Resolution A.752(18)

Adopted on 4 November 1993
(Agenda item 11)

GUIDELINES FOR THE EVALUATION, TESTING AND APPLICATION OF LOW-LOCATION LIGHTING ON PASSENGER SHIPS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO that the Maritime Safety Committee adopted, on 10 April 1992, resolution MSC.24(60) and, on 11 December 1992, resolution MSC.27(61), both of which require, *inter alia*, that, in addition to the emergency lighting required by SOLAS regulations II-1/42 and III/11.5, the means of escape, including stairways and exits, shall be marked by lighting or photoluminescent strip indicators placed not more than 0.3 m above the deck at all points of the escape route,

RECALLING FURTHER that the above resolutions require Administrations to ensure that such lighting or photoluminescent equipment has been evaluated, tested and applied in accordance with guidelines developed by the Organization,

CONSCIOUS of the need for passengers to readily identify, in case of emergencies, the route of escape when the normal emergency lighting is less effective due to smoke,

BELIEVING that passenger safety, in case of fire on board, can be greatly enhanced by the installation of a low-location lighting system, as described in the Guidelines referred to in operative paragraph 1,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-second session,

1. ADOPTS the Guidelines for the Evaluation, Testing and Application of Low-Location Lighting on Passenger Ships, set out in the annex to the present resolution;

2. INVITES Governments to implement these Guidelines at the earliest possible opportunity;

3. REQUESTS the Maritime Safety Committee to keep the Guidelines under review and to amend them as necessary in the light of experience gained in their application.

Annex

GUIDELINES FOR EVALUATION, TESTING AND APPLICATION OF LOW-LOCATION LIGHTING ON PASSENGER SHIPS

1 SCOPE

1.1 These guidelines cover the approval, installation and maintenance of low-location lighting (LLL) required by the regulations II-2/28, paragraph 1.10 and II-2/41-2, paragraph 4.7 of the 1974 SOLAS Convention, as amended, on all passenger ships carrying more than 36 passengers, to readily identify the passengers' route of escape when the normal emergency lighting is less effective due to smoke.

2 GENERAL

2.1 In addition to the emergency lighting required by regulations II-1/42 and III/11.5 of the 1974 SOLAS Convention, as amended, the means of escape, including stairways and exits, should be marked by LLL at all points of the escape route, including angles and intersections. In addition, all escape route signs and fire equipment location markings should be of photoluminescent material, or marked by lighting, or a combination of both.

2.2 The supplementary emergency lighting for ro-ro passenger ships required by regulation II-1/42-1 of the 1974 SOLAS Convention, as amended, may be accepted to form partly or wholly the LLL system provided that such a system complies with the requirements of these guidelines.

2.3 The LLL system should function at all times for at least 60 min after its activation. Entire systems, including those that are automatically activated or continuously operating, are to be capable of being manually activated by a single action from the continuously manned central control station.

3 DEFINITIONS

3.1 *Low-location lighting (LLL)* - Electrically powered lighting or photoluminescent indicators placed at points of the escape route to readily identify all routes of escape.

3.2 *Photoluminescent (PL) system* - An LLL system which uses PL material. Photoluminescent material contains a chemical (example: zinc sulphide) that has the quality of storing energy when illuminated by visible light. The PL material emits light which becomes visible when the ambient light source is less effective. Without the light source to re-energize it, the PL material gives off the stored energy for a period of time with diminishing luminance.

3.3 *Electrically powered (EP) system* - An LLL system which requires electrical power for its operation, such as systems using incandescent bulbs, light-emitting diodes, electroluminescent strips or lamps, electrofluorescent lamps, etc.

4 PARTICULARS

4.1 The Administration should ensure that the LLL systems meet the requirements of international standards acceptable to the Organization.*

4.2 In all passageways, the LLL should be continuous, except as interrupted by corridors and cabin doors, in order to provide a visible delineation along the escape route. Systems tested to an international standard* to demonstrate a visible delineation without being continuous should also be acceptable. The LLL should be installed at least on one side of the corridor, either on the bulkhead within 300 mm of the deck, or on the deck within 150 mm of the bulkhead. In corridors more than two metres wide, LLL should be installed on both sides.

4.3 In dead-end corridors, LLL should have arrows placed at intervals of no more than 1 m, or equivalent direction indicators, pointing away from the dead end.

4.4 In all stairways, LLL should be installed on at least one side at a height less than 300 mm above the steps, which will make the location of each step readily identifiable to any person standing above and below that step. Low-location lighting should be installed on both sides if the width of the stairway is two metres or more. The top and bottom of each set of stairs should be identified to show that there are no further steps.

4.5 IMO symbols should be incorporated into the LLL which directs the passengers to the muster stations required by regulation III/24 of the 1974 SOLAS Convention, as amended.

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* Pending the development of international standards acceptable to the Organization, national standards as prescribed by the Administration should be applied.

4.6 In all passenger cabins a placard explaining the LLL system should be installed on the inside of the cabin door. It should also have a diagram showing the location of, and the way to, the two closest exits with respect to the cabin.

4.7 Materials used in the manufacture of LLL products should not contain radioactive or toxic materials.

5 DOORS

5.1 Low-location lighting should lead to the exit door handle. To prevent confusion, no other doors should be similarly marked.

5.2 Sliding fire doors and watertight doors should be marked with an LLL sign showing how the door opens.

6 SIGNS AND MARKINGS

6.1 All escape route signs and fire equipment location marking should be of photoluminescent material or marked by lighting and fitted in the lower 300 mm of the bulkhead. The dimensions of such signs and markings are to be commensurate with the rest of the LLL system.

6.2 Low-location lighting exit signs should be provided at all exits. The signs should be located within the lower 300 mm on the side of the exit doors where the handle is located.

6.3 All signs should contrast in colour to the background (bulkhead or deck) on which they are installed.

7 PHOTOLUMINESCENT SYSTEMS

7.1 Except where noted, PL strips should be no less than 75 mm wide. Photoluminescent strips having a width less than that stated herein should be used only if their luminance is increased proportionally to compensate for their width.

7.2 Photoluminescent materials should provide at least 15 mcd/m^2 measured 10 min after the removal of all external illuminating sources. The system should continue to provide luminance values greater than 2 mcd/m^2 for 60 min.

7.3 Any PL system materials should be provided with not less than the minimum level of ambient light necessary to charge the PL material to meet the above luminance requirements.

8 ELECTRICALLY POWERED SYSTEMS

8.1 Electrically powered systems should be connected to the emergency switchboard required by regulation II-1/42 of the 1974 SOLAS Convention, as amended, so as to be powered by the main source of electrical power under normal circumstances and also by the emergency source of electrical power when the latter is in operation. Alternatively, for existing ships only, EP systems may be connected to the main lighting system, provided independent batteries provide a backup of at least 60 min and are charged from the main lighting system. Performance of the system while powered by batteries should meet all the requirements stated herein.

8.2 Where electrically powered systems are installed, the following standards of luminance are to be applied:

.1 the active parts of electrically powered systems should have a minimum luminance of 10 cd/m^2;

.2 the point sources of miniature incandescent lamps should provide not less than 150 mcd mean spherical intensity with a spacing of not more than 100 mm between lamps;

.3 the point sources of light-emitting-diode systems should have a minimum peak intensity of 35 mcd. The angle of half-intensity cone should be appropriate to the likely track directions of approach and viewing. Spacing between lamps should be no more than 300 mm; and

.4 for electroluminescent systems, these should function for 60 min from the instant when the main power supply to which it was required to be connected by paragraph 8.1 is removed.

8.3 All EP systems should be arranged so that the failure of any single light, lighting strip, or battery will not result in the marking being ineffective.

8.4 Electrically powered systems should meet the relevant requirements for emergency luminaires in the current edition of publication 598-22-2 published by the International Electrotechnical Commission (IEC) when tested at a reference ambient temperature of 40°C.

8.5 Electrically powered systems should meet the requirements for vibration and electromagnetic interference in the current edition of publication 945 published by the IEC.

8.6 Electrically powered systems should provide a minimum degree of ingress protection of at least IP 55 in accordance with publication 529 published by the IEC.

9 MAINTENANCE

9.1 All LLL systems should be visually examined and checked at least once a week and a record kept. All missing, damaged or inoperable LLL should be replaced.

9.2 All LLL systems should have their luminance tested at least once every five years. Readings should be taken on site. If the luminance for a particular reading does not meet the requirement of these guidelines, readings should be taken in at least ten locations equally spaced apart in the space. If more than 30% of the readings do not meet the requirements of these guidelines, the LLL should be replaced. If between 20% and 30% of the readings do not meet the requirements of these guidelines, the LLL should be checked again in one year or may be replaced.