

Annex - 1 Fire-fighting Systems and Appliances
Summary of Maintenance, Testing and Inspection Intervals

Equipment	Requirements	Regulation	Ship Type	Interval	By	Remarks
Air recharging system for SCBAs	Check breathing apparatus air recharging systems, if fitted, for air quality	MSC.1/Circ.1432, para 7.8.1	All	Annually	Shore	
Self Contained Breathing Apparatus (SCBA)	Examine all breathing apparatus cylinders for correct pressure range	MSC.1/Circ.1432, para 4.5	All	Weekly	Ship	
	The breathing apparatus to be inspected	IBC Code, para 14.2.6, IGC Code, para 14.2.6	Tanker (Chem/Gas)	Monthly	Ship	
	The breathing apparatus to be inspected and tested	IBC Code, para 14.2.6, IGC Code, para 14.2.6	Tanker (Chem/Gas)	Annually	Shore (by maker)	
	Check face mask and air demand valves are in serviceable condition	MSC.1/Circ.1432, para 7.8.2	All	Annually	Ship	
	Hydrostatic pressure testing of all SCBA cylinders	MSC.1/Circ.1432, para 9.4	All	5 Yearly	Shore	
EEBDs	Examine all EEBD cylinders for correct pressure range	MSC.1/Circ.1432, para 4.5	All	Weekly	Ship	
	Check EEBDs according to maker's instructions	MSC.1/Circ.1432, para 7.8.3	All	Annually	Ship	
	Hydrostatic pressure testing of all EEBD cylinders as per manufacturer's instructions		All	5 Yearly	Shore	
PA + Gen. Alarm systems	Verify all public address systems and general alarm systems are functioning properly	MSC.1/Circ.1432, para 4.4	All	Weekly	Ship	

Fire dampers	Test all fire dampers for local operation	MSC.1/Circ.1432, para 6.3	All	Quarterly	Ship	
	Test all fire dampers for remote operation	MSC.1/Circ.1432, para 7.6.1	All	Annually	Ship	
Ventilation systems	Test all ventilation controls interconnected with fire-protection systems for proper operation	MSC.1/Circ.1432, para 7.6.3	All	Annually	Ship	
Fire doors	Verify that all fire door control panel indicators, if provided, are functional by operating the lamp/indicator switch.	MSC.1/Circ.1432, para 4.3	All	Weekly	Ship	
	Test all fire doors located in main vertical zone bulkheads for local operation	MSC.1/Circ.1432, para 6.4	Passenger ships	Quarterly	Ship	
	Test all remotely controlled fire doors for proper release	MSC.1/Circ.1432, para 7.7	All	Annually	Ship	
Fixed fire detection and alarm system	Verify all fire detection and fire alarm control panel indicators are functional by operating the lamp/indicator test switch	MSC.1/Circ.1432, para 4.1	All	Weekly	Ship	
	Test a sample of detectors and manual call points so that all devices have been tested within five years	MSC.1/Circ.1432, para 5.10	All	Monthly	Ship	
	Test all fire detection systems and fire detection systems used to automatically release fire-extinguishing systems for proper operation, as appropriate	MSC.1/Circ.1432, para 7.2.1	All	Annually	Ship	
	Visually inspect all accessible detectors for evidence of tempering obstruction, etc., so that all detectors are inspected within one year	MSC.1/Circ.1432, para 7.2.2	All	Annually	Ship	

	Test emergency power supply switchover	MSC.1/Circ.1432, para 7.2.3	All	Annually	Ship	
Portable Fire Extinguishers	Inspection in accordance with the manufacturer's instruction and based on inspection guide in Res. A.951(23), table 9.1.3	Res. A.951(23), para 9.1	All	Annually	Ship/Shore	See Annex 1 for Res. A.951(23), table 9.1.3
	At least one fire extinguisher of each type manufactured in the same year and kept on board a ship should be test discharged at five yearly intervals (as part of a fire drill)	Res. A.951(23), para 9.1.1	All	5-yearly	Ship	
	All fire extinguishers together with propellant cartridges to be hydraulically tested in accordance with the recognized standard or the manufacturer's instruction	Res. A.951(23), para 9.1.2	All	10-yearly	Shore	
Wheeled (mobile) fire extinguishers	Verify all extinguishers are in place, properly arranged, and in proper condition	MSC.1/Circ.1432, para 5.9	All	Monthly	Ship	
	Inspections in accordance with the manufacturer's instruction	MSC.1/Circ.1432, para 7.12.1	All	Annually	Ship	
	Visually inspect all accessible components for proper condition	MSC.1/Circ.1432, para 7.12.2	All	Annually	Ship	
	Check the hydrostatic test date of each cylinder	MSC.1/Circ.1432, para 7.12.3	All	Annually	Ship	
	for dry powder extinguishers, invert extinguishers to ensure powder is agitated	MSC.1/Circ.1432, para 7.12.4	All	Annually	Ship	
	Visually examine at least one extinguisher of each type manufactured in the same year and kept on board	MSC.1/Circ.1432, para 9.6	All	5-yearly	Shore	

	All extinguishers together with propellant cartridges to be hydrostatically tested in accordance with recognized standards or the manufacturer's instructions	MSC.1/Circ.1432, para 10.5	All	10-yearly	Shore	
Fire –fighters outfit	Verify lockers providing storage for fire-fighting equipment contain their full inventory and equipment is in serviceable condition	MSC.1/Circ.1432, para 5.5	All	Monthly	Ship	
International Shore Connections	Verify that international shore connection(s) is in serviceable condition	MSC.1/Circ.1432, para 6.1	All	Quarterly	Ship	
Galley exhaust ducts	Verify galley exhaust ducts and filters are free of grease build-up	MSC.1/Circ.1432, para 7.6.2	All	Annually	Ship	
Fire mains, fire pumps, hydrants, hoses and nozzles	Verify all fire hydrants, hose and nozzles are in place, properly arranged, and are in serviceable condition	MSC.1/Circ.1432, para 5.1.1	All	Monthly	Ship	
	Operate all fire pumps to confirm that they continue to supply adequate pressure	MSC.1/Circ.1432, para 5.1.2	All	Monthly	Ship	
	Verify emergency fire pump fuel supply adequate, and heating system in satisfactory condition, if applicable	MSC.1/Circ.1432, para 5.1.3	All	Monthly	Ship	
	Visually inspect all accessible components for proper condition	MSC.1/Circ.1432, para 7.1.1	All	Annually	Ship	
	Flow test all fire pumps for proper pressure and capacity. Test emergency fire pump with isolation valves closed	MSC.1/Circ.1432, para 7.1.2	All	Annually	Ship	

	Test all hydrant valves for proper operation	MSC.1/Circ.1432, para 7.1.3	All	Annually	Ship	
	Pressure test a sample of fire hoses at the maximum fire main pressure, so that all fire hoses are tested within five years	MSC.1/Circ.1432, para 7.1.4	All	Annually	Ship	
	Verify all fire pump relief valves, if provided, are properly set	MSC.1/Circ.1432, para 7.1.5	All	Annually	Ship	
	Examine all filters/ strainers to verify they are free of debris and contamination	MSC.1/Circ.1432, para 7.1.6	All	Annually	Ship	
	Verify that all nozzles size/type are correct, maintained and working	MSC.1/Circ.1432, para 7.1.7	All	Annually	Ship	
Portable Foam Applicators Unit	Verify all portable foam applicators are in place, properly arranged, and are in proper condition	MSC.1/Circ.1432, para 5.8	All	Monthly	Ship	
	Verify all portable foam applicators are set to the correct proportioning ratio for the foam concentrate supplied and the equipment is in proper order	MSC.1/Circ.1432, para 7.11.1	All	Annually	Ship	
	Verify all portable containers or portable tanks containing foam concentrate remain factory sealed, and the manufacturer's recommended service life interval has not been exceeded	MSC.1/Circ.1432, para 7.11.2	All	Annually	Ship	

	Portable containers or portable tanks containing foam concentrate, excluding protein based concentrates , less than 10 years old, that remain factory sealed can normally be accepted without the periodical foam control tests required in MSC.1/Circ.1312	MSC.1/Circ.1432, para 7.11.3	All	Up to 10 years no testing required, thereafter Annually	Ship	
	Protein based foam concentrate portable containers and portable tanks should be thoroughly checked and, if more than five years old, the foam concentrate should be subjected to the periodical foam control tests required in MSC.1/Circ.1312, or renewed	MSC.1/Circ.1432, para 7.11.4	All	Up to 5 years no testing required, thereafter Annually	Ship	
	The foam concentrates of any non-sealed portable containers and portable tanks, and portable containers and portable tanks where production data is not documented, should be subjected to the periodical foam control tests required in MSC.1/Circ.1312	MSC.1/Circ.1432, para 7.11.5	All	Annually	Ship	
Galley and deep fat cooking fire-extinguishing system	Check galley and deep fat cooking fire-extinguishing systems in accordance with the manufacturer's instructions	MSC.1/Circ.1432, para 7.13	All	Annually	Ship	
Low location lighting systems	Verify low-location lighting systems are functional by switching off normal lighting in selected locations	MSC.1/Circ.1432, para 4.6	All	Weekly	Ship	
	Test the luminance of all systems in accordance with the procedures in Resolution A.752(18)	MSC.1/Circ.1432, para 9.5	All	5-yearly	Shore	See Annex 3 (Resolution A.752(18))

Flag States Specific Requirements:

1	Liberia	Ship Type	Interval	By	Ref. Document
A	All fire hoses are hydrostatically tested	All	Annually	Ship	Marine Notice FIR-001 Rev.06/12
B	The fire extinguishers should be examined and, if necessary, serviced annually. The annual servicing/ examination of the portable fire extinguishers can be carried out by the crew, if the crew is properly trained and such servicing is acceptable to the vessel's classification society.	All	Annually	Ship/ Shore	Marine Notice FIR-001 Rev.06/12
C	Every two years in conjunction with the issuance of SEC, the contents of the fire extinguisher cylinder must be verified. Weighing of the portable CO2 cylinders in the presence of the classification society surveyor is an acceptable method of verification.	All	2-yearly	Shore	Marine Notice FIR-001 Rev.06/12
D	Liberia does not require periodic hydrostatic testing for EEBD cylinders unless specifically required by the manufacturer. Where required by the manufacturer, hydrostatic testing should be carried out in accordance with the manufacturer instructions and at intervals specified by the manufacturer	All		Shore	Marine Notice FIR-001 Rev.06/12
E	SCBA Cylinders: Hydrostatic testing of ultra lightweight type	All	As per requirements of cylinder manufacturer and class society.	Shore	Marine Notice FIR-001 Rev.06/12

2	St. Vincent and the Grenadines	Ship Type	Interval	By	Ref. Document
A	Recharge or renew carbon dioxide extinguishers and gas expellant cartridges if gas loss by weight exceeds 10% of the original charge.	All	Annually	Ship/ Shore	Circular NO. SOL 006 Rev. 10
B	At least one dry powder extinguisher should be discharged and retention of contents checked. If retention is found to be in excess of 15% of the initial charge further extinguishers should be discharged to determine the level of compaction.	All	Annually	Ship	Circular NO. SOL 006 Rev. 10
C	At each Class Renewal (not less than 5 years) survey, portable extinguishers should be inspected by an approved service company and contents changed if required.	All	5-yearly	Shore	Circular NO. SOL 006 Rev. 10
D	Whenever the loss in pressure of a permanently pressurized portable fire extinguisher exceeds 10% of the nominal pressure, then the portable fire extinguisher should be hydrostatically pressure tested before being charged.	All		Shore	Circular NO. SOL 006 Rev. 10
E	SCBA: Hydrostatic pressure testing of cylinders of lightweight type should be carried out by an approved service company at intervals and test pressure stipulated by the manufacturer and Recognized Organization.	All		Shore	Circular NO. SOL 006 Rev. 10
F	SCBA: Hydrostatic pressure testing of cylinders other than of lightweight type should be carried out every five (5) years by an approved service company at a test pressure of 1.5 times the working pressure.	All	5-yearly	Shore	Circular NO. SOL 006 Rev. 10

G	Oxygen Cylinders for medical use:				
	Cylinder should be inspected annually		Annually	an approved service company (Alternatively annual inspection may be carried out by senior ship's officer provided that the manufacturer's instructions are available onboard)	Circular NO. SOL 006 Rev. 10
	Cylinders should be recharged with medical oxygen at intervals not exceeding three (3) years but prior to the stipulated expiry date. In case the loss of content as a whole or of an individual part or until of the system exceeds 10% the system or the individual part or unit of the system should be recharged.		3-yearly	an authorized service company	Circular NO. SOL 006 Rev. 10
	pressure pipes connecting the cylinder to the regulator should be subject to a pressure test every three (3) years or at more frequent intervals if so advice by the manufacturer		3-yearly	an authorized service company	Circular NO. SOL 006 Rev. 10
	Hydrostatic pressure testing of cylinders should be carried out every five (5) years or at more frequent intervals if so advice by the manufacturer		5-yearly	an authorized service company	Circular NO. SOL 006 Rev. 10
	Pressure regulators should be serviced		5-yearly	an authorized service company	Circular NO. SOL 006 Rev. 10

3	Dominica	Ship Type	Interval	By	Ref. Document
A	All fire hoses are hydrostatically tested	All	Annually	Ship	CD-MSC 33-01 Rev 01
B	The fire extinguishers should be examined and, if necessary, serviced annually. The annual servicing/ examination of the portable fire extinguishers can be carried out by the crew, if the crew is properly trained and such servicing is acceptable to the vessel's classification society.	All	Annually	Ship/ Shore	CD-MSC 33-01 Rev 01
C	Every two years in conjunction with the issuance of SEC, the contents of the contents of the fire extinguisher cylinder must be verified. Weighing of the portable CO2 cylinders in the presence of the classification society surveyor is an acceptable method of verification.	All	2-yearly	Shore	CD-MSC 33-01 Rev 01
D	SCBA Cylinders: Hydrostatic testing of ultra lightweight type	All	As per requirements of cylinder manufacturer and class society.	Shore	CD-MSC 33-01 Rev 01
4	Barbados	Ship Type	Interval	By	Ref. Document
A	All fire hoses are hydrostatically tested	All	Annually	Ship	Information Bulletin No. 230
B	The fire extinguishers should be examined and, if necessary, serviced annually. The classification society surveyor must be satisfied with the condition of the extinguishers	All	Annually	crew or authorized service facility (if crew is properly trained and such servicing is acceptable by	Information Bulletin No. 230

				class society)	
C	Every two years in conjunction with the issuance of SEC, the contents of the fire extinguisher cylinder must be verified. Weighing of the portable CO2 cylinders in the presence of the classification society surveyor is an acceptable method of verification.	All	2-yearly	Shore	Information Bulletin No. 230
D	Barbados does not require periodic hydrostatic testing for EEBD cylinders unless specifically required by the manufacturer. Where required by the manufacturer hydrostatic testing should be carried out in accordance with the manufacturer instructions and at intervals specified by the manufacturer	All		Shore	Information Bulletin No. 230
5	Kiribati	Ship Type	Interval	By	Ref. Document
A	All fire hoses are hydrostatically tested	All	Annually	Ship	Marine Circular No. 16/2012
B	Portable fire extinguishers: Charges of portable fire extinguishers should be renewed if, on checking, there is any indication of deterioration in the contents, but in any case after five years.	All	5-yearly	Ship/Shore	Marine Circular No. 16/2012
C	Portable fire extinguishers: Carbon dioxide extinguishers and gas expellant cartridges should be recharged or renewed if gas loss by weight exceeds 10% of original charge.	All	Annually	Ship/Shore	Marine Circular No. 16/2012
D	At least one dry powder extinguisher should be discharged and retention of contents checked. When retention is found to be in excess of 15% of the initial charge further extinguishers should be discharged to	All	Annually	Ship	Marine Circular No. 16/2012

	determine if compaction is occurring.				
E	Any extinguisher or bottle which has excessive corrosion shall be replaced	All		Ship	Marine Circular No. 16/2012
F	SCBA: All SCBA and compressed air cylinders for survival craft shall be examined at least annually by an accredited company ashore.	All	Annually	Shore	Marine Circular No. 16/2012
G	SCBA Cylinders: Hydrostatic testing of ultra lightweight type	All	5-yearly	Shore	Marine Circular No. 16/2012
H	EEBD to be checked annually by qualified crew or an accredited service company	All	Annually	Ship/ Shore	Marine Circular No. 16/2012
6	India	Ship Type	Interval	By	Ref. Document
A	Portable fire extinguishers: Charges of dry chemical/water type fire extinguishers should be renewed if, on checking, there is any indication of deterioration in the contents, but in any case not later than once every five years.	All	5-yearly	Ship/Shore	DGS Engineering Circular 06/2013
B	The premixed agent in liquid charge type AFFF (aqueous film-forming foam) and FFFP (film-forming fluoro-protein foam) fire extinguishers shall be replaced at least once every year. The agent in solid charge-type AFFF fire extinguishers shall be replaced once every 5 years.	All	5-yearly	Ship/Shore	DGS Engineering Circular 06/2013
C	Carbon dioxide extinguishers and gas expellant cartridges should be recharged or renewed if gas loss by weight exceeds 10% of original charge.	All		Ship/Shore	DGS Engineering Circular 06/2013
D	At least one dry powder extinguisher should be discharged at random and the retention of contents checked. When retention is found to be in excess of 15% of the initial	All	Annually	Ship/Shore	DGS Engineering Circular 06/2013

	charge, further extinguishers should be discharged to determine the average compaction that is seen to be occurring.				
E	Hydrostatic test of pressure cylinders: All type of Portable / Semi-portable / Mobile extinguisher containers except CO2 to be pressure tested.	All	3-yearly	Shore	DGS Engineering Circular 06/2013
F	Hydrostatic test of pressure cylinders: All Portable / Semi-portable / Mobile CO2 extinguisher containers to be pressure tested.	All	5-yearly	Shore	DGS Engineering Circular 06/2013
G	EEBD should be examined and maintained in accordance with the manufacturer's instructions including any instructions for hydrostatic testing. If instructions are not available then testing should be carried out at intervals not exceeding five (5) years.	All	Not exceeding 5 years	Shore	DGS Engineering Circular 06/2013
H	Periodical testing of foam concentrates: All non sealed portable container	All	Within 3 year from date of manufacture and every year thereafter	Shore	DGS Engineering Circular 06/2013
7	Tuvalu	Ship Type	Interval	By	Ref. Document
A	All fire hoses are hydrostatically tested	All	Annually	Ship	Marine Circular MC-7/2011/1
B	Portable fire extinguishers: Charges of portable fire extinguishers should be renewed if, on checking, there is any indication of deterioration in the contents, but in any case after five years.	All	5-yearly	Ship/Shore	Marine Circular MC-7/2011/1
C	Portable fire extinguishers: Carbon dioxide extinguishers and gas expellant cartridges should be recharged or	All	Annually	Ship/Shore	Marine Circular MC-7/2011/1

	renewed if gas loss by weight exceeds 10% of original charge.				
D	At least one dry powder extinguisher should be discharged and retention of contents checked. When retention is found to be in excess of 15% of the initial charge further extinguishers should be discharged to determine if compaction is occurring.	All	Annually	Ship	Marine Circular MC-7/2011/1
E	Any extinguisher or bottle which has excessive corrosion shall be replaced	All		Ship	Marine Circular MC-7/2011/1
F	SCBA Cylinders: Hydrostatic testing of ultra lightweight type	All	5-yearly	Shore	Marine Circular MC-7/2011/1
8	Panama	Ship Type	Interval	By	Ref. Document
A	Panama Administration accepts gasoline engine driven portable emergency fire pumps on board cargo ships less than 2000 GRT. (MMC-281)				
9	Marshall Islands	Ship Type	Interval	By	Ref. Document
A	SCBA Cylinders: Hydrostatic testing of ultra lightweight type	All	as per requirements of cylinder manufacturer and class society	Shore	Marine notice no.2-011-14 (rev. June/2016)
B	In cases where SCBA/ EEBD cylinders have been date stamped prior to delivery of a vessel, the first five (5)-year hydrostatic test may be harmonized with drydocking at the First Special Survey under the IMO Harmonized System of Survey and Certification, provided that the initial date stamp (month/year) on the cylinder does not exceed six (6) months before the vessel delivery date.				
C	The Administrator does not permit the use of smoke helmet type breathing apparatus as identified in SOLAS Regulation II-2/15.2.11, in force before 01 July 2002.				

Annex 1

Res.A.951(23) / Table 9.1.3

ANNUAL INSPECTION		
	Safety clip and indicating devices	Check to see if the extinguisher may have been operated.
	Pressure indicating device	Where fitted, check to see that the pressure is within limits. Check that dust covers on pressure indicating devices and relief valves are in place.
	External examination	Inspect for corrosion, dents or damage which may affect the safe operation of the extinguisher.
	Weight	Weigh the extinguisher and check the mass compared to the fully charged extinguisher.
	Hose and nozzle	Check that hoses and nozzles are clear and undamaged.
	Operating instructions	Check that they are in place and legible.
INSPECTION AT RECHARGE		
	Water and foam charges	Remove the charge to a clean container if to be reused and check if it is still suitable for further use. Check any charge container.
	Powder charges	Examine the powder for reuse. Ensure that it is free flowing and that there is no evidence of caking lumps or foreign bodies.
	Gas cartridge	Examine for damage and corrosion.
INSPECTION AT FIVE AND TEN YEAR INTERVALS		

INSPECTION AFTER DISCHARGE TEST		
	Air passages and operating mechanism	Prove clear passage by blowing through vent holes and vent devices in the cap. Check hose, nozzle strainer, discharge tube and breather valve, as applicable. Check the operating and discharge control. Clean and lubricate as required.
	Operating mechanism	Check that the safety pin is removable and that the lever is undamaged.
	Gas cartridge	Examine for damage and corrosion. Weigh the cartridge to ascertain that it is within prescribed limits.
	O-rings washers and hose diaphragms	Check O-rings and replace hose diaphragms if fitted.
	Water and foam bodies	Inspect the interior. Check for corrosion and lining deterioration. Check separate containers for leakage or damage.
	Powder body	Examine the body and check internally for corrosion and lining deterioration.
INSPECTION AFTER RECHARGE		
	Water and foam	Replace the charge in accordance with the manufacturers' instructions.
	Reassemble	Reassemble the extinguisher in accordance with the manufacturer's instructions.
	Maintenance label	Fill in entry on maintenance label, including full weight.
	Mounting of extinguishers	Check the mounting bracket or stand.
	Report	Complete a report on the state of maintenance of the extinguisher.

Annex 2

Safety Management System:

Maintenance and inspection should be carried out in accordance with the ship's maintenance plan having due regard to ensuring the reliability of the system. The onboard maintenance plan should be included in the ship's safety management system and should be based on the system manufacturer's recommendations.

Operational readiness:

All fire protection system and appliances should be, at all times, in good order and available for immediate use while the ship is in service. If a fire protection system is under repair, then suitable arrangements acceptable to the Recognized Organization that issued the pertinent Safety Certificate shall be made to ensure safety is not diminished.

In cases where the Recognized Organization which has issued the vessel's Statutory Certificate determines that the equipment does not comply with the requirements of the corresponding mandatory regulations, they must approach the Administration for an authorization for the issuance of the relevant Conditional Statutory Certificate prior to permit the vessel to operate. Any vessel in a port or dry-dock or anchorage or temporarily immobilized due to some reason, shall be construed to be as a vessel under operation.

Competent Persons/ Crew members:

Certain maintenance procedures and inspections may be performed by competent crew members, while others should be performed by authorised service agencies. The onboard maintenance plan should indicate which parts of the recommended inspections and maintenance should be completed by trained personnel.

Competent Crew members in this case is to be construed as that the basic and extended services may be carried out onboard ships under the supervision of an experienced person holding a Merchant Shipping STCW II/2 or III/2 unlimited certificate of competency and an Advanced Fire Fighting certificate.

Competent Person is a person specifically trained and authorised for the specific service / maintenance activity by the equipment manufacturer.

Records:

The Master and / or the Chief Engineer as the case may be, should ensure that the indicated weekly, monthly, quarterly, annual, two-yearly, five-yearly and ten yearly inspections are taken for the specified equipment, if provided. Records of the inspections should be maintained on board the ship in hard or soft form. In cases where the inspections and maintenance are carried out by trained service technicians other than the ship's crew, inspection reports / certificate duly endorsed by the competent person should be retained onboard for verification, with the identity of such person being clearly decipherable.

Annex 3 : Resolution A.752(18)

<p>All Low Location Lighting (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.</p>	All	weekly	ship	Resolution A.752(18)
<p>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.</p> <p>Following standards of luminance are to be applied:</p> <ul style="list-style-type: none"> i. The active parts of electrically powered systems should have a minimum luminance of 10 cd/m² ii. 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; iii. 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 iv. 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 is removed. 	All	5-yearly	Shore	Resolution A.752(18)