

ISO 19009:2015-09 (E)

Small craft - Electric navigation lights - Performance of LED lights

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Abbreviated terms	2
5	Minimum requirements	2
5.1	Luminous intensity and range of visibility	2
5.2	Luminous intensity distribution	2
5.2.1	Horizontal luminous intensity distribution	2
5.2.2	Vertical luminous intensity distribution	3
5.3	Colorimetric requirements	3
5.4	Flashing light	3
5.5	Electrical safety	4
5.6	Reflectors	4
5.7	Power supply	4
5.8	General requirements	4
5.8.1	General	4
5.8.2	Equipment category	4
5.8.3	Vibration	5
5.8.4	Rain and spray	5
5.8.5	Solar radiation	5
5.8.6	Corrosion (salt mist)	5
5.8.7	Electromagnetic compatibility	5
5.8.8	Compass safe distance	5
5.8.9	Housing temperature	5
5.8.10	Mechanical shock	5
5.9	Deviations caused by service life conditions	5
5.10	Influence of temperature	5
5.10.1	Influence of temperature on chromaticity coordinates and luminous intensity	5
5.10.2	Dry heat and low temperature	5
5.10.3	Pulse frequency	6
6	Testing	6
6.1	General	6
6.1.1	Validity of IEC 60945:2002	6
6.1.2	Performance test and performance check	6
6.1.3	Order of the tests	6
6.1.4	Documentation	6
6.1.5	Light source	6
6.2	Photometric and colorimetric tests	6
6.2.1	Test voltage	6
6.2.2	Photometric test	7
6.2.3	Colorimetric test	9
6.2.4	Measurement of luminous intensity and chromaticity coordinates under the influence of temperature	10

6.2.5	Measurement of flashing lights	10
6.3	Explanations, supplements, or amendments to points in IEC 60945:2002	11
6.3.1	Corrosion (salt mist)	11
6.3.2	Extreme power supply	11
6.3.3	Dry heat	11
6.3.4	Damp heat	11
6.3.5	Vibration	11
6.3.6	Rain and spray	11
6.3.7	Solar radiation	12
6.3.8	EMC	12
6.4	Tests outside the scope of IEC 60945:2002	12
6.4.1	Shock	12
6.4.2	Housing temperature	12
7	Marking	13
	Bibliography	14