



SOCIALIST REPUBLIC OF VIETNAM

QCVN 62: 2013/BGTVT

**NATIONAL TECHNICAL REGULATION
ON NAVIGATION BRIDGE SYSTEMS**

HANOI - 2013

QCVN 62: 2013/BGTVT

Preamble

National Technical Regulation on Navigation Bridge systems QCVN 62: 2013/BGTVT is compiled by Vietnam Register, verified by the Ministry of Science and Technology, promulgated by the Minister of Transport under Circular No. 06/2013/TT-BGTVT dated 2 May 2013.

QCVN 62: 2013/BGTVT is compiled on the basis of National Standard "Rules for Navigation Bridge systems" TCVN 6280: 2003.

NATIONAL TECHNICAL REGULATION ON NAVIGATION BRIDGE SYSTEMS

TABLE OF CONTENTS

	Page
I GENERAL REGULATIONS	5
1.1 Application and Scope.....	5
1.2 References, Definitions and Explanations.....	5
II TECHNICAL REGULATIONS	7
Chapter 1 General	7
1.1 General.....	7
Chapter 2 Surveys of Navigation Bridge Systems	8
2.1 General.....	8
2.2 Initial Surveys.....	10
2.3 Periodical surveys.....	11
Chapter 3 Bridge layout and bridge working environment	13
3.1 General.....	13
3.2 Bridge working environment.....	13
Chapter 4 Navigational Equipment	15
4.1 General.....	15
4.2 Navigational equipment.....	15
Chapter 5 Accident Prevention Systems	18
5.1 General.....	18
5.2 Accident prevention systems.....	19
Chapter 6 Bridge Work Assist Systems	21
6.1 General.....	21
6.2 Bridge work assist systems.....	22
III REGULATIONS ON MANAGEMENT	24
1.1 General.....	24
1.2 Regulations on technical supervisions.....	24
1.3 Certification.....	24
IV RESPONSIBILITIES OF ORGANIZATIONS, INDIVIDUALS	25

QCVN 62: 2013/BGTVT

1.1 Responsibilities of ship owners and operators, agency of design, manufacturing, converting, renovating and repairing the systems.....	25
1.2 Responsibilities of Vietnam Register	25
1.3 Responsibilities of the Ministry of Transport	25
V IMPLEMENTATION	27

NATIONAL TECHNICAL REGULATION ON NAVIGATION BRIDGE SYSTEMS

I GENERAL REGULATIONS

1.1 Application and Scope

1.1.1 Application

- 1 The present National Technical Regulation (hereinafter referred to as "Regulation") applies to the surveys and manufacture of the Navigation Bridge systems of sea-going ships which are subject to the technical surveys and classified by Vietnam Register.
- 2 Relevant requirements in QCVN 21: 2010/BGTVT "National Technical Regulation - Rules for the classification and construction of sea-going steel ships" also apply to Navigation Bridge systems, except otherwise specified in this Regulation.

1.1.2 Scope

The present Regulation is to apply to organizations and individuals involving activities relating to diving systems and falling under the application as specified in 1.1.1 above, including Vietnam Register (hereinafter referred to as "VR"); ship owners; Navigation bridge system operators, designers, building yards, renovating and repairing yards.

1.2 References, Definitions and Explanations

1.2.1 References

- 1 QCVN 21: 2010/BGTVT, "National Technical Regulation - Rules for the classification and construction of sea-going steel ships" promulgated in accordance with Circular 12/2010/TT-BGTVT dated 21 April 2010.
- 2 Circular No.32/2011/TT-BGTVT dated 19 April 2011 of the Ministry of Transport stipulated on amendments and supplements to a number of articles of the Regulations on verification registration of ships in Vietnam, accompanying Decision No. 51/2005/QD-BGTVT dated 12 October 2005 of the Minister of Transport.

1.2.2 Definitions and Explanations

- 1 A BRS-ship, a BRS1-ship and a BRS1A-ship which appear in the Regulation are specified as follows:
 - (1) A BRS-ship is the ship of which bridge layout and bridge working environment and navigational equipment comply with the requirements of Chapters 3 and 4 of Section II of the Regulation.
 - (2) A BRS1-ship is the BRS-ship of which accident prevention systems comply with the

QCVN 62: 2013/BGTVT

requirements of Chapter 5 of Section II of the Regulation.

- (3) A BRS1A-ship is the ship of which, bridge working environment, navigational equipment, accident prevention systems and bridge work assist systems comply with the requirements of Chapters 3 to 6 of Section II of the Regulation.

2 Terms used in the Regulation are defined as follows:

- (1) "Back-up navigator" is any individual, generally an officer, who has been designated by the ship master to be on half if assistance is needed on the bridge;
- (2) "Bridge" is an area from which the navigation and control of the ship is exercised, including the wheelhouse and bridge wings;
- (3) "Bridge wings" are parts of the bridge on both sides of the ship's wheelhouse which extend to the ship's side;
- (4) "Conning position" is a place on the bridge with a commanding view and which is used by navigators when commanding, manoeuvring and controlling a ship;
- (5) "Main conning position" is a conning position which is mainly used by navigators;
- (6) "Field of vision" is an angular size of a scene that can be observed from a position on the ship's bridge;
- (7) "Navigator" is a person navigating, operating bridge equipment and manoeuvring the ship;
- (8) "Wheelhouse" is an enclosed area of the bridge;
- (9) "Workstation" is a position at which one or several tasks constituting a particular activity are carried out;
- (10) "Centralized bridge workstation" is a workstation at which navigational equipment needed for navigation and maneuvering are arranged centrally, including the main conning position;
- (11) "Ocean areas" are areas in which the freedom of course setting in any direction for a distance equivalent to at least 30 minutes sailing with the navigating speed of the ship is not restricted.

II TECHNICAL REGULATIONS

CHAPTER 1 GENERAL

1.1 General

1.1.1 Equivalency

Navigation bridge systems which do not fully comply with the requirements of the Regulation may be accepted provided that they are deemed by VR to be equivalent to those specified in the Regulation.

1.1.2 Modification of requirements

VR may modify parts of the requirements specified in the Regulation taking the national requirements of the ship's flag state, kind of the ship and intended service areas of the ship into consideration.

1.1.3 Navigation bridge systems with novel design features

For navigation bridge systems with novel design features, VR may apply the requirements of the Regulation so far as practicable and other requirements as considered appropriate by VR.

CHAPTER 2 SURVEYS OF NAVIGATION BRIDGE SYSTEMS

2.1 General

2.1.1 Kinds of surveys

- 1 Navigation bridge systems are to be subjected to the following surveys:
 - (1) Initial surveys for registration of navigation bridge systems (hereinafter referred to as "Initial surveys");
 - (2) Periodical surveys for the navigation bridge systems (hereinafter referred to as "Periodical surveys"), which are:
 - (a) Special surveys;
 - (b) Annual surveys;
 - (c) Occasional surveys.

2.1.2 Interval of the surveys

- 1 Initial surveys are to be carried out at the time which the application for registration is made.
- 2 Periodical surveys are to be carried out at the following intervals:
 - (1) A special survey is to be carried out at the intervals specified in 1.1.3-1(3) Part 1B Section II QCVN 21: 2010/BGTVT;
 - (2) An annual survey is to be carried out at the intervals specified in 1.1.3-1(1) Part 1B Section II QCVN 21: 2010/BGTVT;
 - (3) Notwithstanding above (1) and (2), occasional surveys are to be carried out independently of special surveys and annual surveys where:
 - (a) Main parts of the systems have been damaged, repaired or renewed;
 - (b) The systems are repaired or altered; or
 - (c) It is considered necessary by VR.

2.1.3 Special Surveys and Annual surveys carried out in advance, etc.

1 Surveys carried out in advance

The requirements for Special Surveys and Annual Surveys carried out in advance are to be in accordance with the provisions specified in 1.1.4 Part 1B Section II QCVN 21: 2010/BGTVT.

2 Postponement of Special Surveys

The requirements for postponement of Special Surveys are to be in accordance with the provision specified in 1.1.5(1) or 1.1.5(2) Part 1B Section II QCVN 21: 2010/BGTVT.

2.1.4 Preparation for surveys

- 1 All preparations as required necessary for surveys are to be made by the Owners or their representatives with their responsibilities. The preparations are to include necessary facilities and necessary records for the execution of the survey. In inspection, measuring and test equipment, which Surveyors rely on to make decisions affecting classification are to be individually identified and calibrated to a standard deemed appropriate by VR. However, the Surveyor may accept simple measuring equipment (e.g. rulers, measuring tapes, micrometers, etc.) without individual identification or confirmation of calibration, provided they are of standard commercial design, properly maintained and periodically compared with other similar equipment fitted on board a ship and used in examination of shipboard equipment (e.g. pressure, temperature or rpm gauges and meters) based either on calibration records or comparison of readings with multiple instruments.
- 2 The Owners or their representatives, who have knowledge of the requirements for surveys and are able to supervise the preparation for surveys are to attend the survey according to the items to be examined, and are to give necessary assistances to the Surveyor in the execution of his duty.
- 3 The surveys may be suspended where necessary preparations have not been made, any appropriate attendant mentioned in the previous –2 is not present, or the surveyor considers that the safety for execution of the survey is not ensured.

2.1.5 Recommendations

As a result of the survey, the Surveyor will notify his recommendations to the Owner or their representative. Upon this notification, the repair is to be made to the satisfaction of the Surveyor.

2.1.6 Laid-up Ships

- 1 Laid-up ships are not subject to those Periodical Surveys. However, Occasional Surveys may be carried out at the request of owners.
- 2 When laid-up ships are about to be re-entering service, the following surveys and surveys for specific matters which have been postponed due to being laid-up, if any, are to be carried out.
 - (1) If the due dates for Periodical Survey have not transpired while the ship was laid-up, then the survey having scope equivalent to anual survey specified in 2.3.2 is to be carried out;
 - (2) If the due dates for Periodical Surveys have transpired while the ship was laid-up, then these Periodical Surveys are, in principal, to be carried out. However, where special survey and anual survey are due, only special survey may be carried out.

2.2 Initial Surveys

2.2.1 Drawings and data

- 1** For navigation bridge systems of a BRS-ship, three copies of the following drawings and data are to be submitted to VR for the approval:
 - (1) General arrangement of the bridge (showing the main conning position, other conning positions, locations of control consoles and panels, and passage ways);
 - (2) Particulars of the navigational equipment specified in 4.2.2;
 - (3) Electrical wiring diagrams for the navigational equipment specified in 4.2;
 - (4) Schemes of on board tests and sea trials including methods of tests and test condition provided;
 - (5) Other drawings and data deemed necessary by VR.
- 2** For navigation bridge systems of a BRS1-ship, three copies of the following drawings and data are to be submitted to VR for the approval:
 - (1) The drawings and data specified in -1;
 - (2) Particulars of the accident prevention systems in accordance with 5.2;
 - (3) Electrical wiring diagrams for the accident prevention systems in accordance with 5.2.
- 3** For navigation bridge systems of a BRS1A-ship, three copies of the following drawings and data are to be submitted to VR for the approval:
 - (1) The drawings and data specified in -2;
 - (2) Particulars of the bridge work assist systems specified in 6.2;
 - (3) Electrical wiring diagrams for the bridge work assist systems specified in 6.2;
 - (4) Detail arrangement of the centralized bridge workstation specified in 6.1.3 (dimensions of control consoles, panel arrangement, etc., are to be shown).

2.2.2 Shop tests

- 1** The equipment listed in (1) to (10) below is to be approved by VR. However, the equipment approved by the Government for the State whose flag the ship is entitled to fly, other Contracting Governments of the International Convention for The Safety of Life at Sea or the Societies approved by the Governments mentioned above may be exempted from the requirements.
 - (1) Automatic radar plotting aids (ARPA);
 - (2) Electronic position-fixing systems;
 - (3) Radars;
 - (4) Gyro compass systems;
 - (5) Automatic steering systems;

- (6) Speed log systems;
- (7) Echo sounding systems;
- (8) Maritime safety information receivers;
- (9) VHF radio telephone installations;
- (10) Other equipment deemed necessary by VR.

2.2.3 Tests after installation on board

Bridge layout and bridge working environment, navigational equipment, and accident prevention systems are to be, after installation on board, verified in accordance with the scheme of on board tests approved by VR that they are constructed, installed and functioning properly under the working conditions. A part of this verification may be carried out during sea trials.

2.2.4 Sea trials

Bridge layout and bridge working environment, navigational equipment, and accident prevention systems are to be verified in accordance with the scheme of sea trials approved by VR that they are constructed, installed and functioning properly.

2.3 Periodical surveys

2.3.1 Special surveys

- 1** At each special survey for navigation bridge systems of BRS-ships, the following tests and examination are to be carried out:
 - (1) General examination of the systems;
 - (2) Function tests of navigational equipment specified in 4.2.2-1 (1) to (5), (7) to (11) and (13) to (16);
 - (3) Verification of the capability of navigational equipment to readily instated after 45 seconds interruption of the electrical power supply.
- 2** At each special survey for navigation bridge systems of BRS1-ships, the following tests and examination are to be carried out:
 - (1) The tests and examination specified in -1;
 - (2) Function tests of accident prevention systems specified in 5.2; and
 - (3) Verification of the capability of accident prevention systems to readily instated after 45 seconds interruption of the electrical power supply.
- 3** At each special survey for navigation bridge systems of BRS1A-ship, the following tests and examination are to be carried out:
 - (1) The tests and examination specified in -2;
 - (2) Function tests of bridge work assist systems specified in 6.2;
 - (3) Verification of the capability of bridge work assist systems to be readily reinstated after

QCVN 62: 2013/BGTVT

45 seconds interruption of the electrical power supply.

2.3.2 Annual surveys

- 1 At each annual survey for navigation bridge systems of BRS-ships, the following tests and examination are to be carried out:
 - (1) General examination of the systems;
 - (2) Function tests of the following equipment:
 - (a) Automatic radar plotting aids (ARPA);
 - (b) Electronic position-fixing systems;
 - (c) Radars;
 - (d) VHF radio telephone installations;
 - (e) Internal communication systems;
 - (f) Other equipment deemed necessary by VR.
- 2 At each annual survey for navigation bridge systems of BRS1-ships, the following tests and examination are to be carried out:
 - (1) The tests and examination specified in -1;
 - (2) Function tests of the following equipment:
 - (a) Bridge safety systems;
 - (b) Alarm and warning transfer systems.
- 3 At each annual survey for navigation bridge systems of BRS1A-ships, the following tests and examination are to be carried out:
 - (1) The tests and examination specified in -2;
 - (2) Function tests of the following equipment:
 - (a) Bridge information systems;
 - (b) Electronic chart display information system (ECDIS);
 - (c) Auto tracking system.

CHAPTER 3 BRIDGE LAYOUT AND BRIDGE WORKING ENVIRONMENT

3.1 General

3.1.1 Scope

The requirements in this Chapter apply to bridge layouts and bridge working environments for BRS-ships, BRS1-ships and BRS1A-ships.

3.1.2 General

- 1 The bridge configuration, the arrangements of consoles, equipment location and the bridge working environment are to enable the navigator to perform navigational duties and other functions allocated to the bridge as well as to maintain a proper lookout from workstations on the bridge.
- 2 Navigating and manoeuvring workstations are to be so arranged to enable efficient operation under normal operating conditions. All relevant instrumentation and controls are to be easily visible, audible and accessible from the workstation.
- 3 For the purpose of performing duties related navigation and manoeuvring, the field of vision from a navigating and manoeuvring workstation and a conning position is to be such as to enable observation of all objects which may affect safety of the ship.
- 4 The navigator, is, as far as practicable, to be able to approach close at least one bridge front window in order to watch the area immediately in front of the bridge superstructure from the wheelhouse.
- 5 The bridge is, as far as practicable, to be placed above all other decked structures, not including funnels, which are on or above the freeboard deck.
- 6 Regardless of the ship's length, navigation bridge visibility of the ships is to be in accordance with Part 12 Section II QCVN 21: 2010/BGTVT.

3.2 Bridge working environment

3.2.1 General

- 1 Through the various stages of the design of a ship, care is to be taken to ensure a good working environment for bridge personnel.
- 2 A ceiling and walls inside the wheelhouse are to be designed not to interfere with reading of the indication of instruments.
- 3 Toilet facilities are to be provided on or adjacent to the bridge.

3.2.2 Vibration

QCVN 62: 2013/BGTVT

The vibration level on the bridge is not to be uncomfortable to bridge personnel.

3.2.3 Noise

The noise level on the bridge is not to interfere with verbal communication, mask audible alarms or be uncomfortable to bridge personnel.

3.2.4 External sound signals

External sound signals such as fog signals that are audible on the bridge wings are also to be audible inside the wheelhouse.

3.2.5 Lighting

- 1 The lighting required on the bridge is to be designed so as not to impair the night vision of the navigator.
- 2 The lighting used in areas and at items of equipment requiring illumination whilst the ship is navigating is to be such that night vision adaptation is not impaired, e.g. red lighting. Such lighting is to be arranged so that it can not be mistaken for a navigation light by another ship. It is to be noted that red lighting is not to be used over chart tables so that possible confusion in colour discrimination is avoided.

3.2.6 Air conditioning system

The wheelhouse spaces are to be provided with an air conditioning system. System controls are to be readily available to the navigator.

3.2.7 Bridge personnel safety

- 1 There are to be no sharp edges or protuberances on surfaces of the equipment and the instruments installed on the bridge which could cause injury to bridge personnel.
- 2 Sufficient hand-rails or equivalent thereto are to be fitted inside of the wheelhouse or around equipment in the wheelhouse for safety in bad weather.
- 3 Adequate means are to be made for anti-slip of the bridge floor whether it be dry or wet condition.
- 4 Doors to the bridge wings are to be easy to open and close. Means are to be provided to hold the doors open at any position.
- 5 Where provision for seating for the navigator is made in the wheelhouse, means for securing are to be provided having regard to storm conditions.

CHAPTER 4 NAVIGATIONAL EQUIPMENT

4.1 General

4.1.1 Scope

The requirements in this Chapter are to be applied to navigational equipment for BRS-ships, BRS1-ships and BRS1A-ships.

4.1.2 General

- 1 Navigational equipment is to be capable of continuous operation under the conditions of various sea states, vibration, humidity, temperature and electromagnetic interferences likely to be experienced in the ship which it is installed.
- 2 Where computerized equipment is interconnected through a computer network, failure of the network is not to prevent individual equipment from performing their individual functions.

4.1.3 Electrical power supply

- 1 Local distribution switchboards are to be arranged in the wheelhouse for all items of electrically operated navigational equipment. These switchboards are to be supplied by two exclusive circuits, one fed from the main source of electrical power and one fed from the emergency source of electrical power, and these circuits are to be separated throughout their length as widely as practicable. Each item of navigational equipment is to be individually connected to the distribution switchboard. These switchboards may also be used for accident prevention systems specified in Chapter 5 of the Regulation.
- 2 The power supplies to the distribution switchboards are to be arranged with automatic changeover facilities between the two sources.
- 3 Failure of the main electrical power supply to the distribution switchboard is to initiate an audible and visual alarm at the distribution switchboard.
- 4 Following loss of electrical power supply which has lasted for 45 seconds or less all primary functions of the navigational equipment are to be readily restored.

4.2 Navigational equipment

4.2.1 General

- 1 The instrumentation and controls at the navigating and manoeuvring workstation are to be arranged to enable the navigator to:
 - (1) Determine and plot the ship's position, course, track and speed;
 - (2) Analyze the traffic situation;
 - (3) Decide on collision avoidance manoeuvres;

QCVN 62: 2013/BGTVT

- (4) Alter course;
 - (5) Change speed;
 - (6) Effect internal communication and external communication using a VHF radio telephone installation related navigation and manoeuvring;
 - (7) Give sound signals;
 - (8) Hear sound signals;
 - (9) Monitor navigational data such as course, speed, track, propeller revolutions (pitch), rudder angle, depth of water; and
 - (10) Record navigational data.
- 2** Navigational equipment is to be arranged to avoid inadvertent operation.
 - 3** Navigational equipment is to be designed to permit easy and correct reading by day and by night.
 - 4** Each navigational equipment is to be placed with its face normal to the navigator's line of sight, or to the mean value if the navigator's line of sight varies through an angle.
 - 5** Navigational equipment is to be designed and fitted to minimize glare or reflection or being obscured by strong light.

4.2.2 Navigational equipment

- 1** Navigational equipment listed in (1) to (17) below is to be provided on the bridge:
 - (1) An automatic radar plotting aid (ARPA) separate from or combined with a radar required by (3) and which complies with the followings:
 - (a) A warning is to be given to the navigator at a time which is adjustable in the range of 6 to 30 minutes having regard to the time to danger;
 - (b) True motion and relative motion modes are to be provided;
 - (c) Daylight visible display is to be provided;
 - (d) Capability of automatic acquisition and tracking of 20 radar targets or more is to be provided;
 - (e) Guard zone system, featuring adjustable parameters, notable warning and alarm set for closest point of approach (CPA) and for time to closest point of approach (TCPA) are to be provided;
 - (f) Simulator function showing the likely effects of a course or speed change in relation with tracked targets is to be provided;
 - (g) Incorporated self-checking properties are to be provided.
 - (2) An electronic position-fixing system appropriate to the intended service areas;
 - (3) Two independent radars. One of them is to operate within X-band;
 - (4) Gyro compass repeaters and a calibration facility;

- (5) An automatic steering system which complies with the followings:
 - (a) An off-course alarm addressed to the navigator derived from a system independent from the automatic steering system is to be provided. The system is capable to adjust the warning for areas easy to ground;
 - (b) An overriding control device is to be provided at the navigating and manoeuvring workstation.
- (6) A speed log system;
- (7) An echo sounding system;
- (8) A control device of the wheelhouse air conditioning system;
- (9) A NAVTEX receiver and an EGC receiver depending upon the intended service areas;
- (10) Control switches and indicators of signaling lights such as navigation lights;
- (11) Steering pump selector/control switches;
- (12) A whistle control system;
- (13) A window wipe and wash control device;
- (14) Control devices for the lighting of main workstation consoles;
- (15) An internal communication system which complies with the followings:
 - (a) At all times, even in the event of failure of the main electrical power supply, the navigator is to have access to facilities enabling two way communication with another qualified officer;
 - (b) The bridge is to have priority over the communication system.
- (16) A VHF radio telephone installation which is immediately available at the conning positions;
- (17) A main propulsion machinery remote control system which complies with QCVN 60: 2013/BGTVT.

4.2.3 Illumination and individual lighting of equipment

- 1** The indicator lights and the illumination of all equipment are to be designed and fitted to avoid unnecessary glare or reflection or the equipment being obscured by strong light.
- 2** To avoid unnecessary light sources in the front area of the bridge, only equipment necessary for the safe navigation and maneuvering of the ship is to be located in this area.
- 3** Warning and alarm indicators are to be designed to show no light in normal conditions or in safe situations. Means is to be provided to test the lamps.
- 4** All illumination and lighting of equipment are to be adjustable down to zero, except the lighting of warning and alarm indicators and the control of the dimmers which are to be remain readable.
- 5** Each equipment is to be fitted with an individual light adjustment. In addition, groups of equipment normally working together may be equipped with common light adjustment.

CHAPTER 5 ACCIDENT PREVENTION SYSTEMS

5.1 General

5.1.1 Scope

The requirements in this Chapter are to be applied to systems to prevent accidents caused by the navigator's unfitness (hereinafter referred to as "accident prevention systems") for ships intended for one-man bridge operation under normal operating conditions.

5.1.2 General

- 1 Accidents prevention systems are to be capable of continuous operation under the conditions of various sea states, vibration, humidity, temperature and electromagnetic interferences likely to be experienced in the ship which they are installed.
- 2 Where computerized equipment is interconnected through a computer network, failure of the network is not to prevent individual equipment from performing their individual functions.

5.1.3 External sound signals

To enable the navigator inside the wheelhouse to hear external sound signals such as fog signals that are audible in the bridge wings with the doors to the bridge wings closed, a transmitting device is to be provided to reproduce such signals inside the wheelhouse.

5.1.4 Navigational equipment

- 1 Navigational equipment specified in 4.2.2 is to give an alarm when:
 - (1) The ship approaches a way-point;
 - (2) The ship's position is deviated from a planned route;
 - (3) The water depth beneath the ship is less than a predetermined value.
- 2 The systems specified in 4.2.2-1(1), (5) and (11) to (17) are to be arranged so that the navigator has easy access to them and maintains a proper lookout from the bridge.
- 3 The systems specified in 4.2.2-1(1), (5) and (11) to (17) are to be fitted within the reach of the navigator when seated or standing at the navigating and manoeuvring workstation.

5.1.5 Electrical power supply

- 1 Local distribution boards are to be arranged in the wheelhouse for all items of electrically operated accident prevention systems. These boards are to be supplied by two exclusive circuits, one fed from the main source of electrical power and one fed from the emergency source of electrical power, and these circuits are to be separated throughout their length as widely as practicable. Each item of accident prevention systems is to be individually connected to the distribution switchboard. These boards may also be used for navigational equipment specified in Chapter 4.
- 2 The power supplies to the distribution boards are to be arranged with automatic changeover facilities between the two sources.

- 3 Failure of the main electrical power supply to the distribution board is to initiate an audible and visual alarm at the distribution board.
- 4 Following a loss of electrical power supply which has lasted for 30 seconds or less all primary functions of the accident prevention systems are to be readily reinstated.

5.2 Accident prevention systems

5.2.1 General

- 1 Indicator lamps are to be provided in the ship master's room which indicate the bridge safety system specified in 5.2.2 and the alarm and warning transfer system specified in 5.2.3 are functioning properly.
- 2 Audible and visual alarms for a malfunction of the bridge safety system specified in 5.2.2 and the alarm and warning transfer system specified in 5.2.3 are to be provided in the bridge and in the ship master's room.

5.2.2 Bridge safety system

- 1 A bridge safety system which complies with the following is to be provided:
 - (1) The bridge safety system is to be a vigilance system to verify periodically that the alert navigator is present in the bridge;
 - (2) The bridge safety system is not to cause undue interference with the performance of bridge functions;
 - (3) The bridge safety system is to be so designed and arranged that it could not be operated in an unauthorized manner;
 - (4) The bridge safety system is to be adjustable of its verification period up to 12 minutes intervals and constructed, fitted and arranged so that only the ship master has access to the component for setting the appropriate intervals;
 - (5) The bridge safety system is to initiate an audible and visual alarm that is audible at any area in the bridge if the setting interval has elapsed;
 - (6) The bridge safety system is to provide for the acknowledgement by the navigator at the navigating and manoeuvring workstation and other appropriate locations in the bridge from where a proper lookout may be kept;
 - (7) The bridge safety system is to be connected to the alarm and warning transfer system specified in 5.2.3.

5.2.3 Alarm and warning transfer system

- 1 An alarm and warning transfer system which complies with the followings is to be provided:
 - (1) Acknowledgement of alarms and warnings that require the navigator response is to only be possible from the bridge;
 - (2) Any alarm and warning that require the navigator response is to be automatically transferred to the ship master, to the selected back-up navigator and to the public rooms if not acknowledged in the bridge within 30 seconds;
 - (3) The alarm and warning transfer is to be operated through a fixed installation;

QCVN 62: 2013/BGTVT

- (4) Back-up system which initiates a call-alarm clearly audible in the spaces specified in (2) is to be provided in the bridge for the operation of the navigator. The fixed installation required in (3) may serve this purpose.

CHAPTER 6 BRIDGE WORK ASSIST SYSTEMS

6.1 General

6.1.1 Scope

The requirements in this Chapter are to be applied to systems to assist navigator's works for one-man bridge operation under normal operating conditions (hereinafter referred to as "bridge work assist systems").

6.1.2 General

- 1 Bridge work assist systems are to be capable of continuous operation under the conditions of various sea states, vibration, humidity, temperature and electro-magnetic interference likely to be experienced in the ship which they are installed.
- 2 Where computerized equipment is interconnected through a computer network, failure of the network is not to prevent individual functions.

6.1.3 Centralized bridge workstation

- 1 The centralized bridge workstation is to be arranged to enable a navigator to perform navigating and manoeuvring works specified in 4.2.1-1 and also two or more navigators to do those works together.
- 2 The systems or controls under 4.2.2-1(1), (5), (11) to (17), 6.2.2 and 6.2.3 is to be arranged centrally to enable the navigator to operate them easily at the centralized bridge workstation.

6.1.4 Electrical power supply

- 1 Local distribution boards are to be arranged in the wheel house for all items of electrically operated bridge working assist systems. These boards are to be supplied by two exclusive circuits, one fed from main source of electrical power, and these circuits are to be separated throughout their length as widely as practicable. Each item of bridge working assist systems is to be individually connected to the distribution switchboard. These boards may also be used for navigational equipment and accident prevention systems specified in Chapter 4 and 5.
- 2 The power supplies to the distribution boards are to be arranged with automatic changeover facilities between the two sources.
- 3 Failure of the main electrical power supply to the distribution switchboard is to initiate an audible and visual alarm at the distribution switchboard.
- 4 Following a loss of electrical power supply which has lasted for 45 seconds or less all primary functions of the bridge work assist systems are to be readily reinstated.

QCVN 62: 2013/BGTVT

6.2 Bridge work assist systems

6.2.1 General

- 1 Audible and visual alarms for a malfunction of the bridge information systems specified in 6.2.2, ECDIS specified in 6.2.3 and the auto-tracking system specified in 6.2.4 are to be provided in the bridge and in the master's room.
- 2 Electronic charts deemed appropriate by VR are to be used for the ECDIS.

6.2.2 Bridge information systems

- 1 Bridge information systems which comply with the followings are to be provided:
 - (1) At least the following information (a) to (l) are to be capable of being displayed for easy viewing from centralized bridge workstation:
 - (a) Ship's actual and planned course;
 - (b) Rudder angle including its order value or direction;
 - (c) Ship's speed (against wave);
 - (d) Main engine revolution and direction (in the case of controllable pitch propellers, main engine revolution and propeller pitch angle)
 - (e) Ship's position (longitude and latitude);
 - (f) Depth of water;
 - (g) Wind direction (relative direction);
 - (h) Wind speed (relative speed);
 - (i) Rate of turn (10,000 GT or more);
 - (j) Side thruster pitch angle or its motor amperes and its thrust direction (if any);
 - (k) On switchboard time;
 - (l) Distance to a way-point and estimated time of arrival.
 - (2) In order to display the information which depends on each navigation areas, change-over between harbour, ocean and other mode (if any) is to be arranged in the bridge information systems. In addition, minimum information is to be capable of being displayed at any time for the selected mode;
 - (3) The followings are to be capable of being displayed at any time for harbour and ocean mode specified in the above (2);
 - (a) Harbour mode
Information of the above (1)(a) to (k);
 - (b) Ocean mode
Information of the above (1)(a) to (e), (g), (h), (k) and (l).

- (4) Acknowledgement of alarms and warnings which requires the navigator response is to be possible from the systems;
- (5) Other functions deemed necessary by VR are to be provided.

6.2.3 Electronic chart display and information system (ECDIS)

- 1 An ECDIS which complies with the following is to be provided:
 - (1) The ECDIS is to be capable of display an electronic chart at centralized bridge work station;
 - (2) Ship's position and vector are to be capable of being displayed in the electronic chart;
 - (3) It is to be possible to display the electronic chart in a north-up and course-up orientation;
 - (4) It is to be possible to carry out route planning;
 - (5) A chart, ship's position, planned route, radar and ARPA information are to be capable of being added to the display.

6.2.4 Auto tracking system

- 1 An auto tracking system which complies with the followings is to be provided:
 - (1) Auto tracking system is to be possible to perform automatic steering of the ship along a planned route on an electronic chart;
 - (2) Automatic course changes are not to occur without acknowledgement by the navigator;
 - (3) When there is no acknowledgement at a waypoint, the course is to be maintained and the audible and visual alarm is to be initiated after through the point. In this case, the audible alarm is to be distinguished from the pre-warning at the approach of a way point specified in 5.1.4-1;
 - (4) It is to be possible to adjust a width of planned route within one mile.
 - (5) When the position of ship cannot be received continuously, the course of ship is to be maintained and the audible and visual alarm is to be initiated.
 - (6) Change-over to manual steering mode is to be possible easily.
 - (7) Other functions deemed necessary by VR are to be provided.

III REGULATIONS ON MANAGEMENT

1.1 General

1.1.1 Additional notation

- 1 If the ship complies with requirements for ships bearing notation BRS of this Regulation, an additional notation “BRS” is affixed to the characters of classification as specified in Chapter 2 Part 1A Section II QCVN 21: 2010/BGTVT.
- 2 If the ship complies with requirements for ships bearing notation BRS1 of this Regulation, an additional notation “BRS1” is affixed to the characters of classification as specified in Chapter 2 Part 1A Section II QCVN 21: 2010/BGTVT.
- 3 If the ship complies with requirements for ships bearing notation BRS1A of this Regulation, an additional notation “BRS1A” is affixed to the characters of classification as specified in Chapter 2 Part 1A Section II QCVN 21: 2010/BGTVT.

1.2 Regulations on technical supervisions

Navigation bridge system is to be surveyed to the extent prescribed in Chapter 2 Section II of the Regulation.

1.3 Certification

1.3.1 Certificate

If the system complies with this Regulation, that system will be issued a certificate of design approval or a classification certificate together with the ship depending on each particular demand.

1.3.2 Procedure for certification

Procedure for certification is to be in accordance with Circular No. 32/2011/TT-BGTVT.

IV RESPONSIBILITIES OF ORGANIZATIONS, INDIVIDUALS

1.1 Responsibilities of ship owners and operators, agency of design, manufacturing, converting, renovating and repairing the systems

1.1.1 Ship owners and Operators

- 1 To implement all relevant requirements in this Regulation for navigation bridge system in manufacturing, converting, renovating, operating in order to ascertain and maintain good technical condition of the systems.

1.1.2 Design agency

- 1 To design the system in compliance with requirements of the Regulation.
- 2 To submit all required design documentation in accordance with requirements in the Regulation.

1.1.3 Yards of manufacturing, converting, renovating and repairing the systems

- 1 To be capable in terms of warehouse, manufacturing shop, building facilities etc. and competent manpower to meet requirement for new manufacture, conversions, renovations and repairs of the systems.
- 2 To comply with standards of quality, safety while manufacturing, converting, renovating and repairing the systems and to comply with approved design.
- 3 To undergo VR's supervision on the technical quality and safety of the systems.

1.2 Responsibilities of Vietnam Register

1.2.1 Design approval, technical supervision

To assign surveyors having competence and of sufficient standard to carry out the technical supervision during manufacture, conversions, renovations, repairs and operation of the systems in accordance with technical requirements specified in this Regulation.

1.2.2 To give instructions for implementation/application

To give instructions for the application of requirements of this Regulation to ship owners and operators, yards of manufacture, conversions, renovations and repair of the systems, inspection offices of Vietnam Register throughout the country.

1.2.3 To amend and supplement the Regulation

Based on the fact, Vietnam Register is to have responsibility to petition the Ministry of Transport for amendment, supplementation of the Regulation where necessary or on schedule specified in the Law of Standards and Technical Regulations.

1.3 Responsibilities of the Ministry of Transport

QCVN 62: 2013/BGTVT

The Ministry of Transport (Science and Technology department) is responsible for verifying on the regular or random basis the implementation of this Regulation by relating organizations.

V IMPLEMENTATION

- 1.1 It is the responsibility of Vietnam Register to manage the survey system, technical supervision, classification and technical registration of navigation bridge systems on sea-going ships. It is also to include organizing the printing, dissemination and instructions for the application of this Regulation for organizations and individuals falling within the scope of this Regulation.
- 1.2 In case of inconsistency between the requirements in this Regulation and those in other rules, standards or technical regulations relating to navigation bridge systems, the requirements of this Regulation are to prevail over those of others.
- 1.3 In case the documents referred to in this Regulation are amended, supplemented or replaced, the latter is to prevail over the former.
- 1.4 This Regulation and its amendment are to apply to Navigation Bridge systems registered on or after effective date of this Regulation.