



# Photometric Test Report

## Relevant Standards

- IES LM-79-2008
- ANSI C82.77:2017

## Prepared For RAB Lighting Inc.

Room 6A33, No.1388, Wuzhong road, Shanghai, China

Xiao Xiang, 15921313292, Gary.Xiao@rabweb.com

## Prepared By

Deliver Co., Ltd.

Block 11, 78 Keling Road, SSTP, Suzhou, China

0512-66801950, kevin.jia@szdeliver.com

## Project Number

DLF2111105

## Report Number

DLF2111105-24a

## Test Date

2021/11/9

## Issue Date

2021/11/12

### Prepared By

*Wangzun Zhu*

Wangzun Zhu

### Approved By

*Kevin Jia*

Kevin Jia

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

This report shall not be reproduced, except in full, without written approval of Deliver Co., Ltd.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP.

## 1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Pole/Arm-Mounted Area and Roadway Luminaires				
Requirement Category	Test Method	Requirements	Test value	
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1000	49627	
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	139.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	355.9	
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	5.70%	
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	0.934	
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	5057
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70	85	
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40	16	
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	93	
IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18% ≤ IES Rcs,h1 ≤ +23%	-12%	
Zonal Lumen Requirement (0°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	100%	100.00%	
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%	0.71%	
Input Voltage (V) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	480	
Input Current (A) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	0.796	

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/9	ALEDXL4T/480	X1
2	Goniophotometer Test	2021/11/9	ALEDXL4T/480	X1
3	THD and PF Test	2021/11/9	ALEDXL4T/480	X1

### Remark(If any)

- 1、 This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.
- 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.

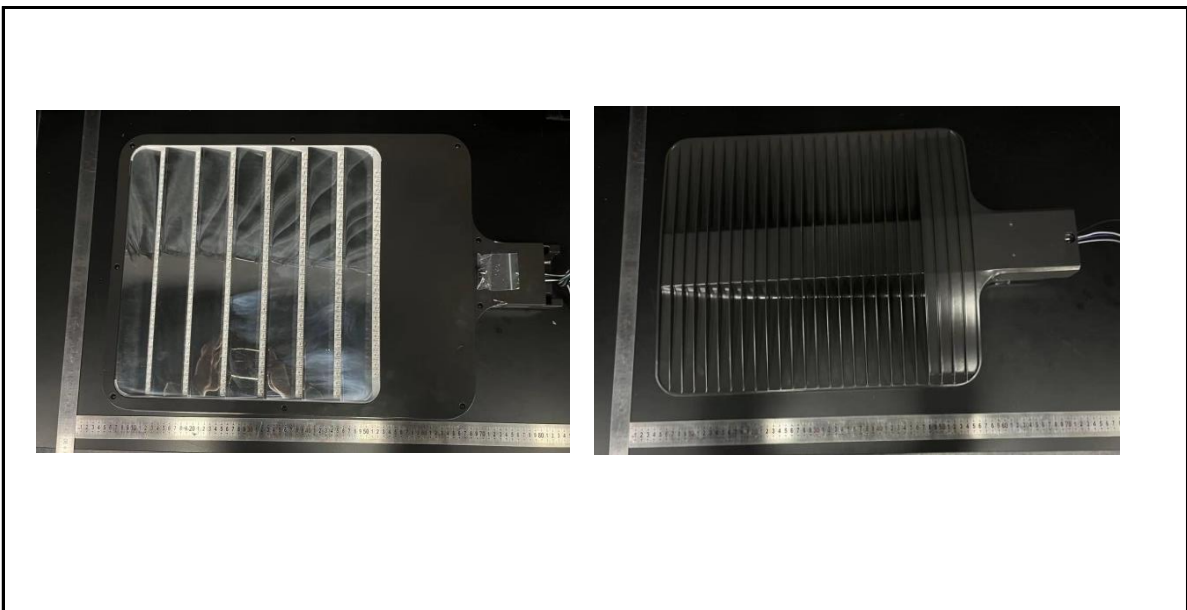
## 3.0 Production Description

**Luminaire Description:** ALEDXL4T/480

**Description:** 385W/50,000 lm @ 5000K

**Electrical Specification:** 480V,50/60HZ

### Photos of Luminaire Characteristics



## 4.0 LM-79 Measurement and Test Results

### 4.1 Integrating Sphere Test

Model No.	ALEDXL4T/480	Sample ID.	X1
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-79-2008.

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ .

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
479.97	60	0.795	356.3	0.934

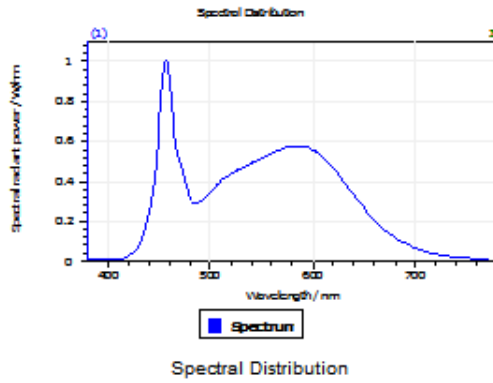
#### Test Result

CCT (K)	CRI	R9	Duv
5057	85	16	0.00059

Rf	Rg	IES Rcs,h1
83	93	-12%

## 4.1 Integrating Sphere Test

### Results



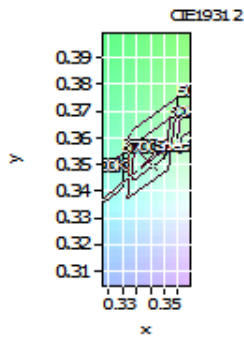
### Spectral values

DominantWavelength 571.31 nm  
Purity 0.086  
PeakWavelength 456.82 nm  
Radiant Power 113.5 W  
Width50%:

### Color Coordinates

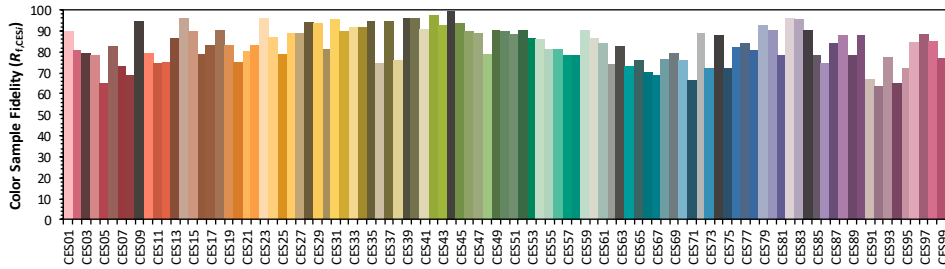
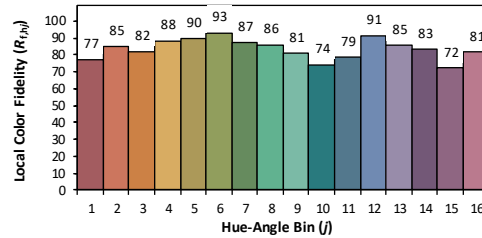
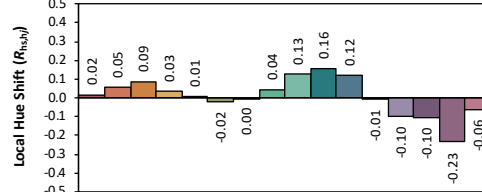
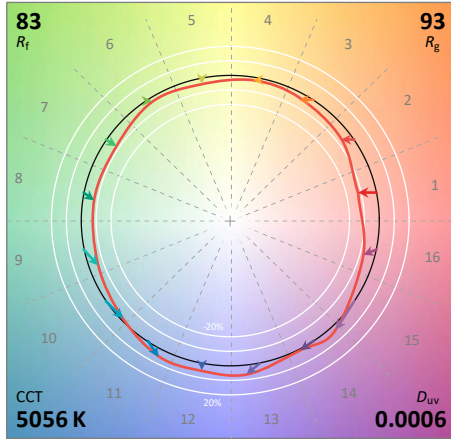
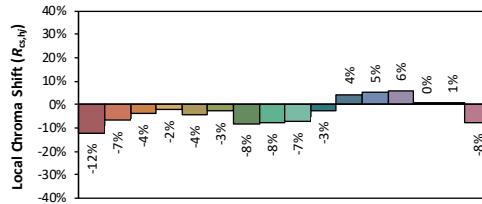
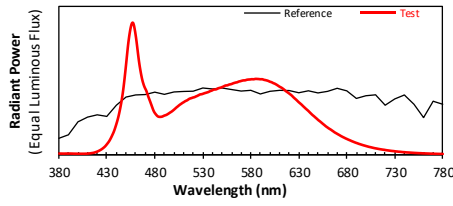
Correlated Color Temporal 5057 K  
x: 0.3438 u: 0.2104 u': 0.2104  
v: 0.3516 v: 0.3230 v': 0.4845

CRI01	84.5	CRI09	16.3
CRI02	93.7	CRI10	83.1
CRI03	94.9	CRI11	80.3
CRI04	81.1	CRI12	62.8
CRI05	83.7	CRI13	87.8
CRI06	88.1	CRI14	98.1
CRI07	85.5	CRI15	79.9
CRI08	68.0	CRI16	75.1
ResultsCRI	85.0		



PlankDistance 5.9E-004

### 4.1 Integrating Sphere Test



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

$x$  0.3436  
 $y$  0.3516  
 $u'$  0.2104  
 $v'$  0.4845

CIE 13.3-1995 (CRI)	
$R_a$	85
$R_g$	14

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	ALEDXL4T/480	Sample ID.	X1
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-79-2008.

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

The ambient temperature shall be maintained at 25° C ± 1° C, 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.

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	479.90	60	0.796	355.9	0.931

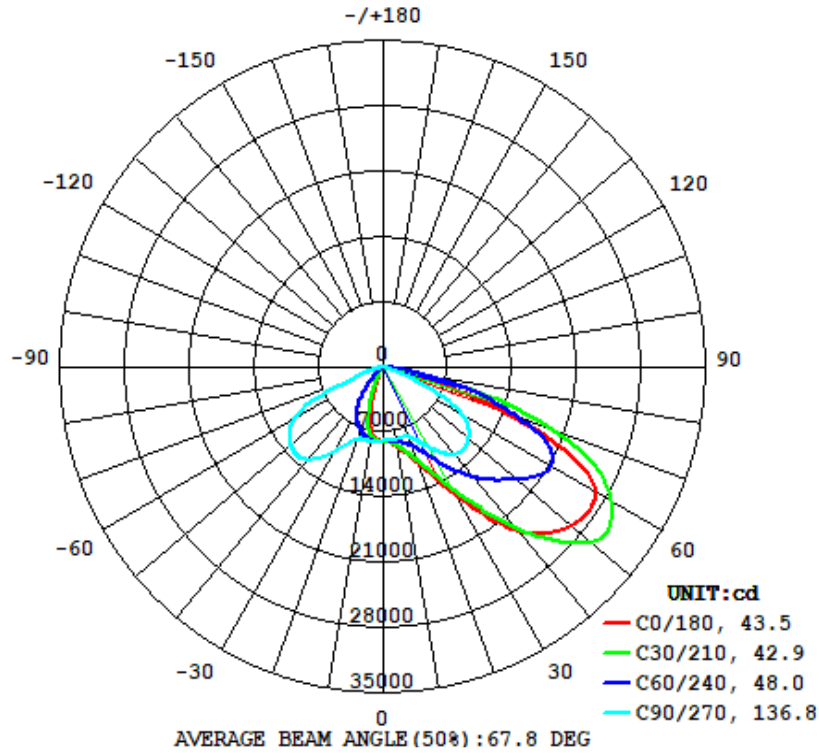
#### Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
49627	98.4	150.7	43.5	136.8	139.5

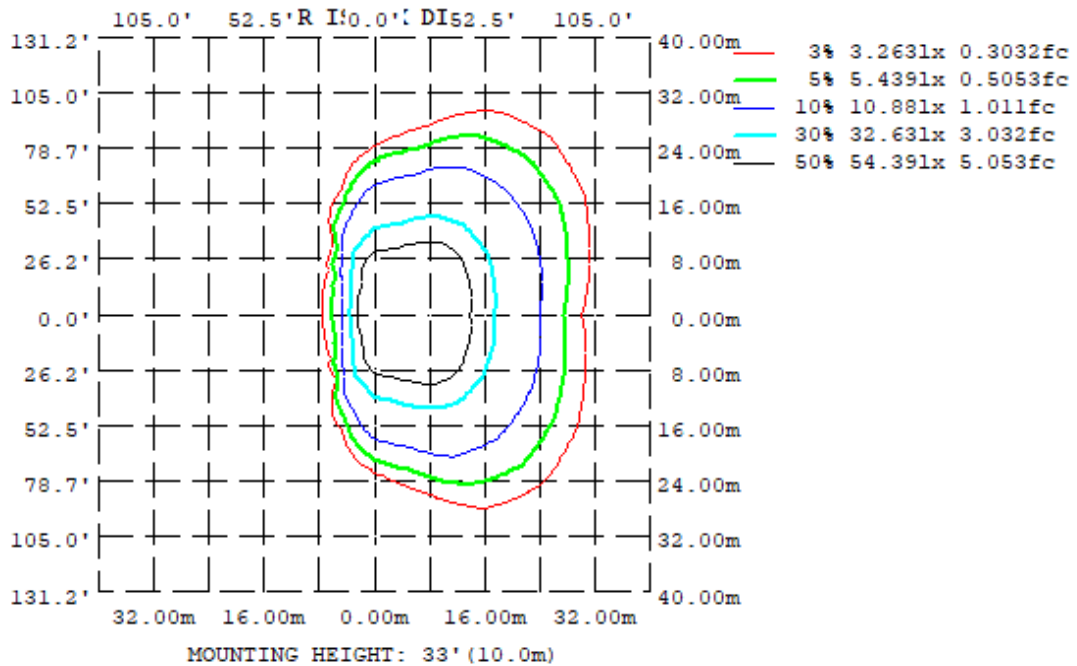
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)	BUG rating
100.00%	0.71%	B3-U0-G5

## 4.2 Goniophotometer Test

### Light Distribution Curve



### Isolux Plot



## 4.2 Goniophotometer Test

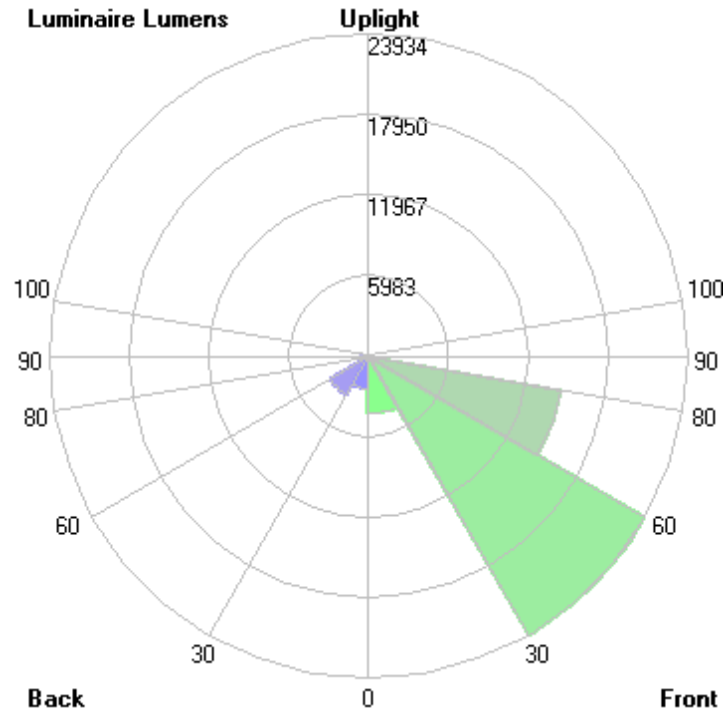
### Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	865.3	840.1	797.3	767.5	731.9	786.8	817.5	842.5
20	1089	986.9	804.8	557.9	325.9	587.8	828.0	1011
30	1578	1338	1001	236.7	91.82	259.8	1038	1377
40	2303	1903	1227	83.69	53.61	93.38	1306	1964
50	2655	2562	1216	49.18	21.81	56.48	1310	2672
60	2662	2682	972.4	20.80	9.991	25.70	1113	2935
70	1338	2000	206.1	11.89	6.773	13.74	360.3	2274
80	86.88	355.7	40.61	5.898	3.645	7.348	55.20	587.5
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: *10cd							

	Zonal (lm)		Total (lm)	Percent
0-10	766.43	0 - 10	766.43	1.54%
10-20	2236.30	0 - 20	3002.73	6.05%
20-30	3740.37	0 - 30	6743.10	13.59%
30-40	6299.48	0 - 40	13042.58	26.28%
40-50	9403.34	0 - 50	22445.92	45.23%
50-60	11558.73	0 - 60	34004.65	68.52%
60-70	10515.16	0 - 70	44519.81	89.71%
70-80	4752.67	0 - 80	49272.48	99.29%
80-90	354.31	0 - 90	49626.79	100.00%
90-100	0.00	0 - 100	49626.79	100.00%
100-110	0.00	0 - 110	49626.79	100.00%
110-120	0.00	0 - 120	49626.79	100.00%
120-130	0.00	0 - 130	49626.79	100.00%
130-140	0.00	0 - 140	49626.79	100.00%
140-150	0.00	0 - 150	49626.79	100.00%
150-160	0.00	0 - 160	49626.79	100.00%
160-170	0.00	0 - 170	49626.79	100.00%
170-180	0.00	0 - 180	49626.79	100.00%

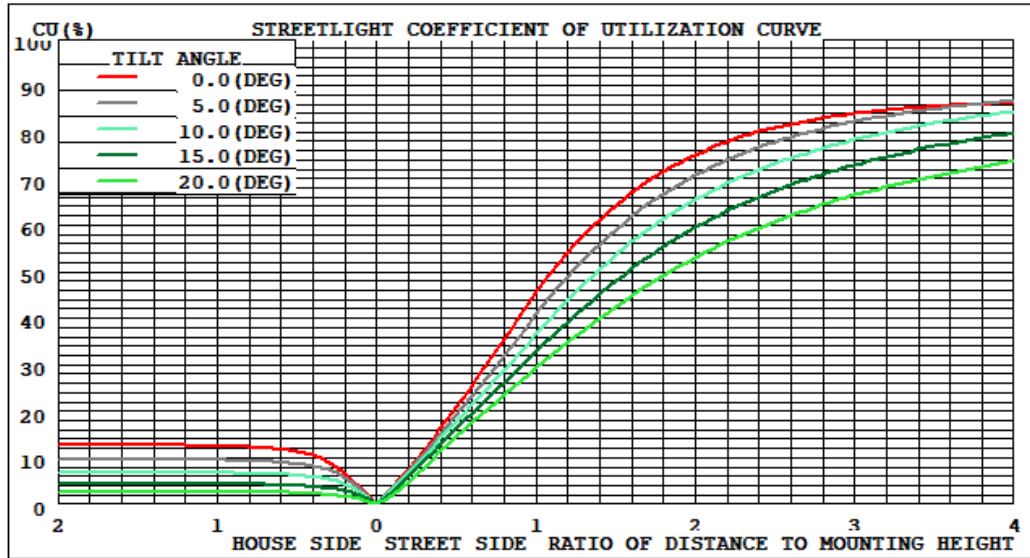
## 4.2 Goniophotometer Test

LCS/BUG

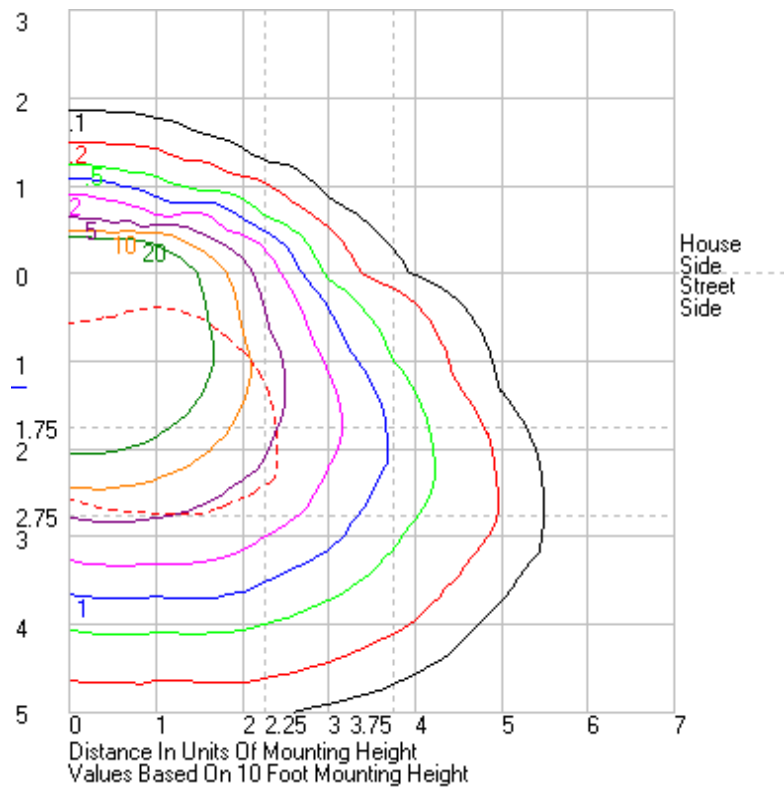


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	4316.2	N.A.	8.7
FM - Front-Medium (30-60)	23933.9	N.A.	48.2
FH - Front-High (60-80)	14667.7	N.A.	29.6
FVH - Front-Very High (80-90)	325.2	N.A.	0.7
BL - Back-Low (0-30)	2426.9	N.A.	4.9
BM - Back-Medium (30-60)	3327.7	N.A.	6.7
BH - Back-High (60-80)	600.1	N.A.	1.2
BVH - Back-Very High (80-90)	29.1	N.A.	0.1
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
<b>Total</b>	<b>49626.8</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B3-U0-G5</b>		

Coefficients of Utilization



Isolines





## 4.2 Goniophotometer Test

	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360
0	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27	7985.27
1	7978.51	7975.6	7973.07	7971.01	7970.2	7971.16	7971.84	7930.97	7928.75	7931.03	7935.01	7935.39	8000.93	7999.42	7997.34	7992.49	7989.89	7985.23	7981.52	7933.34	7926.63	7919.85	7917.68	7917.6	7978.51
2	7982.19	7978.99	7975.75	7972.5	7970.69	7970.25	7972.04	7933.33	7937.78	7942.18	7948.99	7951.05	8018.87	8018.78	8018.79	8014.25	8008.25	8001.92	7994.12	7942.43	7933.66	7926.59	7922.31	7920.03	7982.19
3	8001.15	7995.08	7988.72	7980.95	7976.62	7974.43	7975.57	7937.8	7946.65	7947.93	7953.56	7953.57	8024.51	8027.59	8032.99	8034.56	8031.32	8022.41	8012.72	7958.31	7947.19	7940.09	7938.15	7936.36	8001.15
4	8044.02	8036.17	8021.94	8002.57	7988.47	7982.16	7980.58	7944.29	7953.5	7946.29	7947.11	7942.77	8014.33	8023.5	8036.76	8050.21	8055.21	8046	8034.96	7978.3	7972.1	7967.94	7970.51	7974.57	8044.02
5	8104.89	8093.23	8072.12	8040.67	8009.13	7992.58	7987.04	7953.47	7955.8	7944.66	7927.08	7904.44	7976.21	7994.75	8027.61	8057.61	8075.83	8072.44	8059.9	8001.39	7997.27	8006.38	8019.47	8023.73	8104.89
6	8184.08	8170.8	8139.89	8091.84	8036.38	8004.61	7991.41	7955.72	7951.41	7924.53	7878.05	7839.41	7910.75	7938.32	7992.9	8053.63	8090.84	8098.39	8087.13	8035	8039.78	8068.07	8086.73	8100.09	8184.08
7	8275.74	8262.77	8224.55	8153.91	8072.58	8014.39	7992.57	7958.05	7942.61	7886.4	7811.41	7748.58	7816.17	7855.78	7939.34	8033.11	8100.85	8121.19	8113.91	8069.17	8094.29	8137.98	8174.47	8189.39	8275.74
8	8385.58	8367.35	8319.18	8229.26	8111.94	8022.61	7990.83	7951.37	7922.11	7830.48	7720.73	7631.23	7690.96	7741.95	7860.84	7995.44	8102.6	8141.77	8138.25	8104.3	8154.24	8221.46	8272.89	8292.9	8385.58
9	8510	8492.98	8430.92	8314.2	8153.94	8030.17	7983.45	7940.37	7888.5	7763	7605.27	7479.45	7523.58	7592.8	7753.95	7941.61	8091.86	8156.16	8159.49	8137.92	8220.45	8320.51	8380.72	8415.96	8510
10	8652.76	8630.76	8554.76	8401.07	8198.95	8034.05	7972.97	7922.46	7842.17	7674.67	7458.05	7289.92	7318.6	7405.08	7622.68	7868.15	8067.53	8163.02	8174.73	8172.43	8290.43	8424.51	8514.26	8551.51	8652.76
11	8811.26	8791.61	8698.46	8500.34	8249.56	8036.18	7957.48	7899.62	7783.75	7560.27	7280.09	7051.76	7072.73	7183.07	7450.43	7772.98	8031.13	8161.58	8183.59	8203.67	8363.42	8543.36	8657.2	8708.18	8811.26
12	8980.97	8955.78	8851.28	8608.74	8300.53	8039.5	7941.07	7873.27	7717.76	7426.68	7075.42	6793.08	6789.19	6919.36	7250.32	7655.87	7983.71	8154.61	8188.74	8229.99	8442.56	8666.77	8821.55	8875.02	8980.97
13	9164.75	9138.95	9019.43	8726.71	8354.15	8045.45	7926.74	7844.19	7643.99	7272.39	6834.75	6472.1	6437.17	6604.67	7016.26	7510.44	7926.06	8141.5	8187.36	8255.25	8522.36	8805.81	8997.98	9059.36	9164.75
14	9352.37	9330.77	9197.01	8857.28	8414.34	8052.53	7910.82	7816.76	7553.7	7091.05	6546.01	6095.73	6034.94	6237.34	6749.22	7350.01	7859.47	8122.07	8182.07	8284.48	8601.99	8956.64	9188.63	9254.97	9352.37
15	9556.32	9532.65	9383.64	8992.61	8478.96	8061.2	7898.26	7789.91	7467.29	6893.15	6226.08	5719.37	5593.53	5834.34	6437.52	7166.38	7778.06	8099.95	8176.89	8306.93	8686.78	9113.87	9369.19	9463.49	9556.32
16	9778.33	9754.66	9591.84	9139.51	8552.9	8078.62	7898.02	7767.53	7368.8	6674.96	5906.15	5271.73	5121.68	5380	6079.88	6954.9	7684.82	8078.24	8174.75	8335.65	8777.59	9290.92	9619.79	9692.87	9778.33
17	10018.1	9993.22	9808.22	9298.83	8635.32	8111.09	7913.02	7756.04	7262.2	6425.97	5510.43	4817.6	4657.21	4930.12	5696.28	6737.87	7585.79	8061.35	8179.3	8369.77	8879.9	9472.88	9854.35	9935.19	10018.1
18	10287.3	10256	10047	9476.32	8733.68	8158.09	7940.14	7753.54	7152.25	6176.46	5092.18	4362.47	4180.21	4470.15	5286.91	6478.75	7480.06	8050.11	8193.14	8418.87	8996.85	9668.08	10104.8	10208.2	10287.3
19	10581	10543	10302.2	9663.9	8850	8224.1	7984.5	7760.07	7040.47	5899.13	4671.94	3899.13	3706.96	4000.56	4868.57	6187.56	7365.94	8050.41	8225.88	8480.23	9119.83	9878.22	10376.2	10500.9	10581
20	10893.3	10861.3	10582.2	9868.71	8985.91	8309.73	8048.05	7782.51	6925.55	5579.1	4249.58	3449.88	3259.26	3549.87	4457.54	5877.68	7254.42	8066.47	8279.6	8560.88	9264.13	10105.5	10673.5	10827.1	10893.3
21	11237	11207.9	10888.8	10101.6	9146.41	8419.81	8136.35	7823.05	6809.67	5238.9	3825.65	3029.71	2835.37	3134.17	4032.37	5552.74	7139.62	8099	8359.28	8669.22	9434.55	10349.1	11004.3	11170.2	11237
22	11609.4	11575.5	11221	10352.9	9326.14	8554.46	8252.22	7885.42	6695.93	4901.61	3428.63	2623.93	2437.56	2721.48	3620.01	5207.77	7019.49	8154.55	8469.24	8807.79	9627.48	10618.6	11349.2	11542.6	11609.4
23	12013.9	11989	11590.7	10636.4	9532.65	8713.44	8401.05	7964.68	6686.42	4564.06	3047.67	2252.85	2080.67	2349.39	3230.17	4863.17	6903.43	8236.06	8606.34	8975	9849.63	10920.1	11737.1	11948.9	12013.9
24	12456.1	12435.6	12001.7	10948.5	9769.52	8902.82	8570.45	8058.47	6501.77	4225.93	2676.7	1920.3	1774.88	2018.15	2859.27	4518.31	6792.76	8334.63	8778.33	9166.75	10100.7	11247.4	12152.3	12390.1	12456.1
25	12927.7	12921	12443.9	11280	10022.7	9107.94	8758.47	8168.78	6335.39	3890	2338.1	1636.33	1544.21	1727.44	2499.15	4168.39	6663.07	8455.89	8983.62	9390.6	10373.1	11600.1	12595.3	12863.4	12927.7
26	13415.5	13414.3	12915.9	11642.4	10312.8	9343.28	8977.55	8286.8	6170.94	3554.61	2033.83	1402.69	1358.59	1508.41	2181.64	3825.6	6517.55	8599.41	9217.41	9640.09	10670.5	11987.8	13083.7	13378.4	13415.5
27	13953.9	13961.9	13409.9	12303.7	10622.9	9601.14	9212.33	8416.49	6000.28	3240.33	1757.15	1228.54	1174.09	1326.09	1890.77	3500.37	6366.82	8756.84	9474.48	9914.88	10994.1	12389.3	13597.2	13922.7	13953.9
28	14512.1	14531.9	13942.3	12456.3	10956.1	9882.21	9465.03	8550.78	5812.52	2935.63	1520.74	1097.42	1061.55	1171.26	1643.53	3190.43	6197.33	8928.43	9754.49	10216.9	11344	12820.1	14143	14523	14512.1
29	15126.7	15161.8	14486.7	12892.2	11302.2	10178.8	9734.63	8679.13	5612.42	2648.86	1331.98	999.06	974.65	1062.2	1474.25	2885.78	6017	9116.19	10055.7	10529	11705	13286.9	14726.5	15144	15126.7
30	15782.3	15830.2	15081.5	13375.4	11659.6	10492.3	10010.4	8813.26	5388.95	2366.66	1182.65	929.42	918.19	979.7	1304.97	2597.7	5831.2	9299.85	10380.8	10860.6	12097	13772.8	15340.4	15809.8	15782.3
31	16469.8	16544.9	15706.6	13851.9	12034.9	10812.3	10293.1	8934.53	5159.26	2112.53	1070.08	877.99	870.15	922.61	1162.73	2330.48	5621.98	9480.3	10707	11209.8	12492.5	14270.7	15975.4	16502.4	16469.8
32	17200.3	17305.4	16381.7	14318	12408.8	11136.2	10577.1	9047.12	4916.3	1869.03	980.3	834.31	828.83	875.13	1059.84	2077.41	5398.45	9654.09	11027.1	11554	12886.5	14801.8	16639.2	17256.6	17200.3
33	17957.5	18091.5	17068	14838	12797.5	11457.8	10851.3	9145.88	4662.89	1640.66	914.28	794.98	786.5	834.27	981.88	1838.97	5170.86	9805.03	11349.9	11908.5	13305.9	15337.2	17347.9	18030.2	17957.5
34	18735.4	18905.2	17789.4	15365.3	13203.8	11770.8	11115.9	9221.83	4407.24	1440.44	863.71	758.13	748.5	794.86	926.99	1625.39	4933.29	9936.87	11653.2	12254.9	13729.5	15893.8	18091.6	18828.7	18735.4
35	19519.8	19748.1	18543.1	15927	13584.8	12078.8	11365.1	9269.48	4139.17	1272.49	821.7	721.6	711.68	757.16	883.01	1470.11	4684.07	10047.8	11940.3	12592.3	14147.9	16475	18858.1	19658.7	19519.8
36	20279.2	20575.2	19326.4	16498.3	13964.8	12378.7	11596.4	9292.45	3871.93	1146.91	784.5	686.5	674.8	721.83	843.43	1314.82	4424.98	10127.2	12215.2	12919.4	14578.2	17067.6	19649.5	20503.9	20279.2
37	21030.5	21418.4	20141.5	17114.4	14366.9	12661.5	11811.4	9293.05	3596.97	1036.24	749.03	652.9	639.12	685.73	807.94	1178.91	4163.53	10176.2	12463.8	13232.3	14987.4	17687.4	20485.8	21340.3	21030.5
38	21748.5	22207.8	20949.3	17736.8	14775	12929.5	11995.3	9255.63	3317.75	951.32	714.45	619.8	604.61	650.4	772.7	1075.09	3894.57	10193.2	12689.7	13529.1	15414.3	18318.3	21331	22175.7	21748.5
39	2																								







161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

Model No.	ALEDXL4T/480	Sample ID.	X1
Temperature (°C)	25.3	Humidity (%RH)	56.0

#### Test Method

The samples were tested according to the ANSI C82.77:2002.  
 The total harmonic distortion shall be measured to the 40th order.  
 The ambient temperature condition was maintained at 25° C ± 1° C. 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
479.97	60	0.795	356.3	0.934	5.70%

## 5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2020/12/26	2021/12/25
DLF108	Auxiliary Lamp	2020/12/26	2021/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2020/12/26	2021/12/25
DLF116	AC Power Source	2020/12/26	2021/12/25
DLF113	Power Meter	2020/12/26	2021/12/25
DLF112	Temperature Recorder	2020/12/26	2021/12/25
DLF114	Temperature & Humidity Datalogger	2020/12/26	2021/12/25
DLF101	Goniophotometer	2020/12/26	2021/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2020/12/26	2021/12/25
DLF104	AC Power Source	2020/12/26	2021/12/25
DLF507	DC Power Source	2020/12/26	2021/12/25
DLF102	Power Meter	2020/12/26	2021/12/25
DLF111	Temperature & Humidity Datalogger	2020/12/26	2021/12/25
DLF119	Power Meter	2020/12/26	2021/12/25
DLF031	Temperature data logger	2020/12/26	2021/12/25
DLF022	Digital power meter	2020/12/26	2021/12/25
DLF003	Temperature & Humidity Datalogger	2020/12/26	2021/12/25

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