

Test Report

M/s.IDEAL LIGHTING SYSTEM PVT LTD

REPORT NUMBER: 4787336352-01-NABL-S2

PROJECT NUMBER: 4787336352-01



T1431, T1432, T2215,
T2216, T2233, T2234

Location (a)

UL India Lab,
UL India Pvt Limited,
Laboratory building,
Kalyani Platina
Campus, Sy.no.129/4,
EPIP Zone, Phase II,
Whitefield,
Bangalore - 560 066
P:91-80-41384400

.....
Location (b)

UL India Pvt Limited,
413 Sector-8, IMT
Manesar, Gurgaon.
P:91-124-4215707

TEST DISCIPLINE: PHOTOMETRY**General details**

| | | | |
|--|---|---|-----------------|
| Customer / Applicant | M/s. IDEAL LIGHTING SYSTEM PVT LTD Plot no 209/9, GEB office Road, GIDC ankleshwar, Gujarat - 393002 | | |
| Manufacturer | M/s. IDEAL LIGHTING SYSTEM PVT LTD | | |
| Program | NABL | | |
| Test Lab Location | (b) UL Manesar | Refer to Cover page for the UL address | |
| Item Under Test | LED Flame Proof Well Glass 30W | | |
| Model | ILS FLP WG 30W | | |
| Number of Samples | 1 | | |
| UL Sample Identification | 2298189 | Refer Summary of Test results for multiple samples | |
| Manufacturer Serial Number (if any) | -- | | |
| Condition of IUT on receipt | Good | | |
| Date of Receipt | 21 January 2016 | | |
| Applicable Standard | IES LM 79-08 | | |
| Date of Testing (Start date) | 6 February 2016 | End Date | 8 February 2016 |
| UL general^ ambient condition | Temperature in °C | | 23 ± 5°C |
| | Relative humidity in % | | < 70% |
| Date of Reporting | 18 February 2016 | | |
| Test In-charge | Navin Kumar Maurya | | |

Fill in the rows with information or add hyphen (-)

| | |
|--|---|
|   Ajay Kumar Patidar Engineer Project Associate |   Satish Kumar Engineering Leader |
| Reviewed by | Authorized signatory |

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General Remarks (If any)

Photometric data was processed under Nite Light as per the customer request.

Description of Item under Test (IUT)

Rated voltage: 230V AC, Frequency: 50Hz, Rated Input Power: 30W

LED Specification:
 LED Make / Model: Citizen, Japan / CLU 046 1212, No of LEDs: 1

LED Driver Specification :
 Driver Make / Model : Meanwell, Taiwan / PLD 25 700, No of Drivers: 01

Summary of Test Results

| Test No. | Test Parameter | Standard & Clause Number | UL Sample Identification | Result |
|----------|---|---|--------------------------|----------------------|
| 1 | Electrical and Photometric measurements | IES LM 79-08, Clause number 8, 9, 10 and 11 | 2298189 | Evaluate by customer |
| 2 | Colorimetric measurements | IES LM 79-08, Clause number 12 | | Evaluate by customer |



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 17-LO-P0851, Issue 3.0

Test No.01 Electrical and Photometric measurements**Master Equipment and Calibration details**

| Serial No. | Test Equipment | UL Equipment ID | Calibration status (Valid up to) |
|------------|------------------------|-----------------|----------------------------------|
| 1 | Goniophotometer | GON02 | Before use |
| 2 | Measured standard lamp | SL06 | 13.05.2016 |
| 3 | Measured standard lamp | SL07 | 13.05.2016 |
| 4 | Digital Power Meter | PM16 | 23.07.2016 |

Test methodology adopted

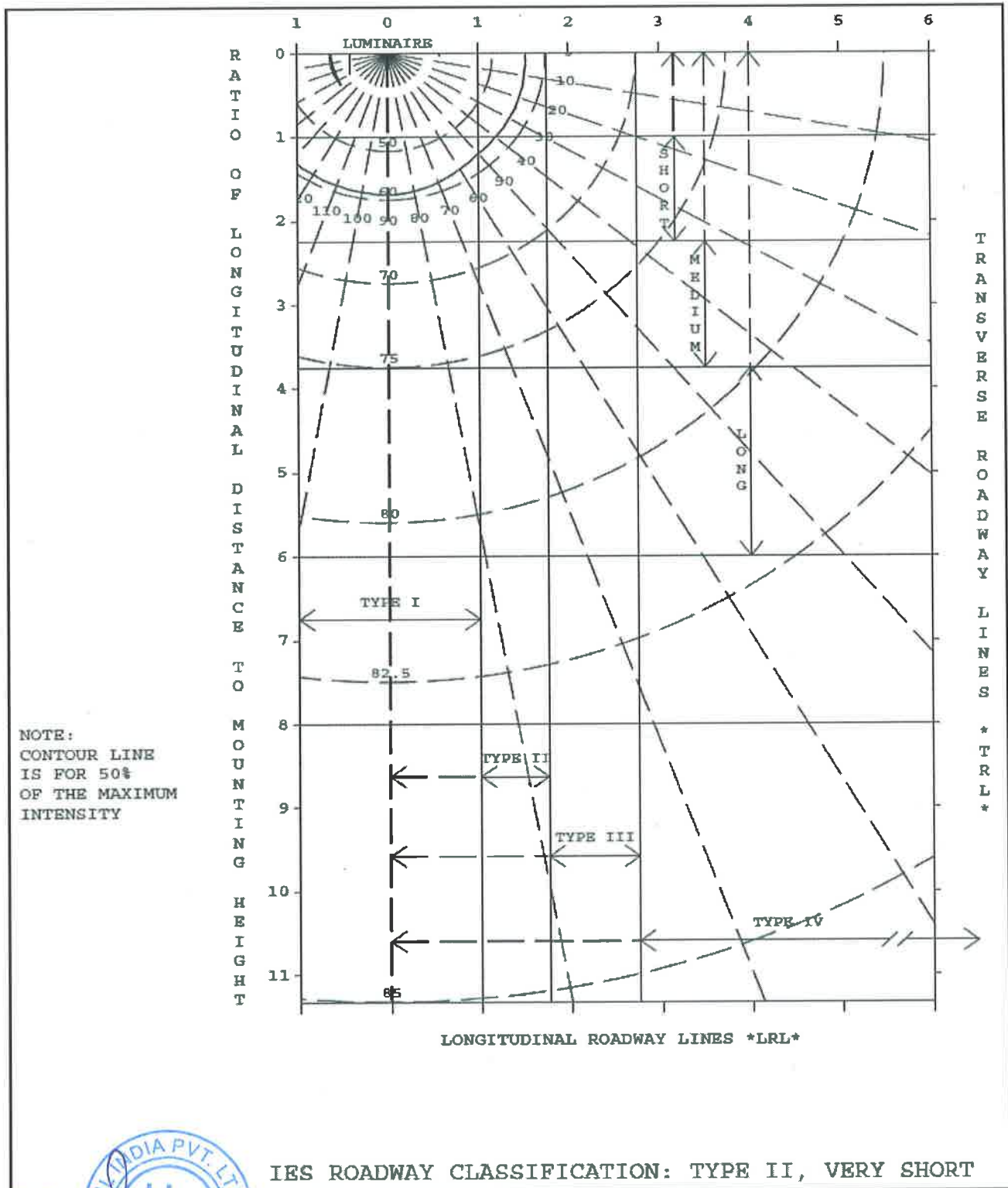
- The sample was tested according to the IES LM-79-2008.
- The condition of the sample tested was new. Stabilization time before testing was 32 minutes.
- Orientation (burning position) of SSL product during testing was its normal burning position i.e. at zero degree inclination to horizontal.
- Electrical measurements were obtained with a Yokogawa WT210 digital power meter.
- Photometric parameters were obtained using a Type-C Goniophotometer and software. Photometric distance was more than five times of the largest dimension of the test sample.
- The ambient temperature was maintained at $(25 \pm 1) ^\circ \text{C}$ during testing.
- The sample was operated at 230 Volts AC. It was stabilized before measurement. Luminous flux, luminous efficacy, zonal lumen were calculated from the software.

Test Observation

| INPUT PARAMETER | | | | |
|------------------|-----------------|-------------|-----------|--------------|
| Voltage (V) | Frequency (Hz) | Current (A) | Power (W) | Power Factor |
| 230.01 | 50.00 | 0.1248 | 27.39 | 0.95 |
| OUTPUT PARAMETER | | | | |
| Flux (lm) | Efficacy (lm/W) | | | |
| 3093.0 | 112.9 | | | |


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RATIO OF TRANSVERSE DISTANCE TO MOUNTING HEIGHT:




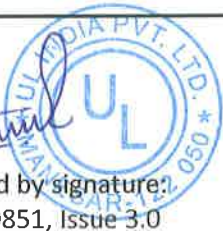
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UTILIZATION TABLE:

| CO-EFFICIENT OF UTILIZATION | | | |
|-----------------------------|--------------|--------------|--------------|
| RATIO | HOUSE SIDE | STREET SIDE | TOTAL |
| 0.5 | 0.216 | 0.215 | 0.432 |
| 1.0 | 0.353 | 0.352 | 0.705 |
| 1.5 | 0.422 | 0.419 | 0.840 |
| 2.0 | 0.455 | 0.451 | 0.906 |
| 2.5 | 0.473 | 0.467 | 0.940 |
| 3.0 | 0.481 | 0.476 | 0.957 |
| 3.5 | 0.487 | 0.481 | 0.969 |
| 4.0 | 0.490 | 0.484 | 0.974 |
| 5.0 | 0.495 | 0.489 | 0.984 |
| TOTAL: | 0.504 | 0.496 | 1.000 |

| PERCENTAGE OUTPUTS | | |
|----------------------------|---------------|--------|
| DOWNWARD: | STREET SIDE = | 49.6% |
| | HOUSE SIDE = | 50.4% |
| | TOTAL = | 100.0% |
| UPWARD: | STREET SIDE = | 0.0% |
| | HOUSE SIDE = | 0.0% |
| | TOTAL = | 0.0% |
| EFFICACY (LUMENS PER WATT) | | 112.9 |

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN. LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

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11.6 %
 26.5 %
 10.6 %

LUMENS

1538.0

50.4 %

FORWARD LIGHT:

11.
 26.
 10.

LUMENS

1538.4

% LUMENS

49.6 %

- FORWARD LOW ZONE (0 TO 30 DEGREES)
- FORWARD MID ZONE (30 TO 60 DEGREES)
- FORWARD HIGH ZONE (60 TO 80 DEGREES) 0.0
- FORWARD VERY HIGH ZONE (80 TO 90 DEGREES)

BACK LIGHT:

2. LIGHT



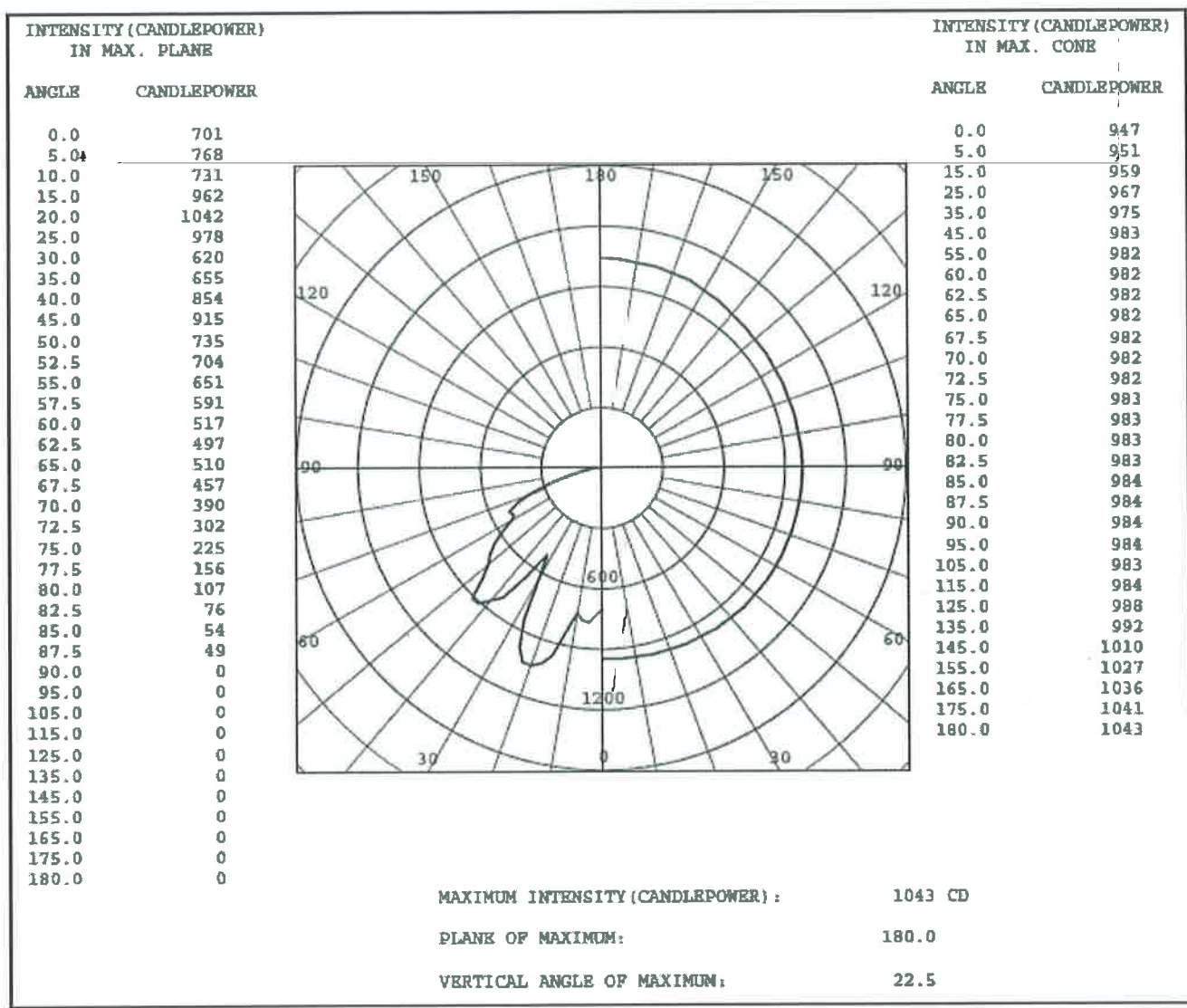
**IES "BUG" RATING (BACK LIGHT, UPLIGHT, GLARE) PER ADDENDUM TO IES
TM-15-11:**

| | LUMENS | SECONDARY SOLID ANGLE RATING |
|----------------------|--------|------------------------------------|
| BACK LIGHT | | |
| BH (60-80 DEGREES) | 335.1 | B1 |
| BM (30-60 DEGREES) | 823.1 | B1 |
| BL (0-30 DEGREES) | 368.4 | B1 |
| UPLIGHT | | |
| UH (100-180 DEGREES) | 0.0 | U0 |
| UL (90-100 DEGREES) | 0.0 | U0 |
| GLARE LIGHT | | |
| FVH (80-90 DEGREES) | 29.2 | G1 |
| BVH (80-90 DEGREES) | 31.3 | G1 |
| FH (60-80 DEGREES) | 327.4 | G0 |
| BH (60-80 DEGREES) | 335.1 | G0 |

IES BUG RATING: B1 U0 G1



LUMINOUS INTENSITY DATA:




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INTENSITY (CANDLEPOWER) SUMMARY:

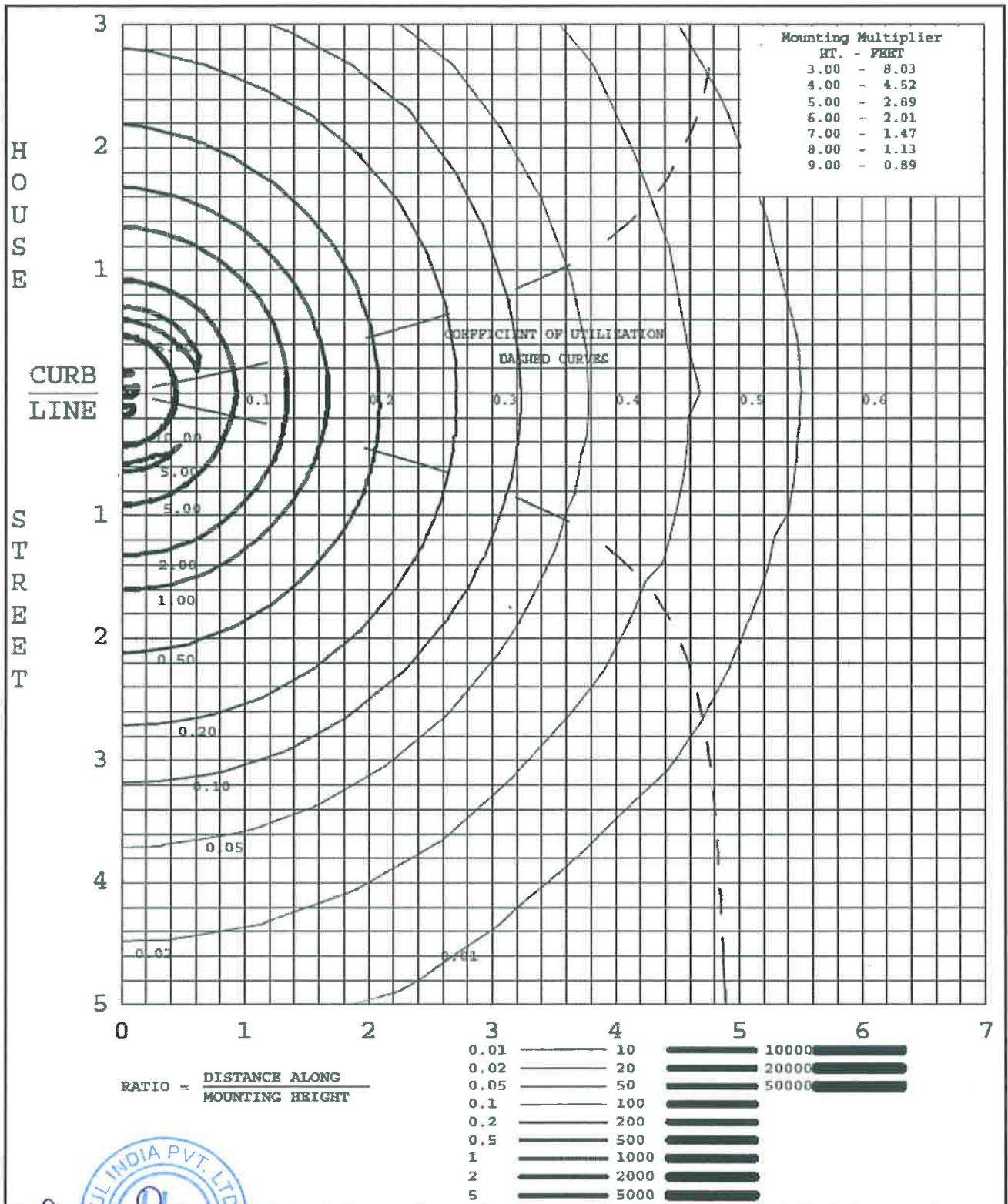
| VERT. ANGLE | HORIZONTAL ANGLES - STREET SIDE | | | | | | | | | |
|-------------|---------------------------------|-----|------|------|------|------|------|------|------|------|
| | 0.0 | 5.0 | 15.0 | 25.0 | 35.0 | 45.0 | 55.0 | 65.0 | 75.0 | 85.0 |
| 0.0 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 |
| 5.0 | 767 | 767 | 766 | 764 | 758 | 752 | 743 | 734 | 730 | 728 |
| 10.0 | 744 | 744 | 744 | 748 | 765 | 783 | 797 | 812 | 817 | 818 |
| 15.0 | 943 | 943 | 941 | 942 | 949 | 957 | 956 | 956 | 951 | 945 |
| 20.0 | 971 | 974 | 980 | 989 | 1006 | 1023 | 1019 | 1016 | 1014 | 1012 |
| 22.5** | 947 | 951 | 959 | 967 | 975 | 983 | 982 | 982 | 983 | 984 |
| 25.0 | 859 | 863 | 873 | 879 | 875 | 871 | 873 | 875 | 879 | 883 |
| 30.0 | 518 | 524 | 536 | 550 | 564 | 579 | 594 | 610 | 621 | 631 |
| 35.0 | 785 | 781 | 772 | 763 | 752 | 741 | 733 | 726 | 707 | 685 |
| 40.0 | 895 | 894 | 891 | 889 | 889 | 890 | 890 | 890 | 887 | 883 |
| 45.0 | 770 | 781 | 805 | 823 | 830 | 836 | 826 | 817 | 832 | 857 |
| 50.0 | 698 | 704 | 717 | 726 | 721 | 716 | 720 | 725 | 713 | 696 |
| 55.0 | 595 | 600 | 611 | 619 | 616 | 613 | 620 | 627 | 640 | 654 |
| 60.0 | 453 | 453 | 451 | 452 | 458 | 464 | 478 | 491 | 497 | 499 |
| 65.0 | 463 | 463 | 463 | 462 | 458 | 454 | 456 | 458 | 448 | 434 |
| 70.0 | 330 | 335 | 345 | 353 | 353 | 353 | 352 | 350 | 345 | 339 |
| 75.0 | 200 | 201 | 202 | 203 | 202 | 202 | 203 | 205 | 210 | 215 |
| 80.0 | 83 | 85 | 87 | 89 | 89 | 88 | 91 | 95 | 100 | 107 |
| 85.0 | 47 | 48 | 50 | 52 | 55 | 58 | 57 | 57 | 57 | 57 |
| 90.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| VERT. ANGLE | HORIZONTAL ANGLES - HOUSE SIDE | | | | | | | | | | |
|-------------|--------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 90.0 | 95.0 | 105.0 | 115.0 | 125.0 | 135.0 | 145.0 | 155.0 | 165.0 | 175.0 | 180.0 |
| 0.0 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 | 701 |
| 5.0 | 727 | 726 | 723 | 724 | 734 | 745 | 753 | 762 | 766 | 767 | 768 |
| 10.0 | 819 | 819 | 818 | 815 | 802 | 789 | 771 | 753 | 742 | 735 | 731 |
| 15.0 | 941 | 941 | 940 | 938 | 934 | 931 | 937 | 943 | 950 | 958 | 962 |
| 20.0 | 1011 | 1010 | 1008 | 1007 | 1010 | 1012 | 1025 | 1038 | 1042 | 1042 | 1042 |
| 22.5** | 984 | 984 | 983 | 984 | 988 | 992 | 1010 | 1027 | 1036 | 1041 | 1043 |
| 25.0 | 885 | 890 | 898 | 905 | 907 | 909 | 928 | 947 | 961 | 972 | 978 |
| 30.0 | 637 | 635 | 630 | 623 | 603 | 584 | 581 | 578 | 592 | 610 | 620 |
| 35.0 | 674 | 671 | 665 | 659 | 656 | 652 | 653 | 654 | 655 | 655 | 655 |
| 40.0 | 881 | 883 | 887 | 890 | 890 | 891 | 867 | 844 | 843 | 850 | 854 |
| 45.0 | 869 | 865 | 857 | 856 | 876 | 897 | 900 | 904 | 908 | 912 | 915 |
| 50.0 | 687 | 692 | 701 | 709 | 711 | 714 | 717 | 721 | 726 | 732 | 735 |
| 55.0 | 661 | 659 | 656 | 652 | 647 | 643 | 639 | 635 | 639 | 647 | 651 |
| 60.0 | 501 | 500 | 500 | 498 | 493 | 488 | 483 | 479 | 491 | 508 | 517 |
| 65.0 | 427 | 429 | 433 | 437 | 440 | 444 | 455 | 466 | 483 | 501 | 510 |
| 70.0 | 336 | 339 | 345 | 350 | 351 | 353 | 352 | 352 | 365 | 382 | 390 |
| 75.0 | 218 | 216 | 213 | 211 | 213 | 215 | 213 | 210 | 215 | 222 | 225 |
| 80.0 | 110 | 107 | 101 | 97 | 98 | 100 | 100 | 100 | 103 | 106 | 107 |
| 85.0 | 57 | 57 | 56 | 56 | 57 | 58 | 58 | 58 | 56 | 55 | 54 |
| 90.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

** DENOTES VERTICAL ANGLE OF MAXIMUM CONE
 **** DENOTES LATERAL ANGLE OF MAXIMUM PLANE
 INTENSITY WAS MEASURED IN 2.5 DEGREE STEPS - TABULATIONS ARE AVAILABLE

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MOUNTING HEIGHT FOR ISOLUX 8.5 METERS:



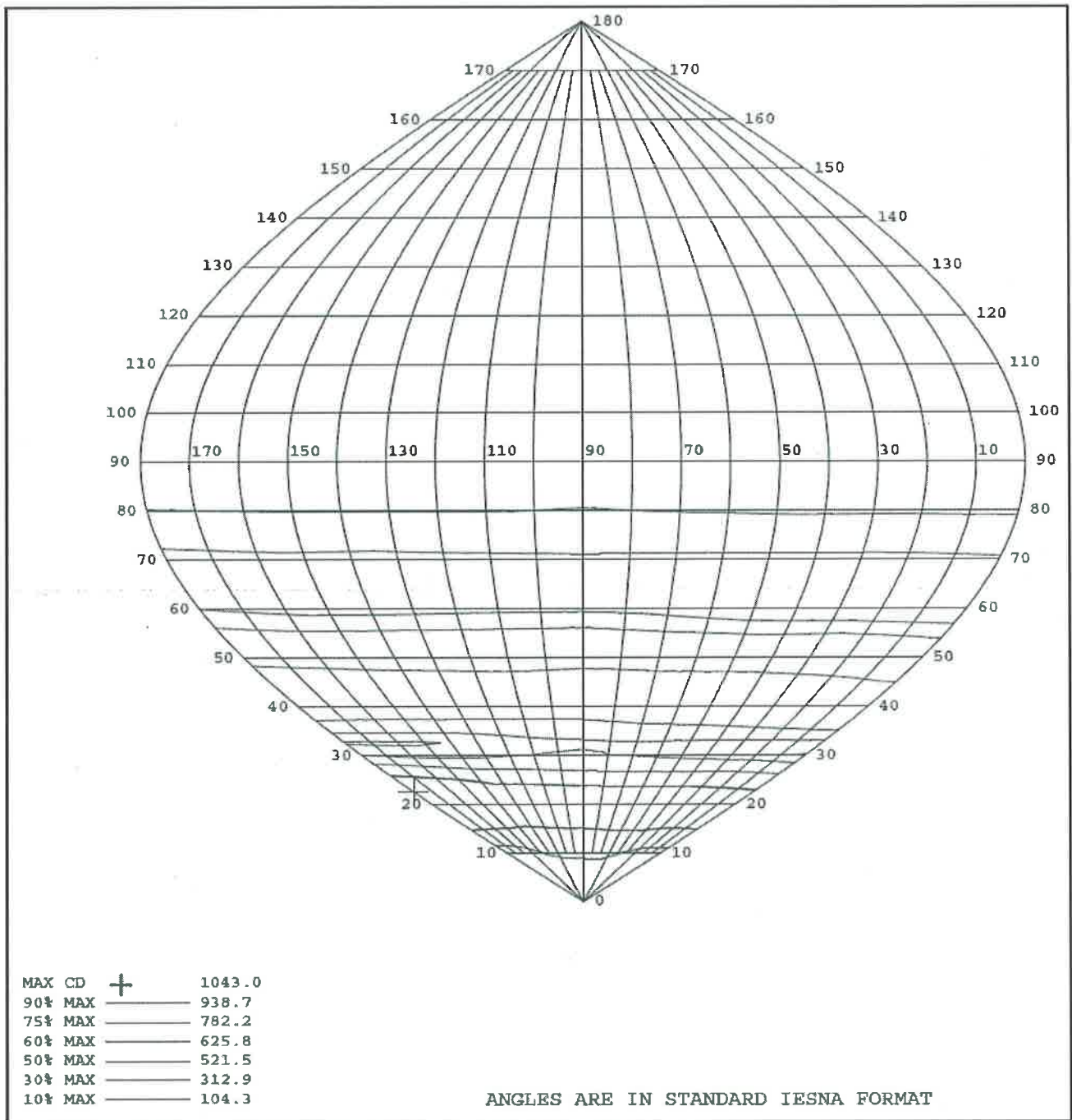
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LUX TABLE FOR SINGLE LUMINAIRE AT 8.5 METERS:

| LATERAL RATIOS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|---|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| -3.00 | 0.14 | 0.13 | 0.11 | .084 | .060 | .042 | .029 | .020 | .013 | .009 | .006 | .005 | .004 | .003 | .002 |
| -2.50 | 0.31 | 0.27 | 0.21 | 0.15 | 0.10 | .067 | .042 | .027 | .017 | .011 | .008 | .006 | .004 | .003 | .002 |
| -2.00 | 0.62 | 0.55 | 0.42 | 0.28 | 0.17 | 0.10 | .060 | .036 | .022 | .014 | .009 | .006 | .005 | .004 | .003 |
| -1.50 | 1.4 | 1.1 | 0.75 | 0.47 | 0.27 | 0.15 | .083 | .046 | .027 | .017 | .011 | .007 | .005 | .004 | .003 |
| -1.00 | 4.4 | 3.1 | 1.7 | 0.76 | 0.40 | 0.20 | 0.10 | .057 | .033 | .019 | .012 | .008 | .006 | .004 | .003 |
| -0.50 | 8.8 | 5.0 | 3.0 | 1.1 | 0.51 | 0.25 | 0.12 | .066 | .037 | .021 | .013 | .009 | .006 | .004 | .003 |
| HOUSE | CURB LINE | | | | | | | | | | | | | | |
| STREET | 9.7 | 7.8 | 4.2 | 1.4 | 0.56 | 0.26 | 0.13 | .070 | .038 | .022 | .014 | .009 | .006 | .005 | .003 |
| 0.50 | 7.3 | 5.6 | 3.1 | 1.1 | 0.53 | 0.25 | 0.12 | .066 | .036 | .021 | .013 | .009 | .006 | .004 | .003 |
| 1.00 | 3.7 | 3.0 | 1.6 | 0.75 | 0.41 | 0.21 | 0.10 | .057 | .032 | .019 | .012 | .008 | .006 | .004 | .003 |
| 1.50 | 1.2 | 1.0 | 0.72 | 0.48 | 0.28 | 0.15 | .081 | .045 | .027 | .016 | .011 | .007 | .005 | .004 | .003 |
| 2.00 | 0.56 | 0.52 | 0.42 | 0.28 | 0.17 | 0.10 | .058 | .034 | .021 | .014 | .009 | .006 | .005 | .003 | .003 |
| 2.50 | 0.27 | 0.26 | 0.21 | 0.15 | 0.10 | .063 | .039 | .025 | .016 | .011 | .007 | .005 | .004 | .003 | .002 |
| 3.00 | 0.12 | 0.12 | 0.10 | .081 | .058 | .039 | .026 | .017 | .012 | .008 | .006 | .005 | .003 | .003 | .002 |
| 3.50 | .065 | .062 | .055 | .044 | .034 | .024 | .017 | .012 | .009 | .006 | .005 | .004 | .003 | .002 | .002 |
| 4.00 | .034 | .033 | .030 | .025 | .020 | .016 | .012 | .009 | .006 | .005 | .004 | .003 | .003 | .002 | .002 |
| 4.50 | .019 | .018 | .017 | .015 | .013 | .010 | .008 | .006 | .005 | .004 | .003 | .003 | .002 | .002 | .002 |
| 5.00 | .011 | .011 | .011 | .010 | .008 | .007 | .006 | .005 | .004 | .003 | .003 | .002 | .002 | .002 | .001 |
| | 0.0 | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 |
| | LONGITUDINAL MOUNTING HEIGHT RATIOS | | | | | | | | | | | | | | |
| CORRECTION FACTORS FOR OTHER MOUNTING HEIGHTS: SEE ISOFOOTCANDLE PAGE | | | | | | | | | | | | | | | |

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ISOCANDELA DIAGRAM:



| | | |
|---------|---|--------|
| MAX CD | + | 1043.0 |
| 90° MAX | — | 938.7 |
| 75° MAX | — | 782.2 |
| 60° MAX | — | 625.8 |
| 50° MAX | — | 521.5 |
| 30° MAX | — | 312.9 |
| 10° MAX | — | 104.3 |



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Test No.02 Colorimetric Measurements**Master Equipment and Calibration details**

| Serial No. | Test Equipment | UL Equipment ID | Calibration status (Valid up to) |
|------------|------------------------|-----------------|----------------------------------|
| 1 | Integrating Sphere | TIS 02 | Before use |
| 2 | Measured standard lamp | WSL 09 | 14.04.2016 |
| 3 | Power Meter | PM 12 | 23.07.2016 |

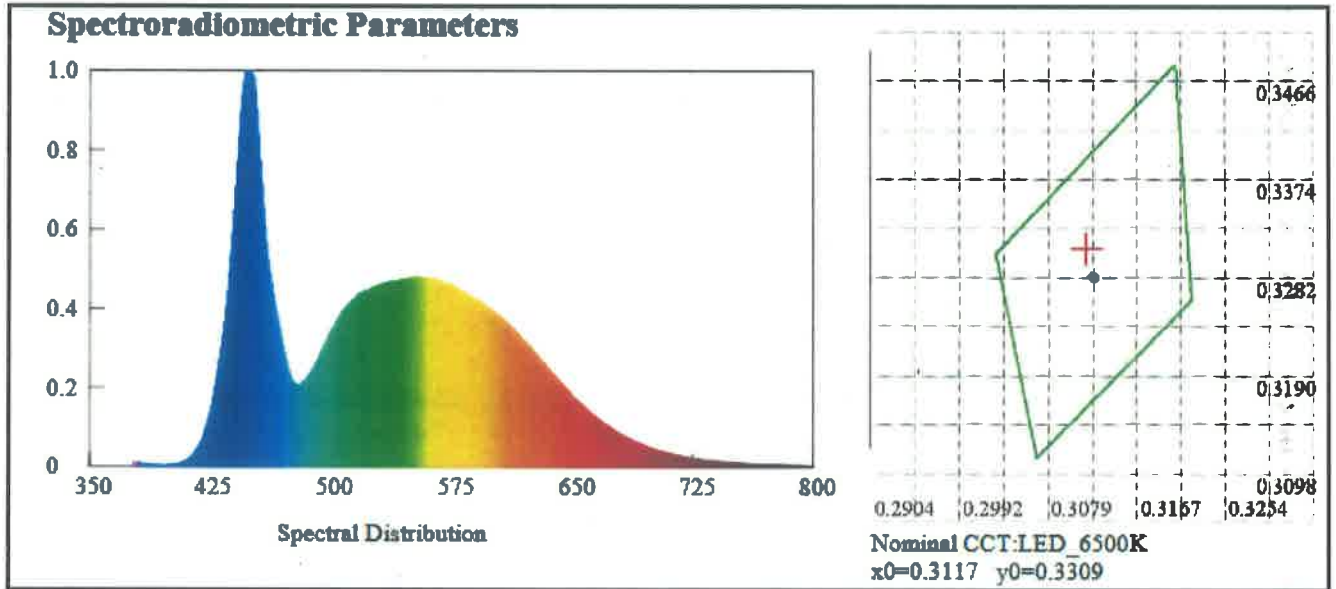
Test methodology adopted

- The sample was tested according to the IES LM-79-2008.
- Orientation (burning position) of SSL product during testing was its normal burning position i.e. at zero degree inclination to horizontal.
- Colorimetric parameters were measured using an integrating sphere, a spectroradiometer and software. 4π geometry was used.
- The ambient temperature was maintained at $(25 \pm 1)^\circ \text{C}$ during testing.
- The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 230 Volts AC. It was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 350 to 800nm.



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Test Observation



Spectral Distribution

Chromaticity Coordinates: $x=0.3117$ $y=0.3309$ $u'=0.1964$ $v'=0.4692$

Correlated Color Temperature: 6546 K

Dominant Wavelength: 490.0 nm(E)

Purity: 0.0748

Chromaticity Difference: +0.00467Duv

Peak Wavelength: 450.6 nm

Color Ratio: Kr=29.5% Kg=57.8% Kb=12.7%

Bandwidth: 22.6nm

Radiant Flux: 8.337 W

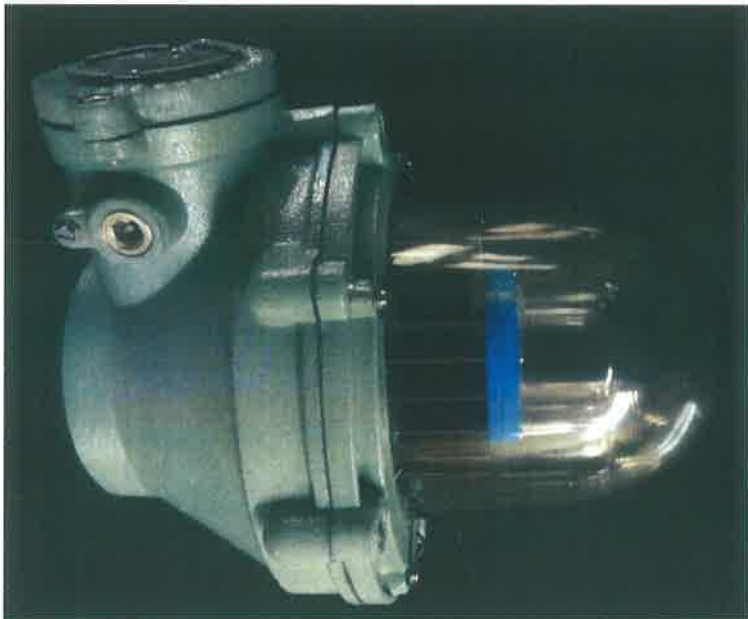
Rendering Index: Ra=81.6

R1=80R2=85R3=88R4=82R5=80R6=79R7=88R8=70

R9=6R10=64R11=80R12=55R13=82R14=93R15=75


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Photographs




Front View



Front View With Cover

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INDIA PVT. LTD.
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2298189-NW 
2298189
Description: WALL GLASS.
Customer: IDEAL LIGHTING SYSTEMS PVT. LTD
Received: 02/05/2016 Reference No: 4787336352
Container Cnt: 1 Sample Type: New Work

SampleID

*****End of Report*****



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