

Test Report

Report No.: EASZF03150001

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APPLICATION FOR LUMEN MAINTENANCE TESTING ACCORDING TO THE IES LM-80-08 TEST STANDARD

Prepared for: **WENRUN OPTOELECTRONIC CO., LTD.**
No.88 Weiyi Road Dingmao Development Zone Zhenjiang

Description of the submitted sample(s):

Sample Name : TOP LED
Sample Model : WR-EP 3528 XW-ST-P35
Model Tested : WR-EP 3528 WW-ST-P35
Ratings : 150 mA
State of Sample(s) : Normal
Sample Quantity : 40 pcs
Manufacturer : WENRUN OPTOELECTRONIC CO., LTD.
Reference Standard : IES LM-80-08 Approved Method: Measuring Lumen Maintenance of LED Light Sources

Sample Received Date : Mar. 14, 2013
Sample Tested Date : Mar. 15, 2013 to Dec. 05, 2013
Remarks : WR-EP 3528 XW-ST-P35, 'X' can be 'U', 'N' and 'W'.

The laboratory that conducted the testing items in this report has been accredited by the National Voluntary Laboratory Accreditation Program (NVLAP LAB CODE: 200889-0), for LM-79 testing of SSL products. And the report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Tested by Haven Lin
Tester

Reviewed by Kaiser Lee
Engineer

Approved by Vi Shi
Supervisor

Date Jan. 10, 2014
Check No.: 1631566139

CENTRE TESTING INTERNATIONAL CORPORATION

NO.1996, Xin jin qiao Road, Pudong
New District, Shanghai, 201206, China

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1 SUMMARY

| | LM-80 Required Temperature | | Specified Temperature of the manufacturer |
|---|----------------------------|---------|---|
| | 55°C | 85°C | |
| Number of LED tested | 20 | 20 | -- |
| Drive Current [I_F] | 150 mA | 150 mA | -- |
| Measurement Current [I_F] | 150 mA | 150 mA | -- |
| Actual Case Temp. [T_s] | 54.6°C | 84.9°C | -- |
| Actual Ambient Temp. [T_A] | 54.3°C | 84.1°C | -- |
| $\Delta[T_s - T_A]$ | 0.3°C | 0.8°C | -- |
| Average Lumen Maintenance at 6000 hours | 99.29 % | 99.15% | -- |
| Ave. Chromaticity Shift ($\Delta u'v'$) at 6000 hours | 0.0007 | 0.0007 | -- |
| Calculated L70(6k) (hours) | 125,000 | 151,000 | -- |
| Reported L70(6k) (hours) | >36000 | >36000 | -- |
| Failures observed | None | None | -- |

| Test Time Points/Average Lumen Maintenance | | | | | | | |
|--|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| Case Temperature | 0 Hour | 1,000 Hours | 2,000 Hours | 3,000 Hours | 4,000 Hours | 5,000 Hours | 6,000 Hours |
| 55°C | 100.00 | 100.74 | 100.62 | 101.25 | 100.91 | 99.69 | 99.29 |
| 85°C | 100.00 | 100.58 | 100.52 | 101.16 | 100.43 | 100.30 | 99.15 |
| --°C | -- | -- | -- | -- | -- | -- | -- |

| Test Time Points/Average Color Shift ($\Delta u'v'$) | | | | | | | |
|--|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| Case Temperature | 0 Hour | 1,000 Hours | 2,000 Hours | 3,000 Hours | 4,000 Hours | 5,000 Hours | 6,000 Hours |
| 55°C | 0.0000 | 0.0002 | 0.0016 | 0.0009 | 0.0011 | 0.0011 | 0.0007 |
| 85°C | 0.0000 | 0.0003 | 0.0018 | 0.0013 | 0.0016 | 0.0014 | 0.0007 |
| --°C | -- | -- | -- | -- | -- | -- | -- |

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2 EQUIPMENT LIST

| Test Equipment | Model | Equipment No. | Calibration Date | Calibration Due Date |
|-------------------------------|--------------------|---------------|------------------|----------------------|
| Spectroradiometer | CDS 2100 | ATTEELSH00111 | -- | -- |
| Integrating Sphere | LMS-200 | ATTEELSH00115 | -- | -- |
| Standard Lamp | SCL-600 | ATTEELSH00116 | Aug.14, 2013 | Aug.13, 2014 |
| Digital Recorder | HIOKI LR8400-21 | TTE20100242 | Jul.18, 2013 | Jun.17, 2014 |
| Digital CC&CV DC Power Supply | GPD-3303S | TTE20110233 | Jul.01, 2013 | Jun.30, 2014 |
| Digital CC&CV DC Power Supply | GPR-30H10D | TTE20110389 | Jul.01, 2013 | Jun.30, 2014 |
| High Temperature Chamber | NMT-1200 | TTE20100237 | -- | -- |
| High Temperature Chamber | NMT-1200 | TTE20100240 | -- | -- |
| Digital power meter | WT210 | ATTEELSH00150 | Jul.01, 2013 | Jun.30, 2014 |

3 Photometry Measurement Uncertainty

The uncertainty of the light output measurements is $U=1.7\%$ ($K=2$), at the 95% confidence level. This calibration results traceable to the NATIONAL INSTITUTE OF METROLOGY (NIM).

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4 TEST METHODS

4.1 Requirements of Environmental Conditions

Operation of the LED light sources between photometric measurements shall be at a minimum of three case temperatures, T_s , using the same drive current. The three case temperatures, T_s , shall be 55°C and 85°C with a third temperature selected by the manufacturer. Case temperatures shall be controlled to -2°C during life testing. The temperature of the surrounding air should be maintained to within -5°C of the case temperature during testing. The surrounding air temperature should be monitored within the test chamber. Humidity shall be maintained to less than 65%RH throughout the life test.

The case temperature T_s is the cathode lead temperature of the LED mounted on a reliability test board. The ambient temperature T_A is the temperature of the air at a distance of 50mm above the reliability test board.

The ambient temperature during lumen and chromaticity measurements shall be set to 25°C ± 2°C. The LED light source shall be required to cool to room temperature prior to measurement.

Airflow shall be minimized for proper light source starting and operation.

The operating orientation of the LED light sources under test should be as specified by the manufacturer.

4.2 Lumen Maintenance Testing Method

Samples under test shall be driven for at least 6,000 hours with data collection at a minimum of every 1000 hours. 10,000 hours are preferred for the purposes of improved predictive modeling.

LED light sources are driven at constant current.

Checking for LED light source failures either by visual observation or automatic monitoring shall be done at a minimum of every measurement interval. Catastrophic LED light source failure shall be reported and included in the test report.

The chromaticity shift shall be measured and reported over the course of the lumen maintenance test time by measuring chromaticity at each photometric test interval.

4.3 Photometric and Electrical Measurements

A Labsphere Model CDS 2100 CCD Spectroradiometer and 50cm Integrating Sphere was used to measure total luminous flux, correlated color temperature, color rendering index, and chromaticity coordinates for each sample.

Ambient temperature was measured at a position inside the integrating sphere. Electrical measurements including voltage, current, and power were measured using the Digital Power Meter.

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5 TEST RESULTS

5.1 55°C, 150 mA

Case Temperature [T_s] : 54.6°C
Ambient Temperature [T_A] : 54.3°C
Drive Current [I_F] : 150 mA
Measurement Current : 150 mA

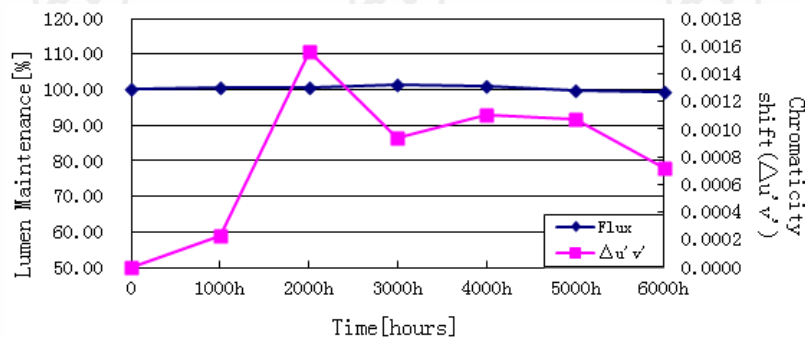
| No. | Φ _v [lm] | V _F [V] | CCT (K) | Lumen Maintenance [%] | | | | | |
|----------|---------------------|--------------------|---------|-----------------------|--------|--------|--------|--------|--------|
| | | | | 0 h (Initial) | 1000 h | 2000 h | 3000 h | 4000 h | 5000 h |
| 1 | 43.70 | 3.156 | 2849.6 | 100.43 | 100.14 | 100.34 | 99.47 | 99.15 | 98.44 |
| 2 | 44.59 | 3.200 | 2818.3 | 100.63 | 100.00 | 101.41 | 100.65 | 99.53 | 99.28 |
| 3 | 44.16 | 3.142 | 2858.2 | 100.27 | 100.29 | 100.91 | 99.98 | 99.23 | 98.12 |
| 4 | 43.68 | 3.142 | 2847.7 | 101.03 | 100.94 | 101.44 | 101.03 | 99.98 | 99.29 |
| 5 | 44.28 | 3.187 | 2798.7 | 101.20 | 101.06 | 101.42 | 101.31 | 99.71 | 99.77 |
| 6 | 42.79 | 3.149 | 2837.9 | 101.08 | 101.19 | 100.51 | 101.36 | 99.81 | 98.62 |
| 7 | 43.40 | 3.152 | 2834.6 | 101.22 | 101.24 | 101.38 | 100.99 | 99.91 | 99.54 |
| 8 | 43.15 | 3.161 | 2821.2 | 100.95 | 100.28 | 98.79 | 100.30 | 98.89 | 98.33 |
| 9 | 43.23 | 3.161 | 2856.6 | 101.25 | 101.11 | 101.92 | 101.48 | 100.49 | 100.16 |
| 10 | 44.68 | 3.162 | 2846.2 | 101.45 | 101.41 | 101.68 | 102.06 | 100.18 | 100.02 |
| 11 | 43.33 | 3.136 | 2828.2 | 100.32 | 99.47 | 99.88 | 99.95 | 99.05 | 98.50 |
| 12 | 44.63 | 3.129 | 2852.3 | 101.05 | 100.60 | 101.41 | 101.05 | 100.29 | 99.51 |
| 13 | 43.43 | 3.167 | 2862.6 | 101.20 | 100.78 | 102.26 | 101.93 | 100.23 | 99.19 |
| 14 | 44.56 | 3.119 | 2848.6 | 100.25 | 100.04 | 100.74 | 100.94 | 98.83 | 97.82 |
| 15 | 43.97 | 3.137 | 2852.3 | 100.84 | 100.77 | 101.52 | 101.39 | 99.84 | 99.34 |
| 16 | 42.17 | 3.146 | 2852.9 | 100.00 | 100.83 | 101.75 | 101.04 | 99.57 | 100.09 |
| 17 | 44.00 | 3.154 | 2862.0 | 100.55 | 100.18 | 101.61 | 100.64 | 98.84 | 99.48 |
| 18 | 44.39 | 3.160 | 2850.0 | 100.50 | 100.27 | 102.03 | 100.36 | 100.56 | 100.68 |
| 19 | 43.91 | 3.144 | 2861.2 | 99.27 | 100.18 | 101.43 | 100.73 | 99.36 | 99.50 |
| 20 | 43.29 | 3.168 | 2837.7 | 101.29 | 101.66 | 102.52 | 101.52 | 100.37 | 100.14 |
| n | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Mean | 43.77 | 3.154 | 2843.8 | 100.74 | 100.62 | 101.25 | 100.91 | 99.69 | 99.29 |
| Median | 43.81 | 3.153 | 2849.1 | 100.90 | 100.69 | 101.43 | 101.01 | 99.76 | 99.41 |
| St. dev. | 0.68 | 0.019 | 16.7 | 0.54 | 0.56 | 0.86 | 0.67 | 0.57 | 0.77 |
| Min. | 42.17 | 3.119 | 2798.7 | 99.27 | 99.47 | 98.79 | 99.47 | 98.83 | 97.82 |
| Max. | 44.68 | 3.200 | 2862.6 | 101.45 | 101.66 | 102.52 | 102.06 | 100.56 | 100.68 |

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| No. | u' | v' | Chromaticity Shift $\Delta u'v'$ | | | | | |
|----------|---------------|--------|----------------------------------|--------|--------|--------|---------|---------|
| | 0 h (Initial) | | 1000 h | 2000 h | 3000 h | 4000 h | 5000 h | 6000 h |
| 1 | 0.2548 | 0.5305 | 0.0002 | 0.0016 | 0.0012 | 0.0009 | 0.0009 | 0.0007 |
| 2 | 0.2563 | 0.5302 | 0.0002 | 0.0014 | 0.0010 | 0.0012 | 0.0011 | 0.0008 |
| 3 | 0.2546 | 0.5297 | 0.0002 | 0.0016 | 0.0008 | 0.0012 | 0.0011 | 0.0007 |
| 4 | 0.2543 | 0.5329 | 0.0001 | 0.0015 | 0.0009 | 0.0010 | 0.0010 | 0.0006 |
| 5 | 0.2567 | 0.5322 | 0.0000 | 0.0013 | 0.0007 | 0.0009 | 0.0008 | 0.0008 |
| 6 | 0.2557 | 0.5289 | 0.0002 | 0.0017 | 0.0011 | 0.0012 | 0.0011 | 0.0006 |
| 7 | 0.2551 | 0.5320 | 0.0002 | 0.0018 | 0.0010 | 0.0009 | 0.0009 | 0.0007 |
| 8 | 0.2565 | 0.5285 | 0.0002 | 0.0016 | 0.0008 | 0.0011 | 0.0013 | 0.0008 |
| 9 | 0.2542 | 0.5318 | 0.0002 | 0.0015 | 0.0008 | 0.0009 | 0.0009 | 0.0009 |
| 10 | 0.2551 | 0.5298 | 0.0006 | 0.0020 | 0.0014 | 0.0015 | 0.0013 | 0.0008 |
| 11 | 0.2561 | 0.5290 | 0.0002 | 0.0015 | 0.0005 | 0.0009 | 0.0007 | 0.0008 |
| 12 | 0.2546 | 0.5307 | 0.0003 | 0.0017 | 0.0010 | 0.0014 | 0.0013 | 0.0006 |
| 13 | 0.2537 | 0.5324 | 0.0002 | 0.0017 | 0.0009 | 0.0012 | 0.0012 | 0.0006 |
| 14 | 0.2548 | 0.5306 | 0.0002 | 0.0015 | 0.0009 | 0.0011 | 0.0012 | 0.0006 |
| 15 | 0.2544 | 0.5316 | 0.0002 | 0.0016 | 0.0008 | 0.0012 | 0.0012 | 0.0005 |
| 16 | 0.2543 | 0.5322 | 0.0003 | 0.0017 | 0.0012 | 0.0011 | 0.0011 | 0.0007 |
| 17 | 0.2545 | 0.5293 | 0.0003 | 0.0016 | 0.0009 | 0.0009 | 0.0009 | 0.0009 |
| 18 | 0.2542 | 0.5330 | 0.0003 | 0.0015 | 0.0009 | 0.0010 | 0.0010 | 0.0006 |
| 19 | 0.2550 | 0.5270 | 0.0001 | 0.0012 | 0.0008 | 0.0010 | 0.0009 | 0.0008 |
| 20 | 0.2548 | 0.5327 | 0.0003 | 0.0015 | 0.0010 | 0.0012 | 0.0012 | 0.0006 |
| n | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Mean | 0.2550 | 0.5308 | 0.0002 | 0.0016 | 0.0009 | 0.0011 | 0.0011 | 0.0007 |
| Median | 0.2548 | 0.5307 | 0.0002 | 0.0016 | 0.0009 | 0.0011 | 0.0011 | 0.0007 |
| St. dev. | 0.0008 | 0.0017 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.00017 | 0.00011 |
| Min. | 0.2537 | 0.5270 | 0.0000 | 0.0012 | 0.0005 | 0.0009 | 0.0007 | 0.0005 |
| Max. | 0.2567 | 0.5330 | 0.0006 | 0.0020 | 0.0014 | 0.0015 | 0.0013 | 0.0009 |



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5.2 85°C, 150 mA

Case Temperature [T_s] : 84.9°C
 Ambient Temperature [T_A] : 84.1°C
 Drive Current [I_F] : 150 mA
 Measurement Current : 150 mA

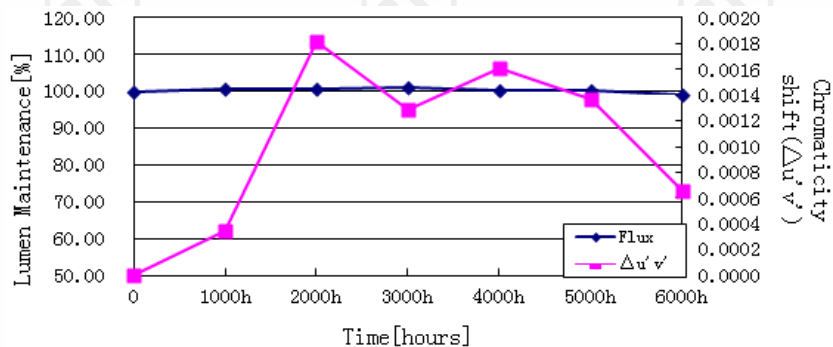
| No. | Φ _v [lm] | V _F [V] | CCT (K) | Lumen Maintenance [%] | | | | | |
|----------|---------------------|--------------------|---------|-----------------------|--------|--------|--------|--------|--------|
| | | | | 0 h (Initial) | 1000 h | 2000 h | 3000 h | 4000 h | 5000 h |
| 1 | 43.06 | 3.163 | 2874.6 | 100.65 | 100.37 | 101.35 | 100.60 | 100.30 | 99.44 |
| 2 | 44.13 | 3.149 | 2840.5 | 100.86 | 100.50 | 101.11 | 100.27 | 99.80 | 98.57 |
| 3 | 45.05 | 3.118 | 2832.2 | 100.51 | 100.24 | 100.64 | 100.60 | 100.42 | 99.64 |
| 4 | 44.01 | 3.166 | 2837.4 | 100.50 | 100.30 | 100.39 | 100.14 | 99.75 | 98.66 |
| 5 | 43.34 | 3.136 | 2791.1 | 99.56 | 100.69 | 101.43 | 100.95 | 100.39 | 98.82 |
| 6 | 45.19 | 3.139 | 2844.8 | 99.91 | 101.15 | 101.93 | 101.50 | 101.33 | 99.62 |
| 7 | 44.17 | 3.166 | 2842.4 | 101.02 | 100.02 | 100.68 | 99.84 | 99.75 | 98.53 |
| 8 | 43.67 | 3.143 | 2818.0 | 100.87 | 100.62 | 100.76 | 100.89 | 100.96 | 99.77 |
| 9 | 43.99 | 3.151 | 2851.7 | 101.14 | 101.02 | 102.09 | 101.20 | 100.84 | 99.43 |
| 10 | 43.99 | 3.141 | 2848.9 | 100.41 | 100.66 | 100.70 | 100.25 | 100.30 | 99.45 |
| 11 | 44.29 | 3.135 | 2839.4 | 101.08 | 100.18 | 101.11 | 100.16 | 99.75 | 99.66 |
| 12 | 43.62 | 3.161 | 2858.1 | 100.94 | 100.57 | 101.67 | 100.25 | 99.61 | 98.10 |
| 13 | 44.01 | 3.151 | 2821.1 | 101.16 | 100.84 | 101.05 | 100.98 | 100.61 | 99.84 |
| 14 | 43.17 | 3.136 | 2834.4 | 100.44 | 100.51 | 101.55 | 100.67 | 100.63 | 99.68 |
| 15 | 42.78 | 3.159 | 2840.0 | 101.24 | 101.26 | 101.85 | 100.86 | 100.98 | 99.53 |
| 16 | 44.94 | 3.145 | 2844.4 | 100.13 | 99.93 | 99.78 | 98.98 | 99.93 | 98.95 |
| 17 | 43.78 | 3.138 | 2841.3 | 99.50 | 101.37 | 102.01 | 99.61 | 101.10 | 99.57 |
| 18 | 43.31 | 3.140 | 2865.2 | 99.93 | 99.61 | 100.69 | 99.93 | 99.24 | 98.27 |
| 19 | 44.05 | 3.158 | 2867.8 | 101.45 | 100.27 | 100.98 | 100.09 | 99.66 | 98.64 |
| 20 | 43.89 | 3.158 | 2841.2 | 100.30 | 100.25 | 101.39 | 100.73 | 100.59 | 98.88 |
| n | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Mean | 43.92 | 3.148 | 2841.7 | 100.58 | 100.52 | 101.16 | 100.43 | 100.30 | 99.15 |
| Median | 43.99 | 3.147 | 2841.3 | 100.58 | 100.50 | 101.11 | 100.44 | 100.35 | 99.44 |
| St. dev. | 0.64 | 0.013 | 18.5 | 0.56 | 0.45 | 0.60 | 0.59 | 0.59 | 0.55 |
| Min. | 42.78 | 3.118 | 2791.1 | 99.50 | 99.61 | 99.78 | 98.98 | 99.24 | 98.10 |
| Max. | 45.19 | 3.166 | 2874.6 | 101.45 | 101.37 | 102.09 | 101.50 | 101.33 | 99.84 |

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| No. | u' | v' | Chromaticity Shift $\Delta u'v'$ | | | | | |
|----------|---------------|--------|----------------------------------|--------|--------|--------|--------|--------|
| | 0 h (Initial) | | 1000 h | 2000 h | 3000 h | 4000 h | 5000 h | 6000 h |
| 1 | 0.2541 | 0.5283 | 0.0002 | 0.0017 | 0.0007 | 0.0010 | 0.0009 | 0.0005 |
| 2 | 0.2547 | 0.5326 | 0.0001 | 0.0018 | 0.0011 | 0.0016 | 0.0009 | 0.0004 |
| 3 | 0.2551 | 0.5328 | 0.0001 | 0.0018 | 0.0014 | 0.0016 | 0.0014 | 0.0005 |
| 4 | 0.2549 | 0.5324 | 0.0001 | 0.0018 | 0.0018 | 0.0018 | 0.0016 | 0.0006 |
| 5 | 0.2573 | 0.5313 | 0.0002 | 0.0018 | 0.0015 | 0.0017 | 0.0013 | 0.0006 |
| 6 | 0.2545 | 0.5325 | 0.0003 | 0.0017 | 0.0010 | 0.0015 | 0.0011 | 0.0005 |
| 7 | 0.2548 | 0.5321 | 0.0002 | 0.0022 | 0.0020 | 0.0020 | 0.0018 | 0.0009 |
| 8 | 0.2558 | 0.5324 | 0.0001 | 0.0018 | 0.0013 | 0.0015 | 0.0013 | 0.0005 |
| 9 | 0.2542 | 0.5326 | 0.0002 | 0.0017 | 0.0009 | 0.0012 | 0.0010 | 0.0006 |
| 10 | 0.2551 | 0.5290 | 0.0002 | 0.0017 | 0.0007 | 0.0016 | 0.0012 | 0.0008 |
| 11 | 0.2548 | 0.5325 | 0.0002 | 0.0019 | 0.0014 | 0.0018 | 0.0015 | 0.0007 |
| 12 | 0.2544 | 0.5306 | 0.0002 | 0.0019 | 0.0012 | 0.0016 | 0.0012 | 0.0007 |
| 13 | 0.2556 | 0.5326 | 0.0003 | 0.0018 | 0.0012 | 0.0015 | 0.0013 | 0.0004 |
| 14 | 0.2561 | 0.5276 | 0.0002 | 0.0018 | 0.0016 | 0.0016 | 0.0015 | 0.0005 |
| 15 | 0.2547 | 0.5329 | 0.0003 | 0.0019 | 0.0012 | 0.0016 | 0.0014 | 0.0006 |
| 16 | 0.2549 | 0.5308 | 0.0003 | 0.0019 | 0.0014 | 0.0016 | 0.0016 | 0.0006 |
| 17 | 0.2548 | 0.5320 | 0.0013 | 0.0024 | 0.0016 | 0.0022 | 0.0019 | 0.0008 |
| 18 | 0.2549 | 0.5267 | 0.0015 | 0.0013 | 0.0014 | 0.0017 | 0.0014 | 0.0017 |
| 19 | 0.2541 | 0.5297 | 0.0002 | 0.0017 | 0.0010 | 0.0013 | 0.0013 | 0.0004 |
| 20 | 0.2548 | 0.5321 | 0.0004 | 0.0018 | 0.0013 | 0.0016 | 0.0014 | 0.0007 |
| n | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Mean | 0.2550 | 0.5312 | 0.0003 | 0.0018 | 0.0013 | 0.0016 | 0.0014 | 0.0007 |
| Median | 0.2548 | 0.5321 | 0.0002 | 0.0018 | 0.0013 | 0.0016 | 0.0014 | 0.0006 |
| St. dev. | 0.0008 | 0.0019 | 0.0004 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| Min. | 0.2541 | 0.5267 | 0.0001 | 0.0013 | 0.0007 | 0.0010 | 0.0009 | 0.0004 |
| Max. | 0.2573 | 0.5329 | 0.0015 | 0.0024 | 0.0020 | 0.0022 | 0.0019 | 0.0017 |



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6 TM-21-11 Report: Projecting Long Term Lumen Maintenance of LED Light Source

| Table 1: Report at each LM-80 Test Condition | | | | | |
|--|---------------|---|---------------|--|---|
| Description of LED Light Source Tested (manufacturer, model, catalog number) | | Manufacturer : WENRUN OPTOELECTRONIC CO., LTD. Model : WR-EP 3528 WW-ST-P35 | | | |
| Test Condition 1 - 55°C Case Temp | | Test Condition 2 - 85°C Case Temp | | | |
| Sample size | 20 | Sample size | 20 | Sample size | - |
| Number of failures | 0 | Number of failures | 0 | Number of failures | - |
| DUT drive current used in the test (mA) | 150 | DUT drive current used in the test (mA) | 150 | DUT drive current used in the test (mA) | - |
| Test duration (hours) | 6,000 | Test duration (hours) | 6,000 | Test duration (hours) | - |
| Test duration used for projection (hour to hour) | 1,000 - 6,000 | Test duration used for projection (hour to hour) | 1,000 - 6,000 | Test duration used for projection (hour to hour) | - |
| Tested case temperature (°C) | 55 | Tested case temperature (°C) | 85 | Tested case temperature (°C) | - |
| α | 2.963E-06 | α | 2.440E-06 | α | - |
| B | 1.015 | B | 1.012 | B | - |
| Calculated L70(6k) (hours) | 125,000 | Calculated L70(6k) (hours) | 151,000 | Calculated L70(6k) (hours) | - |
| Reported L70(6k) (hours) | >36000 | Reported L70(6k) (hours) | >36000 | Reported L70(6k) (hours) | - |

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Photos of the sample

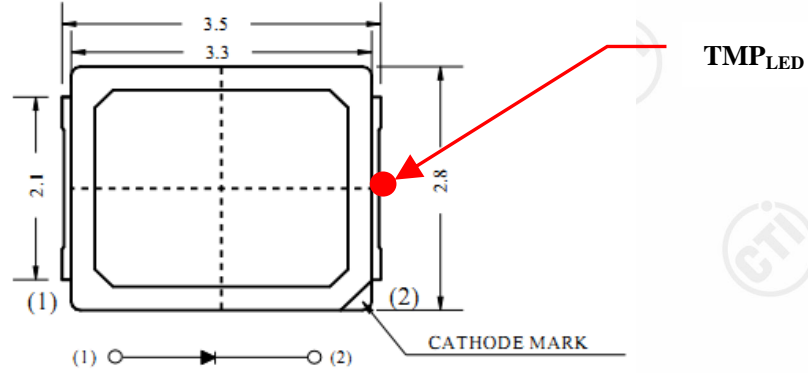


Fig.1- Mechanical Dimension

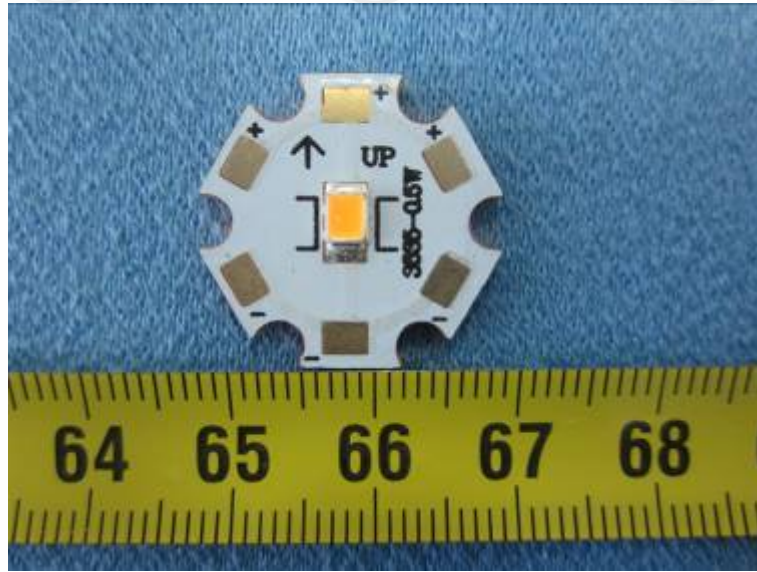


Fig.2- Overall view

*** End of Report ***

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