



# Photometric Test Report

## Relevant Standards

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

## Prepared For

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## Project Number

**DLF2501116**

## Report Number

**DLF2501116-6a**

## Test Date

**2025/1/17**

## Issue Date

**2025/1/17**

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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		18606
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)		IES LM-79-2019	Standard 120	Premium 135	152.3
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)		IES LM-79-2019	Worst Case		122.2
Total Harmonic Distortion (A%) (THD & PF - section 4.3)		ANSI C82.77:2014	20.00%		13.51%
Power Factor (THD & PF - section 4.3)		ANSI C82.77:2014	0.9		0.916
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)		IES LM-79-2019	7 step	5029±283	5063
			4 step	5029±220	
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		-8
Minimum Rf (Integrating Sphere - Section 4.1)		ANSI/IES TM-30-18	≥70		82
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%		-15%
Zonal Lumen Requirement (20°-50°) (Goniophotometer - Section 4.2)		IES LM-79-2019	≥30%		64.51%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)		CIE 190-2010	<28		26.0
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		0.278
Power (Input Wattage - W)					
(Goniophotometer - Section 4.2)		IES LM-79-2019	Worst Case		122.2

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025/1/17	H17/480 @ 120W/5000K	N/A	DLF2501116-F1
2	Goniophotometer Test	2025/1/17	H17/480 @ 120W/5000K	N/A	DLF2501116-F1
3	THD and PF Test	2025/1/17	H17/480 @ 120W/5000K	N/A	DLF2501116-F1

### 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.

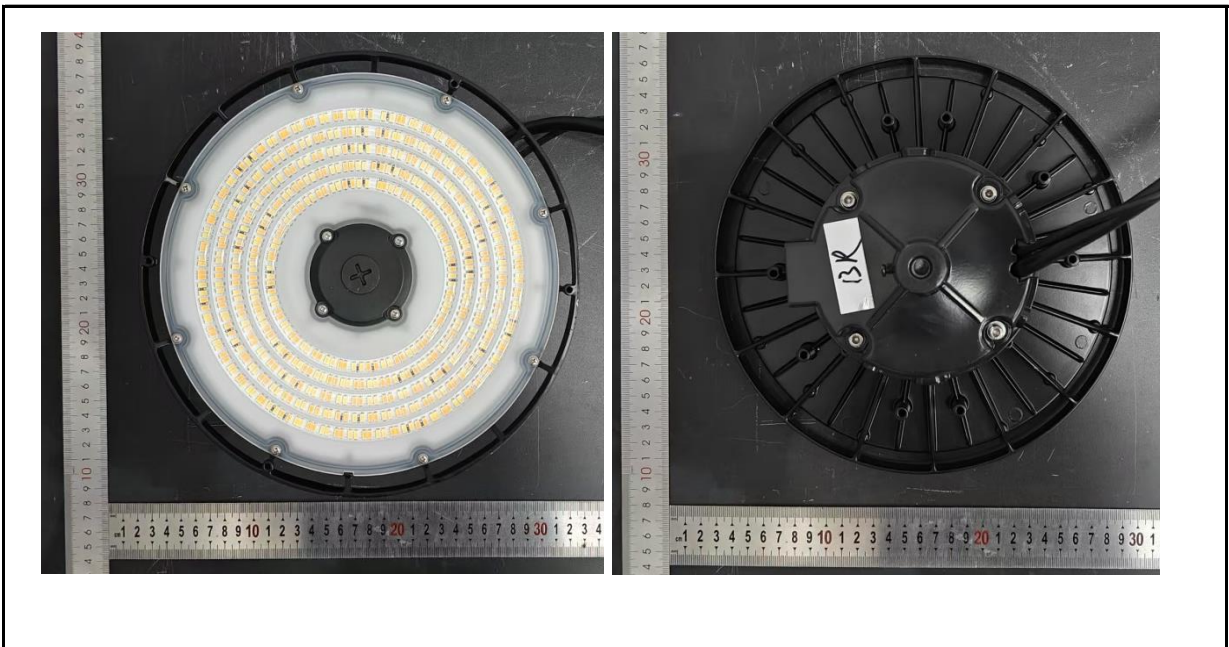
## 3.0 Production Description

**Luminaire Description:** H17/480 @ 120W/5000K

**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/5000K	Sample ID.	DLF2501116-F1
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  $\pm 0.2$  percent under load.

The sample was measured using  $4\pi$  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
479.95	60	0.278	122.0	0.916

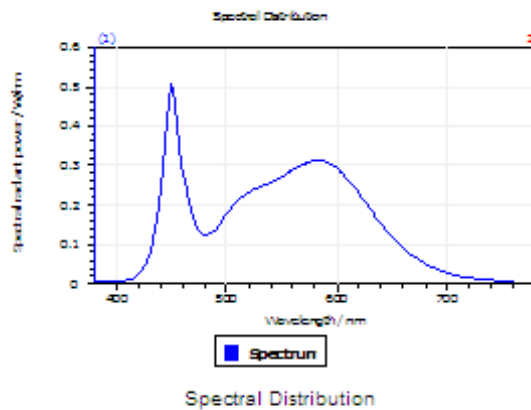
#### Test Result

CCT (K)	CRI	R9	Duv
5063	81	-8	0.00049

Rf	Rg	IES Rcs,h1
82	95	-15%

## 4.1 Integrating Sphere Test

### Results

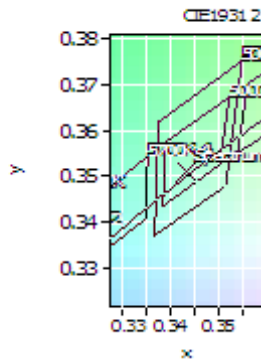


#### Spectral values

DominantWavelength 571.32 nm  
Purity 0.085  
PeakWavelength 450.12 nm  
Radiant Power 57.63 W  
Width50%:

#### Color Coordinates

Correlated Color Temperat 5083 K  
x: 0.3435 u: 0.2104 u': 0.2104  
y: 0.3513 v: 0.3228 v': 0.4843  
CRI01 78.6 CRI09 -8.0  
CRI02 87.1 CRI10 69.3  
CRI03 92.6 CRI11 79.3  
CRI04 80.2 CRI12 61.2  
CRI05 79.8 CRI13 80.8  
CRI06 81.6 CRI14 96.2  
CRI07 84.4 CRI15 72.3  
CRI08 61.9 CRI16 70.7  
ResultsCRI 80.8



PlanckDistance 4.9E-004

## 4.1 Integrating Sphere Test

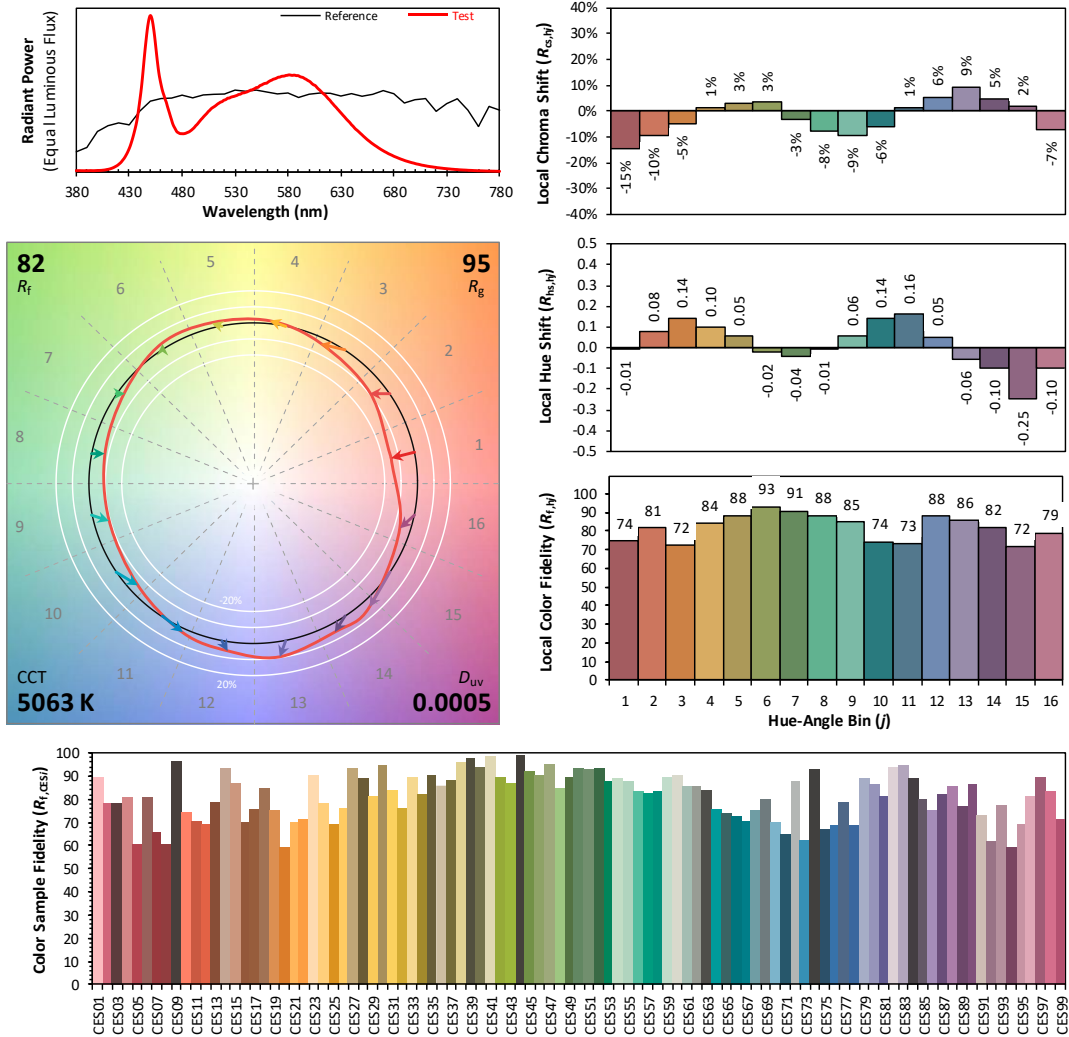
### IES TM-30-18 Color Rendition Report

Source: DLF2501116-6a

Manufacturer: RAB Lighting Inc.

Date: 2025/1/17

Model: H17/480 @ 120W/5000K



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

$x$  0.3435  
 $y$  0.3513  
 $u'$  0.2104  
 $v'$  0.4843

CIE 13.3-1995  
(CRI)

$R_a$  81  
 $R_g$  -3



#### 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	4.69E-03	485	1.28E-01	590	3.10E-01	695	3.25E-02
385	4.62E-03	490	1.39E-01	595	3.03E-01	700	2.79E-02
390	4.77E-03	495	1.57E-01	600	2.93E-01	705	2.39E-02
395	4.82E-03	500	1.77E-01	605	2.80E-01	710	2.04E-02
400	5.25E-03	505	1.96E-01	610	2.64E-01	715	1.75E-02
405	6.25E-03	510	2.10E-01	615	2.48E-01	720	1.51E-02
410	8.99E-03	515	2.22E-01	620	2.30E-01	725	1.29E-02
415	1.45E-02	520	2.32E-01	625	2.10E-01	730	1.11E-02
420	2.47E-02	525	2.39E-01	630	1.91E-01	735	9.44E-03
425	4.34E-02	530	2.45E-01	635	1.71E-01	740	8.29E-03
430	7.59E-02	535	2.51E-01	640	1.53E-01	745	7.04E-03
435	1.32E-01	540	2.57E-01	645	1.35E-01	750	6.01E-03
440	2.30E-01	545	2.64E-01	650	1.20E-01	755	5.27E-03
445	3.94E-01	550	2.72E-01	655	1.04E-01	760	4.52E-03
450	5.04E-01	555	2.80E-01	660	9.11E-02	765	4.04E-03
455	4.06E-01	560	2.86E-01	665	7.94E-02	770	3.50E-03
460	2.83E-01	565	2.96E-01	670	6.88E-02	775	3.11E-03
465	2.25E-01	570	3.04E-01	675	5.93E-02	780	2.64E-03
470	1.68E-01	575	3.09E-01	680	5.12E-02		
475	1.30E-01	580	3.12E-01	685	4.42E-02		
480	1.24E-01	585	3.12E-01	690	3.77E-02		

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	H17/480 @ 120W/5000K	Sample ID.	DLF2501116-F1
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  $\pm 0.2$  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  $0.5^{\circ}$  vertical intervals and  $10^{\circ}$  horizontal intervals.

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	479.99	60	0.278	122.2	0.916

#### Test Result

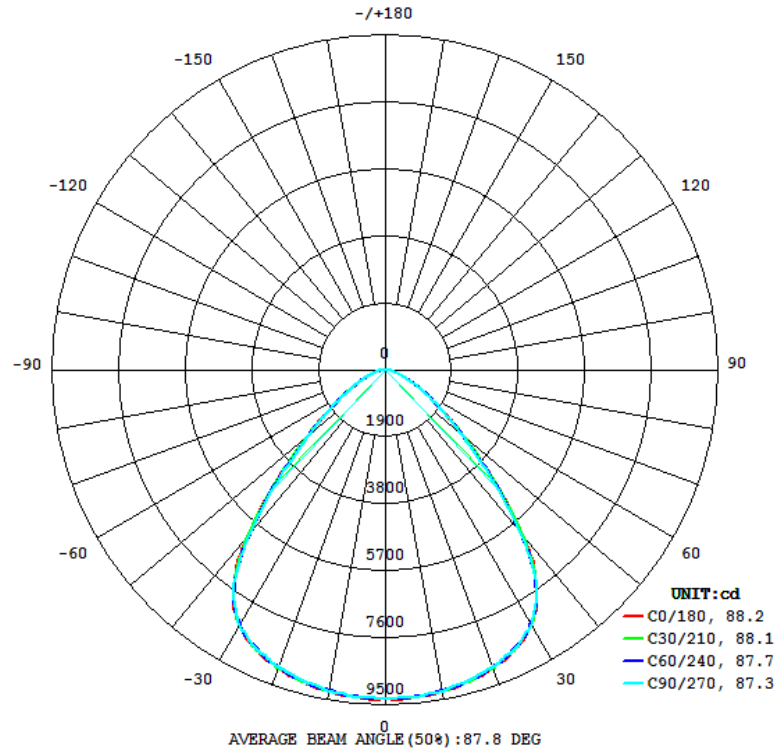
Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
18606	128.8	129.1	88.2	87.3	152.3

Zonal Lumen Requirement ( $20^{\circ}$ - $50^{\circ}$ )	UGR (X=4H, Y=8H, 70/50/20%)
64.51%	26.0

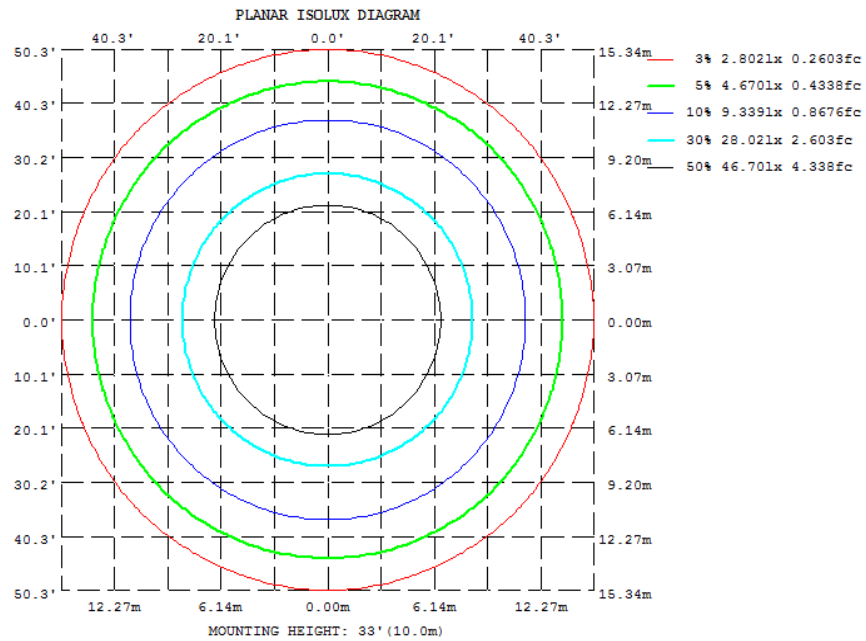


## 4.2 Goniophotometer Test

### Light Distrubtion Curve



### Isolux Plot



## 4.2 Goniophotometer Test

### Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	9243	9244	9248	9244	9243	9244	9248	9244
20	8970	8970	8965	8970	8970	8970	8965	8970
30	8324	8329	8331	8329	8324	8329	8331	8329
40	6134	6086	6027	6086	6134	6086	6027	6086
50	2912	2916	2869	2916	2912	2916	2869	2916
60	1339	1338	1353	1338	1339	1338	1353	1338
70	573.2	573.0	583.3	573.0	573.2	573.0	583.3	573.0
80	172.9	172.0	174.3	172.0	172.9	172.0	174.3	172.0
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

<b>UGR Table - Corrected</b>										
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	24.1	25.5	24.5	25.8	26.1	24.1	25.5	24.5	25.8	26.1
4H	25.0	26.2	25.4	26.5	26.9	25.0	26.2	25.3	26.5	26.9
6H	25.2	26.4	25.6	26.7	27.1	25.2	26.3	25.6	26.7	27.1
8H	25.3	26.4	25.8	26.8	27.2	25.3	26.3	25.7	26.7	27.1
12H	25.4	26.3	25.8	26.7	27.1	25.3	26.3	25.7	26.7	27.1
4H 2H	25.4	26.3	25.8	26.7	27.1	25.3	26.3	25.8	26.6	27.1
4H 3H	24.4	25.5	24.8	25.9	26.3	24.4	25.5	24.8	25.9	26.3
4H 4H	25.4	26.4	25.8	26.8	27.2	25.4	26.3	25.8	26.7	27.1
4H 6H	25.7	26.6	26.2	27.0	27.4	25.7	26.5	26.1	27.0	27.4
4H 8H	25.9	26.7	26.4	27.1	27.6	25.9	26.6	26.4	27.1	27.5
4H 12H	26.0	26.6	26.4	27.1	27.6	25.9	26.6	26.4	27.1	27.5
8H 4H	26.0	26.6	26.4	27.0	27.5	25.9	26.5	26.4	27.0	27.5
8H 6H	25.8	26.5	26.3	26.9	27.4	25.8	26.4	26.3	26.9	27.4
8H 8H	26.1	26.6	26.6	27.1	27.6	26.0	26.6	26.5	27.1	27.5
8H 12H	26.1	26.6	26.6	27.1	27.6	26.1	26.6	26.6	27.1	27.6
12H 4H	26.1	26.6	26.6	27.1	27.6	26.1	26.5	26.6	27.0	27.6
12H 6H	25.8	26.4	26.3	26.9	27.3	25.8	26.3	26.2	26.8	27.3
12H 8H	26.0	26.5	26.6	27.0	27.5	26.0	26.5	26.5	27.0	27.5
12H 12H	26.1	26.5	26.6	27.0	27.6	26.1	26.5	26.6	27.0	27.6
Maximum UGR = 27.6										

## 4.2 Goniophotometer Test

### ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	886.18	0 - 10	886.18	4.76%
10-20	2580.76	0 - 20	3466.94	18.63%
20-30	4018.49	0 - 30	7485.43	40.23%
30-40	4635.46	0 - 40	12120.89	65.15%
40-50	3348.92	0 - 50	15469.81	83.15%
50-60	1797.06	0 - 60	17266.87	92.80%
60-70	897.55	0 - 70	18164.42	97.63%
70-80	371.67	0 - 80	18536.09	99.63%
80-90	69.62	0 - 90	18605.71	100.00%
90-100	0.00	0 - 100	18605.71	100.00%
100-110	0.00	0 - 110	18605.71	100.00%
110-120	0.00	0 - 120	18605.71	100.00%
120-130	0.00	0 - 130	18605.71	100.00%
130-140	0.00	0 - 140	18605.71	100.00%
140-150	0.00	0 - 150	18605.71	100.00%
150-160	0.00	0 - 160	18605.71	100.00%
160-170	0.00	0 - 170	18605.71	100.00%
170-180	0.00	0 - 180	18605.71	100.00%

## 4.2 Goniophotometer Test

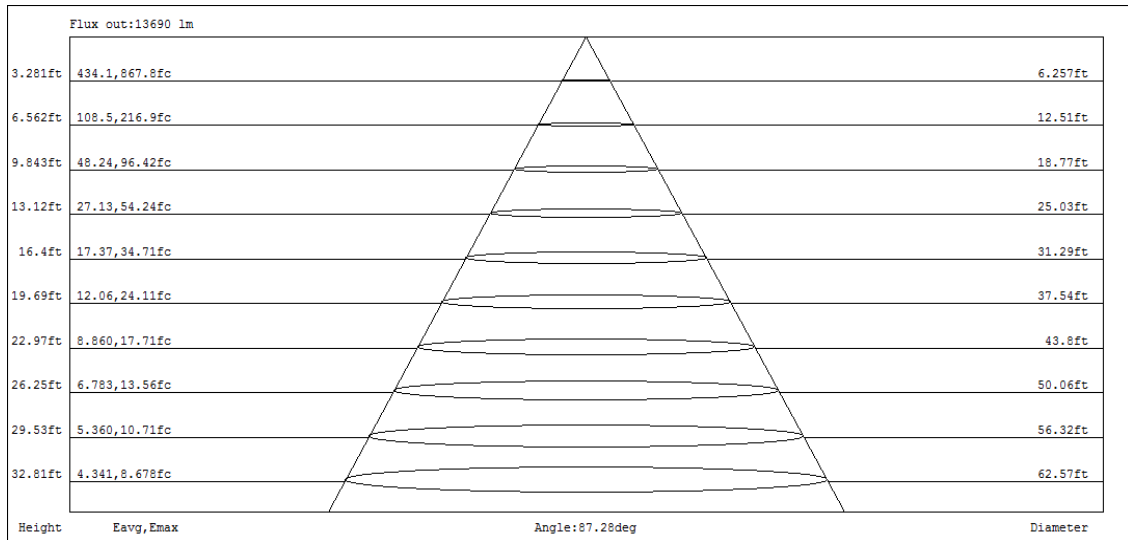
### COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

#### 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	108	104	101	109	105	102	100	101	99	97	98	96	94	94	92	91	89
2	103	97	91	87	101	95	90	86	92	88	84	89	85	82	86	83	80	78
3	96	87	81	75	94	86	80	75	83	78	74	80	76	72	78	74	71	69
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	61
5	83	72	64	59	81	71	64	58	69	63	58	67	62	57	65	61	57	55
6	77	66	58	52	75	65	57	52	63	57	52	62	56	51	60	55	51	49
7	72	60	53	47	71	59	52	47	58	51	47	57	51	46	55	50	46	44
8	68	55	48	43	66	55	48	43	54	47	42	52	46	42	51	46	42	40
9	63	51	44	39	62	51	44	39	50	43	39	49	43	38	48	42	38	37
10	60	48	40	36	58	47	40	36	46	40	35	45	39	35	44	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/5000K	Sample ID.	DLF2501116-F1
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
479.95	60	0.278	122.0	0.916	13.51%

## 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\*\*\*\*\*