



Photometric Test Report

Relevant Standards

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

Prepared For

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Project Number

DLF2501116

Report Number

DLF2501116-4a

Test Date

2025/1/16

Issue Date

2025/1/16

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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		17154
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Standard 120	Premium 135	141.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		121.7
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%		13.52%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9		0.915
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2019	7 step	3045±175	3049
		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		-3
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%		64.55%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	<28		25.6
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		0.277
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		121.7

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025/1/16	H17/480 @ 120W/3000K	N/A	DLF2501116-D1
2	Goniophotometer Test	2025/1/16	H17/480 @ 120W/3000K	N/A	DLF2501116-D1
3	THD and PF Test	2025/1/16	H17/480 @ 120W/3000K	N/A	DLF2501116-D1

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.

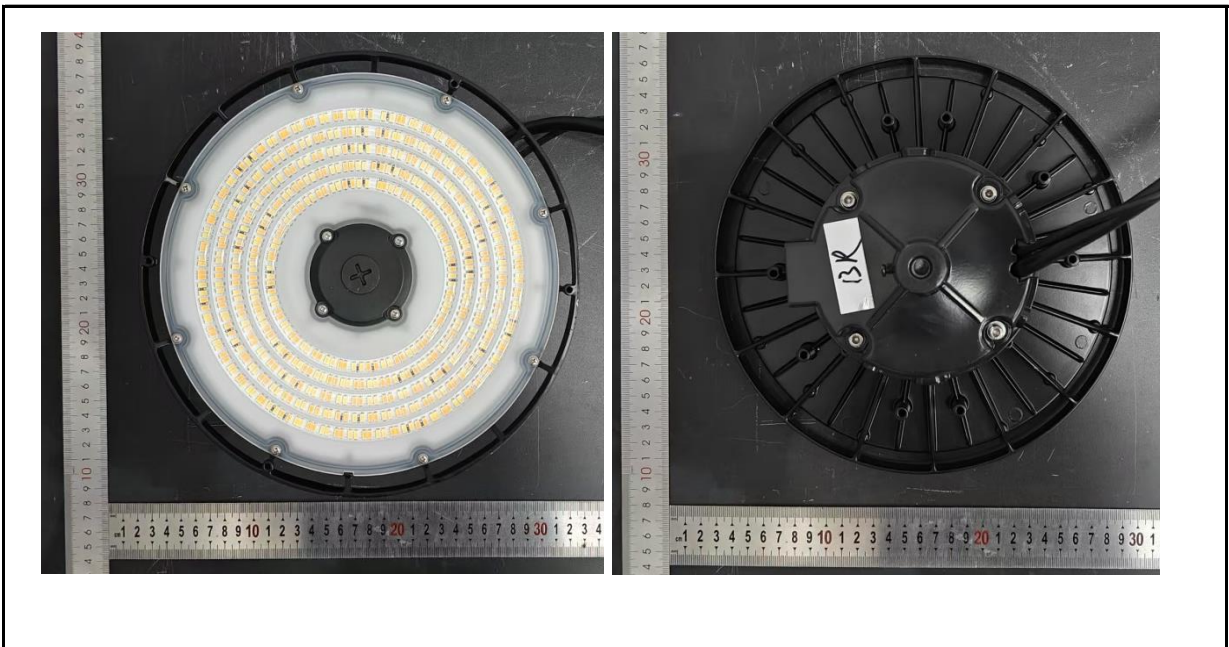
3.0 Production Description

Luminaire Description: H17/480 @ 120W/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.	H17/480 @ 120W/3000K	Sample ID.	DLF2501116-D1
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
480.04	60	0.276	121.4	0.915

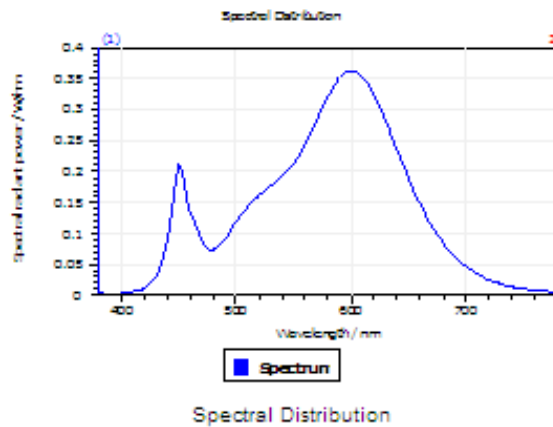
Test Result

CCT (K)	CRI	R9	Duv
3049	81	-3	-0.0015

Rf	Rg	IES Rcs,h1
83	95	-13%

4.1 Integrating Sphere Test

Results



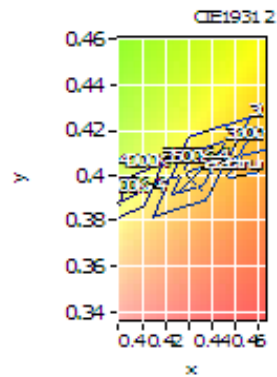
Spectral values

DominantWavelength 583.17 nm
Purity 0.491
PeakWavelength 600.04 nm
Radiant Power 52.62 W
Width50%:

Color Coordinates

Correlated Color Temperat 3049 K
x: 0.4314 u: 0.2494 u': 0.2494
y: 0.3984 v: 0.3455 v': 0.5183
CRI01 79.1 CRI09 -3.3
CRI02 91.0 CRI10 79.9
CRI03 94.3 CRI11 77.1
CRI04 77.9 CRI12 72.1
CRI05 79.7 CRI13 82.0
CRI06 89.0 CRI14 97.5
CRI07 80.2 CRI15 71.0
CRI08 54.2 CRI16 68.1

ResultsCRI 80.7



PlanckDistance 1.5E-003

4.1 Integrating Sphere Test

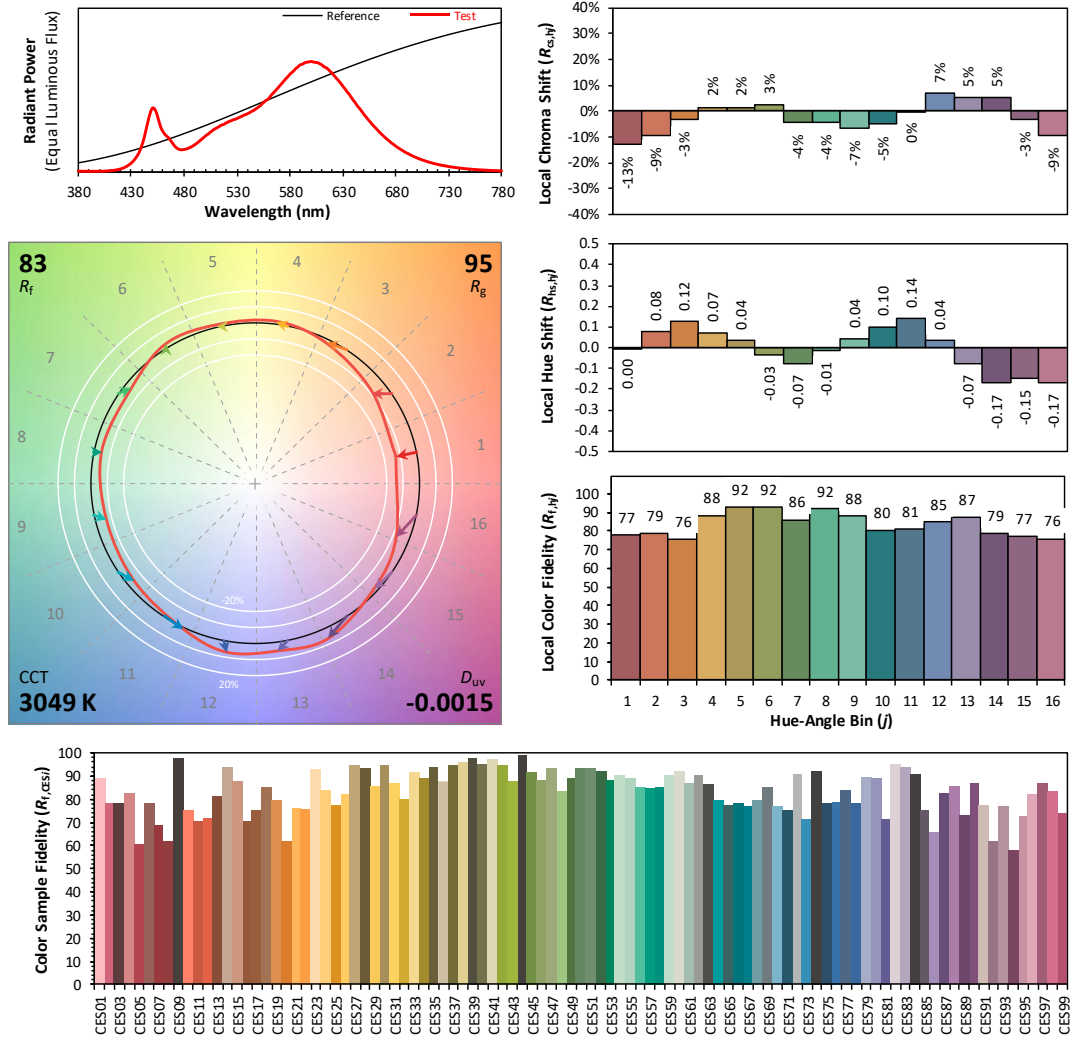
IES TM-30-18 Color Rendition Report

Source: DLF2501116-4a

Manufacturer: RAB Lighting Inc.

Date: 2025/1/16

Model: H17/480 @ 120W/3000K



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

x 0.4314
 y 0.3984
 u' 0.2494
 v' 0.5183

CIE 13.3-1995
(CRI)
 R_a 81
 R_g 0

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	2.86E-03	485	8.02E-02	590	3.53E-01	695	5.47E-02
385	2.90E-03	490	8.99E-02	595	3.60E-01	700	4.70E-02
390	2.77E-03	495	1.04E-01	600	3.63E-01	705	4.02E-02
395	2.82E-03	500	1.18E-01	605	3.60E-01	710	3.43E-02
400	3.00E-03	505	1.32E-01	610	3.53E-01	715	2.94E-02
405	3.30E-03	510	1.44E-01	615	3.41E-01	720	2.52E-02
410	4.61E-03	515	1.54E-01	620	3.24E-01	725	2.16E-02
415	6.85E-03	520	1.62E-01	625	3.04E-01	730	1.84E-02
420	1.07E-02	525	1.70E-01	630	2.82E-01	735	1.57E-02
425	1.77E-02	530	1.76E-01	635	2.60E-01	740	1.36E-02
430	2.97E-02	535	1.84E-01	640	2.35E-01	745	1.16E-02
435	5.01E-02	540	1.92E-01	645	2.12E-01	750	1.00E-02
440	8.73E-02	545	2.02E-01	650	1.89E-01	755	8.56E-03
445	1.54E-01	550	2.14E-01	655	1.68E-01	760	7.40E-03
450	2.10E-01	555	2.28E-01	660	1.48E-01	765	6.49E-03
455	1.82E-01	560	2.42E-01	665	1.30E-01	770	5.60E-03
460	1.33E-01	565	2.62E-01	670	1.13E-01	775	4.88E-03
465	1.14E-01	570	2.82E-01	675	9.84E-02	780	4.20E-03
470	9.08E-02	575	3.02E-01	680	8.53E-02		
475	7.51E-02	580	3.22E-01	685	7.38E-02		
480	7.44E-02	585	3.38E-01	690	6.34E-02		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	H17/480 @ 120W/3000K	Sample ID.	DLF2501116-D1
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	480.03	60	0.277	121.7	0.915

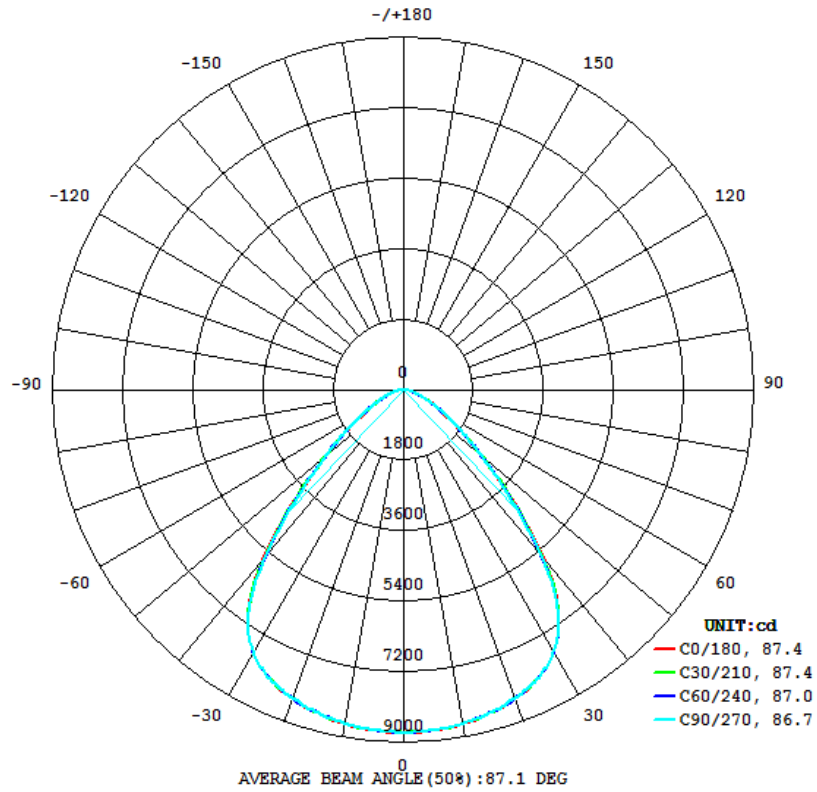
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
17154	127.8	128.2	87.4	86.7	141.0

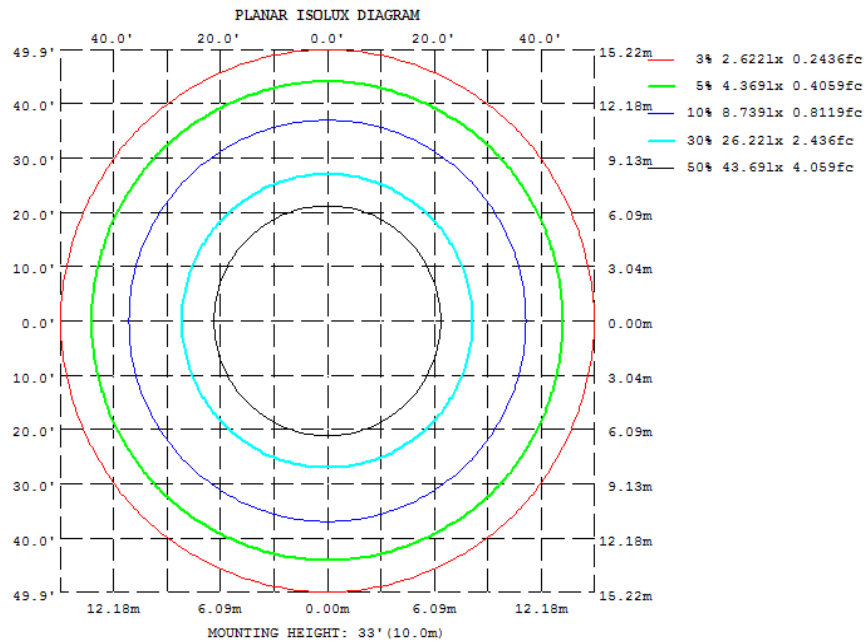
Zonal Lumen Requirement (20° - 50°)	UGR (X=4H, Y=8H, 70/50/20%)
64.55%	25.6

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	8651	8648	8649	8648	8651	8648	8649	8648
20	8377	8372	8374	8372	8377	8372	8374	8372
30	7724	7726	7725	7726	7724	7726	7725	7726
40	5611	5573	5505	5573	5611	5573	5505	5573
50	2651	2651	2619	2651	2651	2651	2619	2651
60	1210	1213	1223	1213	1210	1213	1223	1213
70	515.1	512.6	525.9	512.6	515.1	512.6	525.9	512.6
80	156.8	154.1	157.6	154.1	156.8	154.1	157.6	154.1
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:cd							

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	23.8	25.1	24.1	25.4	25.7	23.7	25.1	24.1	25.4	25.7
4H	24.6	25.8	25.0	26.1	26.5	24.5	25.7	24.9	26.1	26.4
6H	24.8	26.0	25.2	26.3	26.7	24.8	25.9	25.2	26.2	26.6
8H	24.9	26.0	25.4	26.3	26.7	24.9	25.9	25.3	26.3	26.7
12H	25.0	25.9	25.4	26.3	26.7	24.9	25.9	25.3	26.3	26.7
4H	24.9	25.9	25.4	26.3	26.7	24.9	25.8	25.3	26.2	26.6
2H	24.0	25.1	24.4	25.5	25.9	24.0	25.1	24.4	25.5	25.8
3H	25.0	25.9	25.4	26.3	26.7	25.0	25.9	25.4	26.3	26.7
4H	25.3	26.2	25.8	26.6	27.0	25.3	26.1	25.7	26.5	27.0
6H	25.5	26.2	26.0	26.7	27.2	25.5	26.2	25.9	26.6	27.1
8H	25.6	26.2	26.0	26.7	27.1	25.5	26.2	26.0	26.6	27.1
12H	25.5	26.1	26.0	26.6	27.1	25.5	26.1	26.0	26.6	27.0
8H	25.4	26.1	25.9	26.5	27.0	25.3	26.0	25.8	26.4	26.9
6H	25.6	26.2	26.1	26.7	27.2	25.6	26.1	26.1	26.6	27.1
8H	25.7	26.2	26.2	26.7	27.2	25.6	26.1	26.2	26.6	27.1
12H	25.7	26.1	26.2	26.6	27.2	25.7	26.1	26.2	26.6	27.2
12H	25.4	26.0	25.8	26.4	26.9	25.3	25.9	25.8	26.4	26.9
6H	25.6	26.1	26.2	26.6	27.1	25.6	26.1	26.1	26.5	27.1
8H	25.7	26.1	26.2	26.6	27.2	25.6	26.1	26.2	26.6	27.1
Maximum UGR = 27.2										

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	830.06	0 - 10	830.06	4.84%
10-20	2413.90	0 - 20	3243.96	18.91%
20-30	3743.47	0 - 30	6987.43	40.73%
30-40	4271.95	0 - 40	11259.38	65.64%
40-50	3056.94	0 - 50	14316.32	83.46%
50-60	1632.08	0 - 60	15948.40	92.97%
60-70	809.74	0 - 70	16758.14	97.69%
70-80	333.90	0 - 80	17092.04	99.64%
80-90	62.43	0 - 90	17154.47	100.00%
90-100	0.00	0 - 100	17154.47	100.00%
100-110	0.00	0 - 110	17154.47	100.00%
110-120	0.00	0 - 120	17154.47	100.00%
120-130	0.00	0 - 130	17154.47	100.00%
130-140	0.00	0 - 140	17154.47	100.00%
140-150	0.00	0 - 150	17154.47	100.00%
150-160	0.00	0 - 160	17154.47	100.00%
160-170	0.00	0 - 170	17154.47	100.00%
170-180	0.00	0 - 180	17154.47	100.00%

4.2 Goniophotometer Test

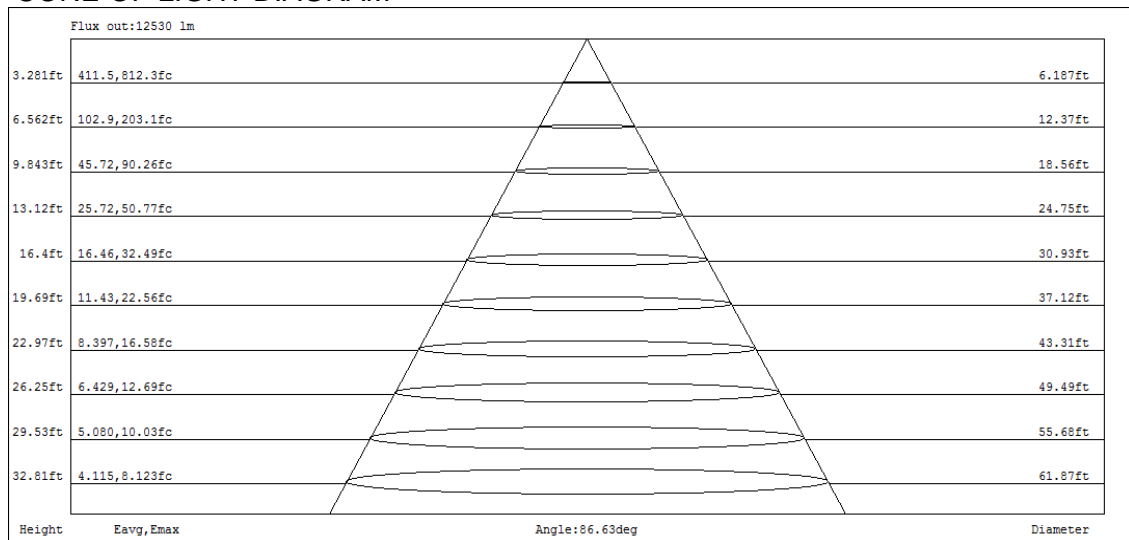
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	71	69
4	89	79	72	66	87	78	71	66	76	70	65	74	68	64	72	67	64	62
5	83	72	65	59	81	71	64	59	69	63	58	67	62	57	66	61	57	55
6	77	66	58	53	76	65	58	52	63	57	52	62	56	52	60	55	51	49
7	72	60	53	47	71	60	52	47	58	52	47	57	51	47	56	50	46	45
8	68	56	48	43	66	55	48	43	54	47	43	53	47	42	52	46	42	40
9	64	51	44	39	62	51	44	39	50	43	39	49	43	39	48	43	39	37
10	60	48	41	36	59	47	40	36	46	40	36	45	40	36	45	39	35	34

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	H17/480 @ 120W/3000K	Sample ID.	DLF2501116-D1
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
480.04	60	0.276	121.4	0.915	13.52%

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*****