

General Specification for INDOOR & OUTDOOR LED Luminaries**a. Outdoor / Street / Flood light fittings:**

- a) Light Source/Type of LED : SMD (surface Mounting Device) LED
- b) LED Make : Nichia, Osram, Seoul, Philips, Lumileds, Ever Light, Avago, Cree & Lednium
- c) Lumen Output/Efficiency (lm/w) : Upto 45W:- minimum 100 Lumens/Watt
Above 45W :- minimum 130 Lumens/Watt
- d) Grade: Industrial with Inbuilt Potted driver.
- e) Driver Type: Constant current driver with short circuit protection.
- f) LED Life : >50,000 burning hours
- g) Ingress Protection: Minimum IP66
- h) Body made of pressure die cast aluminium housing. Impact protection: minimum IK08
- i) Heat sink, if applicable must be made of aluminium extrusion.
- j) Poly Carbonate Lens (for street light) and Lens with toughened glass protected (for Flood light)
- k) Electric Strength Test (Surge Protection): Internal 4KV, External 10KV

b. General Specification for 18/20 watt LED Indoor Tube light fitting:

Ref: PCEE/ER office note No: EL/197/LED dated 09.05.2016 and 07.11.2016.

| Sl.No. | Description | Specifications |
|--------|---------------------------------|--|
| 1 | Light Source/Type of LED | Mid Power SMD (surface Mounting Device) LED |
| 2 | LED Make | Nichia, Osram, Seoul, Philips, Lumileds, Ever Light, Avago, Cree & Lednium |
| 3 | Lumen Output/Efficiency (lm/w) | Minimum 100 Lumens/Watt |
| 4 | LED Life | >50,000 burning hours |
| 5 | Driver Type | Constant current driver with short circuit protection. |
| 6 | Driver Components | Industrial grade only |
| 7 | Efficiency of Driver electronic | >85% |
| 8 | Power Factor | Minimum 0.95 at full load/230 Volt |
| 9 | Depreciation | Maximum 30% after 50,000 burning hours. |
| 10 | THD (Total Harmonic Distortion) | <15% |
| 11 | Rated Voltage | 220-240 Volt AC |
| 12 | Input operating voltage | 100 to 300 Volt AC |
| 13 | Beam Angle typical | LED BEAM ANGLE >120° |
| 14 | Input frequency | 47 to 53 Hz |
| 15 | Colour Rendering Index | =80 |
| 16 | Colour Rendering Temperature | 6500 K |
| 17 | Working Temperature | (-) 20°C to (+) 45°C |
| 18 | Outer body temperature | Max up to 70° C (+5) |
| 19 | Ingress protection | IP 20 |
| 20 | Voltage drops and interrupts | As per IEC 61000-4-11 |
| 21 | Certifications | NABL approved laboratories |
| 22 | Report to be submitted | LM 79 from NABL accredited Lab & LM 80 & Photo biological/eye safety. |
| 23 | For standalone (batten type) | Integrated Driver with aluminium/polycarbonate housing & milky polycarbonate diffuser. |
| 24 | Uniformity | Individual LEDs should not be visible through diffuser. |
| 25 | Electric Strength Test | 1.5 KV |

Note:-

LED Driver should have BIS certified.

Manufacturer should be ISO certified.

The test certificates will be verified and approved as on demand of the Railway.

Eligible Firm should submit Guarantee Certificate in duplicate in support of complete LED luminaire from the manufacturer for satisfactory performance for a period of 60 (Sixty) Months from the date of commissioning or 72 (Seventy Two) Months from the date of supply whichever is earlier to concerned Depot Incharge before acceptance of material.

The decision of Railway Administration over the standardisation & make for the supplied material of the schedule work will be final.