

m) The LED luminaire shall be free of glare.

m) Color rendering index CRI ≥ 75

4.2 Specification for LED Driver :

- a) Input voltage Range within 180Vrms to 270Vrms.
- b) Operating input voltage 240Vrms.
- c) No load power consumption $\leq 500\text{mW}$
- d) Maximum output voltage 105V DC $\pm 3\%$.
- e) Output voltage ripple should be within 3%.
- f) Output over voltage protection 125V DC
- g) Power factor 0.95.
- h) Full Load Efficiency $\geq 85\%$.
- i) THD $\leq 10\%$.
- j) Hot swapping.
- k) Current waveform should meet EN 61000-3-2
- l) LED Driver shall withstand, withstand voltage of 440V for 2 hours and restore normal working when normal voltage is applied.
- m) Maximum Temperature rise $\leq 10^\circ\text{C}$ @ 55°C T_{amb} with safety margin of 10°C
- n) The driver should comply to CISPR 15 for limits and methods of measurement of Radio Disturbance Characteristics.
- o) The equipment should comply to IEC 61547 for EMC immunity requirements.
- p) The control gear should be compliant to IEC 61347-2-13, IEC 62031 and IEC 62384 as per the requirements

4.3 The equipment should be compliant to IEC 60598-1, IEC 62031 and IEC/PAS 62612 depending on the type of luminaire.

5.0 REFERRED STANDARDS

5.1 A For Indoor Lighting :

IS : 513	Cold rolled low carbon steel sheets and strips
IEC 60529	Classification of degree of protections provided by enclosures.
EN 55015, CISPR 15	Limits and methods of measurement of radio disturbance characteristic of electrical lighting and similar equipment.
IEC 62031	LED modules for general lighting - Safety requirements
EN 61547	Equipment for general lighting purposes – EMC immunity requirement.
IEC EN 60929	Performance, AC supplied electronics ballast for tubular fluorescent lamps performance requirement.
IEC 60598-2*1	Fixed general purpose luminaires.
IEC 60598-1	Luminaires – General requirement and tests.
IEC 61000-3-2	Electro Magnetic compatibility (EMC) Limits for Harmonic current emission – (equipment input current ≤ 16 Amps per phase.
IEC 60068-2-38	Environmental Testing - Test Z-AD : composite temperature / humidity cyclic test.
IEC 61347-2-13	Lamp control gear: particular requirements for DC or AC supplied electronic control gear for LED modules
IS 10322	Specification for the luminaires.
IS 4905	Method for random sampling.

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SEE/C2C