

# 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

DLF2111113

## Report Number

DLF2111113-18a

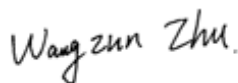
## Test Date

2021/11/26

## Issue Date

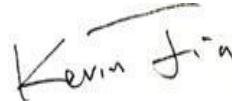
2021/12/2

### Prepared By



Wangzun Zhu

### Approved By



Kevin Jia

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## 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	38340	
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	145.1
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	264.3	
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	4.62%	
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	0.963	
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	3943
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70	82	
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40	4	
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	
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%	0.14%	
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	0.572	

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/26	ALEDLATN/480	R1
2	Goniophotometer Test	2021/11/26	ALEDLATN/480	R1
3	THD and PF Test	2021/11/26	ALEDLATN/480	R1

### 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.

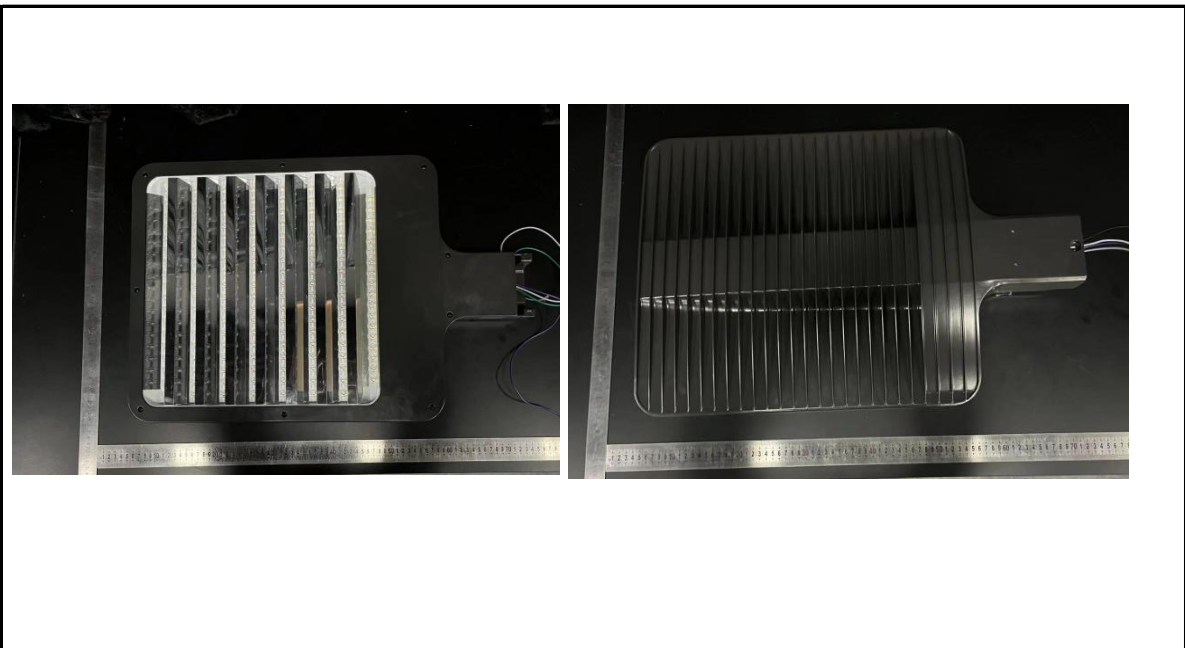
## 3.0 Production Description

**Luminaire Description:** ALEDLATN/480

**Description:** 260W/36,000 lm @ 4000K

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

### Photos of Luminaire Characteristics



## 4.0 LM-79 Measurement and Test Results

### 4.1 Integrating Sphere Test

Model No.	ALEDLATN/480	Sample ID.	R1
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
480.00	60	0.571	263.8	0.963

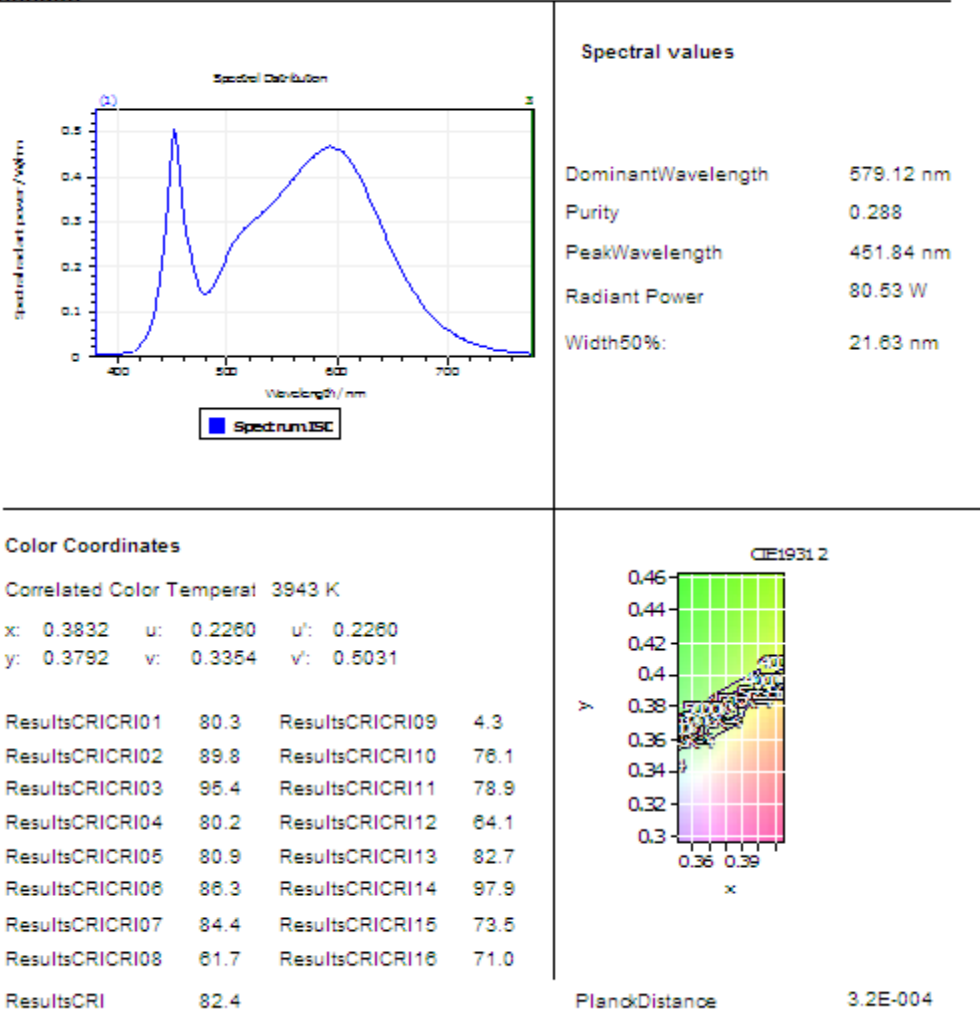
#### Test Result

CCT (K)	CRI	R9	Duv
3943	82	4	0.00032

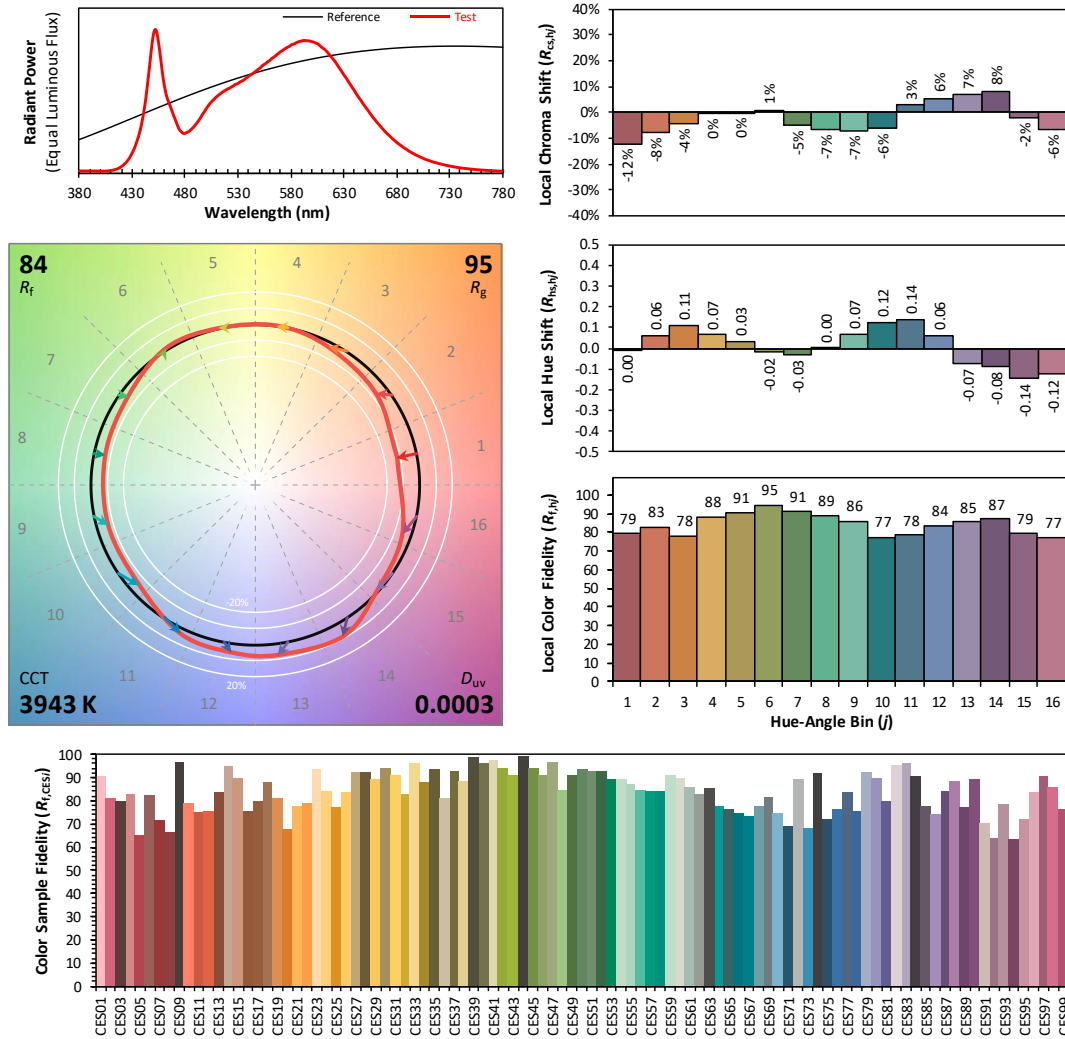
Rf	Rg	IES Rcs,h1
84	95	-12%

## 4.1 Integrating Sphere Test

### Results



### 4.1 Integrating Sphere Test



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

$x$     **0.3832**  
 $y$     **0.3792**  
 $u'$    **0.2260**  
 $v'$    **0.5031**

CIE 13.3-1995 (CRI)	
$R_a$	83
$R_g$	11

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	ALEDLATN/480	Sample ID.	R1
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	480.08	60	0.572	264.3	0.962

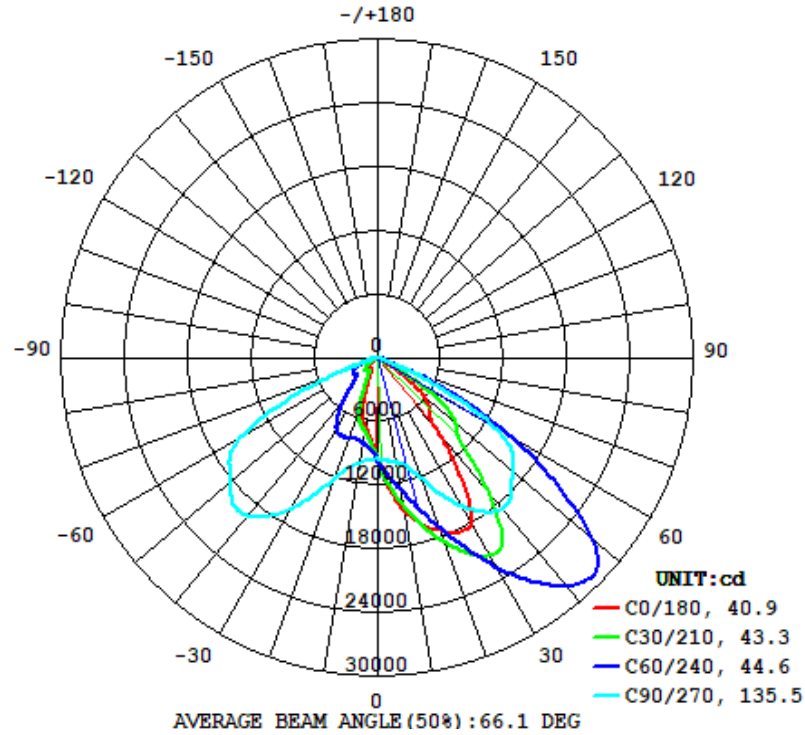
#### Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
38340	82.4	148.2	40.9	135.5	145.1

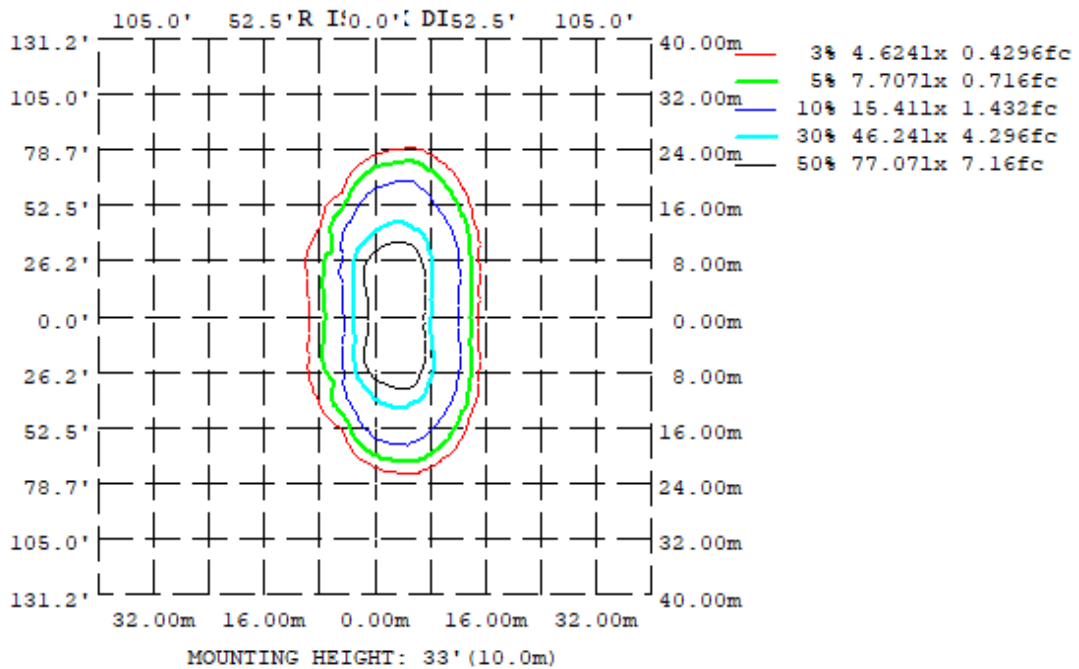
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)	BUG rating
100.00%	0.14%	B4-U0-G2

## 4.2 Goniophotometer Test

### Light Distribution Curve



### Isolux Plot



## 4.2 Goniophotometer Test

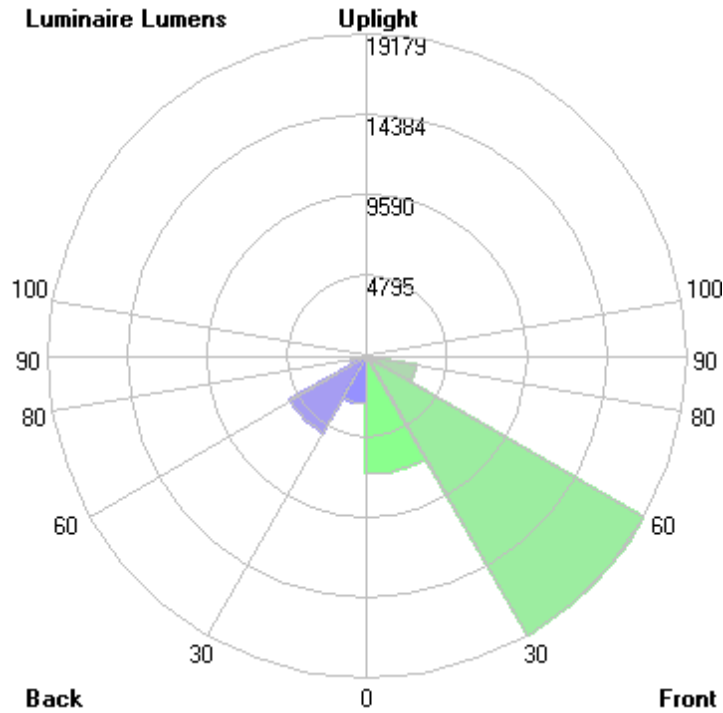
### Zonal Lumen Summary

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315
10	1449	1343	1004	749.0	675.5	754.7	1004	1325
20	1729	1800	1205	628.2	353.7	659.6	1203	1774
30	1800	2340	1619	305.4	128.1	361.3	1633	2267
40	885.1	2583	1856	200.3	140.3	195.4	1944	2509
50	609.6	1630	1686	228.0	72.60	242.8	1818	1569
60	117.0	860.0	1238	135.6	9.467	171.1	1507	931.5
70	12.83	137.2	208.5	8.822	4.083	11.88	380.0	146.1
80	3.590	8.582	36.62	3.763	2.116	4.496	55.73	10.28
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	955.47	0 - 10	955.47	2.49%
10-20	3157.11	0 - 20	4112.58	10.73%
20-30	5782.8	0 - 30	9895.38	25.81%
30-40	8287.91	0 - 40	18183.29	47.43%
40-50	8802.8	0 - 50	26986.09	70.39%
50-60	7328.93	0 - 60	34315.02	89.50%
60-70	3433.95	0 - 70	37748.97	98.46%
70-80	535.34	0 - 80	38284.31	99.86%
80-90	55.39	0 - 90	38339.70	100.00%
90-100	0.00	0 - 100	38339.70	100.00%
100-110	0.00	0 - 110	38339.70	100.00%
110-120	0.00	0 - 120	38339.70	100.00%
120-130	0.00	0 - 130	38339.70	100.00%
130-140	0.00	0 - 140	38339.70	100.00%
140-150	0.00	0 - 150	38339.70	100.00%
150-160	0.00	0 - 160	38339.70	100.00%
160-170	0.00	0 - 170	38339.70	100.00%
170-180	0.00	0 - 180	38339.70	100.00%

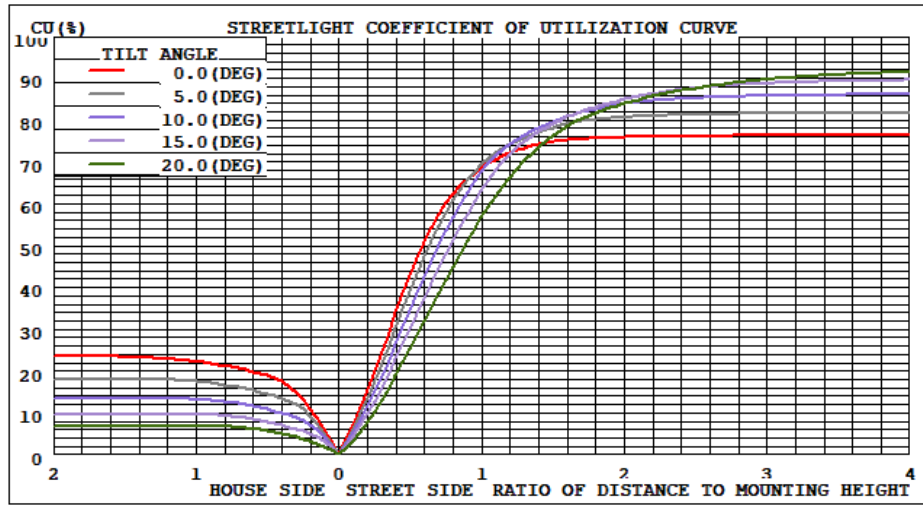
## 4.2 Goniophotometer Test

LCS/BUG

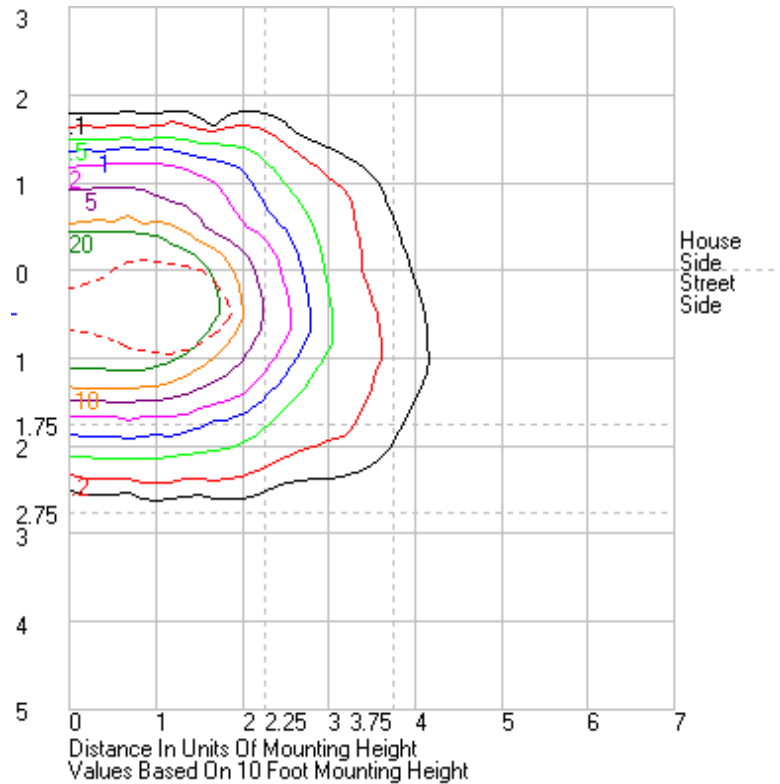


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	7032.3	N.A.	18.3
FM - Front-Medium (30-60)	19179.3	N.A.	50.0
FH - Front-High (60-80)	3021.4	N.A.	7.9
FVH - Front-Very High (80-90)	34.7	N.A.	0.1
BL - Back-Low (0-30)	2863.1	N.A.	7.5
BM - Back-Medium (30-60)	5240.3	N.A.	13.7
BH - Back-High (60-80)	947.9	N.A.	2.5
BVH - Back-Very High (80-90)	20.7	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>38339.7</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B4-U0-G2</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	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62	9604.62
1	10153.3	10137.2	10084.6	10011.6	9904.2	9729.59	9594.05	9458.46	9339.68	9229.92	9152.23	9091.05	9194.29	9209.81	9252.11	9318.6	9406.57	9465.06	9580.9	9693.29	9804.57	9892.32	9961.72	10003	10153.3
2	10628.5	10612.1	10519.2	10371.8	10166.6	9876.88	9622.68	9364.46	9135.57	8951.99	8811.52	8722.97	8810.04	8825.63	8894.71	9022.46	9187.91	9348.38	9587.48	9826.87	10057.2	10246.1	10382.2	10463.1	10628.5
3	11115.7	11063.7	10942	10731.7	10442.8	10034.3	9650.1	9271.33	8962.68	8710.59	8518.32	8400.39	8466.67	8495.54	8595.73	8760.65	8998.13	9245.65	9610.45	9974.54	10314.3	10591.5	10794.6	10922.5	11115.7
4	11579.1	11526.4	11365.5	11092.6	10719.2	10204.6	9691.54	9196.5	8804.5	8490.11	8256.56	8104.41	8152.89	8195.31	8321.07	8538.77	8831.21	9164.03	9646.22	10134.6	10583.9	10942.2	11210.3	11374.5	11579.1
5	12036.3	11989	11787.2	11451.5	10990	10366.6	9735.46	9141.29	8671.65	8296.96	8009.71	7834.11	7865.68	7909.24	8070.48	8335.62	8690.95	9093.78	9682.57	10297.5	10853.8	11293.5	11620.9	11826.4	12036.3
6	12528	12455.1	12226.1	11830.9	11282.1	10543.5	9786.82	9087.67	8551.52	8113.35	7779.21	7558.33	7575.69	7634.22	7837.03	8150.55	8567.86	9042.65	9736.19	10475.1	11128.2	11658.8	12043	12288.8	12528
7	13004.7	12941	12677.2	12218.6	11571.7	10732.5	9846.11	9053.43	8448.98	7952.51	7554.14	7303.84	7306.98	7375.66	7609.86	7986.52	8458.05	9000.02	9797.41	10654.3	11419.9	12033	12477.5	12746.7	13004.7
8	13508	13415.5	13145.2	12618.4	11872.8	10913.5	9904.11	9023.96	8351.36	7785.58	7342.5	7079.49	7077.53	7149.58	7404.22	7828.24	8371.92	8971.46	9665.95	10844.9	11717.2	12423.2	12923.4	13241.8	13508
9	14012.1	13924.3	13615	13024.1	12196.4	11104.1	9965.34	8996.61	8260.01	7626.13	7163.64	6901.84	6897.57	6966.55	7227.1	7681.35	8294.7	8964.93	9951.71	11049.4	12035.5	12819.2	13403.6	13763.5	14012.1
10	14491	14420.1	14084.6	13431.4	12507.8	11296.8	10036.1	8985.41	8176.95	7490.19	7024.24	6767.18	6755.33	6833.44	7078.65	7546.73	8219.51	8965	10042.2	11264.5	12365.6	13248	13911.8	14268	14491
11	14905.2	14881	14588.2	13874.9	12855	11501	10114	8978.42	8090.9	7362.82	6909.55	6616.35	6597.23	6692.72	6972.32	7429.23	8159.36	8965.08	10133.7	11489.8	12713.6	13702.2	14405.1	14712.9	14905.2
12	15220.8	15250	15047.8	14330.5	13223.2	11729.8	10205	8989.43	8025.11	7272.78	6791.66	6464.1	6429.59	6543.21	6872.57	7332.27	8097.35	8978.66	10242.2	11731.7	13071.9	14186.8	14848.7	15057.6	15220.8
13	15526.4	15567.1	15463.8	14811.3	13600.8	11987.1	10316.4	9016.28	7976.58	7201.22	6610.34	6311.85	6219.7	6374.66	6749.01	7266.52	8044.97	9001.37	10353.8	11990.1	13464.4	14662.4	15228.9	15338.7	15526.4
14	15893.3	15939	15821.6	15266.1	13978.4	12269.4	10453.4	9051.95	7933.51	7119.66	6476.72	6074.46	5956.61	6149.47	6619.09	7210.4	8010.18	9041.64	10497.6	12281.2	13875.1	15126.8	15545.2	15702	15893.3
15	16264.8	16316.6	16196.6	15708	14381.4	12592.9	10621.7	9121.88	7913.54	7028.59	6344.31	5791.06	5650.08	5887.75	6461.19	7146.71	7984.39	9104	10663	12587.7	14312.2	15542.4	15913	16068.7	16264.8
16	16579.8	16717.9	16639.7	16129	14843.6	12961	10834.2	9203.77	7913.08	6920.04	6101.31	5448.19	5291.03	5579.07	6255.41	7066.09	7980.46	9183.63	10861.6	12936.5	14788.8	15948	16325.8	16434	16579.8
17	16841.7	17083.6	17086.4	16528	15340.1	13356.8	11061.7	9314.24	7932.69	6805.95	5820.94	5070.85	4891.46	5222.02	6014.2	6981.76	7995.63	9284.42	11100	13314.2	15274	16328.1	16760.6	16763	16841.7
18	17020	17379.4	17546.7	16976.6	15854.4	13783.7	11357.3	9449.82	7964.12	6671.4	5495.04	4657.56	4452.56	4834.4	5738.92	6883.45	8030.67	9409.86	11374	13733.2	15768.6	16763	17183.1	17027.3	17020
19	17159.1	17627.2	18003.1	17479.6	16367.4	14241	11677.2	9603.89	7982.23	6477.59	5133.45	4202.91	3989.71	4400.33	5418.69	6753.58	8074.74	9567.53	11678.6	14174.3	16273.4	17236.9	17581.5	17232.4	17159.1
20	17288.6	17833	18412.4	17999.3	16895.3	14737.6	12047.3	9802.69	8000.3	6282.1	4733.52	3755.87	3537.01	3951.48	5065.41	6595.59	8118.03	9751.91	12025.2	14654.1	16776.6	17735.4	17935.1	17412.5	17288.6
21	17492.4	18080.2	18799.7	18538.7	17420.3	15260.5	12452.8	10004.8	8003.1	6059.91	4314.27	3313.42	3092.8	3512.14	4684.92	6407.45	8150.07	9968.43	12401.8	15152.5	17291.8	18240.5	18244.2	17624.7	17492.4
22	17753.7	18368.7	19165.2	19096.6	17944.1	15764.5	12850.6	10238.7	7996.38	5778.46	3886.07	2902.04	2688.94	3091.63	4271.64	6191.86	8176.06	10202.5	12794.6	15684.3	17790.4	18754.6	18537.7	17908.6	17753.7
23	17935	18668.4	19533.9	19658.8	18494.9	16315.5	13299.6	10481.1	7994.21	5467.04	3482.91	2524.22	2319.22	2699.63	3866.89	5939.78	8191.68	10445.2	13219.5	16230.1	18315.3	19256.2	18868.4	18212.1	17935
24	18097.6	18890.3	19928.3	20216.3	19046.8	16865.4	13729.3	10724	7952.67	5114.7	3096.39	2192.61	2015.05	2355.15	3477.59	5653.99	8211.49	10728.9	13667.9	16802.8	18877.1	19728.2	19240.9	18422.3	18097.6
25	18184.1	19054.7	20317	20753.3	19645.6	17414.8	14161.9	10999	7895.58	4758.86	2744.41	1918.76	1769.52	2061.71	3096.01	5336.88	8217.01	11020.8	14120.2	17381.4	19481.4	20197.2	19606.5	18612.6	18184.1
26	18199.6	19160.9	20655.3	21281.9	20270.7	17999.1	14599.4	11258.5	7804.07	4377.86	2430.32	1700.85	1575.24	1811.64	2757.97	4992.4	8192.85	11308.3	14573.1	17984.2	20103.2	20661.8	19925.4	18720.9	18199.6
27	18215.1	19179.2	20950.3	21797.6	20878	18550.6	15002	11508.9	7671.47	4019.01	2158.05	1534.51	1435.18	1620.14	2446.82	4640.53	8152.71	11599.9	15007.7	18589.9	20732	21133.4	20210	18766	18215.1
28	18257.6	19207.2	21205.5	22343.4	21514	19159.4	15433.4	11778.4	7515.16	3682.01	1928.69	1421.23	1348.57	1477.8	2173.72	4287.18	8080.27	11869.6	15448.1	19193.6	21378.8	20434.8	18816.4	18257.6	
29	18193.7	19208.8	21364.2	22871.5	22132.3	19727.1	15819.6	12004.5	7322.79	3358.86	1748.15	1354.37	1301.7	1387.15	1948.04	3944.54	7972.63	12130.8	15891.1	19794.6	22028.5	22164	20608.2	18887.3	18193.7
30	17999.7	19124.5	21481.7	23404	22786.3	20309.2	16192.9	12239.5	7089.41	3053.67	1614.98	1320.76	1281.4	1340.95	1762.83	3613.06	7835.19	12381	16333.1	20388.5	22683.8	22670.6	20733.9	18864.9	17999.7
31	17604.2	18906.6	21551.4	23918.8	23428.3	20861.3	16555.4	12421.6	6827.78	2783.43	1528.51	1314.75	1294.14	1323.75	1623.72	3300.48	7657.57	12602.5	16749.3	20966.7	23336.1	23133.1	20887.6	18698.3	17604.2
32	16933.5	18464.6	21566.3	24380.6	24053.6	21375.1	16873	12563.9	6535.46	2536.65	1485.93	1343.18	1326.55	1337.07	1536.11	3012.31	7439.32	12819.9	17144.1	21529	23949.7	23580.8	20966	18311.8	16933.5
33	16192.4	17814.7	21489	24814.2	24649.1	21898.1	17208.9	12676.8	6230.73	2331.07	1471.88	1380.25	1356.22	1374.72	1494.72	2747.68	7192.41	13024.1	17514.6	22070.6	24533.5	23998.9	20919.7	17706	16192.4
34	15245.5	17015	21243.8	25188.2	25196.4	22359.6	17495.9	12742.3	5926.01	2163.49	1487.8	1414.99	1381.12	1414.18	1487.58	2510.79	6910.89	13195.3	17865.2	22581.3	25120.8	24373.4	20700	16983.4	15245.5
35	14066.8	15968.2	20829.2	25494.3	25753.9	22795.3	17765.8	12760.6	5588.64	2039.91	1534.45	1445.63	1403.85	1448.14	1507.45	2314.43	6600.69	13343.3	18203.4	23063.1	25676.8	24720	20313.3	16023.6	14066.8
36	13008.4	14823.6	20205.7	25737.4	26274.4	23191.5	18022.8	12739.6	5255.32	1965.17	1590.62	1472.1	1422.97	1477.55	1552.07	2153.08	6283.16	13454.8	18516.3	23527.6	26240.1	25021	19741.6	14901.7	13008.4
37	11929.1	13697	19329.4	25938.1	26748.6	23521.9	18217.1	12671	4917.91	1929.31	1643.17	1497.01	1439.71	1504.78	1608.26	2034.57	5952.58	13528.1	18806.5	23968.8	26780.3	25235.1	18997.3	13801.9	11929.1
38	10863.5	12616.7	18362.7	26063	27224.6	23826.9	18373.1	12565.3	4585.77	1932.85	1686.26	1519.56	1448.46	1531.72	1659.84	1968.88									







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.	ALEDLATN/480	Sample ID.	R1
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
480.00	60	0.571	263.8	0.963	4.62%

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