ISO 11674:2019-11 (E)

Ships and marine technology - Heading control systems

Contents

Page

Foreword v

1 Scope 1

2 Normative references 1

3 Terms,definitionsandabbreviatedterms 2
3.1 Terms and definitions 2
3.2 Abbreviated terms 4

4 Requirements 5
4.1 General 5
4.2 Operational requirements 7
4.2.1 Change-over from automatic to manual steering and vice versa 7
4.2.2 Operational controls including adjustment controls 7
4.2.3 Manual change-over from track control to heading control 8
4.3 Functional requirements 8
4.3.1 Rudder angle limitation 8
4.3.2 Heading monitor 8
4.3.3 Interfaces 8
4.3.4 Alert management 9
4.3.5 Mandatory displayed information 11
4.4 Control performance requirements 11
4.4.1 General 11
4.4.2 Heading keeping function under wave disturbance 12
4.4.3 Heading changing function 12
4.5 Display 14

5 Set-up 14
5.1 General 14
5.2 Ship motion simulator and starting condition 15

6 Tests of operational requirements 16
6.1 Change-over from automatic to manual steering and vice versa -- Method of testing and required test results 16
6.2 Operational controls including adjustment controls -- Method of testing and required test results 17
6.3 Manual change-over from track control to heading control 17
6.3.1 Application 17
6.3.2 Method of testing and required test results 17
6.4 Display test 18

7 Tests of functional requirements 18
7.1 Rudder angle limitation 18
7.1.1 Method of testing 18
7.1.2 Required test results 18
7.2 Heading monitor 18
7.3 Interfaces 19
7.3.1 Method of testing 19
7.3.2 Required test results 19
7.4 Alert management 19
7.4.1 Basic test for alert management 19

7.4.2 `Lost HDG control' alert and escalation to BNWAS 19
7.4.3 `Off-heading' alert 20
7.4.4 Alert detected by the heading monitor (`Doubtful heading' alert) 21
7.4.5 `No SPD adaptive' alert 22
7.4.6 `Low speed' alert 22
7.4.7 Failure or reduction in the power supply to the EUT or an external heading monitor (`HCS power fail' alert) 23

7.4.8 System failure of EUT or an external heading monitor (`HCS fault' alert) 24
7.5 Mandatory displayed information -- Method of testing and required test results 24

8 Tests of control performance 24
8.1 Heading keeping test under wave disturbance 24
8.1.1 Method of testing 24
8.1.2 Required test results 25
8.2 Heading changing test 25
8.2.1 Application 25
8.2.2 Small heading changing test 25
8.2.3 Heading changing test with preset turn rate 26
8.2.4 Heading changing test with preset turning radius 27
8.2.5 200° heading changing test 28
8.2.6 Heading changing test under wave disturbance 28

9 Information 29

Annex A (normative)UseofIEC62065shipmodelsandwavedisturbancesfortheHCS performance tests 30

Annex B (normative)AlertsdefinitionforHCS 43

Annex C (normative) IEC 61162 interfaces 44

Bibliography 47