



# Photometric Test Report

## Relevant Standards

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

## Prepared For RAB Lighting Inc.

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## Report Number

DLF2111115-17a

## Test Date

2021/12/1

## Issue Date

2021/12/3

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### Approved By

*Kevin Jia*

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	19518	
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	134.3
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	145.4	
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	5.72%	
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	0.959	
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	3908
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70	83	
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40	6	
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%	2.41%	
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	0.317	

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/12/1	ALEDM4TN/480	Q1
2	Goniophotometer Test	2021/12/1	ALEDM4TN/480	Q1
3	THD and PF Test	2021/12/1	ALEDM4TN/480	Q1

### 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.

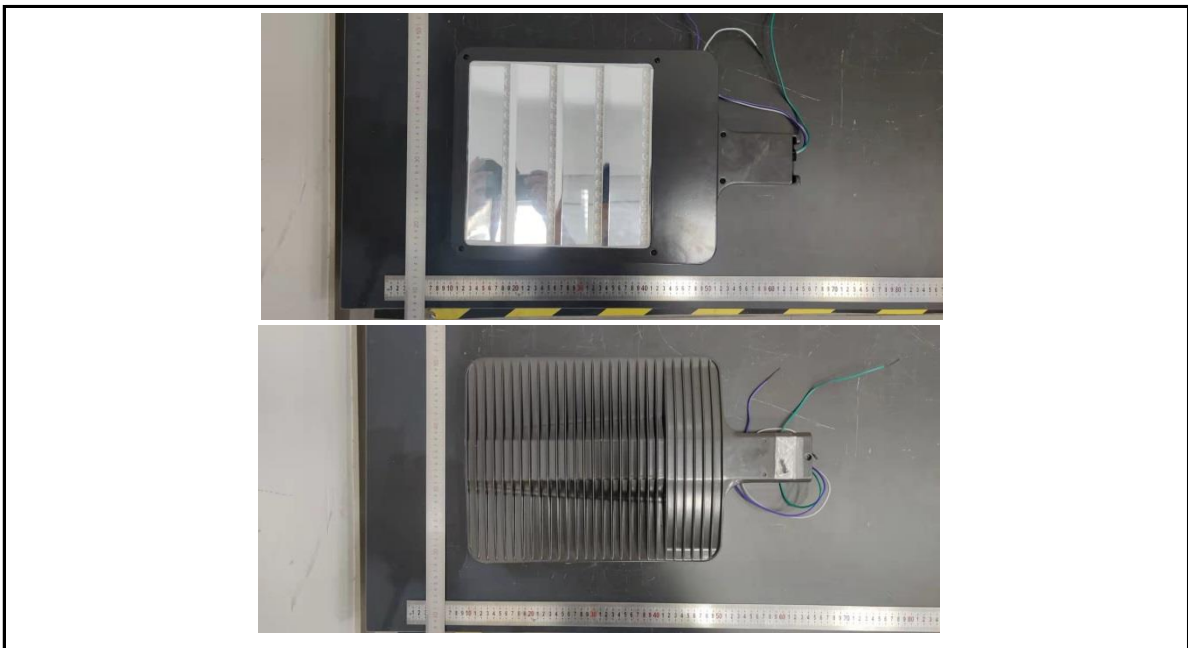
## 3.0 Production Description

**Luminaire Description:** ALEDM4TN/480

**Description:** 150W/18,000 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.	ALEDM4TN/480	Sample ID.	Q1
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
479.96	60	0.316	145.3	0.959

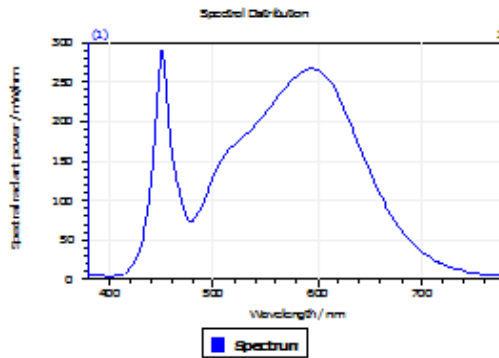
#### Test Result

CCT (K)	CRI	R9	Duv
3908	83	6	0.00083

Rf	Rg	IES Rcs,h1
84	95	-12%

## 4.1 Integrating Sphere Test

### Results



#### Spectral values

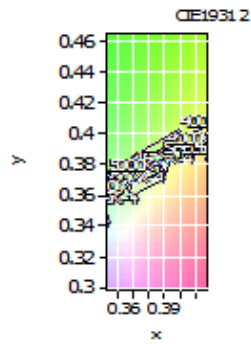
DominantWavelength	578.99 nm
Purity	0.301
PeakWavelength	450.81 nm
Radiant Power	48.14 W
Width50%	20.01 nm

#### Color Coordinates

Correlated Color Temperat 3908 K

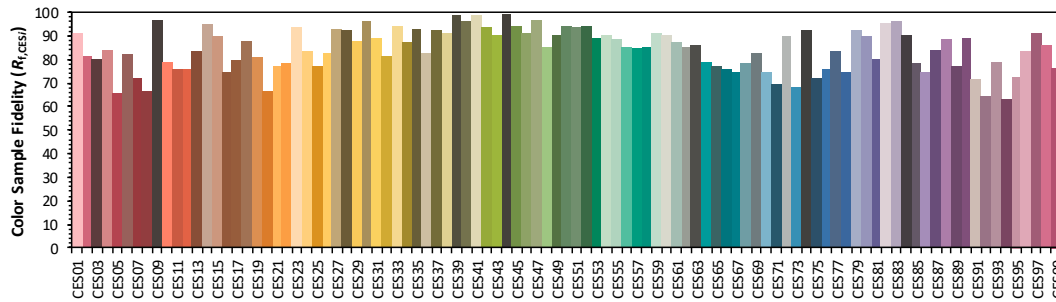
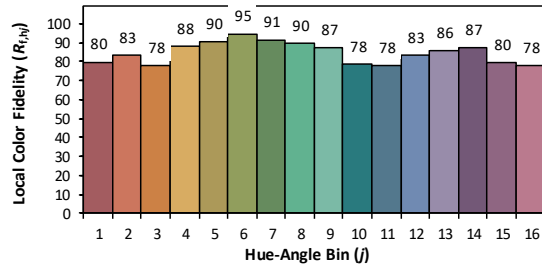
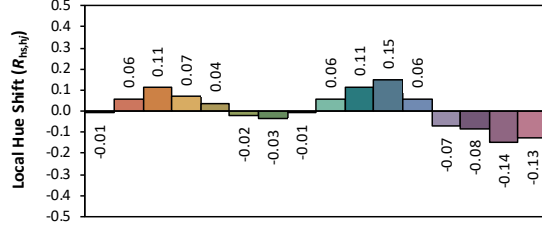
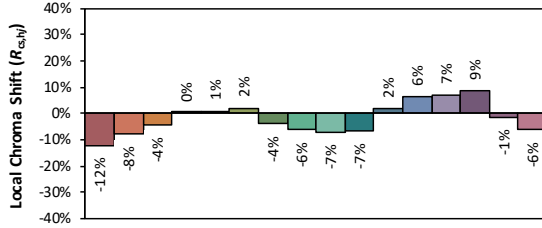
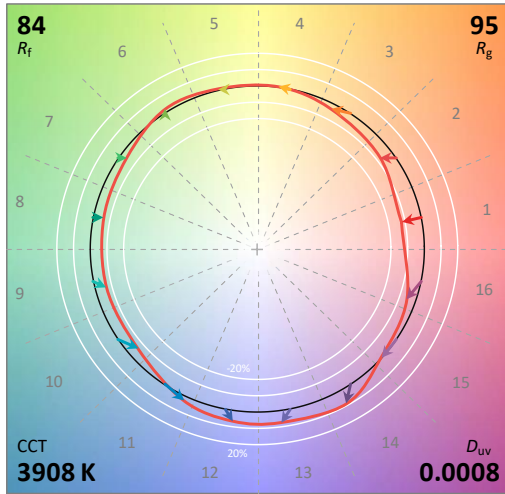
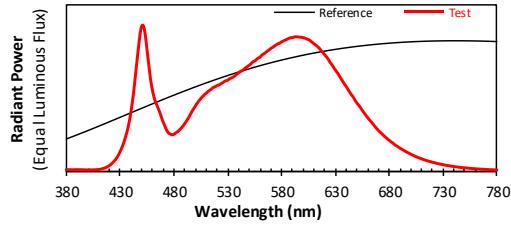
x: 0.3852 u: 0.2264 u': 0.2264  
y: 0.3815 v: 0.3362 v': 0.5043

ResultsCRICRI01	80.4	ResultsCRICRI09	5.8
ResultsCRICRI02	89.0	ResultsCRICRI10	74.4
ResultsCRICRI03	95.2	ResultsCRICRI11	80.2
ResultsCRICRI04	81.3	ResultsCRICRI12	63.2
ResultsCRICRI05	81.0	ResultsCRICRI13	82.4
ResultsCRICRI06	85.3	ResultsCRICRI14	97.6
ResultsCRICRI07	85.4	ResultsCRICRI15	73.8
ResultsCRICRI08	63.0	ResultsCRICRI16	71.7
ResultsCRI	82.6		



PlanckDistance 8.3E-004

### 4.1 Integrating Sphere Test



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

$x$     **0.3852**  
 $y$     **0.3814**  
 $u'$    **0.2264**  
 $v'$    **0.5043**

CIE 13.3-1995 (CRI)	
$R_a$	83
$R_g$	6

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.	ALEDM4TN/480	Sample ID.	Q1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
<p>The samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>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.</p> <p>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.</p> <p>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.</p>

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	479.84	60	0.317	145.4	0.956

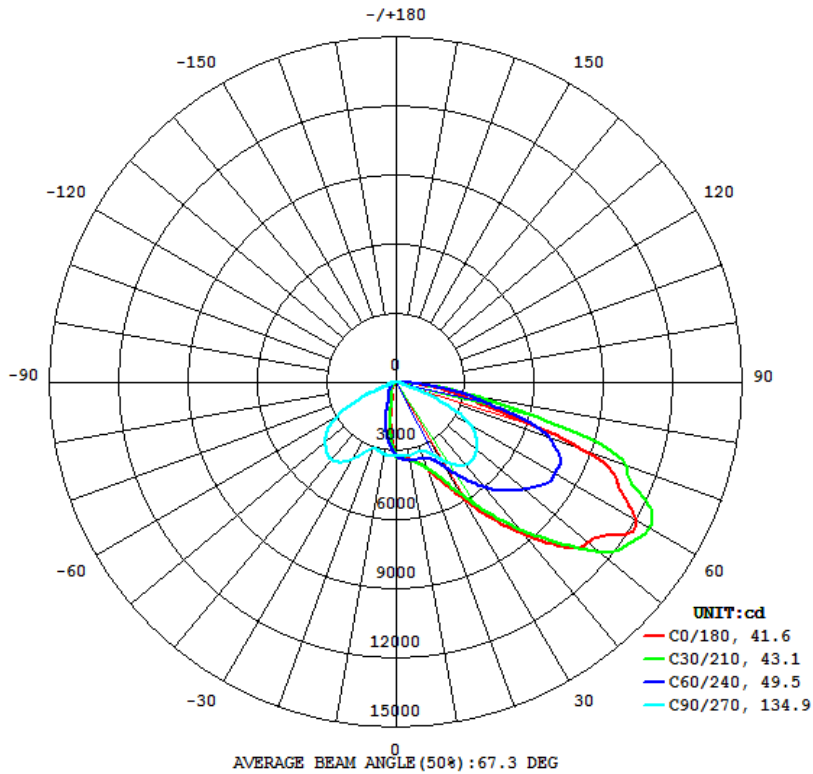
#### Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
19518	94.2	151.7	41.6	134.9	134.3

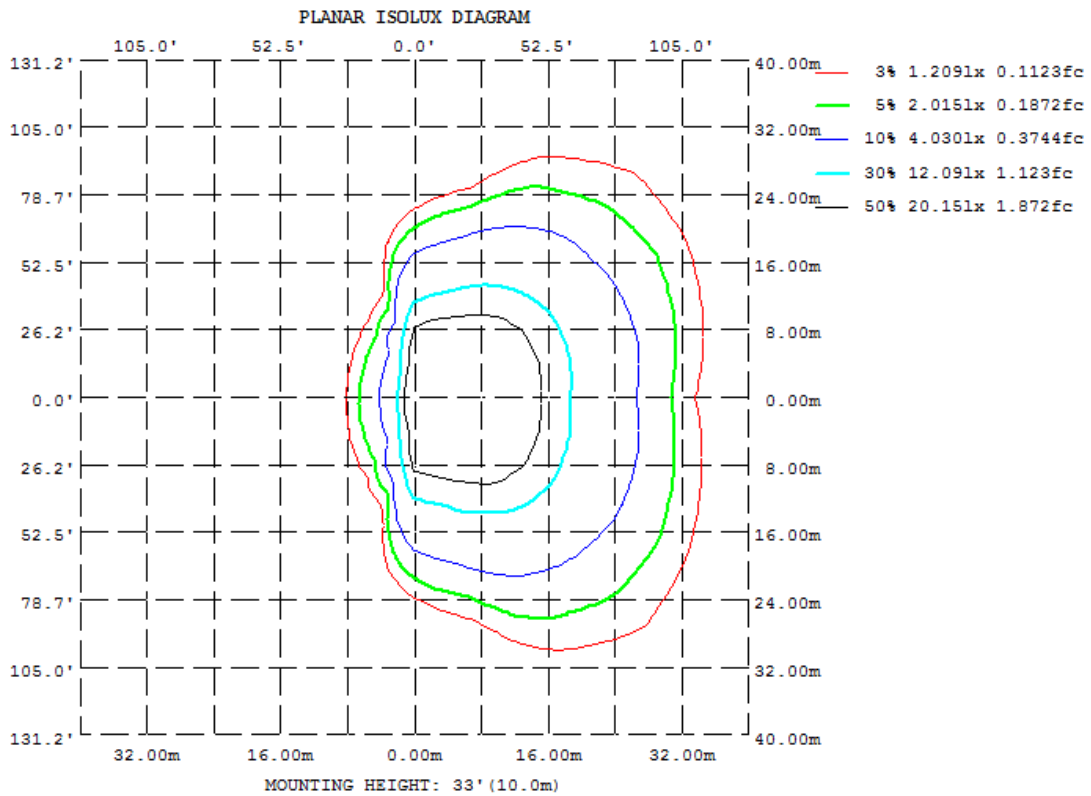
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)	BUG rating
100.00%	2.41%	B2-U0-G3

## 4.2 Goniophotometer Test

### Light Distribution Curve



### Isolux Plot





## 4.2 Goniophotometer Test

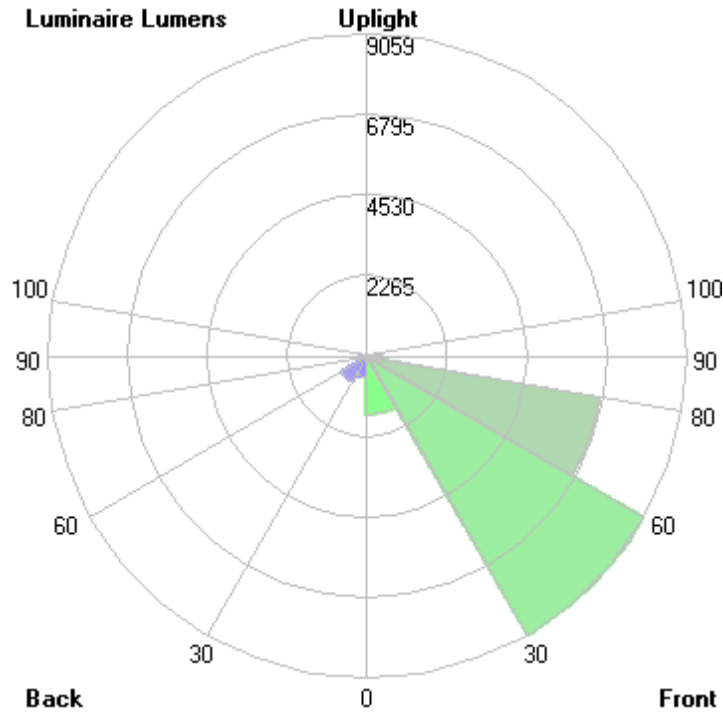
### Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	342.5	347.2	325.3	201.7	142.2	196.0	319.6	348.2
20	405.3	376.0	319.2	77.00	56.85	72.86	309.6	368.3
30	584.4	490.0	387.7	53.48	39.55	51.45	387.6	485.2
40	862.2	716.8	470.9	39.69	24.53	36.64	439.7	700.5
50	1084	957.5	458.2	25.89	12.67	23.08	401.2	900.4
60	1201	1093	373.7	15.64	9.160	14.01	301.1	1021
70	862.1	932.1	118.6	10.44	6.398	9.604	76.26	852.6
80	230.1	407.1	22.59	4.611	3.079	4.058	16.72	352.2
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	281.81	0 - 10	281.81 1.44%
10-20	720.34	0 - 20	1002.15 5.13%
20-30	1239.38	0 - 30	2241.53 11.48%
30-40	2186.50	0 - 40	4428.03 22.69%
40-50	3362.41	0 - 50	7790.44 39.91%
50-60	4339.56	0 - 60	12130.00 62.15%
60-70	4367.63	0 - 70	16497.63 84.52%
70-80	2549.16	0 - 80	19046.79 97.59%
80-90	471.26	0 - 90	19518.05 100.00%
90-100	0.00	0 - 100	19518.05 100.00%
100-110	0.00	0 - 110	19518.05 100.00%
110-120	0.00	0 - 120	19518.05 100.00%
120-130	0.00	0 - 130	19518.05 100.00%
130-140	0.00	0 - 140	19518.05 100.00%
140-150	0.00	0 - 150	19518.05 100.00%
150-160	0.00	0 - 160	19518.05 100.00%
160-170	0.00	0 - 170	19518.05 100.00%
170-180	0.00	0 - 180	19518.05 100.00%

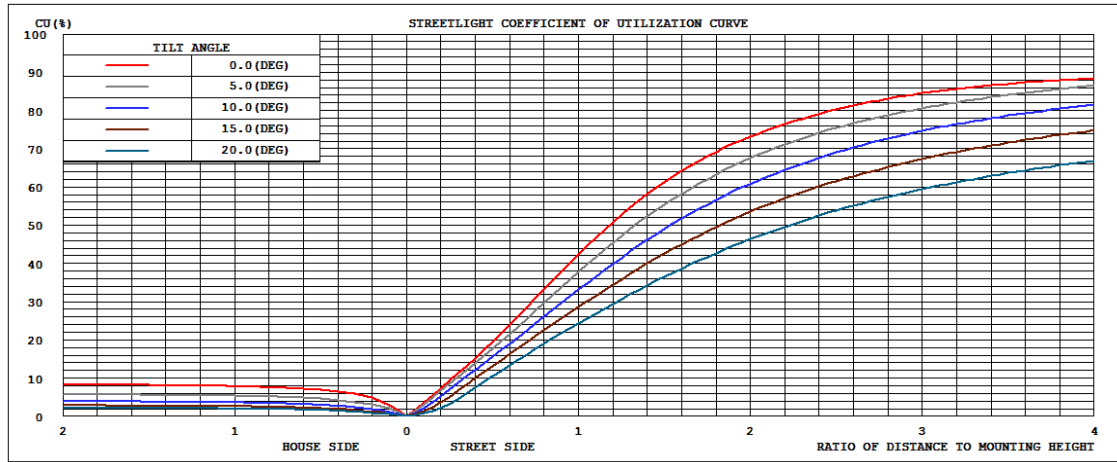
## 4.2 Goniophotometer Test

LCS/BUG

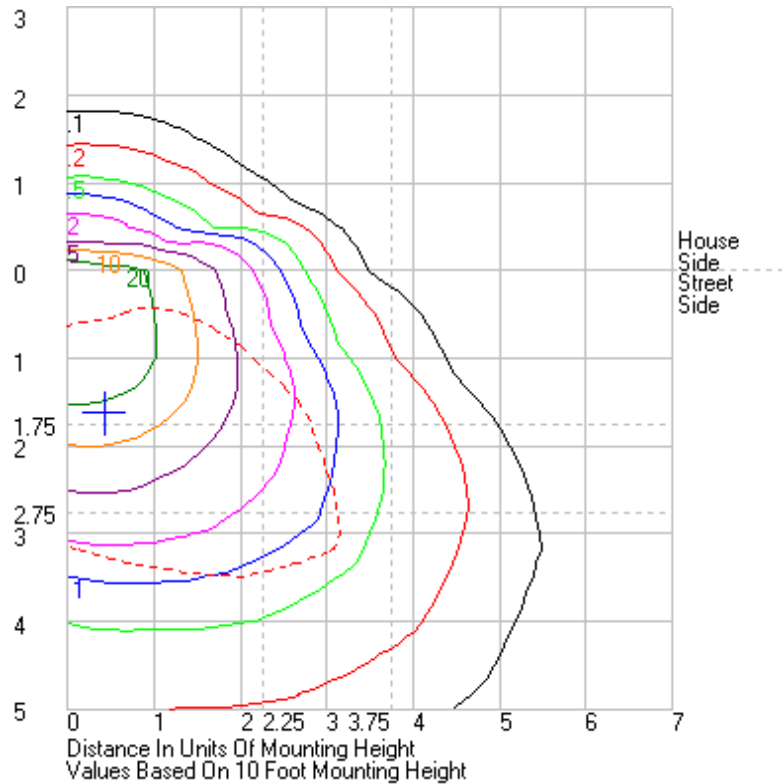


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	1650.8	N.A.	8.5
FM - Front-Medium (30-60)	9059.5	N.A.	46.4
FH - Front-High (60-80)	6696.0	N.A.	34.3
FVH - Front-Very High (80-90)	458.4	N.A.	2.3
BL - Back-Low (0-30)	590.8	N.A.	3.0
BM - Back-Medium (30-60)	829.0	N.A.	4.2
BH - Back-High (60-80)	220.7	N.A.	1.1
BVH - Back-Very High (80-90)	12.9	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>19518.1</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B2-U0-G3</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	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3	3199.3
1	3292.79	3288.41	3280.37	3267.31	3249.19	3225.77	3198.41	3167.32	3136.44	3106.81	3082.28	3067.46	3090.24	3094.58	3108.7	3127.46	3152.32	3178.69	3204.06	3226.28	3244.24	3257.29	3265.45	3269.99	3292.79
2	3347.41	3341.04	3330.8	3313.26	3286.12	3249.85	3200.33	3140.5	3074.02	3012.49	2959.1	2924.03	2945.51	2955.93	2986.59	3036.01	3092.89	3154.45	3211.89	3257.44	3289.97	3311.43	3323.54	3328.47	3347.41
3	3372.28	3365.8	3358.84	3346.87	3320.62	3275.56	3207.81	3115.11	3009.29	2908.24	2824.57	2765.75	2774.04	2795	2846.99	2926.15	3024.34	3126.22	3217.81	3286.04	3331.31	3355.01	3361.67	3360.48	3372.28
4	3380.06	3373.9	3374.27	3368.55	3350.18	3301.87	3215.93	3088.3	2941.89	2797.04	2675.22	2596.35	2596.54	2618.92	2697.8	2809.35	2948.47	3094.21	3224.24	3313	3366.14	3385.09	3383.63	3373.8	3380.06
5	3379.21	3374.68	3379.53	3385.82	3376.15	3329.04	3226.42	3062.78	2870.18	2679.73	2518	2411.62	2405.21	2437.04	2531.44	2680.68	2866.74	3058.28	3226.86	3337.7	3394.86	3406.19	3394.33	3375.9	3379.21
6	3383.02	3378.16	3385.77	3398.43	3399.56	3354.16	3235.97	3032.79	2793.74	2553.23	2359.05	2227.82	2206.62	2240.9	2358.67	2541.69	2772.26	3015.34	3227.28	3358.93	3416.22	3422.74	3404.49	3382.5	3383.02
7	3390.32	3386.1	3397.25	3411.8	3418.02	3376.73	3243.71	2998.97	2709.84	2426.22	2194.45	2040.96	2014.36	2055.38	2188.95	2401.22	2676.11	2970.16	3225.45	3377.13	3434.97	3436.9	3418.76	3392.62	3390.32
8	3397.83	3396.51	3413.73	3430.26	3433.18	3395.68	3250.9	2966.1	2621.73	2291.66	2025.12	1846.02	1811.74	1855.63	2007.1	2255.77	2575.55	2921.23	3219.57	3388.99	3445.61	3451.81	3437.11	3405.63	3397.83
9	3408.87	3407.17	3433.52	3449.69	3445.32	3410.96	3253.47	2926.56	2529.59	2155.93	1855.3	1654.74	1608.14	1658.82	1832.81	2109.78	2472.06	2869.7	3210.21	3395.47	3452.58	3466.97	3457.68	3420.65	3408.87
10	3424.73	3426.1	3455.61	3471.53	3455.74	3420.9	3253.46	2884.1	2433.43	2016.86	1676.82	1460.88	1421.51	1473.64	1651.42	1959.93	2363.98	2811.42	3196.44	3395.8	3456.66	3481.91	3478.22	3442.01	3424.73
11	3448.94	3452.6	3485.28	3493.67	3465.58	3425.62	3250.32	2839.09	2330.58	1866.95	1501.43	1270.11	1234.87	1291.73	1476.78	1809.97	2251.73	2719.13	3175.89	3388.7	3456.8	3496.64	3503.36	3469.07	3448.94
12	3479.06	3483.61	3520.52	3515.32	3474.35	3424.39	3240.63	2784.34	2226.95	1723.43	1332.42	1101.01	1058.03	1113.31	1312.69	1660.05	2139.46	2682.85	3156.34	3378.9	3454.48	3509.98	3532.91	3303.45	3479.06
13	3514.4	3521.9	3559.8	3539.78	3481.07	3422.11	3234.04	2730.46	2120.32	1574.28	1168.23	944.06	905.97	957.37	1136.61	1514.22	2023.68	2613.55	3133.55	3368.35	3451.19	3523.51	3568.95	3544.97	3514.4
14	3558.18	3567.39	3604.1	3564.99	3486.15	3415.5	3223.42	2672.74	2011.86	1430.83	1019.87	819.81	789.19	820.65	1003.8	1372.8	1909.03	2545.68	3112.82	3354.72	3447.35	3538.78	3606.16	3592.14	3558.18
15	3610.04	3617.87	3652.57	3590.36	3489.53	3407.02	3212.24	2611.81	1899.47	1294.06	895.97	730.74	709.77	733.01	882.58	1231.18	1796.13	2475.78	3095.72	3343.04	3440.48	3552.66	3648.37	3649.53	3610.04
16	3674.17	3682.44	3708.24	3620.95	3492.67	3398.13	3204.38	2554.63	1788.77	1157.84	794.59	670.74	653.22	675.86	781.32	1101.18	1680.07	2408.26	3080.52	3333.74	3436.75	3570.14	3694.6	3716.47	3674.17
17	3751.95	3754.32	3767.4	3652.72	3496.05	3392.3	3193.6	2490.6	1680.53	1040.12	721.31	642.37	624.43	637.07	709.42	983.93	1571.05	2344.07	3070.57	3328.83	3436.59	3590.38	3748.84	3795.35	3751.95
18	3835.61	3841.42	3833.98	3686.75	3502.22	3389.58	3187.41	2430.68	1574.27	932.1	670.51	614.15	603.04	610.32	661.98	879.01	1466.96	2281.08	3067.81	3328.71	3442.48	3615.98	3810.23	3886.29	3835.61
19	3941.95	3940.39	3912.71	3722.4	3511.9	3390.91	3186.23	2372.47	1473.75	841.42	644.11	590.41	583.82	586.95	629.99	793.94	1368.9	2227.57	3074.98	3336.07	3454.42	3646.38	3883.58	3984.47	3941.95
20	4053.24	4048.88	3998.64	3759.95	3527.35	3395.07	3192.46	2317.46	1375.02	769.96	618.14	572.91	568.47	571.84	605	728.59	1270.87	2177.19	3096.15	3354.74	3472.39	3682.84	3968.55	4098.07	4053.24
21	4179.65	4171.7	4098.5	3809.91	3550.14	3408.83	3213.7	2272.67	1277.47	711.17	595.7	554.7	550.19	554.79	584.86	681.42	1173.44	2135.09	3129.51	3387.05	3502.51	3732.82	4063.27	4223.54	4179.65
22	4312.96	4299.74	4208.37	3865.84	3575.92	3433.74	3243.9	2227.38	1188.09	671.53	579.55	539	533.73	536.35	570.85	644.89	1080.99	2096.83	3175.09	3437.72	3546.76	3799.89	4171.41	4359.31	4312.96
23	4459.88	4442.97	4329.8	3935.74	3612.47	3474.26	3286.99	2191.77	1099.93	647.82	563.48	522.61	514.39	518.05	554.25	619.1	999.19	2062.2	3234.92	3503.66	3607.36	3879.42	4291.53	4507.91	4459.88
24	4628.12	4607.09	4465.75	4024.31	3664.67	3528.02	3342.04	2162.06	1019.05	624.36	547.77	506.09	496.77	502.48	537.33	600.29	921.34	2032.7	3308.34	3583.73	3682.17	3971.89	4422.05	4668.66	4628.12
25	4794.76	4777.23	4610.57	4123.98	3726.91	3592.73	3401.4	2130.08	945.47	604.73	533.33	491.08	478.96	480.63	521.59	581.82	851.51	2001.77	3392.38	3683.46	3772.1	4076.48	4570.11	4846.69	4794.76
26	4977.28	4965.94	4781.11	4249.34	3816.74	3675.14	3478.35	2107.64	876.72	589.12	518.05	474.48	459.9	463.82	506.4	569.2	791.2	1973.76	3488.19	3792.99	3877.97	4202.25	4733.23	5038.7	4977.28
27	5169.7	5164.1	4969.46	4392.32	3920.89	3770.74	3566.38	2081.19	816.77	575.05	503.74	458.77	443.42	449.38	488.35	553.95	739.47	1949.93	3583.22	3911.33	3995.99	4342.21	4913.22	5239.6	5169.7
28	5376.99	5370.09	5168.83	4542.87	4032.51	3885.51	3665.82	2056.49	762.88	561.54	489.38	443.2	427.68	435.22	466.91	538.96	697.48	1916.95	3683.15	4033	4126.45	4504.61	5114.21	5458.15	5376.99
29	5604.77	5607.59	5388.21	4719.39	4165.37	4002.48	3774.21	2035.99	717.62	547.68	474.32	426.45	411.66	418.82	452.67	527.17	665.09	1885.7	3780.27	4160.15	4260.88	4672.88	5322.51	5686.25	5604.77
30	5844.18	5856.1	5610.74	4900	4297	4127.16	3877.36	2008.46	683.61	534.82	460.44	411.07	395.52	402.31	439.82	514.46	638.7	1850.61	3875.97	4288.76	4404.5	4852.43	5543.5	5933.94	5844.18
31	6103.24	6112.77	5853.31	5096.32	4442.77	4256.58	3989.81	1985.38	658.25	520.98	445.14	395.33	379.39	386.84	426.4	500.23	617.54	1806.88	3970.32	4416.93	4550.41	5038.11	5769.72	6197.98	6103.24
32	6373.35	6397.85	6106.86	5295.86	4595.5	4385.64	4100.45	1955.5	638.16	507.74	430.28	379.96	363.09	371.14	411.8	481.3	597.55	1762.94	4059.88	4546.34	4699.42	5236.64	6009.16	6470.5	6373.35
33	6640.78	6678.14	6364.94	5499.63	4749.05	4516.64	4204.39	1920.33	618.07	494.34	415.59	365.89	346.96	355.96	396.62	461.83	581.04	1704.71	4143.87	4669.47	4850.6	5439.51	6264.33	6756.4	6640.78
34	6922.72	6980.54	6635.32	5725.85	4922.36	4646.74	4312.5	1888.57	603.12	480.37	400.57	350.46	330.35	339.47	383.3	449.55	564.98	1642.6	4214.21	4779.82	5006.29	5648.01	6523.29	7044.02	6922.72
35	7201.89	7275.4	6899.52	5940.04	5093.3	4772.42	4402.5	1843.96	589.21	467.18	386.53	336.48	316.74	324.79	367.7	438.29	553.01	1571.64	4274.61	4882.1	5165.45	5862.35	6790.29	7332.13	7201.89
36	7484.05	7568.91	7176.49	6167.85	5270.77	4895.66	4486.13	1793.44	575.59	453.36	372.37	322.53	302.84	313.29	353.52	425.82	540.4	1493.07	4325.41	4972.11	5328.06	6082.53	7064.49	7635.55	7484.05
37	7770.16	7882.26	7465.16	6414.86	5458.31	5007.72	4563.2	1734.81	562.05	439.26	357.82	307.87	288.61	299.82	333.37	412.14	526.19	1412.87	4363.15	5049.1	5486.57	6306.19	7350.21	7933.11	7770.16
38	8044.75	8180.34	7742.67	6653.96	5629.82	5107.17	4619.39	1660.59	548.73	425.47	344.74	294.39	274.54	285	323.6	395.61	513.9	1329.72	4385.78	5114.54	5638.43	6535.17	7632.69	8240.02	8044.75
39	8335.56	8478.54	8035.79	6910.2	5815.91	5198.77	4673.14	1594.17	535	411.07	330.47	279.97	260.52	271.9											







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.	ALEDM4TN/480	Sample ID.	Q1
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
479.96	60	0.316	145.3	0.959	5.72%

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