ENERGY STAR TEST REPORT

ENERGY STAR Program Requirements Product Specification for Luminaires (Light Fixtures) Eligibility Criteria Version 2.2

Applicant's name ..... :	LED One Corporation
Address ..... :	12437 Bellegrave Ave Eastvale, CA 91752 USA
Brands ..... :	LEDone
Report No. ..... :	BTR66.181.20.0028.61
Model ..... :	LOC-9RDDL-17WMCCT
Tested by (printed name and signature) ..... : Title ..... :	Xia Zeng **Test Engineer**
Approved by (printed name and signature) ..... : Title ..... :	Zack Zhao **Approved By**
Date of test ..... :	Jun 01, 2020 to Jun 09, 2020
Date of issue ..... :	Sep 19, 2022
Testing Laboratory Name ..... :	BEST Test Service Shenzhen Co., Ltd.
Address ..... :	1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyan, Baoan, Shenzhen, China TEL: + 86-755-28236006; FAX: + 86-755-23467087 Email: service@bestcert.cn
Accreditation ..... :	DLC/Lighting Facts/UL/ETL/ELI/CEC/EPA/DOE NVLAP Lab Code: 200770-0
Test specification	
Standard ..... :	Luminaires V2.2
Test procedure/method ..... :	Energy Star Test Procedure
Non-standard test method ..... :	No
Deviations ..... :	**N/A**

Note:

The laboratory has not been responsible for the sampling stage (e.g. the sample has been provided by the customer), the results relate only to the items tested.

Product description:			
The date of sampling .....:	N/A		
The date of receipt of the test sample / requirement /item(s).....:	Jun 01, 2020		
Sample Quantities .....:	1pc		
Sampling method.....:	Provided by Applicant		
The condition of the item .....:	N/A		
Fixture Model Name .....:	Downlight Surface Mount		
Fixture Model Number(SKU)	Not Provide		
Product Type .....:	☒Indoor Directional Luminaire	☐Indoor/Outdoor Directional Luminaire	
	☐Outdoor Directional Luminaire	☐Indoor Non-Directional Luminaire	
	☐Indoor/Outdoor Non-Directional Luminaire	☐Outdoor Non-Directional Luminaire	
Connected Luminaire? .....:	☐Yes	☒No	
Communication_Standard_Media_Network_Layer	☐Wired Ethernet	☐Wi-Fi	☐Zigbee
	☐Home Plug Green PHY	☐6LoWPAN	☐Z-Wave
	☐Other:		
Tested Model Number .....:	LOC-9RDDL-17WMCCT		
Additional Models Represented.....:	N/A		
Note .....:	N/A		
Rating(s) Input Voltage (V; Hz).....:	AC 120V, 60Hz		
Test Voltage(V; Hz) .....:	AC 120V, 60Hz		
Fixture Nominal Power .....:	17W		
Total Lumen Output of Fixture.....:	1300 lm		
Claimed Incandescent Equivalency...:	N/A		
Target CCT .....:	2700-3000K-3500-4000K-5000K(The default CCT setting is 2700K)		
Allowable CCT .....:	N/A		
CRI(Ra) .....:	80		
Nominal Life.....:	50000Hours		
Lighting Technology Used .....:	☒Solid State	☐Fluorescent	
Directional Luminaire Type.....:	☐Accent Light Line-voltage	☒Downlight Surface Mount	
	☐Downlight Solid State Retrofit kits	☐Downlight Recessed	
	☐Downlight Pendant	☐Under Cabinet	
	☐Outdoor Security	☐Cove Mount	
	☐Outdoor Porch Wall Mount	☐Outdoor Post Mounted	
	☐Outdoor Ceiling	☐Outdoor Close to Ceiling	
	☐Outdoor Pendent	☐Portable Desk Task	

Inseparable Other SSL (Non-Directional Luminaire).....:	☐Bath Vanity	☐Ceiling Mount
	☐Chandelier	☐Close to Ceiling Mount
	☐Decorative Pendant	☐Wall Sconces
	☐Linear Strip	☐Residential Portable Desk Task Light
	☐Wrapped Lens	☐Table Lamp
	☐Portable Floor Task Light	☐Floor Lamp
	☐Ventilating Fan Light	☐Torchiere
	☐Outdoor Ceiling Mount	☐Outdoor Close to Ceiling Mount
	☐Outdoor Porch Wall Mount	☐Outdoor Pendant Mount
	☐Outdoor Post Mount	☐Other(description):
Recessed Downlight Ratings	☐Type IC	☐Type Non-IC
	☐Type IC Airtight	☐Type Non-IC Airtight
Or Downlight Surface Mount Ratings	☐Type IC	☐Type Non-IC
	☐Type IC Airtight	☐Type Non-IC Airtight
Luminaire Features	☐Non-Dimmable	☒Continuously Dimmable
	☐Step Dimmable	☐Color Tunable
	☒White Light Tunable	☐Occupancy Sensor
	☐Dusk to Dawn Sensor	☐Outdoor Rated
	☐Damp Location Rated	☒Wet Location Rated
	☐Warm Dimming	☐DALI Dimming
	☐0-10V Dimming	☐Wireless Dimming
	☐USB Charger	☐AC Outlet
	☐Motion Sensor	/
Dimming Range .....:	10%-100%	
Allowable Housings/Chassis.....:	N/A	
Allowable Finishes .....:	N/A	
Allowable Mounting type.....:	N/A	
Allowable Reflector/Trims .....:	N/A	
Allowable Shade/Diffusers.....:	N/A	
Allowable Product Wattage(Directional Luminaires) .....:	N/A	
Number of Ballast/Driver per Luminaire .....:	1	
Number of Lighting Source per Ballast/Driver .....:	1	
Lighting Source Type	☐LED Lighting Engine	☐LED Retrofit Kits
	☐Compact Fluorescent	☐Circline
	☒Inseparable LED Source (modules, arrays, packages)	
Lighting Source Manufacture.....:	N/A	

Lighting Source Model.....:	N/A	
Lighting Source Lumen Output.....:	N/A	
Lighting Source is self-ballasted/has Integrated Driver? .....:	☐Yes	☒No
Lighting Source Mercury Content (mg)	N/A	
External Ballast/Driver Brand.....:	N/A	
External Ballast/Driver Model Number	N/A	
Maximum Recommended Ballast/Driver Case Temperature℃ .....:	90	

Note: The test data in this report shares with the report No. BTR66.181.19.0026.45

Test Method Description

ANSI/IEEE C62.41.1-2002 IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits
ANSI/IEEE C62.41.2-2002 IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000V and Less) AC Power Circuits
ANSI C78.5-2003 (R2015) Specifications for Performance of Self-ballasted Compact Fluorescent Lamps (Reaffirmed 2015)
ANSI C78.81-2010 or C78.81-2016 Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics
ANSI C78.376-2014 Specifications for the Chromaticity of Fluorescent Lamps
ANSI C78.377-2015 or C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products
ANSI C78.901-2014 or C78.901-2016 Single-Based Fluorescent Lamps—Dimensional and Electrical Characteristics
ANSI/ANSLG C81.61-2009 (R2014) or C81.61-2017 Specifications for Bases (Caps) for Electric Lamps (Reaffirmed 2014)
ANSI/ANSLG C81.62-2009 (R2014) or C81.62-2017 Lampholders for Electric Lamps (Reaffirmed 2014)
ANSI C82.2-2002 (R2016) Method of Measurement of Fluorescent Lamp Ballasts (Reaffirmed 2016)
ANSI C82.11-2011 or C82.11-2017 High-Frequency Fluorescent Lamp Ballasts
ANSI/ANSLG C82.16-2015 Light Emitting Diode Drivers—Methods of Measurement
ANSI C82.77-10-2014 Harmonic Emission Limits—Related Power Quality Requirements for Lighting Equipment
ANSI/UL 153-2002 or 153-2014 Standard for Safety of Portable Electric Luminaires
ANSI/UL 935-2009 Standard for Safety of Fluorescent-Lamp Ballasts
ANSI/UL 1310-2010 Standard for Safety of Class 2 Power Units
ANSI/UL 1574-2004 Standard for Safety of Track Lighting Systems
ANSI/UL 1598-2008 Standard for Safety of Luminaires
ANSI/UL 1598B-2010 Standard for Supplemental Requirements for Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires
ANSI/UL 1598C Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits
ANSI/UL 1993-2012 or 1993-2017 Standard for Safety of Self-Ballasted Lamps and Lamp Adapters
ANSI/UL 2108-2004 or 2108-2015 Standard for Low-Voltage Lighting Systems
ANSI/UL 8750-2009 or 8750-2015 Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products
ASTM E283-04(2012) Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen (Reapproved 2012)
CIE Pub. No. 13.3-1995 Method of Measuring and Specifying Color Rendering of Light Sources
CIE Pub. No. 015:2004 Colorimetry
EU Directive 2002/95/EC Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the Use of Certain Hazardous Substances In Electrical and Electronic Equipment
FCC CFR Title 47 Part 15 Radio Frequency Devices
FCC CFR Title 47 Part 18 Industrial, Scientific, and Medical Equipment
IEC 60061-1 (2012) Lamp Caps and Holders Together with Gauges for the Control of Interchangeability and Safety – Part 1: Lamp Caps
IEC 60081 Amend 4 Ed 5.0 (2010) Double-capped Fluorescent Lamps - Performance Specifications
IEC 60901 (2011) Single-capped Fluorescent Lamps - Performance Specifications
IEC 62301 ED.2.0 B:2011 Household electrical appliances - Measurement of standby power
IEC 61347-2-3-am2 ed1.0 b.2011 Amendment 2 - Lamp Control Gear - Part 2-3: Particular Requirements for A.C. Supplied Electronic Ballasts for Fluorescent Lamps
IEC 62321 Ed. 1.0 Electrotechnical Products - Determination Of Levels Of Six Regulated Substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)
IEEE 1789-2015 Recommending Practices for Modulating Current in High Brightness LEDs for Mitigating Health Risks to Viewers
IES LM-9-09 Electric and Photometric Measurements of Fluorescent Lamps
IES LM-10-96 Photometric Testing of Outdoor Fluorescent Luminaires
IES LM-31-95 Photometric Testing of Roadway Luminaires Using Incandescent Filament and High Intensity Discharge (HID) Lamps
IES LM-40-10 Life Testing of Fluorescent Lamps
IES LM-41-14 Approved Method for Photometric Testing of Indoor Fluorescent Luminaries
IES LM-46-04 Photometric Testing of Indoor Luminaires Using High Intensity Discharge or Incandescent Filament Lamps
IES LM-49-12 Life Testing of Incandescent Filament Lamps
IES LM-58-13 Method for Spectroradiometric Measurement Methods for Light Sources
IES LM-65-14 Life Testing of Compact Fluorescent Lamps
IES LM-66-14 Electrical and Photometric Measurements of Single-Ended Compact Fluorescent Lamps
IES LM-79-08 Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI/IES LM-79-19 Optical and Electrical Measurements of Solid-State Lighting Products
IES LM-80-08 and its Addendum A Measuring Lumen Maintenance of LED Light Sources
ANSI/IES LM-80-15 Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules
IES LM-82-12 Method for the Characterization of LED Light Engines and Integrated LED Lamps for Electrical and Photometric Properties as a Function of Temperature
IES LM-84-14 Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires
ANSI/IES RP-16-17 Nomenclature and Definitions for Illuminating Engineering
IES TM-21-11 and its Addendum B Projecting Long Term Lumen Maintenance of LED Sources
IES TM-28-14 Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaries
NEMA LSD 45-2009 Recommendations for Solid State Lighting Sub-Assembly Interfaces for Luminaires
NEMA 77-2017 Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria
NEMA SSL 7A-2013 or SSL 7A-2015 Phase Cut Dimming for Solid State Lighting: Basic Compatibility

Test Data

All tests are performed at the least Efficient white light setting.

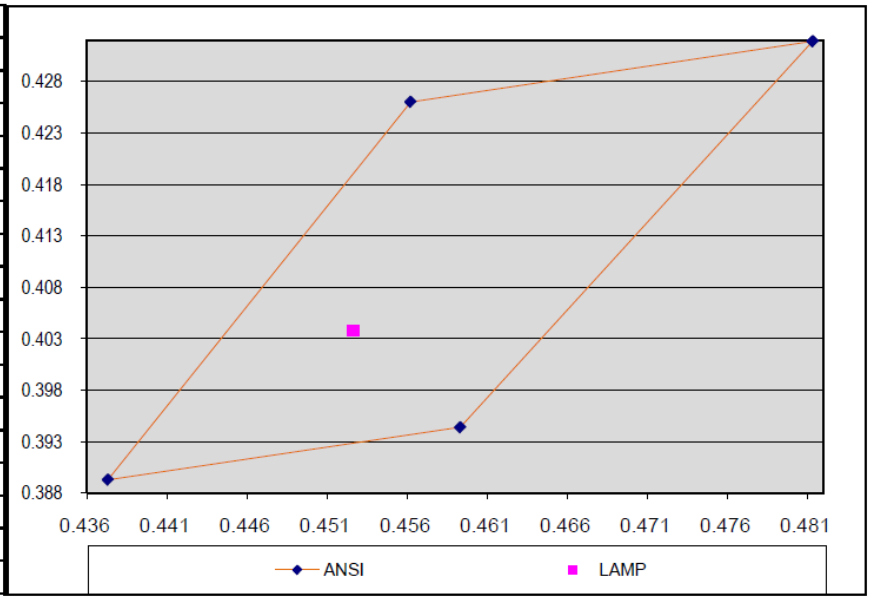
Initial Photometric and Electrical Test Data

Sample No	Test setting (For Color tunable)	Voltage (V)	Current (A)	Power (W)	Power Factor	Luminous Flux (Lumens)	Efficiency (Lumen/W)	CCT
L1	Least Efficient White light& Default White light& 2700K	120.04	0.1271	14.95	0.9796	1316.75	88.09	2751
L1	3000K	120.04	0.1271	14.94	0.9795	1349.50	90.33	3067
L1	3500K	120.04	0.1276	15.04	0.9821	1370.10	91.10	3616
L1	Most Consumptive White light 4000K	120.04	0.1276	15.04	0.9821	1399.50	93.05	4163
L1	5000K	120.04	0.1276	15.04	0.9821	1381.40	91.85	5200
Sample No	Test setting (For Color tunable)	CRI (Ra)	R9	x (CIE 1931)	y (CIE 1931)	u' (CIE 1976)	v' (CIE 1976)	Duv (CIE 1976)
L1	Least Efficient White light& Default White light& 2700K	83	11	0.4526	0.4038	0.2608	0.5236	-0.0019
L1	Most Consumptive White light 4000K	87	28	0.3716	0.3642	0.2243	0.4946	-0.0033
Sample No	Test setting (For Color tunable)	Luminaire Size (inches)	Heads of Accent Light	Mini Light Output (Lumen)	Color Angular Uniformity	Color Maintenance	Transient Protection (100KHz ring wave, 2.5KV level, 7 strikes)	Standby Power (W)
L1	Least Efficient White light	9	N/A	575	0.0005	0.0037	Survival	0.0
Sample No	Test setting (For Color tunable)	Start Time (mS)	Run-up Time (S)	Driver Replaceable	Light Source Replace ability	ANSI Standard Lamp Base	Downlight IC	Downlight AT
L1	Least Efficient White light	89	N/A	Replaceable	Exception	N/A	YES	N/A
Sample No	Test setting (For Color tunable)	Mini Dimming Level	Frequency (Hz)	Audible Noise (dBA)	Lumen Maintenance	Fixture Life Hours(H)	Max SVM	Max Pst
L1	Least Efficient White light	9.80%	120.0	18.43	72.59%	50000	2.18	0.17
Sample No	Test setting (For Color tunable)	Shipped with Lighting Components	Beam Angle (Degree)	/	/	/	/	/
L1	Least Efficient White light	Yes	107.8	/	/	/	/	/

7-Step Chromaticity Quadrangles Test Data

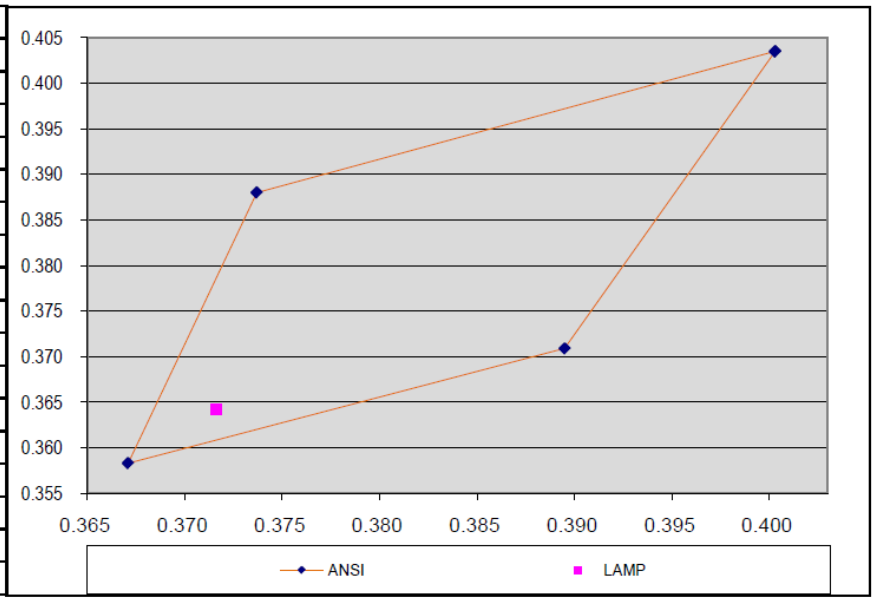
2700K

	2700K quadrangle	
	x	y
ANSI 78.377-2015	0.4813	0.4319
	0.4562	0.4260
	0.4373	0.3893
	0.4593	0.3944
	0.4813	0.4319
Center		
1	0.4526	0.4038
2		
3		
4		
5		
6		
7		
8		
9		
10		

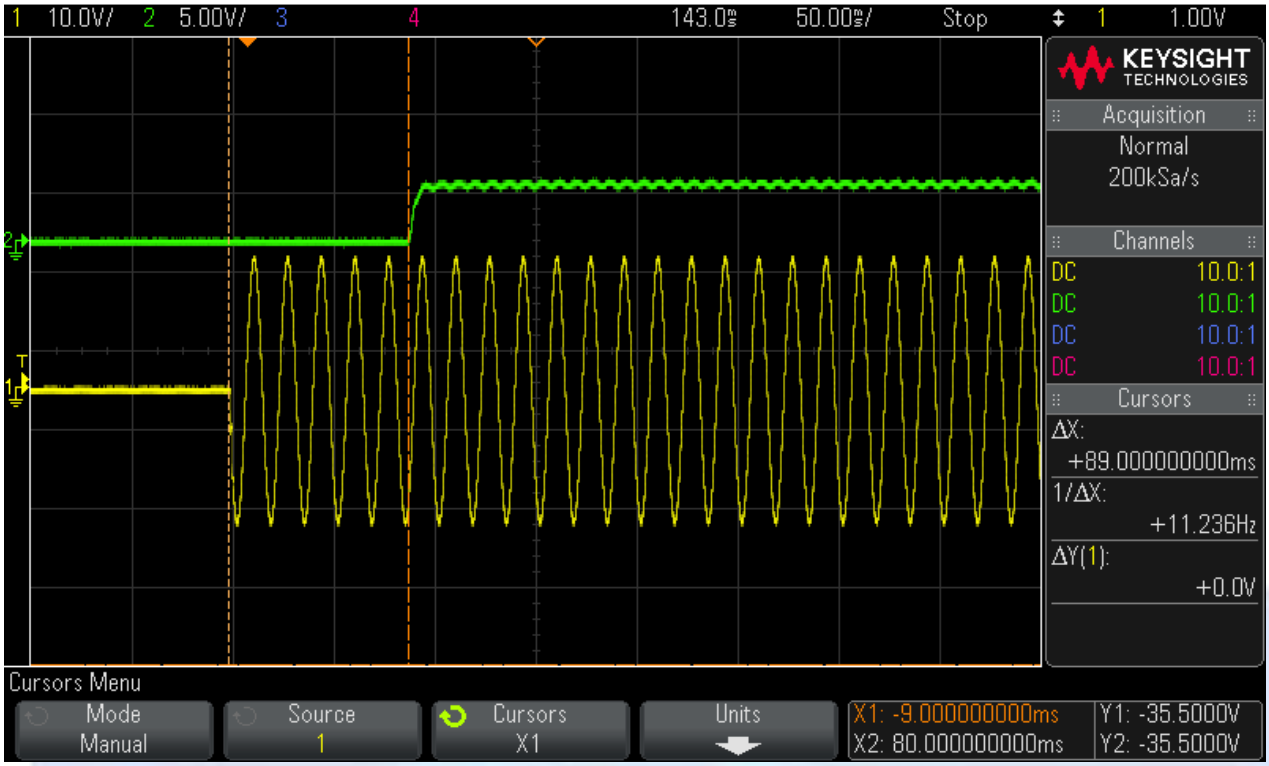


4000K

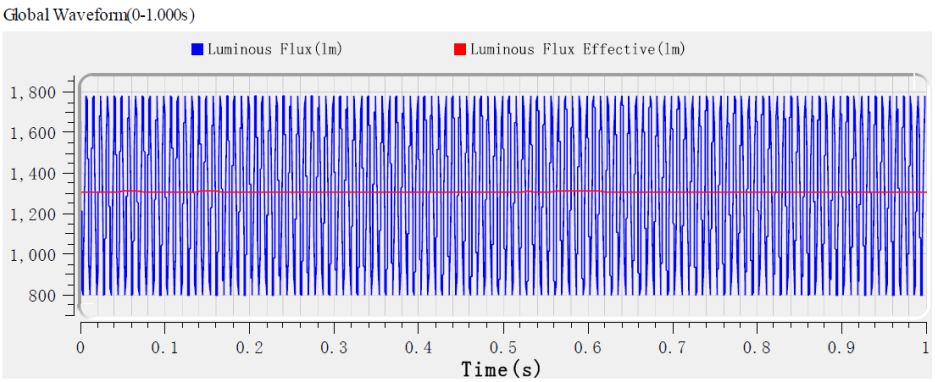
	4000K quadrangle	
	x	y
ANSI 78.377-2015	0.4003	0.4035
	0.3737	0.3880
	0.3671	0.3583
	0.3895	0.3709
	0.4003	0.4035
Center		
1	0.3716	0.3642
2		
3		
4		
5		
6		
7		
8		
9		
10		

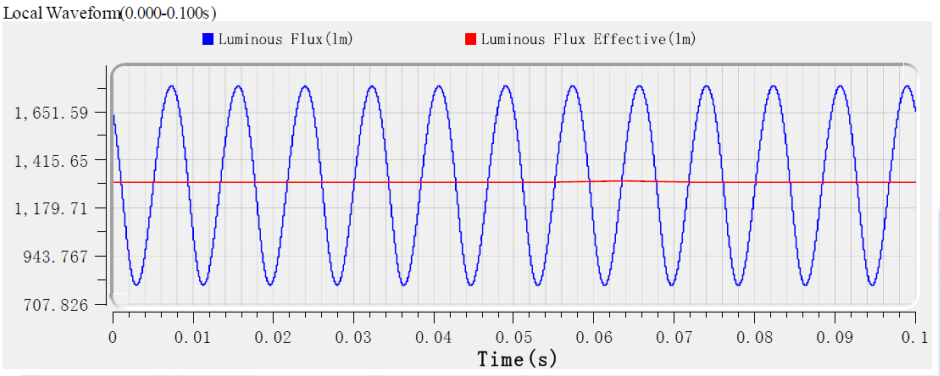


Start Time Plots



Frequency





Zonal Lumen Density

Luminaire Type	Cove Mount/ Under Cabinet	Downlights/ downlight retrofits	Accent Lights	Outdoor, Wall-, Porch-, Pendant-, and Post-Mounted Luminaires		Portable Desk Task
Zone	0-60°	0-60°	0-60°	0°- 85°	>90°	0-75°
Distribution	≥60%	≥75%	≥80%	≥95%	≤0.5%	≥60%
Result	N/A	79.4%	N/A	N/A	N/A	N/A

Color Angular Uniformity

Gamma\C	C0			C90		
	CIE u'	CIE v'	Du'v'	CIE u'	CIE v'	Du'v'
-54	0.2617	0.5236	0.0001	0.2619	0.5235	0.0003
-53	0.2621	0.5237	0.0005	0.2619	0.5235	0.0003
-52	0.2620	0.5237	0.0004	0.2619	0.5236	0.0003
-51	0.2620	0.5237	0.0004	0.2618	0.5236	0.0002
-50	0.2620	0.5237	0.0004	0.2620	0.5236	0.0004
-49	0.2620	0.5237	0.0004	0.2620	0.5236	0.0004
-48	0.2619	0.5237	0.0003	0.2620	0.5236	0.0004
-47	0.2619	0.5237	0.0003	0.2620	0.5236	0.0004
-46	0.2618	0.5237	0.0002	0.2619	0.5236	0.0003
-45	0.2618	0.5237	0.0002	0.2619	0.5236	0.0003
-44	0.2618	0.5237	0.0002	0.2619	0.5236	0.0003
-43	0.2619	0.5237	0.0003	0.2620	0.5236	0.0004
-42	0.2619	0.5237	0.0003	0.2620	0.5236	0.0004
-41	0.2618	0.5237	0.0002	0.2620	0.5236	0.0004
-40	0.2618	0.5237	0.0002	0.2620	0.5236	0.0004
-39	0.2618	0.5237	0.0002	0.2620	0.5236	0.0004
-38	0.2617	0.5236	0.0001	0.2619	0.5236	0.0003
-37	0.2618	0.5237	0.0002	0.2619	0.5236	0.0003
-36	0.2618	0.5237	0.0002	0.2618	0.5236	0.0002
-35	0.2618	0.5237	0.0002	0.2618	0.5236	0.0002
-34	0.2617	0.5237	0.0001	0.2618	0.5236	0.0002
-33	0.2617	0.5236	0.0001	0.2620	0.5237	0.0004
-32	0.2616	0.5236	0.0000	0.2619	0.5236	0.0003
-31	0.2616	0.5236	0.0000	0.2619	0.5237	0.0003
-30	0.2617	0.5236	0.0001	0.2619	0.5236	0.0003
-29	0.2617	0.5236	0.0001	0.2618	0.5236	0.0002
-28	0.2617	0.5237	0.0001	0.2618	0.5236	0.0002
-27	0.2616	0.5236	0.0000	0.2618	0.5236	0.0002
-26	0.2616	0.5236	0.0000	0.2617	0.5236	0.0001
-25	0.2616	0.5236	0.0000	0.2618	0.5236	0.0002
-24	0.2616	0.5236	0.0000	0.2617	0.5236	0.0001
-23	0.2615	0.5236	0.0001	0.2617	0.5236	0.0001
-22	0.2615	0.5236	0.0001	0.2617	0.5236	0.0001
-21	0.2616	0.5236	0.0000	0.2616	0.5236	0.0001
-20	0.2616	0.5236	0.0000	0.2616	0.5236	0.0001
-19	0.2616	0.5236	0.0000	0.2616	0.5236	0.0001
-18	0.2615	0.5236	0.0001	0.2616	0.5236	0.0001
-17	0.2615	0.5236	0.0001	0.2615	0.5235	0.0001
-16	0.2615	0.5236	0.0001	0.2615	0.5235	0.0001
-15	0.2615	0.5236	0.0001	0.2615	0.5235	0.0001
-14	0.2614	0.5236	0.0002	0.2614	0.5235	0.0002
-13	0.2614	0.5236	0.0002	0.2614	0.5235	0.0002
-12	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
-11	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
-10	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
-9	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
-8	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-7	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-6	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-5	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-4	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-3	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-2	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
-1	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
0	0.2616	0.5237	0.0001	0.2616	0.5237	0.0002
1	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
2	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
3	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
4	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003

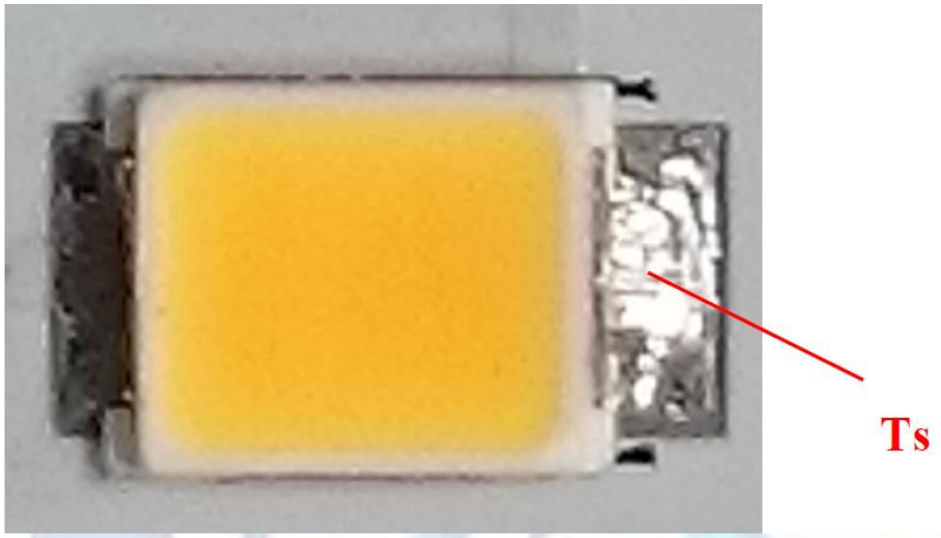
5	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
6	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
7	0.2613	0.5235	0.0003	0.2613	0.5234	0.0003
8	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
9	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
10	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
11	0.2613	0.5235	0.0003	0.2613	0.5235	0.0003
12	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
13	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
14	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
15	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
16	0.2614	0.5235	0.0002	0.2614	0.5235	0.0002
17	0.2615	0.5235	0.0002	0.2614	0.5235	0.0002
18	0.2615	0.5235	0.0002	0.2615	0.5235	0.0001
19	0.2615	0.5235	0.0002	0.2615	0.5235	0.0001
20	0.2615	0.5235	0.0002	0.2615	0.5235	0.0001
21	0.2615	0.5236	0.0001	0.2615	0.5235	0.0001
22	0.2616	0.5236	0.0000	0.2614	0.5235	0.0002
23	0.2616	0.5236	0.0000	0.2615	0.5235	0.0001
24	0.2616	0.5236	0.0000	0.2615	0.5235	0.0001
25	0.2616	0.5236	0.0000	0.2615	0.5235	0.0001
26	0.2617	0.5236	0.0001	0.2615	0.5235	0.0001
27	0.2617	0.5236	0.0001	0.2615	0.5235	0.0001
28	0.2617	0.5236	0.0001	0.2616	0.5235	0.0000
29	0.2618	0.5236	0.0002	0.2616	0.5235	0.0000
30	0.2618	0.5236	0.0002	0.2616	0.5235	0.0000
31	0.2618	0.5236	0.0002	0.2615	0.5235	0.0001
32	0.2618	0.5236	0.0002	0.2616	0.5235	0.0000
33	0.2619	0.5236	0.0003	0.2616	0.5235	0.0000
34	0.2619	0.5236	0.0003	0.2616	0.5235	0.0000
35	0.2617	0.5236	0.0001	0.2616	0.5235	0.0000
36	0.2617	0.5236	0.0001	0.2617	0.5235	0.0001
37	0.2618	0.5236	0.0002	0.2617	0.5235	0.0001
38	0.2618	0.5236	0.0002	0.2616	0.5235	0.0000
39	0.2618	0.5236	0.0002	0.2616	0.5235	0.0000
40	0.2619	0.5236	0.0003	0.2616	0.5235	0.0000
41	0.2619	0.5236	0.0003	0.2617	0.5235	0.0001
42	0.2619	0.5236	0.0003	0.2617	0.5235	0.0001
43	0.2619	0.5236	0.0003	0.2616	0.5235	0.0000
44	0.2619	0.5236	0.0003	0.2616	0.5235	0.0000
45	0.2617	0.5236	0.0001	0.2617	0.5235	0.0001
46	0.2618	0.5235	0.0002	0.2617	0.5235	0.0001
47	0.2618	0.5235	0.0002	0.2617	0.5235	0.0001
48	0.2618	0.5236	0.0002	0.2616	0.5235	0.0000
49	0.2618	0.5235	0.0002	0.2616	0.5235	0.0000
50	0.2619	0.5236	0.0003	0.2617	0.5235	0.0001
51	0.2619	0.5236	0.0003	0.2617	0.5235	0.0001
52	0.2617	0.5235	0.0001	0.2616	0.5235	0.0000
53	0.2618	0.5235	0.0002	0.2616	0.5235	0.0000
54	0.2618	0.5235	0.0002	0.2616	0.5235	0.0000

Driver TMPc/ LED Forward Current/TMP_{LED} Test Data

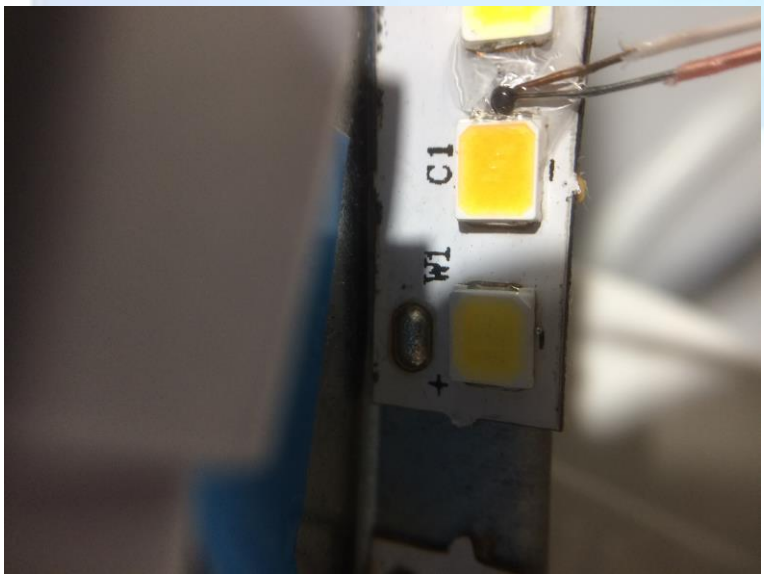
Model No.	LED Package Manufacture	LED Package Model	Max In Situ TMP_{LED} (ºC)	Drive Current of LED (mA)	Driver Tc (ºC)	In Situ Driver TMPc (ºC)
LOC-9RDDL-17WMCCT	Bridgelux Inc.	BXEN-27E-13H-9A	79.7	19.7	90.0	57.6

Note: Using a FLUKE 179 DIGITAL MULTIMETER, the total drive current from the LED driver to the LED board was measured to be 197mA under test conditions. This was further distributed to an LED array comprising of 10 parallel circuits, each having 8 LEDs in series. Hence the forward current of each individual LED is calculated to be 197/10 = 19.7mA.

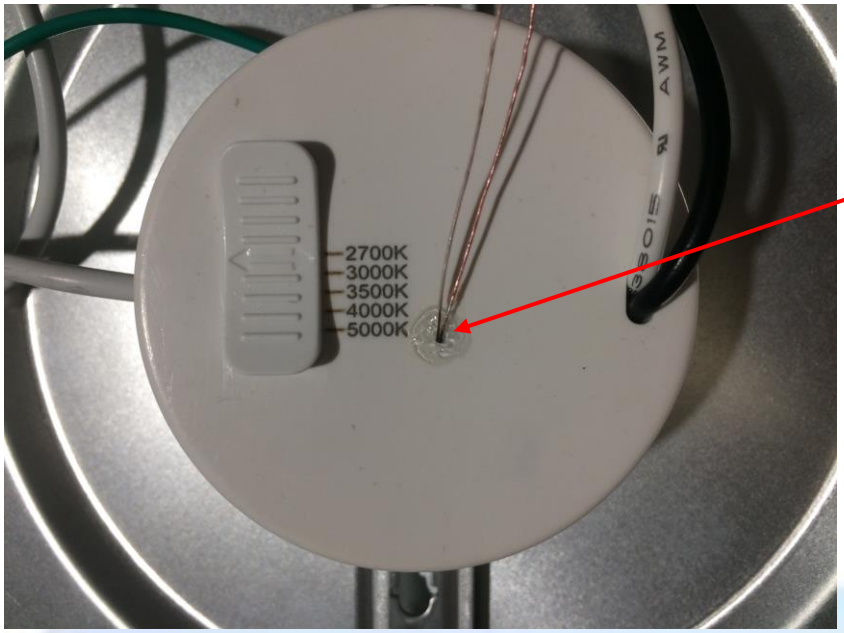
Temperature Measurement Point in LM-80 Report



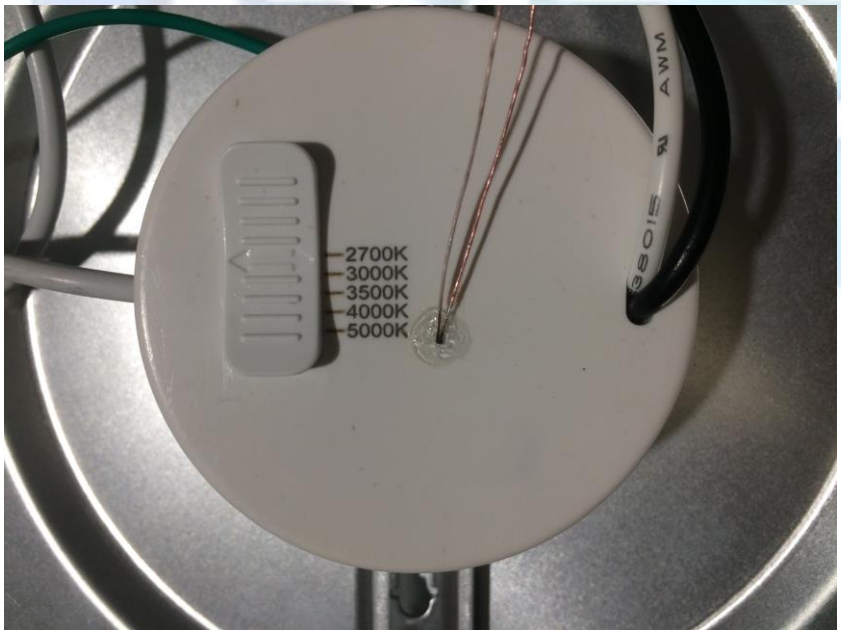
In Situ LED Lighting Source Temperature Measurement Point



LED Driver Hot Spot Location and TC



In Situ LED Driver Temperature Measure Point Location



Lumen Maintenance and Lighting Source Life Test Data

TM-21 Inputs

Instructions
Yellow fields are completed by the user. Fields not used should be left blank. Cyan fields are calculated based on user entries. First, enter a description of the LED light source tested. Then complete the fields labeled "LM-80 Testing Details". Test duration must be at least 6,000 hours. If only one case temperature data set is to be used (no interpolation), complete only "Tested case temperature 1". For only two case temperature data sets, complete 1 and 2. Next, further to the right, in the corresponding box(es) for each tested case temperature, enter the test data along with the time (in hours) at which each measurement was taken. Data entered must be normalized then averaged measured data (per TM-21 sections 5.2.1 and 5.2.2). If case temperatures have different test durations, enter data up to the lowest of the test durations for all of the case temperatures. Enter drive current, *in-situ* temperature data and the percentage of initial lumens to project to in the fields labeled "*In-Situ* Inputs". Results can be tailored to estimate lumen maintenance at a specific time by entering a value (t) in the yellow field. A complete TM-21 report will appear on the next tab labeled "Report".

Description of LED Light Source Tested (manufacturer, model, catalog number)
Bridgelux Inc. BXEN-27E-13H-9A

LM-80 Testing Details	
Total number of units tested per case temperature:	25
Number of failures:	0
Number of units measured:	25
Test duration (hours):	10000
Tested drive current (mA):	100
Tested case temperature 1 (T_c, ºC):	85
Tested case temperature 2 (T_c, ºC):	105
Tested case temperature 3 (T_c, ºC):	

LM-80 Test Inputs

Test Data for 85ºC Case Temperature		Test Data for 105ºC Case Temperature		Tested Case Temperature 3	
Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)
1000	99.71%	1000	98.51%		
2000	99.15%	2000	98.01%		
3000	98.50%	3000	97.63%		
4000	98.09%	4000	96.74%		
5000	97.07%	5000	95.36%		
6000	96.04%	6000	93.28%		
7000	95.57%	7000	92.90%		
8000	95.30%	8000	92.50%		
9000	94.90%	9000	92.10%		
10000	93.52%	10000	91.75%		

***In-Situ* Inputs**

Drive current for each LED package/array/module (mA):	19.7
In-situ case temperature (T_c, ºC):	79.7
Percentage of initial lumens to project to (e.g. for L_{70}, enter 70):	70

Results

Time (t) at which to estimate lumen maintenance (hours):	50,000
Lumen maintenance at time (t) (%):	72.59%
Reported L70 (hours):	56,000

Color Maintenance(Share data from IESNA LM-80 report)

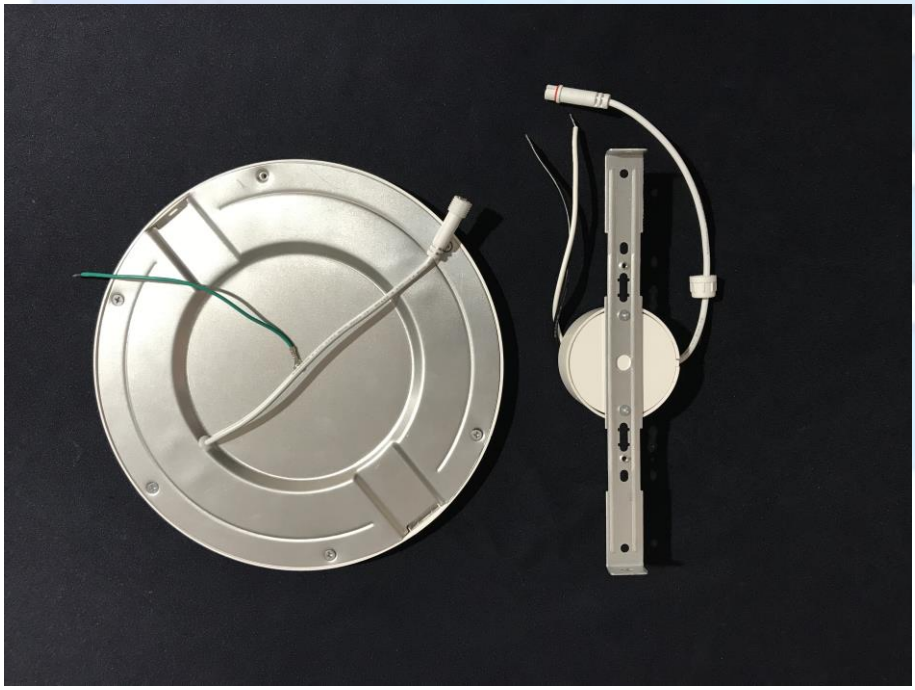
Appendix A

Data Set 1	
Case Temperature	85 ℃
Measurement Current	100 mA

Table 1-4
Chromaticity Shift

	Chromaticity Shift Δu'v'										
Sample No.	0 h	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h	7000 h	8000 h	9000 h	10,000 h
15060102-1	0.0000	0.0001	0.0003	0.0008	0.0010	0.0014	0.0014	0.0017	0.0018	0.0018	0.0021
15060102-2	0.0000	0.0006	0.0009	0.0010	0.0014	0.0021	0.0022	0.0024	0.0027	0.0026	0.0023
15060102-3	0.0000	0.0003	0.0005	0.0010	0.0013	0.0019	0.0022	0.0026	0.0033	0.0036	0.0035
15060102-4	0.0000	0.0001	0.0003	0.0007	0.0011	0.0014	0.0016	0.0016	0.0019	0.0014	0.0016
15060102-5	0.0000	0.0003	0.0006	0.0012	0.0017	0.0022	0.0027	0.0025	0.0027	0.0024	0.0029
15060102-6	0.0000	0.0002	0.0004	0.0004	0.0009	0.0014	0.0023	0.0026	0.0029	0.0029	0.0027
15060102-7	0.0000	0.0001	0.0003	0.0006	0.0009	0.0013	0.0017	0.0014	0.0021	0.0025	0.0012
15060102-8	0.0000	0.0002	0.0005	0.0007	0.0009	0.0012	0.0017	0.0015	0.0020	0.0019	0.0016
15060102-9	0.0000	0.0002	0.0005	0.0011	0.0013	0.0017	0.0019	0.0019	0.0024	0.0019	0.0019
15060102-10	0.0000	0.0003	0.0007	0.0013	0.0016	0.0021	0.0025	0.0021	0.0024	0.0019	0.0022
15060102-11	0.0000	0.0003	0.0006	0.0009	0.0012	0.0020	0.0023	0.0021	0.0020	0.0017	0.0022
15060102-12	0.0000	0.0001	0.0004	0.0010	0.0012	0.0017	0.0023	0.0021	0.0027	0.0029	0.0026
15060102-13	0.0000	0.0002	0.0004	0.0007	0.0011	0.0016	0.0021	0.0018	0.0024	0.0021	0.0022
15060102-14	0.0000	0.0003	0.0007	0.0011	0.0012	0.0020	0.0026	0.0026	0.0029	0.0027	0.0034
15060102-15	0.0000	0.0002	0.0003	0.0007	0.0011	0.0019	0.0026	0.0030	0.0037	0.0033	0.0037
15060102-16	0.0000	0.0001	0.0005	0.0009	0.0015	0.0020	0.0025	0.0022	0.0026	0.0022	0.0031
15060102-17	0.0000	0.0003	0.0006	0.0007	0.0011	0.0014	0.0016	0.0017	0.0022	0.0023	0.0025
15060102-18	0.0000	0.0003	0.0005	0.0010	0.0016	0.0020	0.0028	0.0026	0.0031	0.0030	0.0032
15060102-19	0.0000	0.0002	0.0004	0.0006	0.0011	0.0015	0.0018	0.0018	0.0023	0.0025	0.0020
15060102-20	0.0000	0.0001	0.0004	0.0006	0.0008	0.0011	0.0020	0.0019	0.0025	0.0018	0.0016
15060102-21	0.0000	0.0002	0.0004	0.0006	0.0009	0.0015	0.0027	0.0028	0.0030	0.0023	0.0025
15060102-22	0.0000	0.0001	0.0003	0.0006	0.0008	0.0013	0.0019	0.0019	0.0022	0.0017	0.0022
15060102-23	0.0000	0.0004	0.0007	0.0009	0.0011	0.0016	0.0020	0.0023	0.0029	0.0019	0.0022
15060102-24	0.0000	0.0002	0.0003	0.0007	0.0011	0.0018	0.0026	0.0030	0.0035	0.0028	0.0028
15060102-25	0.0000	0.0001	0.0005	0.0011	0.0017	0.0024	0.0026	0.0030	0.0030	0.0026	0.0027
Avg.	0.0000	0.0002	0.0005	0.0008	0.0012	0.0017	0.0022	0.0022	0.0026	0.0023	0.0024
Med.	0.0000	0.0002	0.0005	0.0008	0.0011	0.0017	0.0022	0.0021	0.0026	0.0023	0.0023
σ	0.0000	0.0001	0.0002	0.0002	0.0003	0.0003	0.0004	0.0005	0.0005	0.0005	0.0006
Min.	0.0000	0.0001	0.0003	0.0004	0.0008	0.0011	0.0014	0.0014	0.0018	0.0014	0.0012
Max.	0.0000	0.0006	0.0009	0.0013	0.0017	0.0024	0.0028	0.0030	0.0037	0.0036	0.0037

EUT Photo



Annex

Please see the next page for the luminious intensity test data

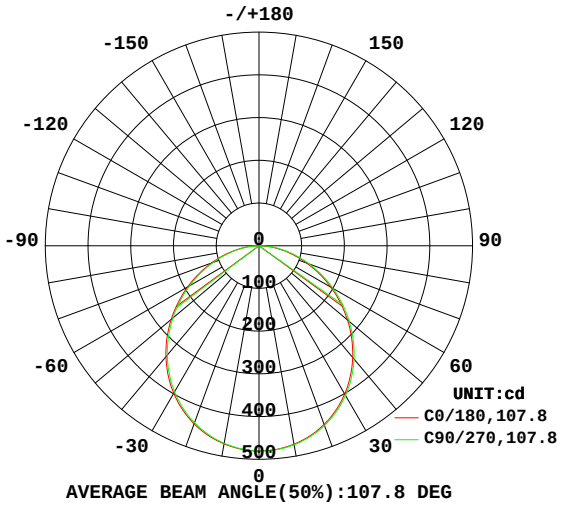
----------END----------

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

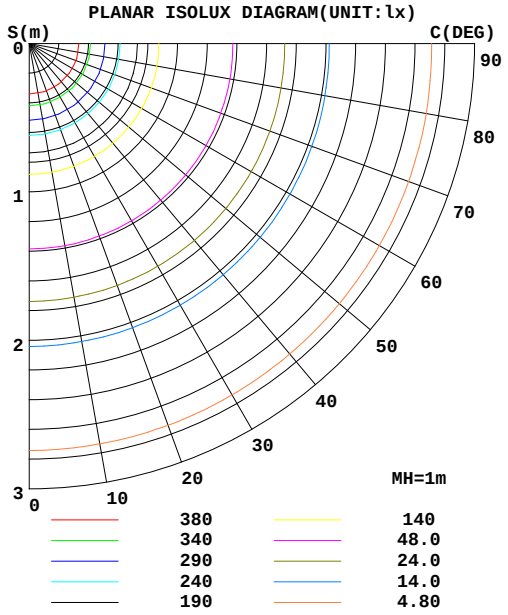
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 88.09 lm/W	
MODEL	LOC-9RDDL-17WMCCT	Imax(cd)	480.4	S/MH(C0/180)	1.24
NOMINAL POWER(W)	17	LOR(%)	100.0	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1316.7	η UP,DN(C0-180)	0.0,49.0
NOMINAL FLUX(lm)	1316.75	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,51.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120	η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):107.8 DEG

PLANAR ISOLUX DIAGRAM(UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lamp
10	470.9	470.1	469.7	469.1	471.7	472.4	473.1	473.3	0- 10	45.41	45.41	3.45
20	443.7	442.6	441.1	440.1	445.2	446.5	447.9	448.5	10- 20	129.8	175.2	13.3
30	399.1	397.4	395.1	393.6	401.2	403.0	404.9	406.0	20- 30	195.4	370.6	28.1
40	339.1	336.8	334.0	332.1	341.5	343.5	346.3	347.6	30- 40	232.4	603.0	45.8
50	268.3	266.0	262.9	260.5	270.4	273.0	276.1	277.7	40- 50	235.7	838.7	63.7
60	192.8	190.8	187.7	184.9	194.7	197.2	200.6	202.7	50- 60	207.2	1046	79.4
70	118.6	116.6	113.9	111.0	119.6	121.7	125.6	127.9	60- 70	154.6	1201	91.2
80	51.66	49.98	47.84	45.35	51.87	53.72	57.35	59.65	70- 80	89.53	1290	98
90	0.5477	0.2237	0.1020	0.0064	0.1438	0.5767	2.421	4.132	80- 90	26.56	1317	100
100	0.0009	0.0038	0.0054	0.0024	0.0021	0.0018	0.0000	0.0000	90-100	0.0737	1317	100
110	0.0045	0.0102	0.0066	0.0048	0.0072	0.0036	0.0027	0.0018	100-110	0.0037	1317	100
120	0.0090	0.0108	0.0084	0.0045	0.0096	0.0066	0.0060	0.0047	110-120	0.0062	1317	100
130	0.0111	0.0111	0.0375	0.0353	0.0093	0.0096	0.0111	0.0060	120-130	0.0095	1317	100
140	0.0111	0.0129	0.0135	0.0099	0.0108	0.0135	0.0102	0.0099	130-140	0.0116	1317	100
150	0.0123	0.0147	0.0144	0.0105	0.0129	0.0132	0.0123	0.0120	140-150	0.0076	1317	100
160	0.0138	0.0147	0.0141	0.0108	0.0147	0.0144	0.0135	0.0120	150-160	0.0061	1317	100
170	0.0150	0.0147	0.0147	0.0114	0.0138	0.0141	0.0141	0.0117	160-170	0.0038	1317	100
180	0	0	0.0003	0	0	0	0.0002	0.0036	170-180	0.0010	1317	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 722.56 lm

%lum = 54.9%
%lamp = 54.9%

Conical surface Flux(120deg): 1045.9 lm

%lum = 79.4%
%lamp = 79.4%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

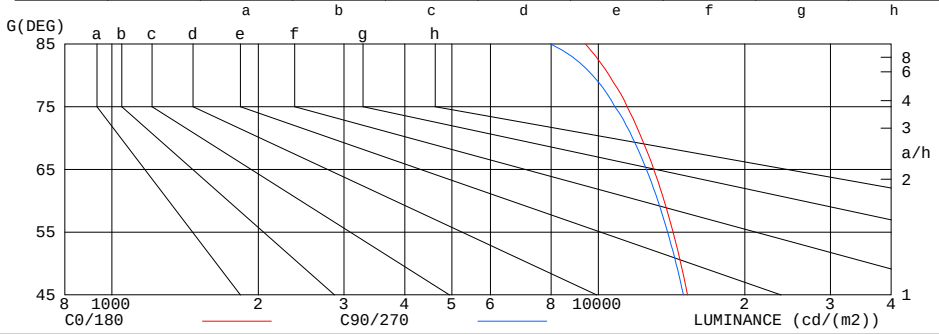
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

LUMINANCE LIMITATION CURVES

GLARE	CLASS	ILLUMINANCE (lx)							
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	9413	7981
80	10531	9731
75	11464	10811
70	12273	11765
65	12995	12557
60	13652	13256
55	14246	13886
50	14774	14447
45	15253	14961

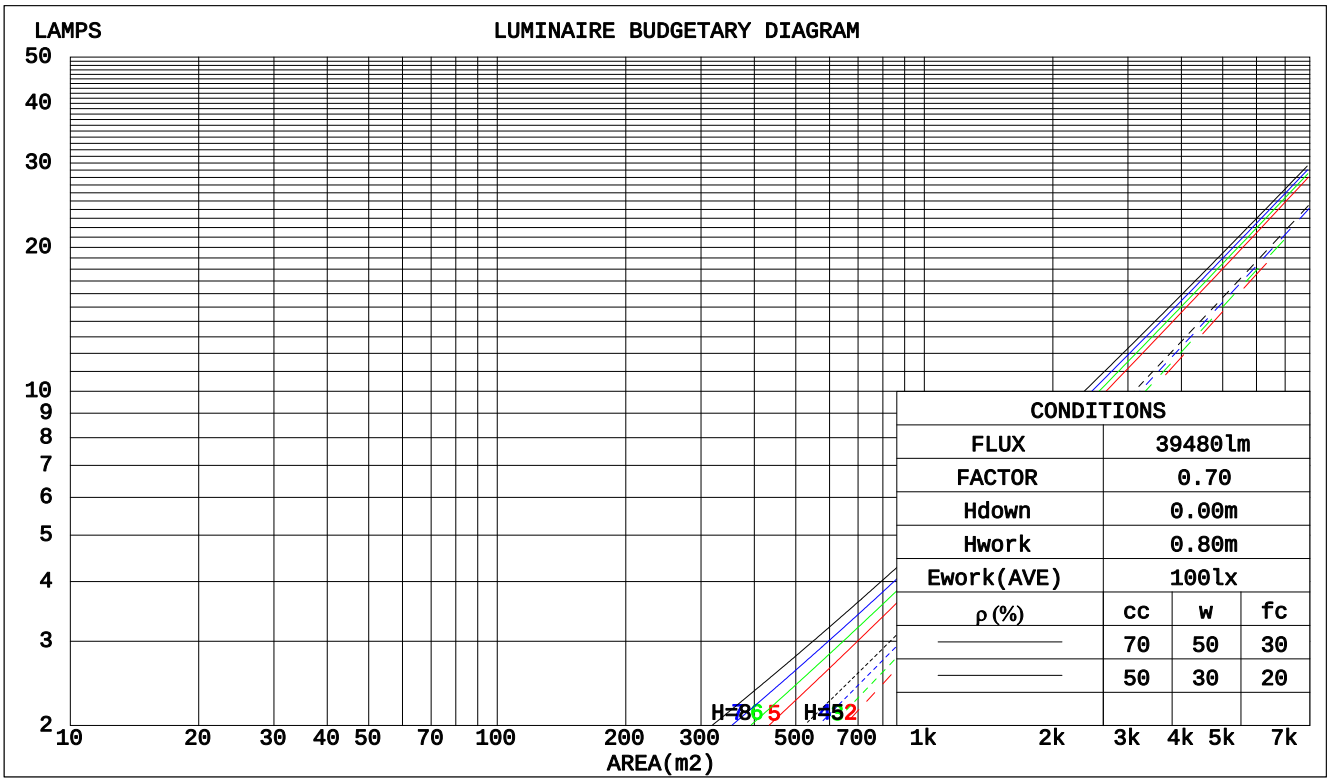
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Coefficients of Utilization(CU)												
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	.00
1.0	1.04	.00	.96	1.02	.98	.94	.97	.94	.91	.94	.91	.88	.90	.88	.86	.84
2.0	.91	.84	.78	.89	.83	.77	.85	.80	.75	.82	.78	.74	.79	.75	.72	.70
3.0	.80	.72	.65	.78	.71	.65	.75	.69	.63	.72	.67	.62	.70	.65	.61	.59
4.0	.71	.62	.55	.69	.61	.55	.67	.60	.54	.65	.58	.53	.62	.57	.53	.50
5.0	.63	.54	.48	.62	.54	.47	.60	.53	.47	.58	.51	.46	.56	.50	.46	.44
6.0	.57	.48	.42	.56	.48	.41	.54	.47	.41	.53	.46	.41	.51	.45	.40	.38
7.0	.52	.43	.37	.51	.43	.37	.49	.42	.36	.48	.41	.36	.47	.40	.36	.34
8.0	.47	.39	.33	.47	.38	.33	.45	.38	.33	.44	.37	.32	.43	.37	.32	.30
9.0	.43	.35	.30	.43	.35	.30	.42	.34	.29	.41	.34	.29	.40	.33	.29	.27
10.0	.40	.32	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.26	.25



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coeffcients(WEC)									
0.0																
1.0	.308	.175	.055	.301	.171	.054	.287	.165	.053	.275	.159	.051	.264	.153	.049	
2.0	.289	.158	.049	.283	.156	.048	.271	.151	.047	.260	.146	.046	.250	.142	.045	
3.0	.267	.142	.043	.262	.140	.042	.252	.136	.041	.242	.133	.041	.233	.129	.040	
4.0	.247	.128	.038	.242	.127	.037	.233	.124	.037	.224	.121	.036	.217	.118	.036	
5.0	.228	.116	.034	.224	.115	.034	.216	.112	.033	.208	.110	.033	.201	.108	.032	
6.0	.212	.106	.030	.208	.105	.030	.201	.103	.030	.194	.101	.030	.188	.099	.029	
7.0	.197	.098	.028	.194	.097	.028	.188	.095	.027	.181	.093	.027	.176	.091	.027	
8.0	.184	.090	.025	.181	.089	.025	.176	.088	.025	.170	.086	.025	.165	.085	.025	
9.0	.173	.084	.023	.170	.083	.023	.165	.082	.023	.160	.080	.023	.156	.079	.023	
10.0	.163	.078	.022	.160	.077	.022	.156	.076	.021	.151	.075	.021	.147	.074	.021	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.191	.191	.191	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.180	.156	.135	.154	.134	.116	.105	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.172	.132	.098	.147	.114	.085	.101	.079	.059	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.075	.141	.099	.065	.097	.069	.045	.056	.040	.027	.018	.013	.009	
4.0	.156	.101	.059	.134	.087	.051	.092	.061	.036	.053	.036	.021	.017	.012	.007	
5.0	.149	.091	.048	.128	.078	.041	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.142	.082	.039	.122	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.129	.069	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.122	.065	.025	.105	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.023	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	22.0	23.5	22.2	23.7	23.9	21.9	23.4	22.1	23.6	23.8
3H	23.4	24.8	23.7	25.1	25.3	23.3	24.7	23.6	24.9	25.1
4H	24.0	25.3	24.3	25.6	25.8	23.8	25.2	24.2	25.4	25.7
6H	24.5	25.7	24.8	26.0	26.3	24.2	25.5	24.6	25.8	26.0
8H	24.6	25.8	24.9	26.1	26.4	24.4	25.6	24.7	25.9	26.1
12H	24.7	25.9	25.0	26.1	26.4	24.4	25.6	24.8	25.9	26.2
4H 2H	22.5	23.9	22.9	24.1	24.4	22.5	23.8	22.8	24.0	24.3
3H	24.2	25.3	24.5	25.6	25.9	24.1	25.2	24.4	25.5	25.8
4H	24.9	26.0	25.3	26.3	26.6	24.7	25.8	25.1	26.1	26.5
6H	25.5	26.4	25.9	26.8	27.1	25.3	26.2	25.7	26.6	26.9
8H	25.7	26.5	26.1	26.9	27.3	25.5	26.3	25.9	26.7	27.1
12H	25.8	26.6	26.2	27.0	27.4	25.6	26.4	26.0	26.8	27.2
8H 4H	25.1	26.0	25.6	26.4	26.8	25.0	25.9	25.4	26.3	26.6
6H	25.9	26.6	26.3	27.0	27.4	25.7	26.4	26.1	26.8	27.3
8H	26.2	26.8	26.6	27.2	27.7	26.0	26.6	26.4	27.0	27.5
12H	26.4	26.9	26.9	27.4	27.9	26.1	26.7	26.6	27.2	27.6
12H 4H	25.2	26.0	25.6	26.4	26.8	25.0	25.8	25.5	26.2	26.6
6H	25.9	26.6	26.4	27.0	27.4	25.8	26.4	26.2	26.8	27.3
8H	26.3	26.8	26.7	27.3	27.7	26.1	26.6	26.5	27.1	27.5
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				

CIE Pub.117, 1317 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 1.0)
Area: 0.0283 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

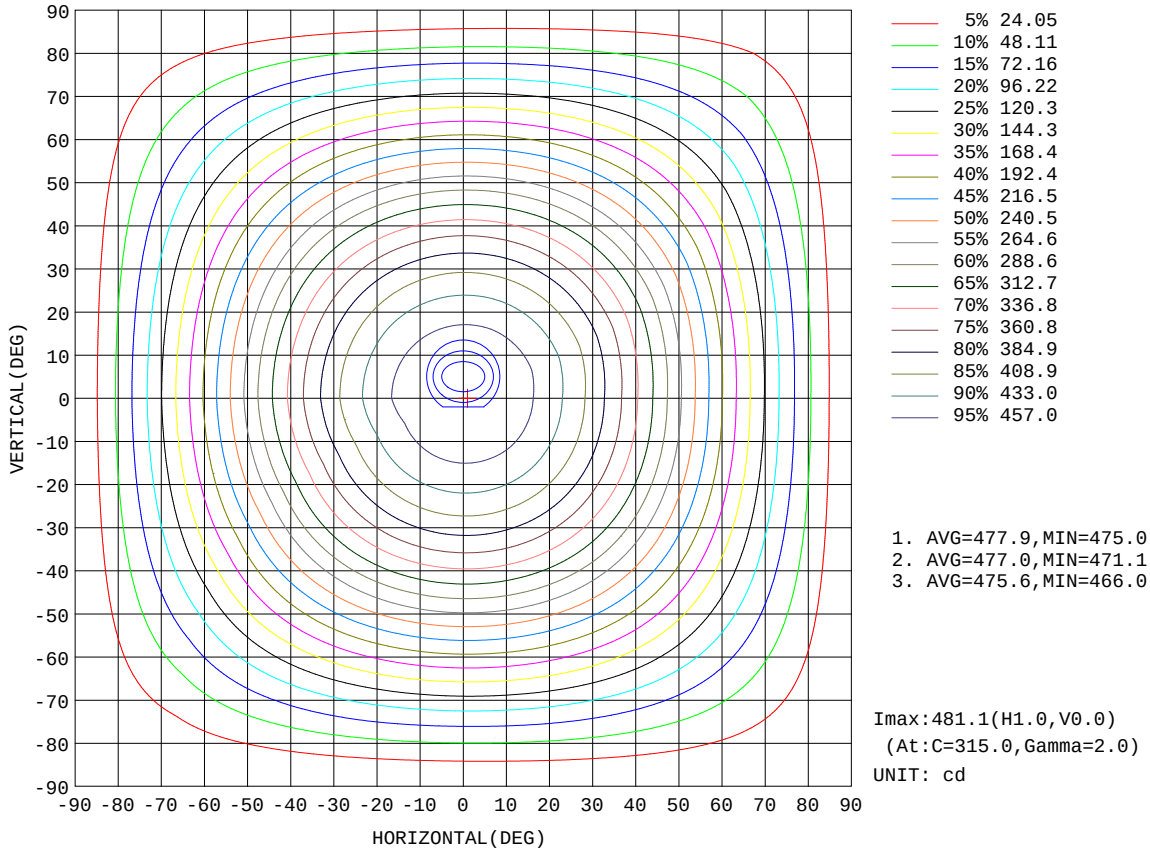
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	58	47	40	57	46	40	56	46	40	33
0.80	68	57	49	67	56	49	65	56	49	42
1.00	77	66	58	75	65	58	73	66	58	50
1.25	84	73	66	82	73	66	79	71	65	58
1.50	89	79	72	87	78	71	84	76	70	63
2.00	95	87	80	93	86	80	90	83	78	70
2.50	99	91	85	97	90	85	93	87	83	74
3.00	102	96	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	95	100	96	92	83
5.00	109	104	100	106	102	98	102	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A



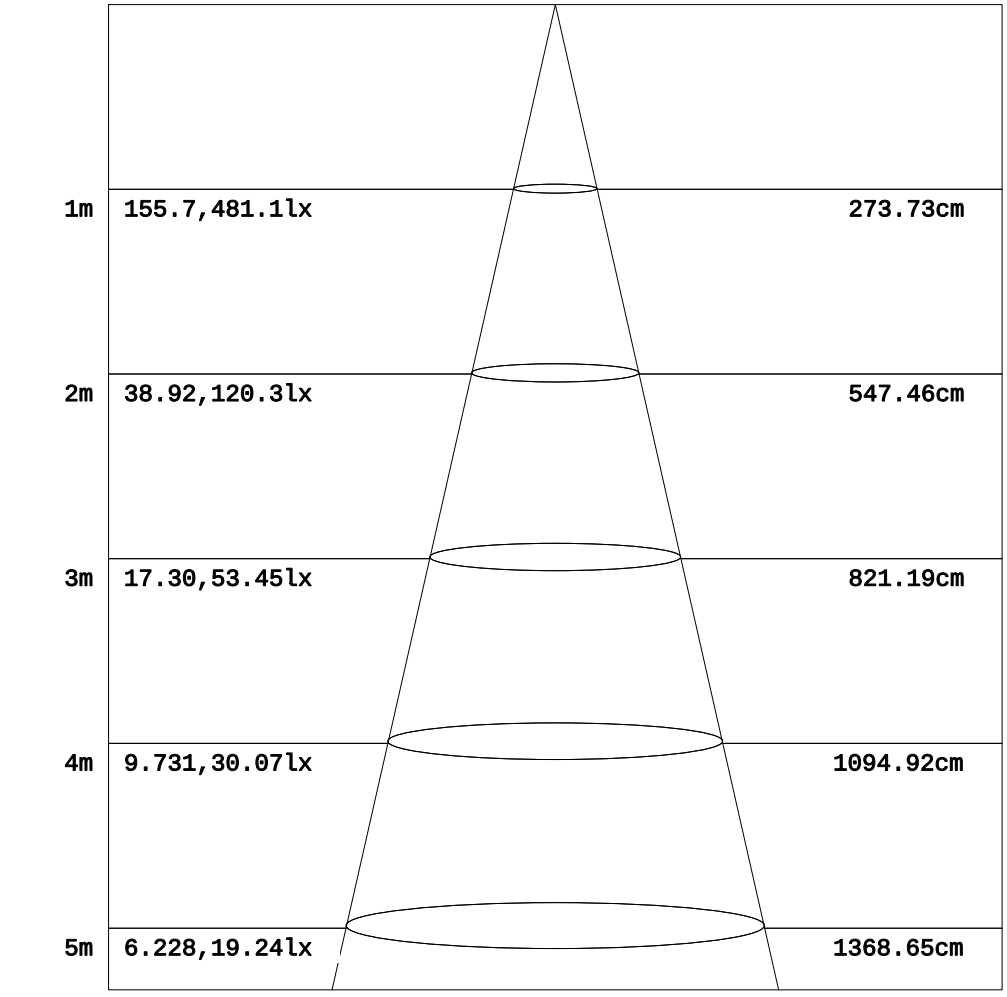
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

AAI Figure

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

Flux out:926.6 lm



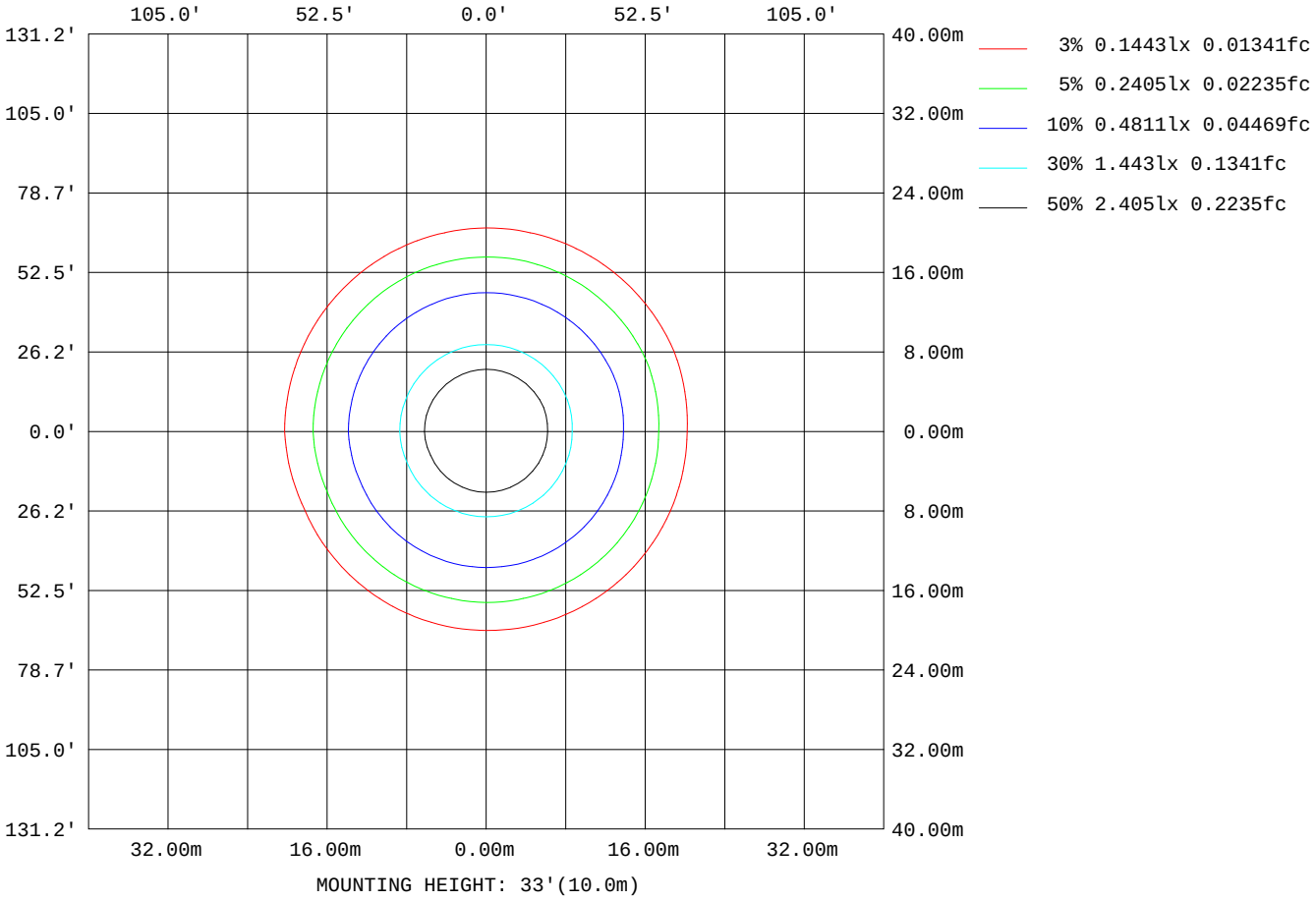
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

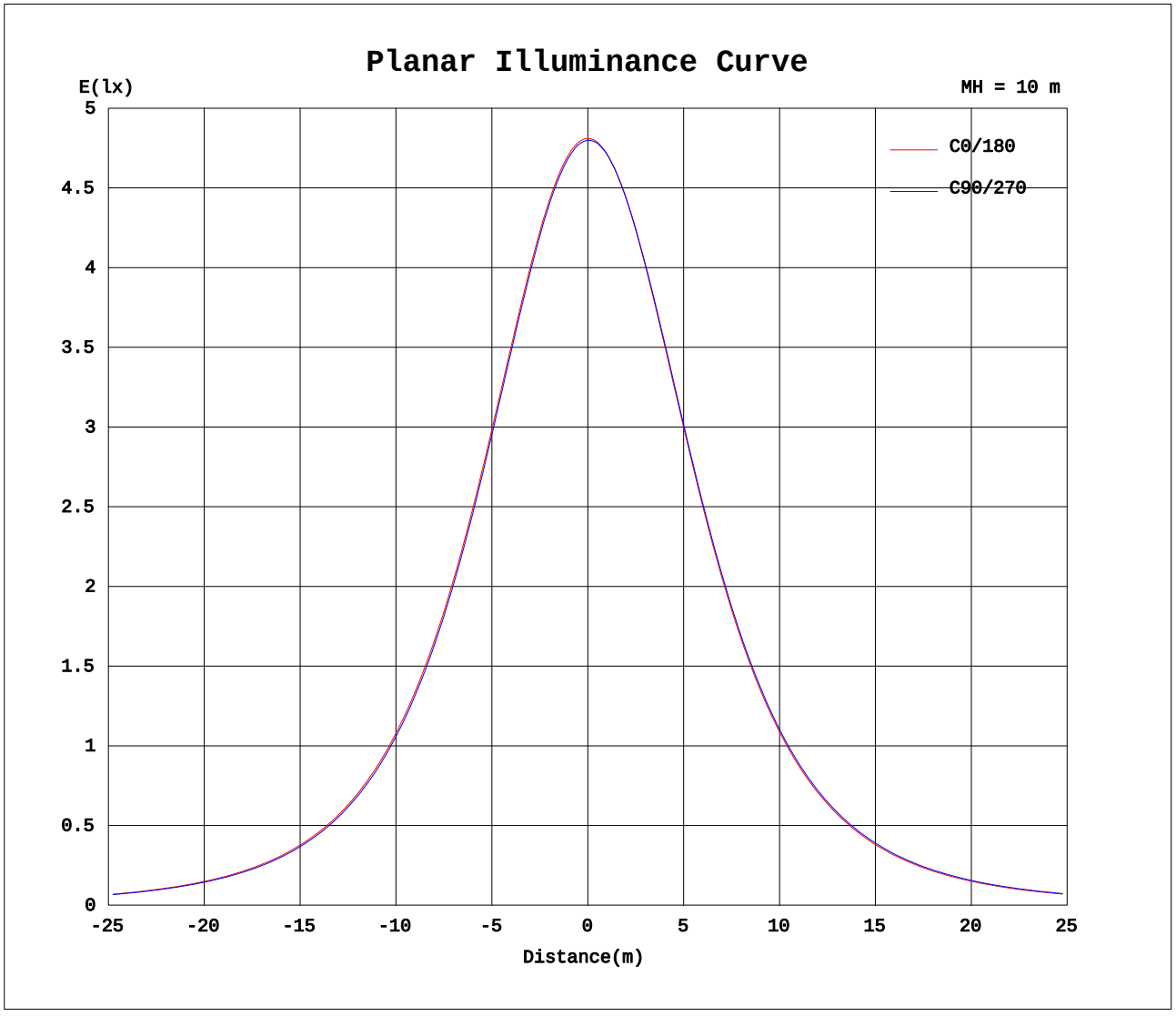
AvgL	cd/m2
L_0~180(65)av	13021
L_0~180(75)av	11475
L_0~180(85)av	9400
L_90~270(65)av	13079
L_90~270(75)av	11567
L_90~270(85)av	9615
L_45(65)av	13047
L_45(75)av	11530
L_45(85)av	9500

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

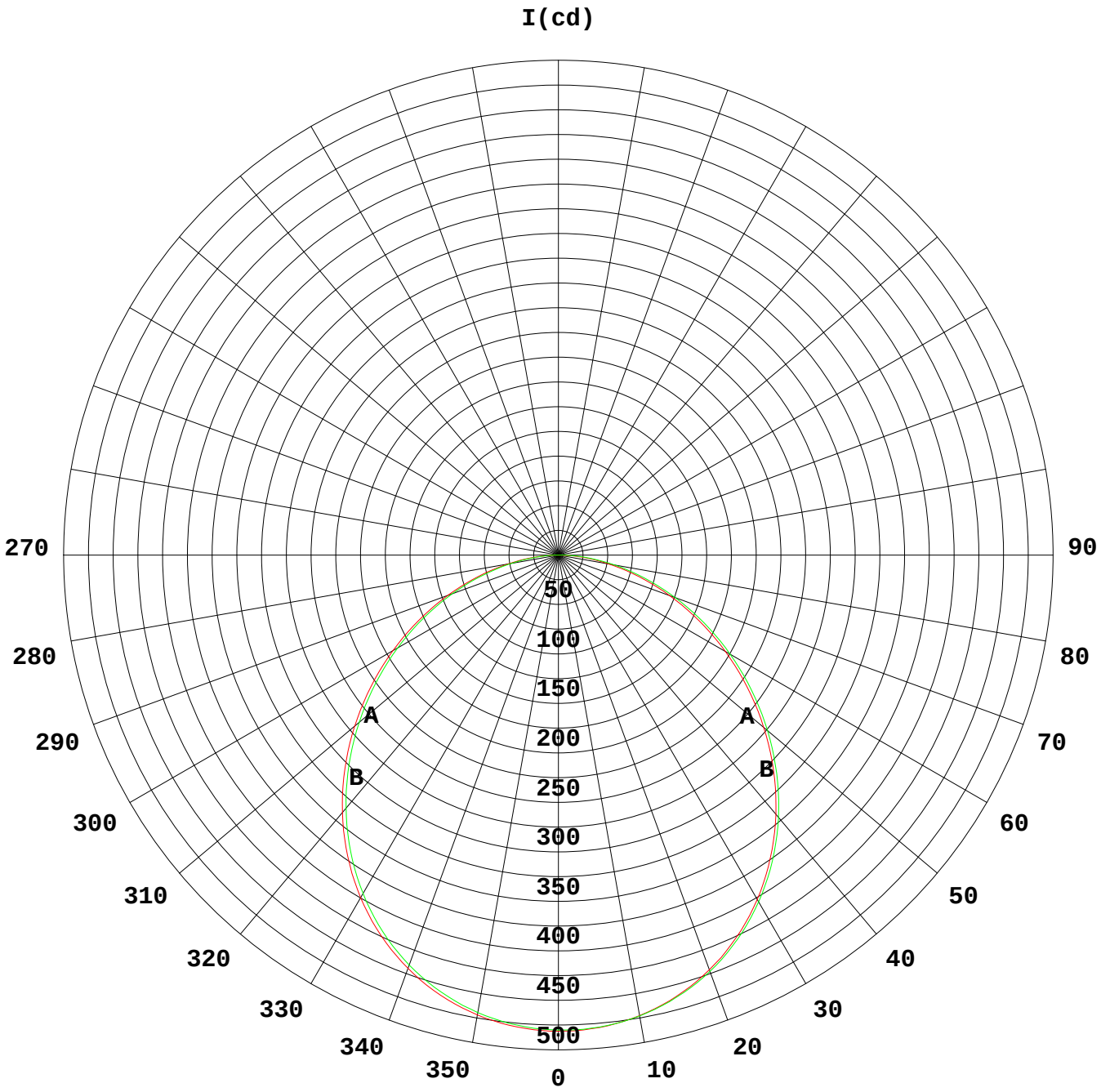
Test:U:120.04V I:0.1271A P:14.947W PF:0.9796 Freq:60.00Hz Lamp Flux:1316.75x1 lm		
NAME: Downlight Surface Mount	TYPE: LOC-9RDDL-17WMCCT	WEIGHT: 0.6 kg
SPEC.: 17W 1300lumen	DIM.: D=0.23	SERIAL No.: N/A
MFR.: LED One Corporation	SUR.: 0.095*0.095*3.14	Shielding Angle: N/A

Table--1 UNIT: cd

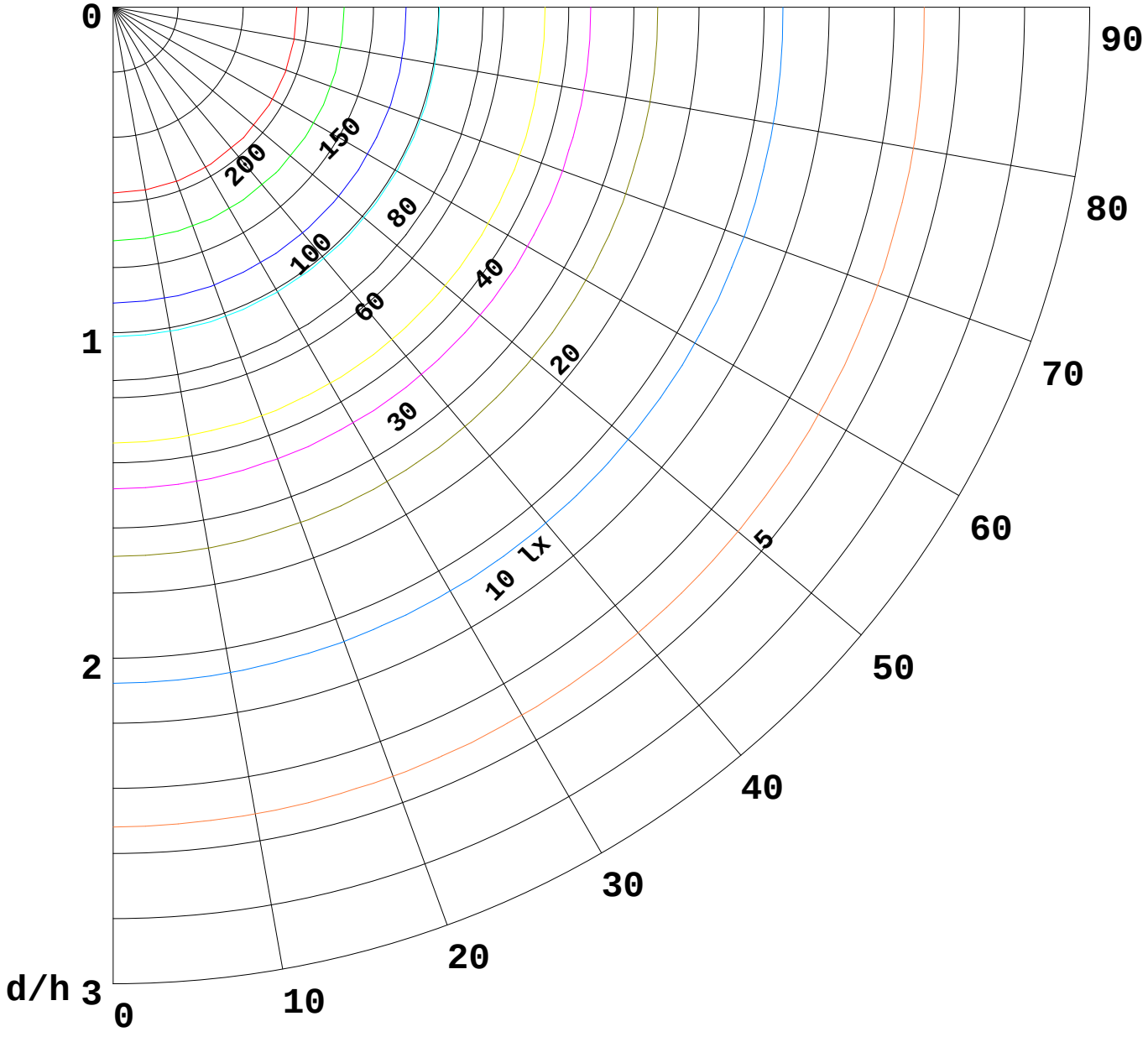
C(DEG) / γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480			
5	478	478	477	477	477	477	477	477	478	478	478	479	479	479	479	479			
10	471	471	470	470	470	469	469	469	472	472	472	473	473	473	473	473			
15	460	459	459	458	457	457	457	457	461	461	462	462	463	463	463	463			
20	444	443	443	442	441	440	440	440	445	446	446	447	448	448	449	449			
25	423	423	422	421	420	419	419	419	425	426	427	428	429	429	429	430			
30	399	398	397	396	395	394	394	393	401	402	403	404	405	406	406	406			
35	371	370	369	368	366	365	365	364	373	374	375	376	377	378	379	379			
40	339	338	337	336	334	333	332	332	341	342	344	345	346	347	348	348			
45	305	304	303	301	300	298	297	297	307	308	309	311	312	313	314	314			
50	268	267	266	265	263	261	261	260	270	271	273	274	276	277	278	278			
55	231	230	229	227	226	224	223	222	233	234	235	237	239	240	240	241			
60	193	192	191	189	188	186	185	184	195	196	197	199	201	202	203	203			
65	155	154	153	152	150	149	147	146	156	157	159	161	163	164	165	165			
70	119	118	117	115	114	112	111	110	120	120	122	124	126	127	128	128			
75	83.8	83.0	82.0	80.9	79.2	79.2	76.9	75.9	84.3	84.8	86.4	88.3	90.2	91.6	92.5	92.8			
80	51.7	50.8	50.0	49.0	47.8	46.6	45.3	44.4	51.9	52.3	53.7	55.5	57.4	58.8	59.6	59.9			
85	23.2	22.4	21.7	20.8	19.7	18.6	17.4	16.7	23.2	23.6	24.6	26.1	27.7	29.2	30.0	30.3			
90	0.55	0.41	0.22	0.14	0.10	0.02	0.01	0.01	0.14	0.32	0.58	1.37	2.42	3.32	4.13	4.70			
95	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
100	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
105	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
110	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
115	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00			
120	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00			
125	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00			
130	0.01	0.01	0.01	0.02	0.04	0.02	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
135	0.01	0.01	0.01	0.01	0.02	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.01			
140	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
145	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
150	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
160	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
165	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
170	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
175	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.7DEG
Operators:zack
Test Date:2020-06-02

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:55.3%
Test Distance:2.468m [K=1.0000]
Remarks:


I(cd)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
50
100
150
200
250
300
350
400
450
500
A
B
A
B

1000 lm K = 1



F = 39480 lm
K = 0.7
Hcc = 0.8 m
Hfc = 0.0 m
Eave = 100 lx

	Pcc	Pw	Pfc
———	70	50	30
———	50	30	20