



SLOVENSKI STANDARD

oSIST prEN IEC 62065:2025

01-marec-2025

Pomorska plovba ter radiokomunikacijski sistemi in oprema - Sistemi za nadzor spremljanja - Obratovalne in zmogljivostne zahteve, preskusne metode in zahtevani rezultati preskušanja

Maritime navigation and radiocommunication equipment and systems - Track control systems - Operational and performance requirements, methods of testing and required test results

Navigations- und Funkkommunikationsgeräte und -systeme für die Seeschifffahrt - Bahnregelungssysteme - Betriebs- und Leistungsanforderungen, Prüfverfahren und geforderte Prüfergebnisse

Matériels et systèmes de navigation et de radiocommunication maritimes - Systèmes de contrôle de route - Exigences opérationnelles et de fonctionnement, méthodes d'essai et résultats exigibles

<https://standards.iteh.ai/catalog/standards/sist/4ffec011-9f2f-422b-8836-34570fa24321/osist-pren-iec-62065-2025>

Ta slovenski standard je istoveten z: prEN IEC 62065:2025

ICS:

33.060.01	Radijske komunikacije na splošno	Radiocommunications in general
47.020.70	Navigacijska in krmilna oprema	Navigation and control equipment

oSIST prEN IEC 62065:2025

en



80/1134/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 62065 ED3	
DATE OF CIRCULATION: 2025-01-17	CLOSING DATE FOR VOTING: 2025-04-11
SUPERSEDES DOCUMENTS: 80/1121/CD, 80/1133/CC	

IEC TC 80 : MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS	
SECRETARIAT: United Kingdom	SECRETARY: Mr Kim Fisher
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 18	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

<https://standards.iteh.ai/catalog/standards/sist/4ffce011-9f2f-422b-8836-34570fa24321/osist-pren-iec-62065-2025>

<https://standards.iteh.ai/catalog/standards/sist/4ffce011-9f2f-422b-8836-34570fa24321/osist-pren-iec-62065-2025>

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Maritime navigation and radiocommunication equipment and systems - Track control systems - Operational and performance requirements, methods of testing and required test results

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

Copyright © 2024 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49

CONTENTS

FOREWORD	7
1 Scope	9
2 Normative references	9
3 Terms, definitions and abbreviated terms	10
3.1 Terms and definitions	10
3.2 Abbreviated terms	14
4 Application of this document	15
5 Requirements	16
5.1 General	16
5.2 Operational requirements	16
5.2.1 Functionality	16
5.2.2 Accuracy and performance constraint documentation	21
5.2.3 Alerts	21
5.3 Ergonomic criteria	25
5.3.1 Operational controls	25
5.3.2 Presentation of information	26
5.4 Interfacing	27
5.4.1 Sensors	27
5.4.2 Standards	27
5.5 Fall-back arrangements	27
5.5.1 General	27
5.5.2 Failure of position	29
5.5.3 Failure of the heading	29
6 Methods of test and required test results	30
6.1 General	30
6.1.1 General, safety and environmental tests	30
6.1.2 Identification of the equipment under test	30
6.1.3 Execution of operational tests	31
6.2 Test setup	31
6.2.1 General	31
6.2.2 Ship motion simulator	33
6.2.3 Test scenarios	34
6.2.4 Preparing the EUT	34
6.3 TCS mode, adaptation and turn performance	34
6.3.1 Execute track control under undisturbed conditions	34
6.3.2 Turn performance (~A)	39
6.3.3 Adaptation	39
6.3.4 Rudder activity	41
6.4 Starting requirements	42
6.4.1 Plausibility and correctness of geometric limits	42
6.4.2 Ship's manoeuvrability	43
6.4.3 Start track control on the pre-planned track	43
6.5 Primary position, heading and speed and the use of faulty sensors	44
6.6 Position monitoring	44
6.7 Course change behaviour	45
6.8 Change of waypoints	46
6.9 Changing mode	46

50	6.9.1	Manual changeover from track control to manual steering	46
51	6.9.2	Manual changeover from track control to heading control	47
52	6.10	Heading monitoring	47
53	6.11	End of track	47
54	6.12	Documentation	48
55	6.13	Alerts	48
56	6.13.1	General	48
57	6.13.2	Power supply	49
58	6.13.3	Cross track	49
59	6.13.4	Course difference	49
60	6.13.5	Low speed	50
61	6.13.6	TC stopped	50
62	6.14	Back-up navigator call	50
63	6.15	Operational controls	51
64	6.16	Presentation	51
65	6.16.1	General	51
66	6.16.2	Information to be presented	51
67	6.17	Interfacing	52
68	6.18	Sensor failure and fallback	53
69	6.18.1	Sensor status failure	53
70	6.18.2	Failure of track control	53
71	6.18.3	Failure of position	53
72	6.18.4	Failure of heading	54
73	6.19	Control of pre-planned speed by TCS	55
74	Annex A (normative)	Graphical description of sequences	56
75	Annex B (informative)	Along-track speed control	58
76	B.1	General	58
77	B.2	Planning	58
78	B.3	Execution – Commanded speed generation	58
79	B.3.1	Required speed-of-advance	58
80	B.3.2	Leg speed	58
81	B.3.3	Operator-specified speed	58
82	B.4	Execution – Propulsion control	59
83	B.4.1	Open-loop propulsion control	59
84	B.4.2	Closed-loop propulsion control	59
85	B.5	Execution – Speed monitor	59
86	B.6	Displays	59
87	B.7	Failure and alerts	59
88	B.7.1	Loss of speed sensor	59
89	B.7.2	Speed not controlled	59
90	B.7.3	Time profile infeasible	59
91	B.7.4	Speed controller malfunction	59
92	B.8	Changeover controls and termination of automatic speed control	59
93	Annex C (informative)	Track control systems with dual controllers	60
94	C.1	General	60
95	C.2	Change over from active to back-up heading controller	60
96	C.3	Change over from active to back-up track controller	60
97	C.4	Failure of track control	60
98	C.5	Failure of heading controller during track control	60
99	Annex D (informative)	Management of static and dynamic data	61
100	D.1	General	61

101	D.2	Management of geographic (chart) data	61
102	D.3	Management of ships data and reference parameters	61
103	D.4	Management of track-related data (planning and control)	61
104	D.5	Management of sensor data	62
105	Annex E (informative)	Limits	63
106	Annex F (normative)	Classification of alerts	64
107	Annex G (normative)	Scenario definitions and plots	66
108	Annex H (informative)	Sensor errors and noise models	72
109	H.1	Simulation of position sensor errors	72
110	H.2	Noise model for simulated position data	72
111	H.3	Simulation of heading and speed information	73
112	H.4	Simulation of sea state	73
113	H.4.1	General	73
114	H.4.2	Model description	74
115	H.4.3	Model implementation	75
116	Annex I (normative)	Ship model specification	78
117	I.1	General	78
118	I.2	Overview – Background and requirements	78
119	I.3	The model – Derivation	78
120	I.3.1	General	78
121	I.3.2	Thrust lever response model	79
122	I.3.3	Rudder response model – Derivation	80
123	I.3.4	Surge response model	82
124	I.3.5	Sway response model	83
125	I.3.6	Yaw response model	84
126	I.3.7	Integration (deduced reckoning)	86
127	I.4	Summary and block diagram	88
128	I.4.1	Constant inputs	88
129	I.4.2	Estimating parameters for a given vessel or class	88
130	I.4.3	Run-time inputs	89
131	I.4.4	Outputs	90
132	I.4.5	Application of the model to system testing	90
133	I.4.6	Testing system only, without rudder actuators	92
134	I.4.7	Testing the whole system including actuation mechanism	92
135	I.4.8	Model outputs: input to system under test	93
136	I.5	Ship parameter sets	93
137	I.6	Manoeuvring characteristics from turning circle manoeuvres (informative example)	94
139	Annex J (informative)	Explanation of adaptation tests in 6.3.3	99
140	J.1	General	99
141	J.2	Adaptation to speed change	99
142	J.3	Adaptation to current changes along a leg	100
143	J.4	Adaptation to current changes during turn	100
144	J.5	Adaptation to sea state during turn	101
145	J.6	Adaptation to sea state change on a leg	101
146	Annex K (normative)	IEC 61162 interfaces	102
147	K.1	Required interfaces	102
148	K.2	Use of ALR for BNWAS	104
149	Bibliography	105

151	Figure 1 – EUT typical configurations.....	28
152	Figure 2 – Functional model of track control as part of an integrated navigation system.....	31
153	Figure 3 – Typical logical block diagram for the interaction with the ship motion	
154	simulator.....	32
155	Figure 4 – High level block diagram	33
156	Figure A.1 – Sequence of course change alerts (~A)	56
157	Figure A.2 – Handling of the back-up navigator call	57
158	Figure G.1 – Scenario 1 plot	67
159	Figure G.2 – Scenario 2 plot	68
160	Figure G.3 – Scenario 3 plot.....	69
161	Figure G.4 – Scenario 4 plot.....	71
162	Figure H.1 – Spectral distribution of modelled GPS errors	73
163	Figure H.2 – Wave sequence – sea state 5.....	75
164	Figure H.3 – Wave spectrum – sea state 5.....	75
165	Figure H.4 – Supertanker – sea state 5.....	76
166	Figure H.5 – Container ship – sea state 5	76
167	Figure H.6 – Fast ferry – sea state 5.....	76
168	Figure H.7 – Container ship – sea state 2	77
169	Figure I.1 – High level model block diagram.....	79
170	Figure I.2 – Model block diagram	91
171	Figure I.3 – Application with simple follow-up.....	92
172	Figure I.4 – Control system using actuator outputs and feedback.....	92
173	Figure I.5 – System with actuator mechanism, bypassing the rudder response model	93
174	Figure I.6 – System with actuator mechanism using a fast rudder response time in the	
175	model	93
176	Figure I.7 – Turning circle manoeuvre - Ferry	96
177	Figure I.8 – Turning circle manoeuvre – Container ship	97
178	Figure I.9 – Turning circle manoeuvre - Tanker.....	98
179	Figure J.1 – Adaptation to speed change	99
180	Figure J.2 – Adaptation to changes along a leg.....	100
181	Figure J.3 – Adaptation to current changes during turn	100
182	Figure J.4 – Adaptation to sea state during turn	101
183	Figure J.5 – Adaptation to sea state change on a leg	101
184	Figure K.1 – Track control system logical interfaces	102
185		
186	Table 1 – Simulator input rate	33
187	Table 2 – Simulator output rate.....	34
188	Table E.1 – Limits.....	63
189	Table F.1 – Classification of alerts for track control systems	64
190	Table G.1 – Scenario 1	66
191	Table G.2 – Scenario 2	67
192	Table G.3 – Scenario 3	68
193	Table G.4 – Scenario 4	70
194	Table H.1 – Heights and periods for half-waves	74
195	Table I.1 – Relationship between thrust lever and rudder models.....	81
196	Table I.2 – Constant parameters of the model.....	88

197	Table I.3 – Run-time inputs	89
198	Table I.4 – Model outputs	90
199	Table I.5 – Parameter sets for three ships	94
200	Table I.6 – Results from turning circle manoeuvres	95
201	Table K.1 – IEC 61162-1 sentences transmitted by the track control system	102
202	Table K.2 – IEC 61162-1 sentences received by the track control system	103
203		
204		
205		

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[oSIST prEN IEC 62065:2025](https://standards.iteh.ai/catalog/standards/sist/4ffec011-9f2f-422b-8836-34570fa24321/osist-pren-iec-62065-2025)

<https://standards.iteh.ai/catalog/standards/sist/4ffec011-9f2f-422b-8836-34570fa24321/osist-pren-iec-62065-2025>

206

INTERNATIONAL ELECTROTECHNICAL COMMISSION

207

208

209

210

211

212

213

214

215

216

217

**MARITIME NAVIGATION AND
RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS –
TRACK CONTROL SYSTEMS –**

**Operational and performance requirements,
methods of testing and required test results**

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62065 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems. It is an International Standard.

This third edition cancels and replaces the second edition published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- alert management has been brought in line with MSC.302(87), IEC 62923-1 and IEC 62923-2, reducing the number of alerts for one situation and improving the information provided by alerts. An overview is provided in Annex F;
- the previous Annex F has been removed as outdated and not instrumental in the standard;

264 – the structure of Clause 6 has been updated.

265 The text of this International Standard is based on the following documents:

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

266

267 Full information on the voting for its approval can be found in the report on voting indicated in
268 the above table.

269 The language used for the development of this International Standard is English.

270 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
271 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available
272 at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are
273 described in greater detail at www.iec.ch/publications.

274 The committee has decided that the contents of this document will remain unchanged until the
275 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
276 specific document. At this date, the document will be

- 277 • reconfirmed,
- 278 • withdrawn, or
- 279 • revised.

280

281

282

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

283

284

285 **MARITIME NAVIGATION AND**
 286 **RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS –**
 287 **TRACK CONTROL SYSTEMS –**

288
 289 **Operational and performance requirements,**
 290 **methods of testing and required test results**
 291
 292
 293

294 **1 Scope**

295 This document specifies the minimum operational and performance requirements, methods of
 296 testing and required test results conforming to performance standards adopted by the IMO in
 297 resolution MSC.74(69) Annex 2 Recommendation on Performance Standards for Track Control
 298 Systems. In addition, it takes into account IMO resolution A.694(17) to which IEC 60945 is
 299 associated. It also takes into account IMO resolution MSC.302(87) on bridge alert management
 300 (BAM), to which IEC 62923-1 and IEC 62923-2 are associated.

301 All text of this document that is identical to that in IMO resolution MSC.74(69), Annex 2, is
 302 printed in italics and the resolution (abbreviated to – A2) and paragraph numbers are indicated
 303 in brackets i.e. (A2/3.3).

304 **2 Normative references**

305 The following documents are referred to in the text in such a way that some or all of their content
 306 constitutes requirements of this document. For dated references, only the edition cited applies.
 307 For undated references, the latest edition of the referenced document (including any
 308 amendments) applies.

309 IEC 60945, *Maritime navigation and radiocommunication equipment and systems – General*
 310 *requirements – Methods of testing and required test results*

311 IEC 61162-1, *Maritime navigation and radiocommunication equipment and systems – Digital*
 312 *interfaces – Part 1: Single talker and multiple listeners*

313 IEC 61162-2, *Maritime navigation and radiocommunication equipment and systems – Digital*
 314 *interfaces – Part 2: Single talker and multiple listeners, high-speed transmission*

315 IEC 61162-450, *Maritime navigation and radiocommunication equipment and systems – Digital*
 316 *interfaces – Part 450: Multiple talkers and multiple listeners – Ethernet interconnection*

317 IEC 62288, *Maritime navigation and radiocommunication equipment and systems –*
 318 *Presentation of navigation-related information on shipborne navigational displays – General*
 319 *requirements, methods of testing and required test results*

320 IEC 62616, *Maritime navigation and radiocommunication equipment and systems – Bridge*
 321 *navigational watch alarm system (BNWAS)*

322 IEC 62923-1, *Maritime navigation and radiocommunication equipment and systems – Bridge*
 323 *alert management – Part 1: Operational and performance requirements, methods of testing*
 324 *and required test results*

325 IEC 62923-2, *Maritime navigation and radiocommunication equipment and systems – Bridge*
 326 *alert management – Part 2: Alert and cluster identifiers and other additional features*

327 IMO Resolution MSC.74(69) Annex 2, *Recommendation on Performance Standards for Track*
 328 *Control Systems*

329 **3 Terms, definitions and abbreviated terms**

330 **3.1 Terms and definitions**

331 For the purposes of this document, the following terms, definitions and abbreviated terms apply.

332 ISO and IEC maintain terminological databases for use in standardization at the following
333 addresses:

- 334 • IEC Electropedia: available at <http://www.electropedia.org/>
- 335 • ISO Online browsing platform: available at <http://www.iso.org/obp>

336 **3.1.1**

337 **active track**

338 *track activated for track control*

339 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

340 **3.1.2**

341 **alarm**

342 **high-priority alert**

343 *condition requiring immediate attention and action by the bridge team, to maintain the safe*
344 *navigation and safe operation of the ship*

345 [SOURCE: IMO Resolution MSC.302(87)]

346 **3.1.3**

347 **alert**

348 *announcement of abnormal situations and conditions requiring attention*

349 Note 1 to entry: *Alerts are divided in four priorities: emergency alarms, alarms, warnings and cautions. An alert*
350 *provides information about a defined state change in connection with information about how to announce this event*
351 *in a defined way to the system and the operator.*

352 [SOURCE: IMO Resolution MSC.302(87)]

353 **3.1.4**

354 **assisted turn**

355 manoeuvre of a ship automatically controlled by a pre-set radius or rate of turn, but not based
356 on the ship's position, to perform an approximation of a curved track

357 **3.1.5**

358 **back-up navigator**

359 *any individual, generally an officer, who has been designated by the ships master to be on call*
360 *if assistance is needed on the bridge*

361 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

362 **3.1.6**

363 **back-up navigator call**

364 **BNC**

365 signal automatically sent to the BNWAS to call assistance to the bridge

366 **3.1.7**

367 **consistent common reference system**

368 **CCRS**

369 sub-system or function for acquisition, processing, storage, surveillance and distribution of data
370 and information providing identical and obligatory reference to sub-systems and subsequent
371 functions and to other connected equipment, if available

372 **3.1.8**
373 **CAM system**
374 combined functionality of CAM and CAM-HMI

375 Note 1 to entry: CAM means the functionality for the management of the presentation of alerts on the CAM-HMI,
376 the communication of alert states between CAM-HMI and navigational systems and sensors

377 Note 2 to entry: CAM-HMI means the human machine interface for centralized presentation and handling of alerts
378 on the bridge

379 [SOURCE: IEC 62923-1]

380 **3.1.9**
381 **course**
382 horizontal direction in which a vessel is steered or intended to be steered, expressed as angular
383 distance from north, usually 000° at north, clockwise through 360°

384 Note 1 to entry: 360° is indicated as 000°.

385 **3.1.10**
386 **course difference limit**
387 maximum difference between track course and heading before a warning is activated

388 **3.1.11**
389 **cross-track distance**
390 **XTD**
391 *perpendicular distance of the ship from the track*

392 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

393 **3.1.12**
394 **cross-track limit**
395 *maximum cross-track distance before an alarm is activated*

396 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

397 **3.1.13**
398 **curved track**
399 *non-straight track between two straight legs*

400 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

401 **3.1.14**
402 **FROM-waypoint**
403 *last passed waypoint*

404 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

405 **3.1.15**
406 **great circle**
407 **GC**
408 intersection of a sphere on the earth and a plane through its centre

409 Note 1 to entry: Also called orthodrome.

410 [SOURCE: ISO 19018]

411 **3.1.16**
412 **heading**
413 **HDG**
414 *direction in which the bow of a ship is pointing expressed as an angular displacement from*
415 *north*

416 [SOURCE: IMO Resolution MSC.191(79)]

417 **3.1.17**

418 **heading control**

419 *control of the ship's heading*

420 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

421 **3.1.18**

422 **heading monitor function**

423 *monitoring of the actual heading sensor by an independent second source*

424 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

425 **3.1.19**

426 **leg**

427 *straight line between two waypoints and/or curved track(s)*

428 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

429 **3.1.20**

430 **main conning position**

431 *place on the bridge with a commanding view providing the necessary information and equipment*
432 *for the conning officer to carry out his functions*

433 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

434 **3.1.21**

435 **minimum manoeuvring speed for track control**

436 *lowest alongship speed through the water at which the track control system is capable of*
437 *maintaining its performance within the specified accuracy limits*

438 Note 1 to entry: The value depends on the ship's design and loading and on the present environmental conditions.

439 **3.1.22**

440 **NEXT-waypoint**

441 *waypoint following the TO-waypoint*

442 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

443 **3.1.23**

444 **override facility**

445 *control to perform the override function*

446 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

447 **3.1.24**

448 **override function**

449 *intentional fast change-over from automatic to temporary manual control*

450 [SOURCE: IMO Resolution MSC.74(69), Annex 2]

451 **3.1.25**

452 **position monitor function**

453 *monitoring of the actual position sensor by an independent second source*

454 [SOURCE: IMO Resolution MSC.74(69), Annex 2]