



**RUSSIAN MARITIME REGISTER OF SHIPPING**  
HEAD OFFICE

**CIRCULAR LETTER**

**No. 315-46-857c**

dated **23.12.2015<sub>2</sub>**

Re:

Part V "Navigational Equipment" of the Rules for the Equipment of Sea-Going Ships, 2016,  
ND No. 2-020101-088-E

Item of technical supervision:

Electronic inclinometer

Implementation 01.01.2016

Valid: till -

Validity period extended till -

Cancels / Amends/ Supplements Circular Letter No. 315-46-825c dated 25.06.2015

Number of pages: 3

Appendices: Amendments to Part V "Navigational Equipment" of the Rules for the  
Equipment of Sea-Going Ships, 2016, ND No. 2-020101-088-E

Technical Director - Head of Classification Directorate Vladimir I. Evenko

Amends Part V "Navigational Equipment" of the Rules for the Equipment of Sea-Going  
Ships, 2016, ND No. 2-020101-088-E

Text.

It is necessary to do the following:

1. Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and shipowners in the area of the RS Branch Offices' activity.
2. Apply provisions of the Circular Letter.

Person in  
charge:

I.P. Shvaiba

315

380 (19) 92

DMS "THESIS"  
No.

Text.

**RULES FOR THE EQUIPMENT OF SEA-GOING SHIPS, 2016, ND No. 2-020101-088-E****PART V. NAVIGATIONAL EQUIPMENT****1.3 SCOPE OF SURVEY**

**New para 1.3.2.26** shall be introduced reading as follows:

“.26 electronic inclinometer”.

The existing para 1.3.2.26 shall be renumbered 1.3.2.27.

**2.2 LIST OF NAVIGATIONAL EQUIPMENT**

The Chapter shall be supplemented with **new para 2.2.7** reading as follows:

«**2.2.7** The electronic inclinometer intended for navigation and/or communication of information to the voyage data recorder (VDR) shall comply with the requirements of 5.27. The requirements of 5.27 shall apply to the electronic inclinometers installed on 1 July 2015 or after this date, and shall not apply to the electronic inclinometers intended for other purposes, e.g. monitoring of cargo status.”.

**2.3 SOURCES OF POWER**

**Table 2.3.3** shall be supplemented with **new item 24** reading as follows:

Nos.	Navigational equipment	Source of energy	Minimum number of hours of continuous operation of equipment used for calculating the capacity of accumulator batteries
<b>24</b>	Electronic inclinometer	Main and emergency sources of electrical power	—

**5 PERFORMANCE STANDARDS AND FUNCTIONAL REQUIREMENTS FOR NAVIGATIONAL EQUIPMENT**

The Section shall be supplemented with **new Chapter 5.27** reading as follows:

**“5.27 ELECTRONIC INCLINOMETER**

**5.27.1** The electronic inclinometer shall:

- .1 determine the actual heel angle, roll amplitude and roll period;
- .2 present the information on a bridge display;
- .3 provide a standardized interface to instantaneous heel angle to the voyage data recorder (VDR).

**5.27.2** Electronic inclinometers shall be capable of measuring the actual heel angle and determining the amplitude of the rolling oscillation of the ship over a range of  $\pm 90^\circ$ .

**5.27.3** Electronic inclinometers shall be capable of measuring the time between the maximum values of the rolling oscillation and determining the roll period over a minimum range of 4 to 40 s.

**5.27.4** Minimum accuracy of the measurements shall be 5 per cent of reading or  $\pm 1^\circ$ , whichever is the greater for angle measurements and 5 per cent of reading or  $\pm 1$  s, whichever is the greater for time measurements.

Actual heel angle and time measurement accuracy shall not be unduly affected by other linear or rotational movements of the ship (e.g. surging, swaying, heaving, pitching, yawing) or by transverse acceleration ranging from  $-0,8g$  to  $+0,8g$ .

**5.27.5** The actual heel angle to port or starboard shall be indicated in an analogue form between the limits of  $\pm 45^\circ$ .

**5.27.6** Electronic inclinometers shall display the roll period with a minimum resolution of 1 s and the roll amplitude to both port and starboard side with a minimum resolution of  $1^\circ$ .

The display may be implemented as a dedicated display or integrated into other bridge systems.

**5.27.7** Electronic inclinometers may optionally provide a warning for indicating that a set heel angle had been exceeded.

**5.27.8** Electronic inclinometers shall internally check and indicate to the user if all components are operative and if the information provided is valid or not.

**5.27.9** Electronic inclinometers shall comprise a digital interface providing actual heel angle information to other systems like, e.g. VDR, with an update rate of at least 5 Hz. Electronic inclinometers shall also comprise a digital interface providing the displayed information of roll period and roll amplitude (refer to 5.27.6).

Electronic inclinometers shall have a bidirectional interface to facilitate communication, to transfer alerts from inclinometers to external systems and to acknowledge and silence alerts from external systems.

The digital interface shall comply with the relevant international standards.

**5.27.10** The installation position of the sensors of the electronic inclinometer shall be recorded and made available for the configuration of the VDR.”