR/ S-VDR.

Shipborne Automatic Identification System (AIS) -165.155/ 156.

Shipborne automatic identification systems (AIS) contain radio transmitters and are therefore authorized by the Federal Communications Commission under Subpart J of 47 CFR part 2. The Coast Guard will review the shipborne AIS design, test reports, and quality system audit in accordance with the procedures in this directive and ensure requirements of Enclosure (7) are met prior to FCC authorization.

Radar Equipment with ARPA, ATA, or EPA – 165.115, 165.116 and 165.117.

Resolution MSC.192(79) requires Governments to ensure that radar equipment installed on or after 01 July 2008 conform to the performance standards set out in Annex 34 of the resolution. Due to the new performance standards for radar equipment, the US Coast Guard will no longer approve radar equipment collision avoidance equipment to approval series 165.111, 165.120 or 165.121. The existing radar equipment would be required to be replaced with radar approved to series 165.115, 165.116 or 165.117, as appropriate, when the existing radar equipment becomes unserviceable.

In the past, the US Coast Guard type approved the collision avoidance add-ons of the radar equipment. The new radar equipment type approval series will include a comprehensive review of the entire radar equipment and its compliance with the standards. As the radar equipment includes a radio transmitter, further authorization by the Federal Communications Commission is required.

Radar Equipment with ARPA and ATA for High Speed Craft.

Resolution MSC.192(79) requires Governments to ensure that radar equipment installed on or after 01 July 2008 conform to the performance standards set out in Annex 34 of the resolution. Due to the new performance standards for radar equipment, the US Coast Guard will no longer approve radar collision avoidance equipment to approval series 165.216 or 165.217. The existing radar equipment would be required to be replaced with radar approved to series 165.218 or 165.219, as appropriate, when the existing radar equipment becomes unserviceable.

In the past, the US Coast Guard type approved the collision avoidance add-ons of the radar equipment. The new radar equipment type approval series will include a comprehensive review of the entire radar equipment and its compliance with the standards. As the radar equipment includes a radio transmitter, further authorization by the Federal Communications Commission is required.

Coast Guard Approval Process for Voyage Data Recorder and Simplified Voyage Data Recorders Service Providers.

1 Purpose.

This enclosure describes the procedure for service providers to receive Coast Guard approval to perform the annual certification testing for Voyage Data Recorders (VDRs) or Simplified Voyage Data Recorders (S-VDRs).

2 Service provider.

A service provider can be, but is not limited to, an independent laboratory, manufacturer or sales representative. All service providers after meeting the requirements in this enclosure and receiving Coast Guard approval will be certified to perform the annual inspection of the VDRs/ S-VDRs. The annual inspection of the VDRs/ S-VDRs should be performed in accordance with section 9 of this enclosure.

3 Quality system.

The service provider should have in place an approved quality system as described in the following:

(a) The quality system should ensure that the equipment conforms to the documentation submitted for the equipment's approval and is subjected to all inspections and tests required by the standards under which the equipment is approved.

(b) The quality system documentation should permit a consistent interpretation of the quality programs, plan, manuals and records. It should, in particular, include an adequate description of:

(1) The quality records, such as inspection reports, test data, and calibration data.

(2) Training plan and qualification reports of the personnel performing the annual certification.

(3) Maintenance and documentation of training received by each approved inspector.

(4) Documented procedures and instructions for how to carry out testing and examination of radio equipment.

(5) Documented procedures and instructions for operation of each item of the testing equipment should be available at all times.

(6) Documentation / presentation of the annual inspection report form showing the results of required testing under enclosure (4) (table 2; 165.150) for VDRs or (table 2; 165.151) for S-VDRs.

(7) The means of monitoring the testing procedures of the required equipment and the effective operation of the quality system.

(8) Periodic review of the testing process, complaints, corrective action, maintenance and control of documents.

4 Coast Guard assessment.

The Coast Guard will assess the quality system to determine whether it satisfies the requirements in section (3). It will determine compliance with those requirements in respect of quality systems that implement the approval standard.

The following documents are to be submitted as part of the Coast Guard assessment:

(a) Description of the service provider's organizational structure, management hierarchy and a list of any subsidiaries that should be part of the final approval.

(b) Documented procedures covering the requirements of section (3).

(c) Documented training and experience of the service provider with servicing of the VDR/ S-VDR equipment.

(d) Type and model of equipment that will be used in the annual testing procedure.

(e) List of service personnel and their training.

(f) List of activities that may present a conflict of interest for the service provider.

(g) Where applicable, a documented license presented by the equipment's manufacturer.

5 Obligations under the quality system.

(a) The manufacturer should fulfill the obligations arising out of the quality system as approved and maintain it so that it remains adequate and efficient.

(b) The service provider should keep the Coast Guard informed of any intended revision of the quality system.

(c) The Coast Guard will assess the revisions proposed and decide whether the revised quality system will still satisfy the requirements in section 3 or whether a reassessment is required.

(d) The service provider will be notified of the Coast Guard's decision. The notification will include the conclusions of the examination and the reasoned assessment decision.

6 Quality system surveillance.

The service provider should arrange for continuing quality system surveillance by a QRSO as defined in section (2) of enclosure (3) to this NVIC. The purpose of surveillance is to make sure that the service provider meets the obligations of the approved quality system.

The service provider should be able to provide to the Coast Guard, upon request and for inspection purposes, all the necessary information pertaining to the quality system documentation and the quality records, such as inspection reports, test data, calibration data, qualification reports of the personnel concerned and other relevant data.

7 Termination of approval.

The approval for the service provider to perform the annual testing of VDR/ S-VDR equipment terminates if the service provider -

(a) Requests termination,

(b) Is no longer in business,

(c) Knowingly fails to perform or supervise the annual inspection,

(d) Contracts or transfers the performance or supervision of required inspections or tests to another service provider without the approval of the Commandant; or

(e) Fails to, or in the opinion of the Commandant is unable to, carry out its responsibilities as required by regulation.

8 Reference Documents.

(a) For Voyage Data Recorders

(i) SOLAS 1974, as amended

(ii) IMO Resolution A.789(19): Specification on the survey and certification functions of recognized organizations on behalf of the administration

(iii) IMO Resolution A.694(17) and A.861(20)

(iv) IEC standards IEC 60945, IEC 61162 and IEC 61996

(a) For Simplified Voyage Data Recorders

(i) SOLAS 1974, as amended

(ii) IMO Resolution A.789(19): Specification on the survey and certification functions of recognized organizations on behalf of the administration

(iii) IMO Resolution A.694(17) and A.861(20) (as applicable)

(iv) MSC Resolution MSC.163(78)

(v) IEC standards IEC 60945, IEC 61162 (serial interface) and IEC/PAS 61996-2 part 2.

9 Annual Performance Test.

(a) The annual performance testing of the VDR/ S-VDR should be in compliance with the requirements of Regulation V/20.4 of the International Convention for the Safety of Life at Sea (SOLAS).

(b) The VDR/ S-VDR system should be tested to verify the accuracy, duration and recoverability of the recorded data. In addition, tests and inspections should be conducted to determine the serviceability of all protective enclosures and devices fitted to aid location.

(c) The service provider will issue a certificate of compliance if the VDR/ S-VDR successfully passes the test. The certificate is to be retained on board the ship. The certificate includes:

(1) The words "Certificate of Compliance for Voyage Data Recorder" or "Certificate of Compliance for Simplified Voyage Data Recorder"

(2) The name of the ship and its official number

(3) The make, model, approval number, and serial number of the VDR/ S-VDR

(4) The date of the testing

(5) The applicable performance standards applied.

(6) The name and address of the service provider.

(7) The name and signature of the service provider representative responsible for the testing.

(8) Date and file identification of the Coast Guard accepting the service provider for testing the VDR/ S-VDR.

Alternate Coast Guard Approval Process for Equipment Wheelmarked by a EU Notified Body and Tested by a Non U.S. Coast Guard Accepted Laboratory.

1 Purpose.

The intent of this enclosure is to provide guidance on the approval process for navigation equipment as required under Chapter V, Regulation 18, of the 2000 Amendments to SOLAS 74 for equipment that has already received a wheelmark by an EU Notified Body and has been tested by an independent laboratory not accepted by the U.S. Coast Guard.

2 Alternate approval.

The Commandant (CG 5213) may issue a Coast Guard approval certificate for navigation equipment where testing has determined that the navigation equipment has received full approval from a notified body and meets the requirements established by enclosures (2), (3) and (4) of this NVIC.

Equipment accepted under this alternate approval process are listed below:

Coast Guard Approved Navigation Equipment

Approval series [10]	Equipment
165.101	Magnetic Compass
165.102	Transmitting Magnetic Heading Device, TMHD (formerly Electromagnetic compass)
165.103	Gyrocompass
165.105	Speed and Distance Measuring Equipment (SDME)
165.106	Rate of Turn Indicator
165.107	Echosounding equipment
165.110	Heading Control System
165.112	Track Control System
165.122	Chart facilities for shipborne radar
165.123	Electronic Chart Display and Information System (ECDIS)
165.124	ECDIS Back-up Equipment
165.125	Raster Chart Display Systems (RCDS)
165.130	Global Positioning System (GPS) equipment
165.131	Global Navigation Satellite System (GLONASS) equipment
165.132	Differential Global Position System (DGPS) equipment

[10] "Approval series" means the first six digits of a number assigned by the Coast Guard to approved equipment.

Approval series [10]	Equipment
165.133	Differential Global Navigation Satellite System (DGLONASS) equipment
165.134	Combined Global Position System and Global Navigation Satellite System (GPS/GLONASS) receiver equipment
165.135	Loran-C equipment
165.136	Chayka equipment
165.140	Integrated Bridge System
165.141	Integrated Navigational System
165.150	Voyage Data Recorder (VDR)
165.151	Simplified Voyage Data Recorder (S-VDR)
165.160	Radar Reflector
165.165	Sound Reception System
165.166	Daylight Signaling Lamp
165.203	Gyrocompass for High Speed Craft
165.207	Long Range Identification Tracking (LRIT)
165.210	Heading Control System for High Speed Craft (formerly automatic pilot)
165.251	Night Vision Equipment for High Speed Craft

3 Coast Guard assessment.

(a) The Coast Guard will assess the test report from the independent laboratory, the certification by the recognized notified body and the manufacturers' quality system manual / guidelines as described in enclosures (2), (3) and (4) of this NVIC.

(b) The following documents should be submitted as part of the Coast Guard assessment:

(1) Copy of the evaluation and complete test report performed by an independent laboratory.

(2) Copy of all certifications received as a result of the test report in (1).

(3) Example of the marking and labeling of the equipment.

(4) Copy of the manufacturers' quality system manual / guidelines.

U.S. Coast Guard Type-Approval Contingency re: Shipborne Automatic Identification System (AIS)

Coast Guard type-approval of an AIS device is contingent on the proper and accurate input of the vessel's official: maritime mobile service identity (a MMSI issued by the FCC or their distributor(s)), radio call-sign, dimensions (as derived from it's positioning source antenna location), vessel name (associated with the vessel's FCC MMSI and/or USCG official number), without any precursors or designators, e.g. MV, P/C, S/V, etc. Name-less or unnamed vessels shall be denoted with a description and/or official number: unnamed state numbered boat, e.g. US#CA1234YZ; an unnamed small tender vessel: PARENTSHIP NAME-X, where X = 1, 2, 3, 4, etc.), and, vessel type (as denoted below); prior to use.

Use of AIS with improper or inaccurate information may subject a person to civil penalties not to exceed $25,000 for each violation (46 USC §70119)

Identifiers[11] to be used (only) by U.S. domestic vessels to report their type[12]				
1st digit	**2nd digit (1x)**	**2nd digit (3x)**	**2nd digit (5x)**	**3rd digit (10x)**
0 – Not available or no ship	0 – All ships of this type	0 – Fishing, *i.e. commercially engages in the catching, taking, or harvesting of fish*	0 – Pilot vessel	*0 – Not available or no ship*
1 – Reserved for future use	1 – Carrying DG *(Dangerous Goods)*, HS *(Hazardous Substances)*, or MP *(Marine Pollutant)*, IMO hazard or pollutant category *A/X; or carrying 150 or more passengers for hire*	1 – Towing, *i.e. commercial vessel engaged in or intending to engage in the service of pulling, pushing, or hauling along side, or any combination of pulling, pushing, or hauling along side*	1 – Search and rescue, *Response & Assist, Firefighting,* vessel	*1 – USCG Auxiliary*

[11] The identifier should be constructed by selecting the appropriate first, second or third digits
[12] The terms used herein are as defined in IMO SOLAS and 46 USC §2101

Identifiers[11] to be used (only) by U.S. domestic vessels to report their type[12]				
1st digit	**2nd digit (1x)**	**2nd digit (3x)**	**2nd digit (5x)**	**3rd digit (10x)**
2 – WIG *or Seaplanes*	2 – Carrying DG, HS, or MP, IMO hazard or pollutant category B/*Y; or carrying 50 or more passengers for hire*	2 – *Engaged in* towing and length of the tow exceeds 200 m (656 ft) or breadth exceeds 25 m (82 ft)	2 – Tugs *or workboats not engaged in towing*	*2 – Non-self-propelled vessels, e.g. barges*
3 – *Other vessels,* see right column *(3x)*	3 – Carrying DG, HS, or MP, IMO hazard or pollutant category C/*Z; or carrying 12 or more passengers for hire*	3 – Engaged in dredging or underwater operations, *e.g. Dredges, Cutter ships, Floating Plants, Pipe or Cable layers, Seabed Miners, etc.*	3 – Port tenders	*3 – Offshore Supply or Crew Vessels*
4 – HSC *or Domestic Passenger Ferry*	4 – Carrying DG, HS, or MP, IMO hazard or pollutant category D/*OS; or carrying less than 12 passengers for hire*	4 – Engaged in diving *or salvage* operations *or in support of these operations*	*4 – Response or recovery* vessels with anti-pollution facilities or equipment	*4 – MODU's*
5 – *Special Craft, see right column (5x)*	5 – Reserved for future use	5 – Engaged in military operations	5 – Law enforcement vessels	*5 – Scientific, Survey or Research Ship*
6 – Passenger ships	6 – Reserved for future use	6 – Sailing ship *or vessel (other than a Training or School Ship)*	6 – Spare – for assignments to local vessels, *i.e. tenders associated with a parent vessel*	*6 – Training or School Ship*

Identifiers[11] to be used (only) by U.S. domestic vessels to report their type[12]				
1st digit	**2nd digit (1x)**	**2nd digit (3x)**	**2nd digit (5x)**	**3rd digit (10x)**
7 – Cargo, *Container, or Freight* ship, *Bulk Carrier, RO-ROS's*	7 – Reserved for future use	7 – Pleasure craft/ *Recreational motorboat*	7 – Spare – for assignments to local vessels *engaged in a regatta or marine event*	*7 – Recreational boats (other than motorboat or sailing vessel)*
8 – Tanker(s) *or tank vessel*	8 – Reserved for future use	8 – Reserved for future use	8 – Medical transports (as defined in the 1949 Geneva Conventions and Addition Protocols), *Hospital or other non-law enforcement public safety vessels*	*8 – Fish Processing or Storage Vessel*
9 – Other types of ship, *see right column (10x)*	9 – No additional information	9 – Reserved for future use	9 – Ships according to RR Resolution No. 18 (Mob-83) *or other public vessels*	*9 – Other type of U.S. commercial vessel not otherwise identified in this Table*

Coast Guard Approval Process for Long Range Identification and Tracking (LRIT) Equipment.

1 Purpose.

This enclosure provides guidance on the requirements for equipment used to transmit LRIT information, including type approval of LRIT equipment. Regulation V/19-1.6 specifies that the equipment to be used to transmit LRIT information should be of a type approved by the Administration. Transmission of LRIT information can be accomplished with new equipment designed to transmit LRIT information or previously type approved existing equipment adapted to transmit LRIT information, such as GMDSS. The Coast Guard will not require a separate LRIT type approval for previously type approved equipment adapted to transmit LRIT information. Therefore, demonstration of compliance with Regulation V/19-1.6 will be different for new and existing equipment; see paragraphs 5 and 6 below for more details.

2 Reference Documents.

(a) SOLAS 1974, as amended
(b) IMO Resolution A.789(19): Specification on the survey and certification functions of recognized organizations on behalf of the administration
(c) IMO Resolution A.694(17) Recommendations on general requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids.
(d) IEC standard IEC 60945.
(e) MSC Resolution MSC.263(84): Revised performance standards and functional requirements for the long-range identification and tracking of ships.
(f) MSC.1/Circ.1296, Guidance on the Survey and Certification of Compliance of ships with the requirements to Transmit LRIT information, December 2008.

3 Type approval for new equipment manufactured to comply with SOLAS V/19-1.6:

In order for a manufacturer to obtain Coast Guard type approval for equipment designed to comply with Regulation V/19-1.6 of SOLAS (amended May 2006):

(a) It should have a USCG Independent Lab or Notified Body certify that the LRIT equipment complies with IEC 60945 (2002-08) and IEC 60945 Corr.1 (2008-04). Manufacturers are to follow the established type approval procedures in enclosure (2) or (6) of this circular, as applicable.

(b) It should have a United States authorized ASP (application service provider) conduct the conformance test of Appendix 1 of MSC.1/Circ.1296 and document compliance with conformance test report per Appendix 2 of the circular. A list of ASPs authorized by the United States may be obtained from USCG Headquarters (CG-7611). For more information, see http://www.navcen.uscg.gov/lrit/ or contact the LRIT Business Help Desk at:

1-866-944-LRIT (5748)
1-703-313-5788
E-mail: TIS-SG-LRIT@uscg.mil

(c) Once (a) and (b) of this paragraph have been completed, the conformance test report and USCG Independent Lab or EU Notified Body certification should be sent to:

Commandant (CG-5213)
2100 Second Street SW
Washington, DC 20593

The Coast Guard will then issue a type approval certificate to the manufacturer and list the equipment in the CGMIX and MISLE databases. Compliance with Regulation V/19-1.6 of SOLAS onboard the vessel using this equipment may be determined by checking to ensure this equipment is listed in these databases under approval series 165.207.

(d) Outside of USCG Type approval, radio transmission equipment used for LRIT will need to meet the requirements of the FCC's regulations for equipment authorization, 47 CFR 2 Subpart J (beginning 2.901). This is done by the FCC independently of the Coast Guard. In most cases, existing transmission equipment modified for use as LRIT will already have met the FCC's requirement. If there is any question whether modification to transmission equipment will affect FCC approval, the FCC should be contacted.

4 LRIT Installations using existing equipment (e.g. GMDSS):

If existing equipment is used to transmit LRIT information, the only requirement is completion of the conformance test as described in 3 (b) above. In these cases, the ship using the existing equipment should demonstrate compliance with Regulation V/19-1.6 of SOLAS (amended May 2006) via the conformance test report issued by the ASP.

As noted above, these installations will not be type approved for LRIT by the Coast Guard. Compliance of Regulation V/19-1.6 of SOLAS onboard the vessel may be determined by checking for an LRIT endorsement on the applicable certificate, radio related certificate and/or record of equipment as defined in paragraph 3.1.2, 3.1.6 and 3.1.7 of MSC.1/Circ.1296 and a completed Conformance Test Report; it is not necessary to check for a separate LRIT type approval number.