



Photometric Test Report

Relevant Standards

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

Prepared For

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Project Number

DLF2501116

Report Number

DLF2501116-10a

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		22041
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Standard 120	Premium 135	148.3
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		148.6
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%		15.47%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9		0.922
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2019	7 step	3045±175	3035
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2019 CIE 13.3-1995	≥70		81
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2019 CIE 13.3-1995	≥-40		-2
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		84
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%		62.45%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	<28		26.1
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		0.336
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		148.6

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/3000K	N/A	DLF2501116-J1
2	Goniophotometer Test	2025/1/16	H17XL/480 @ 150W/3000K	N/A	DLF2501116-J1
3	THD and PF Test	2025/1/16	H17XL/480 @ 150W/3000K	N/A	DLF2501116-J1

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.

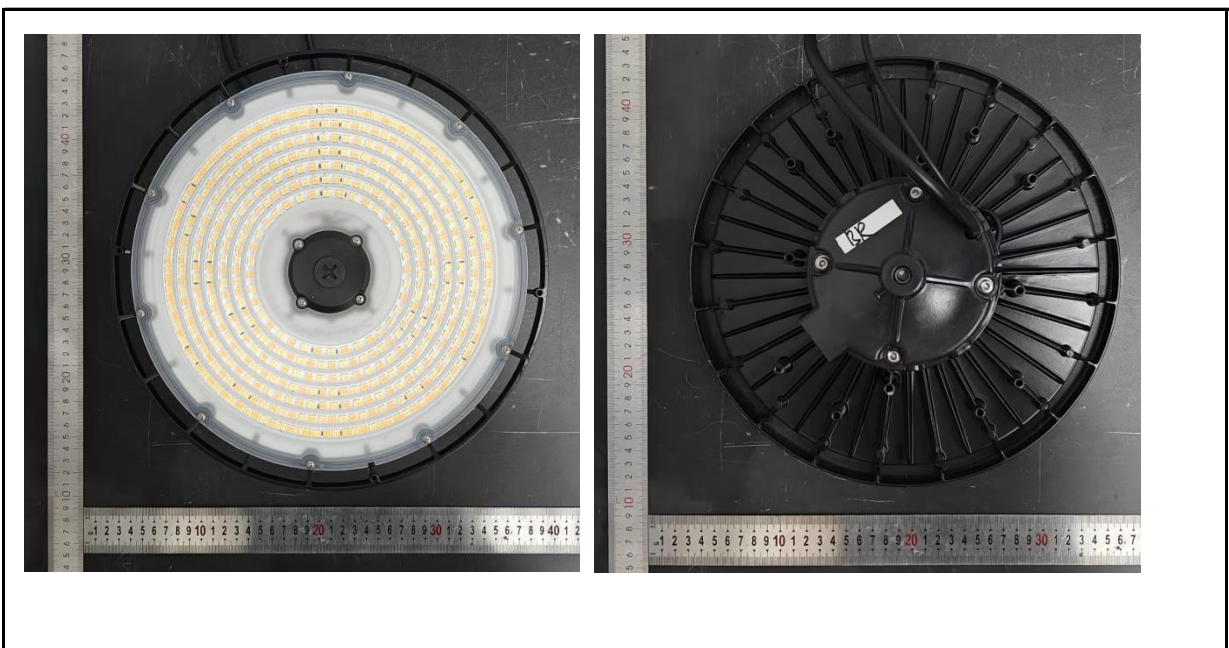
3.0 Production Description

Luminaire Description: H17XL/480 @ 150W/3000K

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/3000K	Sample ID.	DLF2501116-J1
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° C ± 1.2° 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
480.13	60	0.334	147.9	0.922

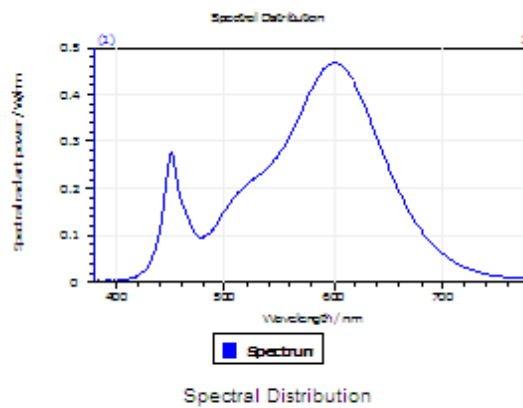
Test Result

CCT (K)	CRI	R9	Duv
3035	81	-2	-0.0016

Rf	Rg	IES Rcs,h1
84	95	-13%

4.1 Integrating Sphere Test

Results

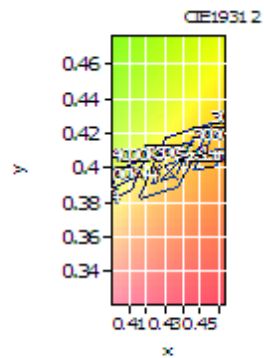


Spectral values

DominantWavelength 583.27 nm
 Purity 0.493
 PeakWavelength 600.54 nm
 Radiant Power 67.87 W
 Width50%:

Color Coordinates

Correlated Color Temperat 3035 K
 x: 0.4322 u: 0.2499 u': 0.2499
 y: 0.3984 v: 0.3456 v': 0.5184
 CRI01 79.6 CRI09 -1.5
 CRI02 91.2 CRI10 80.2
 CRI03 94.6 CRI11 77.8
 CRI04 78.5 CRI12 71.9
 CRI05 80.2 CRI13 82.4
 CRI06 89.2 CRI14 97.7
 CRI07 80.6 CRI15 71.8
 CRI08 55.1 CRI16 68.8
 ResultsCRI 81.1



PlanckDistance 1.6E-003

4.1 Integrating Sphere Test

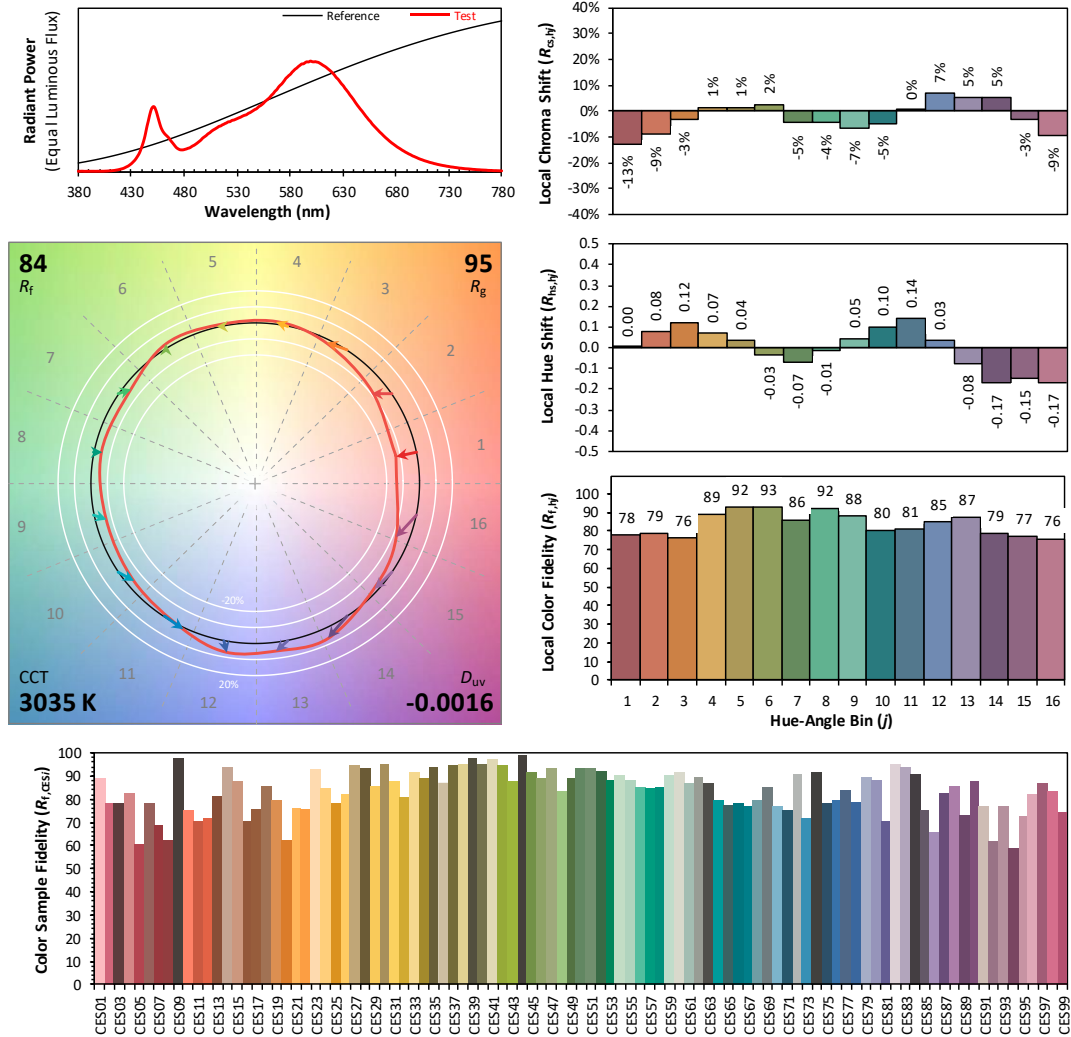
IES TM-30-18 Color Rendition Report

Source: DLF2501116-10a

Manufacturer: RAB Lighting Inc.

Date: 2025/1/16

Model: H17XL/480 @ 150W/3000K



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

x 0.4322
 y 0.3984
 u' 0.2499
 v' 0.5184

CIE 13.3-1995
(CRI)
 R_a 81
 R_g 1

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	3.75E-03	485	1.02E-01	590	4.54E-01	695	7.09E-02
385	3.72E-03	490	1.15E-01	595	4.65E-01	700	6.10E-02
390	3.57E-03	495	1.33E-01	600	4.69E-01	705	5.20E-02
395	3.74E-03	500	1.52E-01	605	4.66E-01	710	4.46E-02
400	3.64E-03	505	1.70E-01	610	4.56E-01	715	3.82E-02
405	4.21E-03	510	1.85E-01	615	4.40E-01	720	3.24E-02
410	5.49E-03	515	1.97E-01	620	4.21E-01	725	2.78E-02
415	7.91E-03	520	2.08E-01	625	3.95E-01	730	2.40E-02
420	1.27E-02	525	2.18E-01	630	3.67E-01	735	2.05E-02
425	2.11E-02	530	2.26E-01	635	3.38E-01	740	1.72E-02
430	3.53E-02	535	2.37E-01	640	3.07E-01	745	1.48E-02
435	6.04E-02	540	2.47E-01	645	2.76E-01	750	1.31E-02
440	1.07E-01	545	2.60E-01	650	2.47E-01	755	1.12E-02
445	1.95E-01	550	2.75E-01	655	2.19E-01	760	9.54E-03
450	2.74E-01	555	2.92E-01	660	1.92E-01	765	8.50E-03
455	2.36E-01	560	3.12E-01	665	1.69E-01	770	7.19E-03
460	1.72E-01	565	3.37E-01	670	1.47E-01	775	6.36E-03
465	1.47E-01	570	3.64E-01	675	1.28E-01	780	5.43E-03
470	1.19E-01	575	3.89E-01	680	1.11E-01		
475	9.70E-02	580	4.12E-01	685	9.62E-02		
480	9.53E-02	585	4.36E-01	690	8.27E-02		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	H17XL/480 @ 150W/3000K	Sample ID.	DLF2501116-J1
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	480.02	60	0.336	148.6	0.922

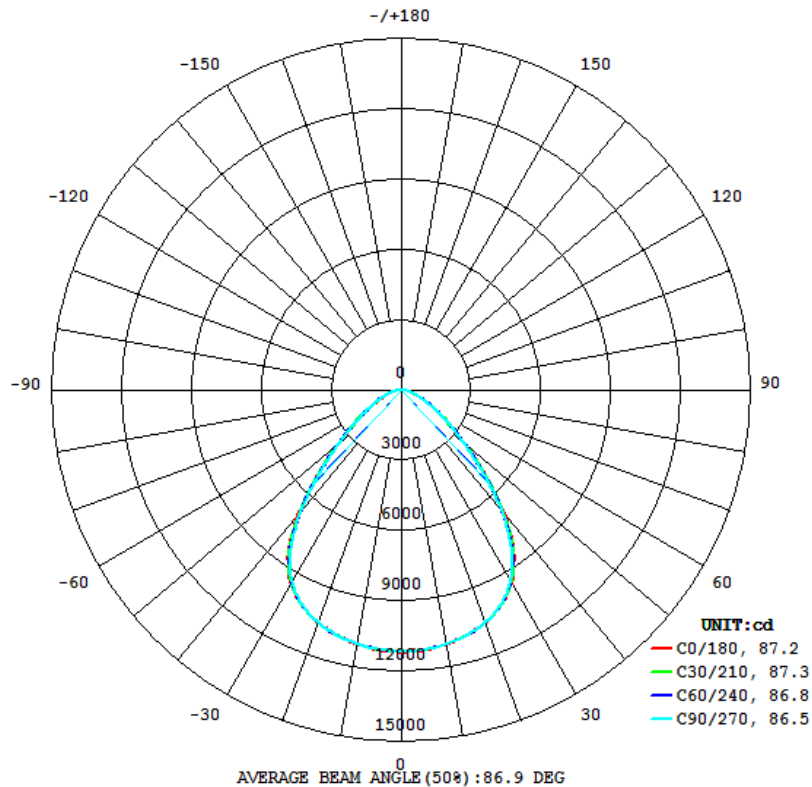
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
22041	131.7	132.2	87.2	86.5	148.3

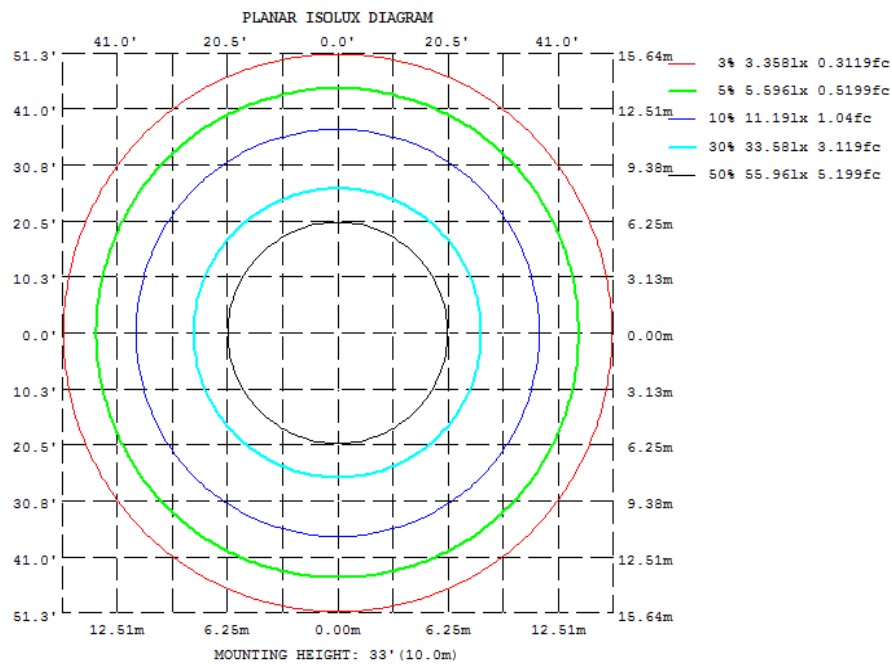
Zonal Lumen Requirement (20° - 50°)	UGR (X=4H, Y=8H, 70/50/20%)
62.45%	26.1

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	1104	1101	1102	1101	1104	1101	1102	1101
20	1057	1055	1055	1055	1057	1055	1055	1055
30	952.5	946.1	940.6	946.1	952.5	946.1	940.6	946.1
40	692.9	683.7	672.4	683.7	692.9	683.7	672.4	683.7
50	358.6	360.8	351.6	360.8	358.6	360.8	351.6	360.8
60	173.5	175.8	173.6	175.8	173.5	175.8	173.6	175.8
70	80.11	81.48	82.37	81.48	80.11	81.48	82.37	81.48
80	26.53	26.92	27.36	26.92	26.53	26.92	27.36	26.92
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				
3H	23.9	25.3	24.2	25.6	25.9	23.8	25.2	24.2	25.5	25.8
4H	24.9	26.1	25.3	26.4	26.8	24.8	26.0	25.2	26.3	26.7
6H	25.2	26.3	25.6	26.7	27.1	25.1	26.2	25.5	26.6	27.0
8H	25.4	26.4	25.8	26.8	27.2	25.3	26.3	25.7	26.7	27.1
12H	25.4	26.4	25.8	26.8	27.2	25.3	26.3	25.7	26.6	27.1
4H	24.2	25.4	24.6	25.7	26.1	24.1	25.3	24.6	25.7	26.0
3H	25.4	26.3	25.8	26.7	27.1	25.3	26.2	25.7	26.6	27.0
4H	25.8	26.6	26.2	27.1	27.5	25.7	26.5	26.1	27.0	27.4
6H	26.1	26.8	26.5	27.3	27.7	25.9	26.7	26.4	27.1	27.6
8H	26.1	26.8	26.6	27.3	27.7	26.0	26.7	26.5	27.1	27.6
12H	26.1	26.8	26.6	27.2	27.7	26.0	26.6	26.5	27.1	27.6
8H	25.9	26.6	26.4	27.0	27.5	25.8	26.5	26.3	26.9	27.4
6H	26.2	26.8	26.7	27.3	27.8	26.1	26.7	26.6	27.2	27.7
8H	26.3	26.8	26.9	27.4	27.9	26.2	26.7	26.7	27.2	27.7
12H	26.4	26.8	26.9	27.3	27.9	26.3	26.7	26.8	27.2	27.8
12H	25.9	26.5	26.4	27.0	27.5	25.8	26.4	26.3	26.9	27.4
6H	26.2	26.8	26.8	27.2	27.8	26.1	26.6	26.7	27.1	27.7
8H	26.4	26.8	26.9	27.3	27.9	26.3	26.7	26.8	27.2	27.8
Maximum UGR = 27.9										

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	1058.06	0 - 10	1058.06	4.80%
10-20	3057.33	0 - 20	4115.39	18.67%
20-30	4652.15	0 - 30	8767.54	39.78%
30-40	5185.10	0 - 40	13952.64	63.30%
40-50	3926.75	0 - 50	17879.39	81.12%
50-60	2279.44	0 - 60	20158.83	91.46%
60-70	1219.90	0 - 70	21378.73	97.00%
70-80	548.25	0 - 80	21926.98	99.48%
80-90	113.73	0 - 90	22040.71	100.00%
90-100	0.00	0 - 100	22040.71	100.00%
100-110	0.00	0 - 110	22040.71	100.00%
110-120	0.00	0 - 120	22040.71	100.00%
120-130	0.00	0 - 130	22040.71	100.00%
130-140	0.00	0 - 140	22040.71	100.00%
140-150	0.00	0 - 150	22040.71	100.00%
150-160	0.00	0 - 160	22040.71	100.00%
160-170	0.00	0 - 170	22040.71	100.00%
170-180	0.00	0 - 180	22040.71	100.00%

4.2 Goniophotometer Test

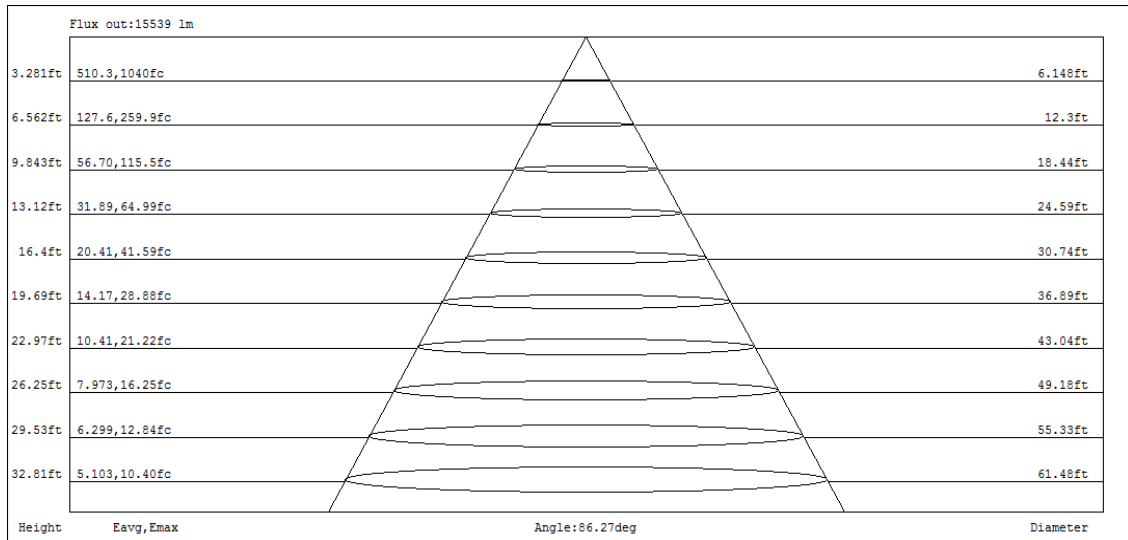
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	109	105	102	99	101	98	96	97	95	93	94	92	91	89
2	103	96	91	86	101	95	89	85	91	87	83	88	84	81	85	82	80	78
3	95	87	80	75	93	85	79	74	82	77	73	80	75	71	77	74	70	68
4	89	78	71	65	86	77	70	65	75	69	64	73	67	63	71	66	62	60
5	82	71	63	58	80	70	63	57	68	62	57	66	61	56	65	60	56	54
6	77	65	57	52	75	64	57	51	62	56	51	61	55	51	59	54	50	48
7	72	60	52	46	70	59	51	46	57	51	46	56	50	46	55	49	45	44
8	67	55	47	42	66	54	47	42	53	46	42	52	46	41	51	45	41	39
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38	36
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	38	35	33

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	H17XL/480 @ 150W/3000K	Sample ID.	DLF2501116-J1
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
480.13	60	0.334	147.9	0.922	15.47%

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*****