

COPY RIGHT & CONFIDENTIAL THIS DOCUMENT IS THE EXCLUSIVE PROPERTY OF BEML & CONTAINS CONFIDENTIAL INFORMATION. THIS DOCUMENT OR ITS CONTENTS SHALL NOT BE USED, REPRODUCED OR DISCLOSED IN WHOLE OR IN PART, WITHOUT PRIOR WRITTEN PERMISSION OF BEML. THIS DOCUMENT & ALL ITS COPIES SHALL BE RETURNED TO BEML ON DEMAND
DRAWING RELEASED FROM PLM, PHYSICAL SIGNATURE NOT REQUIRED

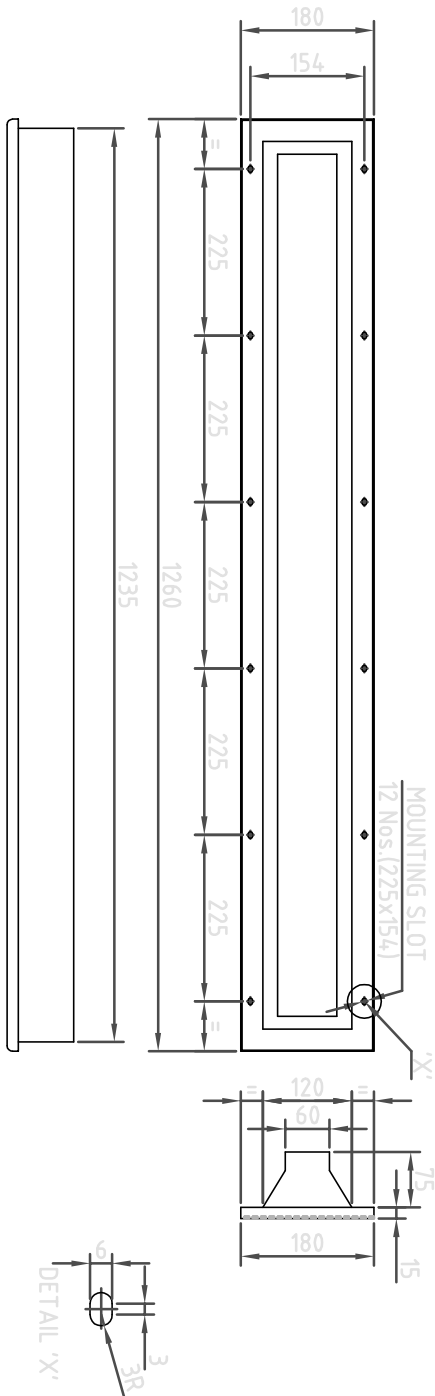
ENERGY EFFICIENT LED BASED LUMINAIRE FOR MEMU COACH WITH IGBT BASED 3 PHASE PROPULSION SYSTEM

TECHNICAL REQUIREMENTS:

- (1) THE LIGHTING SYSTEM SHALL GENERALLY CONFORM TO EN13272.
- (2) OPERATING VOLTAGE & POWER CONSUMPTION: 110V DC, 18 WATTS
- (3) OVERALL DIMENSIONS (APPROX.): 1260(L) x 160(W) x 90(D) - REF. DRG. ICF/STD-7-6-047
- (4) LIGHT FITTING SHALL BE SIMPLE & PROVIDED WITH DIFFUSER.
- (5) COLOR OF LED SHALL BE COOL DAY WHITE (TEMPERATURE 6000K-7000K).
- (6) AVERAGE LEVEL OF ILLUMINATION INSIDE THE COACH SHALL BE 300 LUX MIN. AT 1.5 MTRS. FROM FLOOR LEVEL.
- (7) TECHNICAL REQUIREMENTS OF LIGHT SHALL CONFORM TO RDSO SPECIFICATION RDSO/PE/SPEC/TL/0091-2016 (REV.'1') TYPE 'S' WITH FOLLOWING DEVIATIONS.

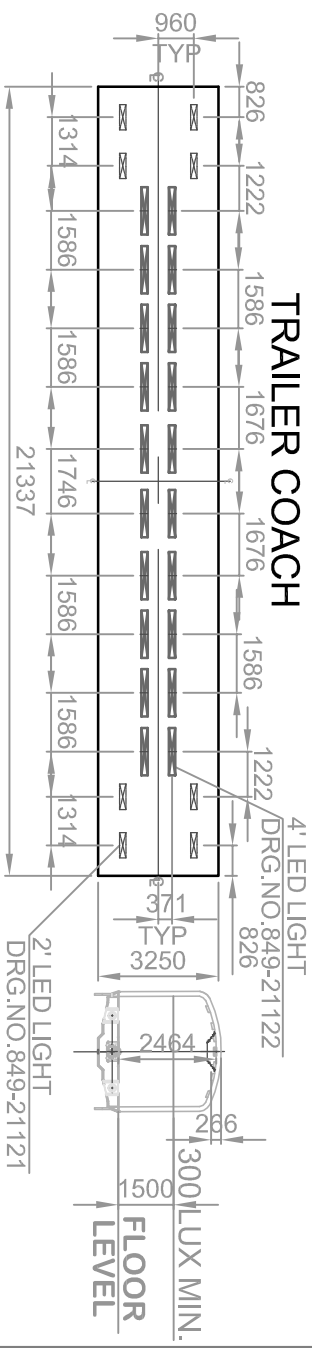
- (7) TECHNICAL REQUIREMENTS OF LIGHT SHALL CONFORM TO RDSO SPECIFICATION RDSO/PE/SPEC/TL/0091-2016 (REV.'1') TYPE 'S' WITH FOLLOWING DEVIATIONS.
- (i) GUARANTEED LIFE OF LED WITH THEIR CONTROL SYSTEM & OPTICS / LUMINARY SHALL NOT BE LESS THAN 60000 BURNING HOURS.
- (ii) SPECIFIED ILLUMINATION LEVEL SHALL BE MET TILL AT THE END OF THE LIFE OF 60,000 HOURS WHEN THE ILLUMINATION IS NOT LESS THAN 70% OF THEIR ORIGINAL ILLUMINATION LEVEL.
- (8) HOUSING OF LIGHT SHALL BE MADE FROM DEEP DRAWN CRCA SHEET CONFORMING TO IS:513 - LATEST GRADE 'D'.
- (9) HOUSING FOR LED DRIVER SHALL BE MADE FROM 1 MM THICK ALUMINIUM SHEET
- (10) DIFFUSER SHALL BE HIGH TEMPERATURE RESISTANCE POLY CARBONATE SHEET (1.5MM) WHICH ALSO PROVIDES TOUGHNESS FOR FIXTURES IN DAMAGE PRONE AREAS WITH STATE OF THE ART DIFFUSION TECHNOLOGY THAT PROVIDES HIDING POWER FOR LED HOT SPOT WHILE MAINTAINING HIGH LIGHT TRANSMISSION. THE POLY CARBONATE SHEET SHALL CONFORM TO FLAMMABILITY RATING UL-94 V0.
- (11) TERMINAL CONNECTOR SHALL BE OF WAGO (PART No.262) / PHOENIX (PART No.ST4) MAKE
- (12) ANODISED NAME PLATE CONTAINING SCHEMATIC DIAGRAM & MANUFACTURER'S NAME, MONTH & YEAR OF MANUFACTURE SHALL BE RIVETED ON TOP OF HOUSING
- (13) DOME KEY SHALL BE SUPPLIED 1 No. FOR EVERY 10 FITTINGS.
- (14) ALL STEEL ITEMS EXCLUDING HARDWARE SHALL BE GIVEN SURFACE TREATMENT FOR ANTI RUST & ANTI CORROSION FOR HOUSING BEFORE FINISHING WITH POWDER COATING.
- THICKNESS OF POWDER COATING SHALL NOT BE LESS THAN 60 MICRONS TO WHITE COLOUR (SHADE NO.042 'IFB - WHITE' OF M/S BERGER OR SIMILAR M/S ASIAN / M/S NEROLAC MAKE PAINT WITH GLOSSY FINISH

MOUNTING & OVERALL DIMENSIONS OF 4' LED LIGHT FITTING
REF. DRG.ICF/STD-7-6-047

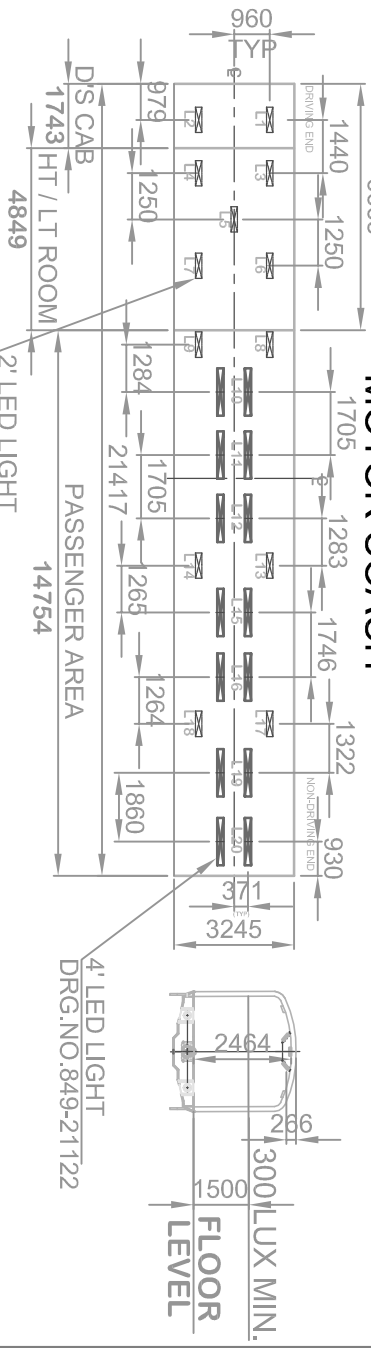


| | | | | | | | | | | |
|--|-----------|-------|--------|----------|-----------|----------|--|-----------|------------|----|
| MACHINING DEVIATIONS FOR LINEAR DIMENSIONS | RANGE | 0 - 6 | 6 - 30 | 30 - 120 | 120 - 315 | 315-1000 | 1000-2000 | 2000-4000 | ABOVE 4000 | RA |
| | TOLERANCE | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2 | ±3 | ~ |
| FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227 | | | | | | | | | | |
| UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM) | | | | | | | QUALITY OF WELD JOINTS REF., RD 230 MEDIUM | | | |
| VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C. | | | | | | | STATUS: | | | |
| WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96 | | | | | | | | | | |

LOCATION OF LED LIGHTS FOR 3 PHASE MEMU
TRAILER COACH



MOTOR COACH



- 1) SUPPLIER SHALL SUBMIT THE FOLLOWING DURING TENDERING:
 - (i) DESIGN OF HEAT DISSIPATION ARRGT. OF LUMINAIRE IN DETAIL WITH SIMULATED RESULTS.
 - (ii) LIGHT & ENERGY SIMULATION CALCULATIONS FOR OBTAINING REQUIRED ILLUMINATION FOR BOTH DMC & TC COACHES.
- 2) ONE PROTOTYPE FITTING SHALL BE SUPPLIED BEFORE COMMENCING BULK SUPPLY
- 3) FIRM SHALL SUPPLY TYPE TESTED & APPROVED LUMINAIRE OF RDSO / ICF / RCF APPROVED MAKES ONLY

[illegible]