

Photometric Test Report

Relevant Standards

- ☒ IES LM-79-2019
- ☒ ANSI C82.77:2014

Prepared For

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Project Number

DLF2501116

Report Number

DLF2501116-11a

Test Date

2025/1/16

Issue Date

2025/1/16

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The results contained in this report pertain only to the tested sample.

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1.0 Test Summary

DLC Technical Requirements v5.1

Indoor - High Bay Luminaires (Commercial and Industrial)				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2019	10000		23898
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Standard 120	Premium 135	164.1
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		145.6
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%		15.37%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9		0.918
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2019	7 step	3985±275	3853
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2019 CIE 13.3-1995	≥70		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2019 CIE 13.3-1995	≥-40		5
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		95
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-13%
Zonal Lumen Requirement (20°-50°) (Goniophotometer - Section 4.2)	IES LM-79-2019	≥30%		62.39%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	<28		26.5
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		480
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		0.330
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		145.6

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025/1/16	H17XL/480 @ 150W/4000K	N/A	DLF2501116-K1
2	Goniophotometer Test	2025/1/16	H17XL/480 @ 150W/4000K	N/A	DLF2501116-K1
3	THD and PF Test	2025/1/16	H17XL/480 @ 150W/4000K	N/A	DLF2501116-K1

Remark(If any)

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2. The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

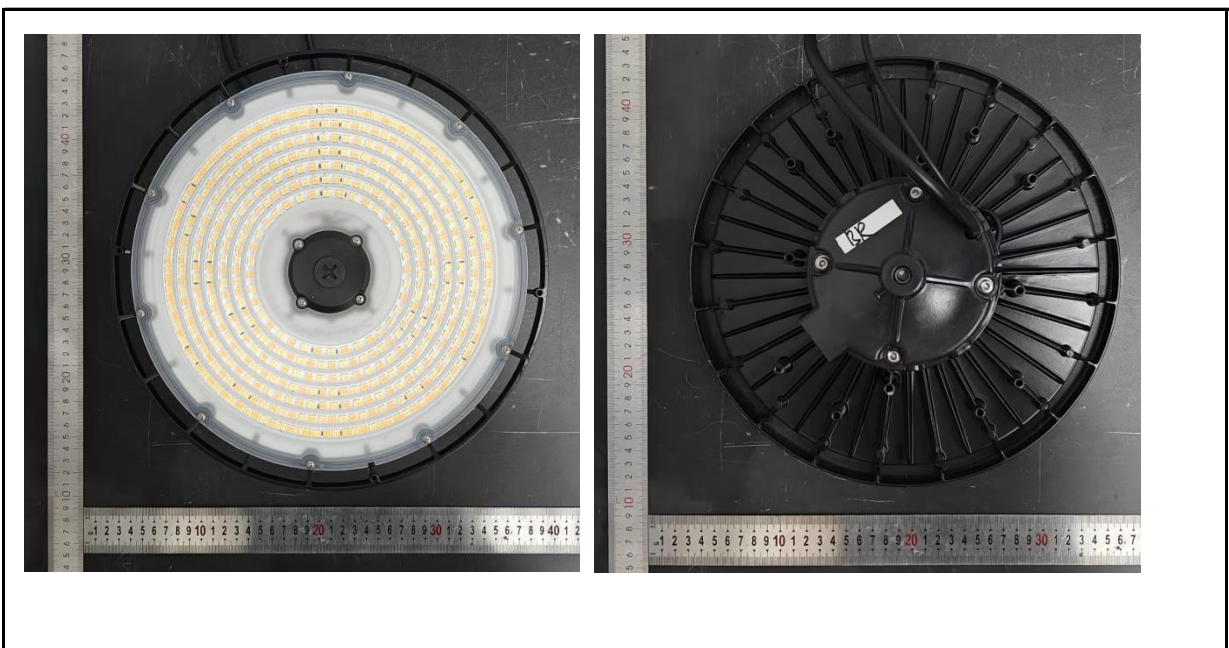
3.0 Production Description

Luminaire Description: H17XL/480 @ 150W/4000K

Electrical Specification: 480V,50/60HZ

Sample Received Date: 2025/1/16

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	H17XL/480 @ 150W/4000K	Sample ID.	DLF2501116-K1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2019.

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature and relative humidity condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ and 10% - 65% RH.

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 voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The sample was measured using 4π geometry and operated at rated voltage and 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 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
480.07	60	0.332	146.3	0.918

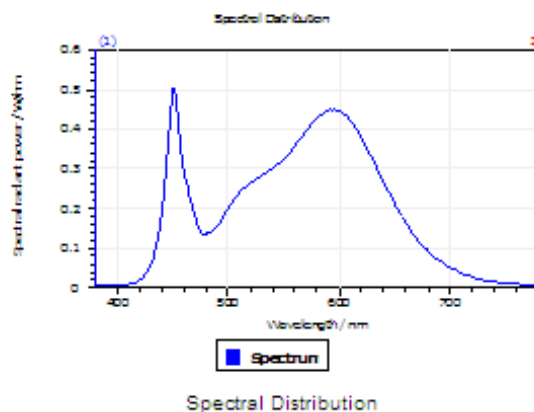
Test Result

CCT (K)	CRI	R9	Duv
3853	83	5	-0.003

Rf	Rg	IES Rcs,h1
83	95	-13%

4.1 Integrating Sphere Test

Results

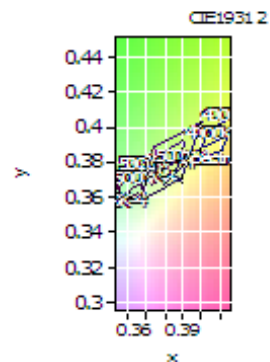


Spectral values

DominantWavelength 581.30 nm
Purity 0.275
PeakWavelength 450.97 nm
Radiant Power 74.37 W
Width50%:

Color Coordinates

Correlated Color Temperat 3853 K
x: 0.3848 u: 0.2295 u': 0.2295
y: 0.3731 v: 0.3337 v': 0.5006
CRI01 81.5 CRI09 5.4
CRI02 90.6 CRI10 77.7
CRI03 95.5 CRI11 80.6
CRI04 81.6 CRI12 64.9
CRI05 82.4 CRI13 83.8
CRI06 86.8 CRI14 98.1
CRI07 84.0 CRI15 75.6
CRI08 62.2 CRI16 72.7
ResultsCRI 83.1



PlankDistance 3.0E-003

4.1 Integrating Sphere Test

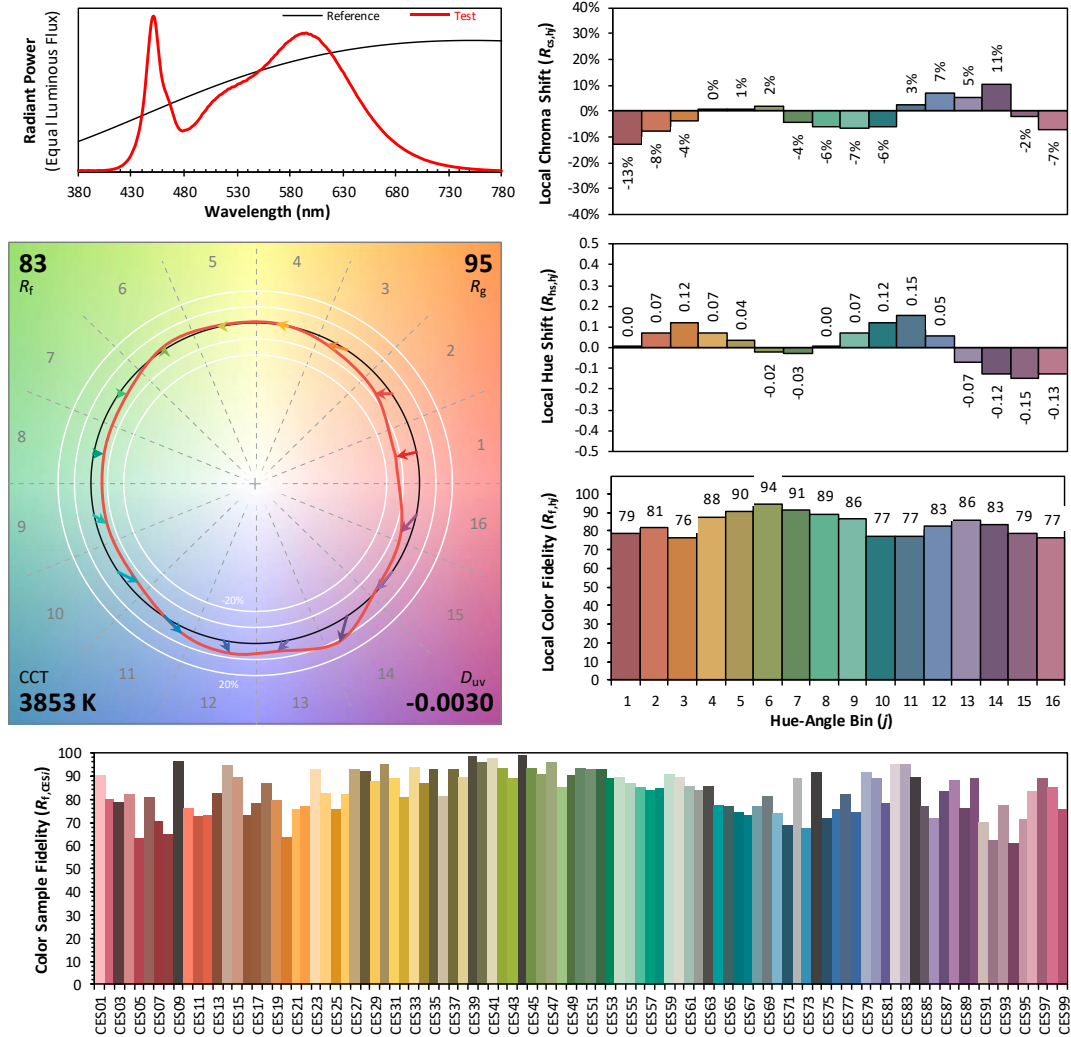
IES TM-30-18 Color Rendition Report

Source: DLF2501116-11a

Manufacturer: RAB Lighting Inc.

Date: 2025/1/16

Model: H17XL/480 @ 150W/4000K



Notes: This is a recommended method for displaying IES TM-30-18 information.

x 0.3848
 y 0.3731
 u' 0.2295
 v' 0.5006

CIE 13.3-1995
(CRI)
 R_a 83
 R_g 8

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength							
WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)
380	5.00E-03	485	1.41E-01	590	4.47E-01	695	5.93E-02
385	5.05E-03	490	1.54E-01	595	4.51E-01	700	5.08E-02
390	5.01E-03	495	1.75E-01	600	4.46E-01	705	4.33E-02
395	4.87E-03	500	1.99E-01	605	4.36E-01	710	3.70E-02
400	5.27E-03	505	2.20E-01	610	4.20E-01	715	3.17E-02
405	5.79E-03	510	2.38E-01	615	4.01E-01	720	2.70E-02
410	7.59E-03	515	2.52E-01	620	3.79E-01	725	2.31E-02
415	1.12E-02	520	2.64E-01	625	3.52E-01	730	1.99E-02
420	1.85E-02	525	2.75E-01	630	3.25E-01	735	1.68E-02
425	3.19E-02	530	2.83E-01	635	2.96E-01	740	1.46E-02
430	5.64E-02	535	2.92E-01	640	2.67E-01	745	1.26E-02
435	1.01E-01	540	3.00E-01	645	2.38E-01	750	1.08E-02
440	1.83E-01	545	3.11E-01	650	2.12E-01	755	9.29E-03
445	3.46E-01	550	3.25E-01	655	1.87E-01	760	8.04E-03
450	4.99E-01	555	3.39E-01	660	1.64E-01	765	6.90E-03
455	4.20E-01	560	3.55E-01	665	1.43E-01	770	6.06E-03
460	2.89E-01	565	3.75E-01	670	1.24E-01	775	5.27E-03
465	2.36E-01	570	3.94E-01	675	1.08E-01	780	4.57E-03
470	1.83E-01	575	4.12E-01	680	9.30E-02		
475	1.42E-01	580	4.26E-01	685	8.04E-02		
480	1.35E-01	585	4.40E-01	690	6.90E-02		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	H17XL/480 @ 150W/4000K	Sample ID.	DLF2501116-K1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method

The samples were tested according to the IES LM-79-2019.

Photometric parameters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ and 10% - 65% RH, measured at a point not more than 1 m from the sample and at the same height as the sample.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

Airflow for the instantaneous tangential velocity of any point on the DUT shall be less than an upper tolerance limit of 0.20 m/s.

The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 10° horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	480.06	60	0.330	145.6	0.918

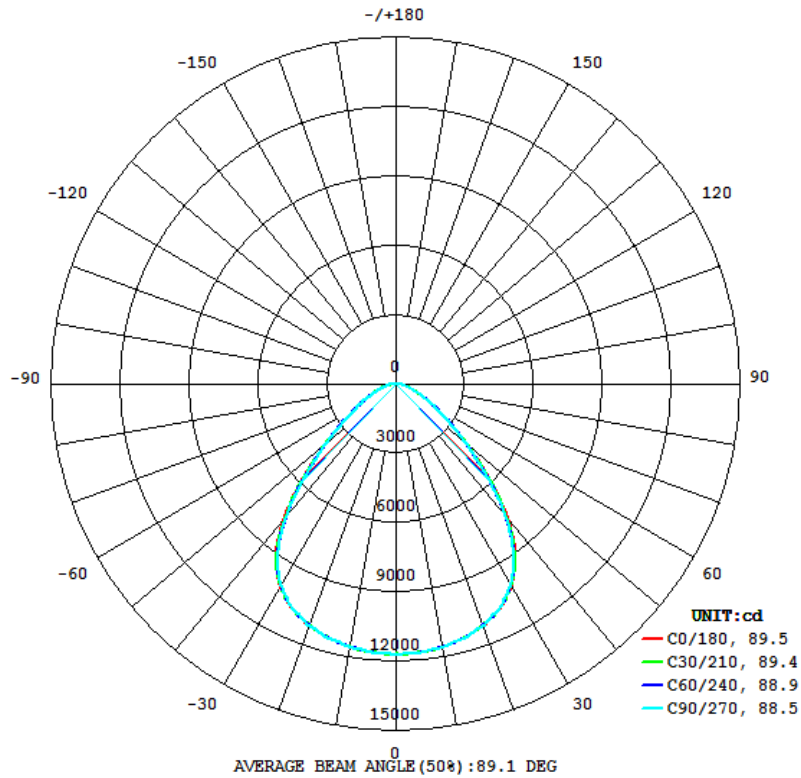
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
23898	133.4	133.9	89.5	88.5	164.1

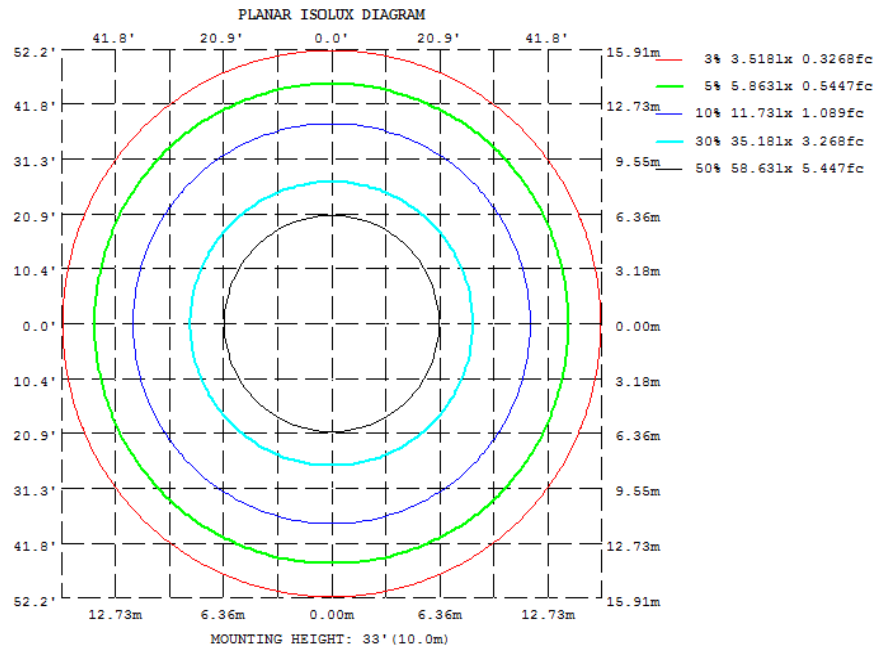
Zonal Lumen Requirement (20°-50°)	UGR (X=4H, Y=8H, 70/50/20%)
62.39%	26.5

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1158	1155	1157	1155	1158	1155	1157	1155
20	1113	1110	1112	1110	1113	1110	1112	1110
30	1010	1005	1003	1005	1010	1005	1003	1005
40	764.1	753.0	743.2	753.0	764.1	753.0	743.2	753.0
50	407.4	406.4	397.4	406.4	407.4	406.4	397.4	406.4
60	195.3	197.3	195.0	197.3	195.3	197.3	195.0	197.3
70	89.32	90.73	91.56	90.73	89.32	90.73	91.56	90.73
80	29.14	29.60	30.13	29.60	29.14	29.60	30.13	29.60
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:X10cd							

UGR Table - Corrected

UGR Table - Corrected										
Reflectances										
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20
Room Size										
X=2H Y=2H		UGR Viewed Crosswise					UGR Viewed Endwise			
		24.3	25.7	24.6	26.0	26.3	24.3	25.7	24.7	26.0
3H		25.3	26.5	25.6	26.8	27.2	25.2	26.5	25.6	26.8
4H		25.6	26.7	26.0	27.1	27.5	25.5	26.7	25.9	27.0
6H		25.8	26.8	26.2	27.2	27.6	25.7	26.8	26.1	27.1
8H		25.8	26.8	26.2	27.2	27.6	25.7	26.7	26.2	27.1
12H		25.8	26.8	26.2	27.2	27.6	25.7	26.7	26.1	27.1
4H	2H	24.6	25.8	25.0	26.1	26.5	24.6	25.8	25.0	26.1
	3H	25.8	26.7	26.2	27.1	27.5	25.7	26.7	26.2	27.1
	4H	26.2	27.0	26.6	27.5	27.9	26.1	27.0	26.6	27.4
	6H	26.5	27.2	26.9	27.6	28.1	26.4	27.1	26.8	27.6
	8H	26.5	27.2	27.0	27.7	28.1	26.4	27.1	26.9	27.6
8H	4H	26.3	27.0	26.8	27.4	27.9	26.2	26.9	26.7	27.4
	6H	26.6	27.2	27.1	27.7	28.2	26.5	27.1	27.0	27.6
	8H	26.7	27.2	27.2	27.7	28.2	26.6	27.1	27.2	27.7
	12H	26.8	27.2	27.3	27.7	28.3	26.7	27.1	27.2	27.6
12H	4H	26.3	26.9	26.8	27.4	27.8	26.2	26.8	26.7	27.3
	6H	26.6	27.1	27.2	27.6	28.1	26.5	27.1	27.1	27.5
	8H	26.8	27.2	27.3	27.7	28.3	26.7	27.1	27.2	27.6
Maximum UGR = 28.3										

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	1109.57	0 - 10	1109.57	4.64%
10-20	3213.24	0 - 20	4322.81	18.09%
20-30	4918.28	0 - 30	9241.09	38.67%
30-40	5597.16	0 - 40	14838.25	62.09%
40-50	4395.39	0 - 50	19233.64	80.48%
50-60	2567.79	0 - 60	21801.43	91.23%
60-70	1364.12	0 - 70	23165.55	96.94%
70-80	607.30	0 - 80	23772.85	99.48%
80-90	124.72	0 - 90	23897.57	100.00%
90-100	0.00	0 - 100	23897.57	100.00%
100-110	0.00	0 - 110	23897.57	100.00%
110-120	0.00	0 - 120	23897.57	100.00%
120-130	0.00	0 - 130	23897.57	100.00%
130-140	0.00	0 - 140	23897.57	100.00%
140-150	0.00	0 - 150	23897.57	100.00%
150-160	0.00	0 - 160	23897.57	100.00%
160-170	0.00	0 - 170	23897.57	100.00%
170-180	0.00	0 - 180	23897.57	100.00%

4.2 Goniophotometer Test

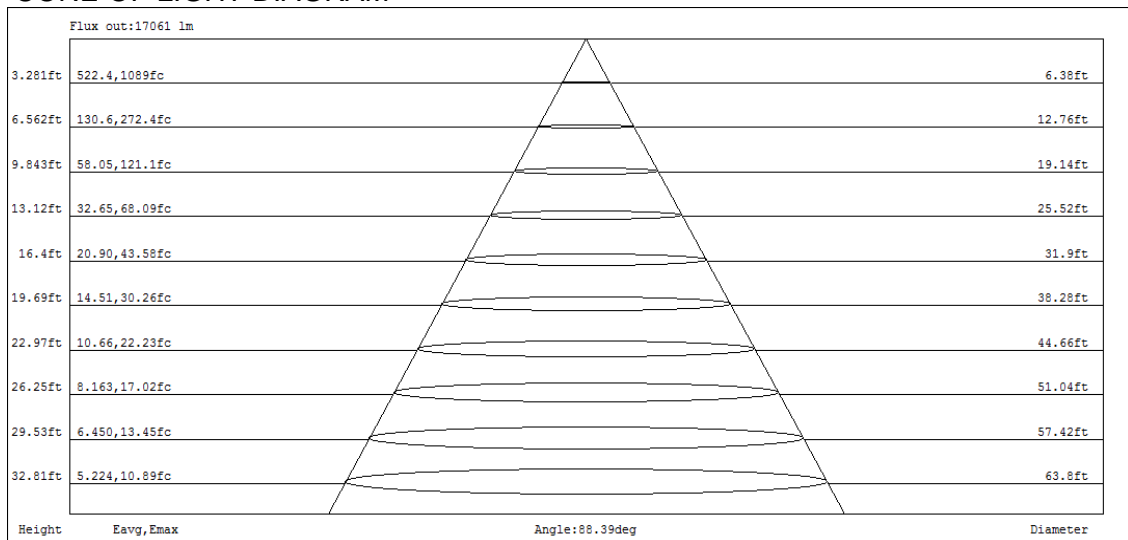
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
R/W	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	104	101	108	105	102	99	101	98	96	97	95	93	94	92	90	88
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77
3	95	86	80	74	93	85	79	73	82	77	72	79	75	71	77	73	70	68
4	88	78	71	65	86	77	70	64	74	68	63	72	67	63	70	66	62	60
5	82	71	63	57	80	70	62	57	68	61	56	66	60	56	64	59	55	53
6	76	65	57	51	75	64	56	51	62	55	50	60	54	50	59	54	50	48
7	71	59	51	46	70	58	51	46	57	50	45	56	49	45	54	49	45	43
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	41	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	34	58	46	39	34	45	39	34	44	38	34	43	38	34	32

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	H17XL/480 @ 150W/4000K	Sample ID.	DLF2501116-K1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the ANSI C82.77:2014.

The total harmonic distortion shall be measured 2 to 50 magnitude orders for a 100-kHz meter, and 2 to 100 magnitude orders for a 1-MHz meter.

The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ and 10% - 65% RH. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
480.07	60	0.332	146.3	0.918	15.37%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2024/12/24	2025/12/23
DLF108	Auxiliary Lamp	2024/12/24	2025/12/23
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-directional	2024/12/24	2025/12/23
DLF116	AC Power Source	2024/12/16	2025/12/15
DLF516	Power Meter	2024/12/16	2025/12/15
DLF112	Temperature Recorder	2024/12/28	2025/12/27
DLF114	Temperature & Humidity Datalogger	2024/12/28	2025/12/27
DLF101	Goniophotometer	2024/12/24	2025/12/23
DLF511	AC Power Source	2024/12/16	2025/12/15
DLF512	AC Power Source	2024/12/16	2025/12/15
DLF513	AC Power Source	2024/12/16	2025/12/15
DLF507	DC Power Source	2024/12/16	2025/12/15
DLF111	Temperature & Humidity Datalogger	2024/12/28	2025/12/27
DLF119	Power Meter	2024/12/16	2025/12/15

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