



# 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

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DLF2111105

## Report Number

DLF2111105-22a

## Test Date

2021/11/9

## Issue Date

2021/11/12

### Prepared By

*Wangzun Zhu*

Wangzun Zhu

### 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	49461	
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	137.8
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	358.9	
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	5.27%	
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	4956
		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	14	
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	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%	0.23%	
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	0.803	

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/9	ALEDXL2T/480	V1
2	Goniophotometer Test	2021/11/9	ALEDXL2T/480	V1
3	THD and PF Test	2021/11/9	ALEDXL2T/480	V1

### 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.

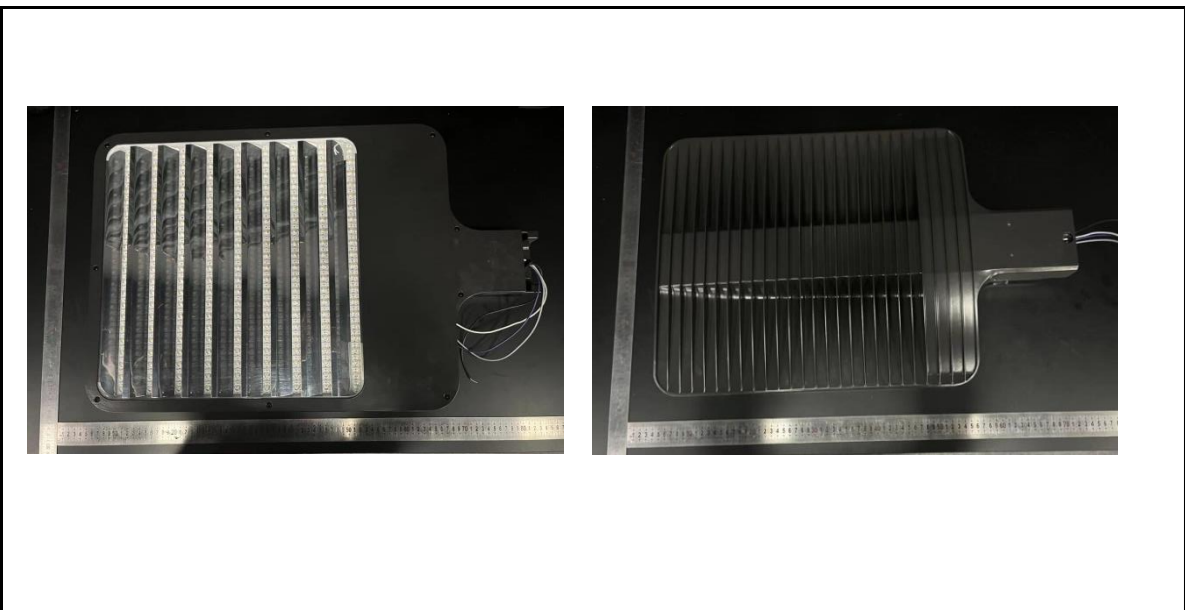
## 3.0 Production Description

**Luminaire Description:** ALEDXL2T/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.	ALEDXL2T/480	Sample ID.	V1
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
480.06	60	0.797	357.4	0.934

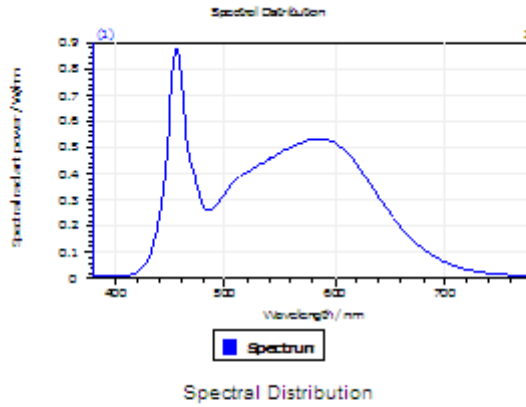
#### Test Result

CCT (K)	CRI	R9	Duv
4956	85	14	0.0014

Rf	Rg	IES Rcs,h1
84	93	-12%

## 4.1 Integrating Sphere Test

### Results



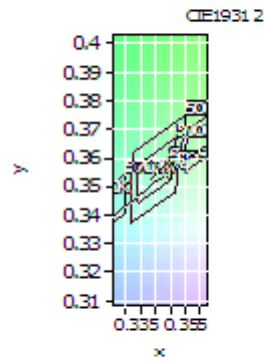
#### Spectral values

DominantWavelength 571.98 nm  
Purity 0.107  
PeakWavelength 468.04 nm  
Radiant Power 104.2 W  
Width50%:

#### Color Coordinates

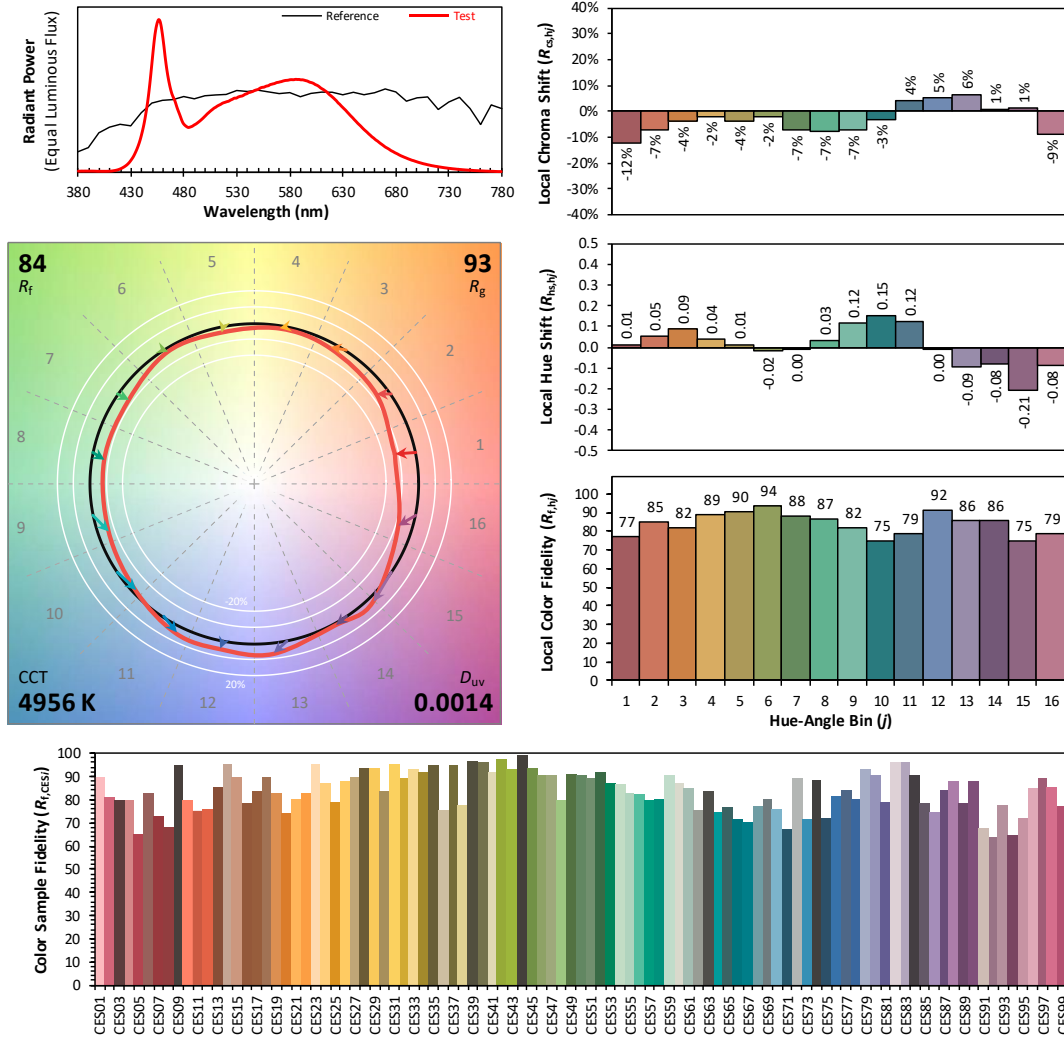
Correlated Color Temperat 4956 K  
x: 0.3468 u: 0.2109 u': 0.2109  
y: 0.3556 v: 0.3246 v': 0.4868

CRI01	83.7	CRI09	14.0
CRI02	92.7	CRI10	81.3
CRI03	95.3	CRI11	80.9
CRI04	81.8	CRI12	63.0
CRI05	83.7	CRI13	86.6
CRI06	87.9	CRI14	98.1
CRI07	85.7	CRI15	78.7
CRI08	67.3	CRI16	74.5
ResultsCRI	84.7		



PlanckDistance 1.4E-003

### 4.1 Integrating Sphere Test



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

$x$      **0.3466**  
 $y$      **0.3556**  
 $u'$     **0.2109**  
 $v'$     **0.4868**

CIE 13.3-1995 (CRI)	
$R_a$	85
$R_g$	19

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	ALEDXL2T/480	Sample ID.	V1
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	479.97	60	0.803	358.9	0.932

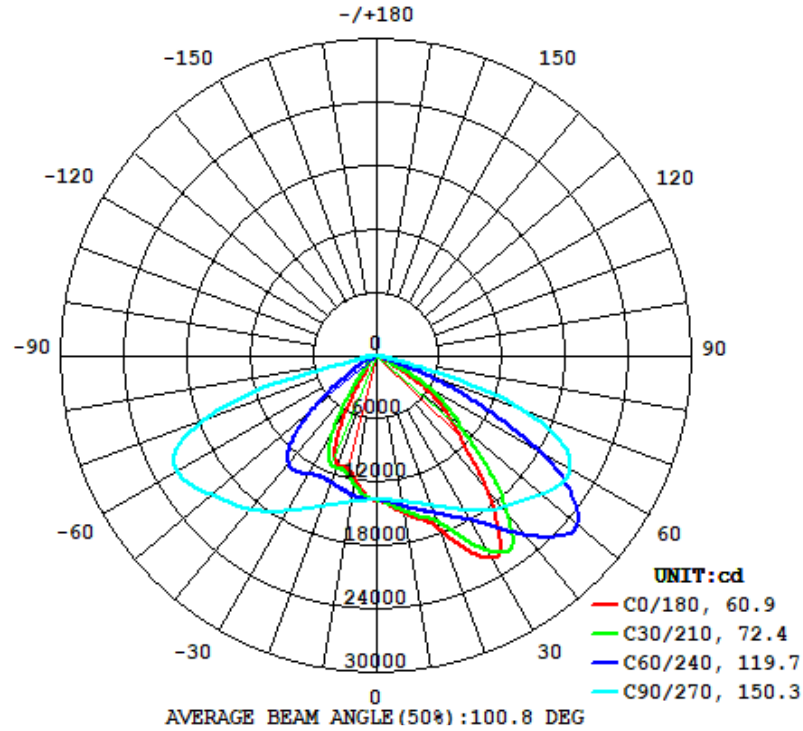
#### Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
49461	97.3	159.0	60.9	150.3	137.8

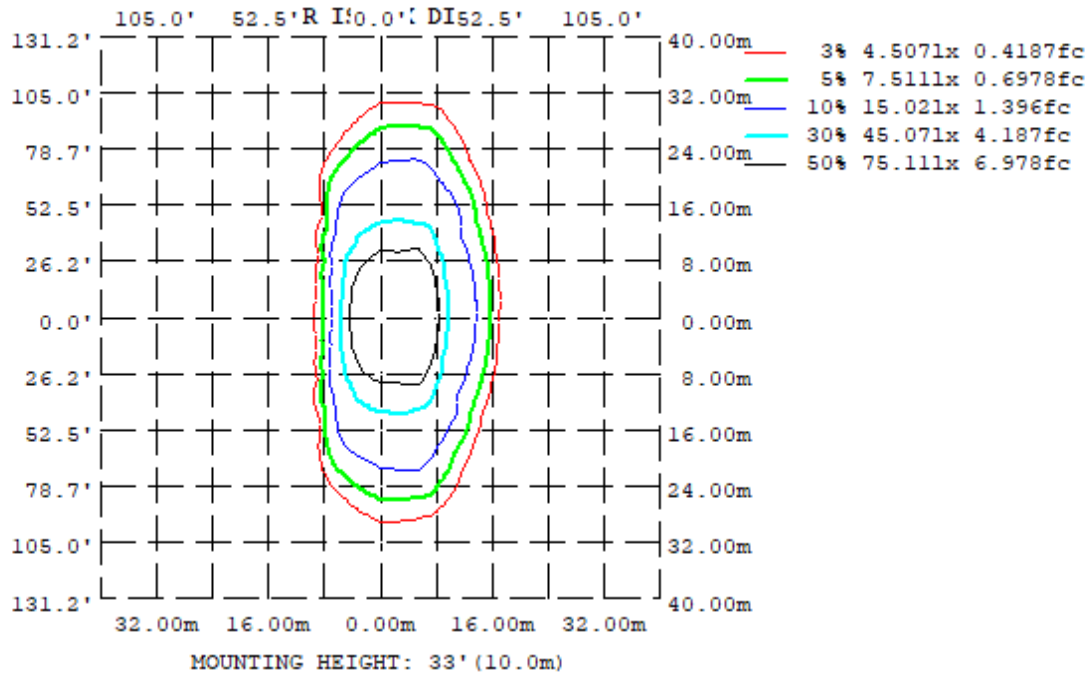
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)	BUG rating
100.00%	0.23%	B5-U0-G4

## 4.2 Goniophotometer Test

Light Distribution Curve



Isolux Plot



## 4.2 Goniophotometer Test

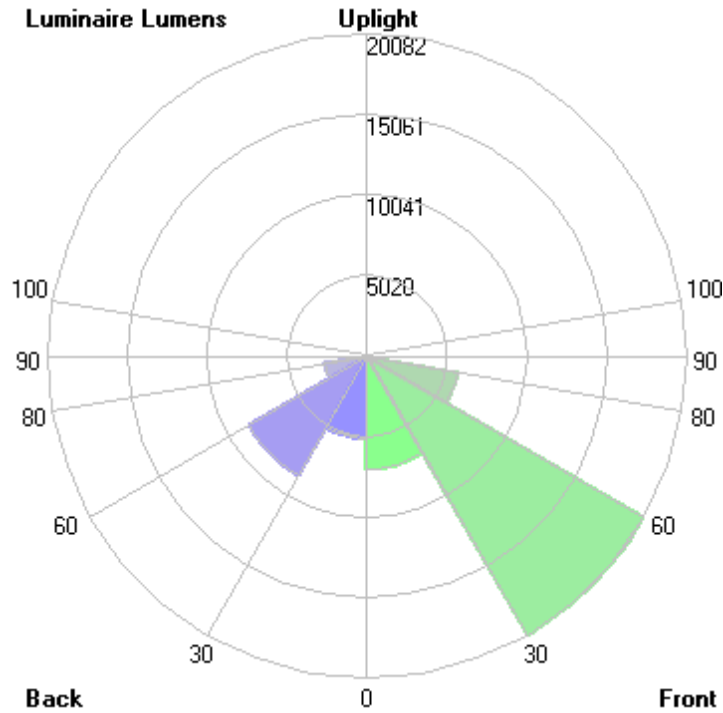
### Zonal Lumen Summary

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315
10	1509	1469	1401	1274	1194	1286	1404	1466
20	1740	1628	1507	1154	1099	1168	1516	1634
30	2211	1983	1692	1144	566.3	1141	1697	1963
40	1650	2347	1871	708.6	144.4	661.2	1902	2394
50	917.3	1698	2040	207.3	62.90	189.9	2052	1920
60	295.8	785.7	2131	74.33	15.09	75.41	2191	921.2
70	23.50	84.28	1462	20.53	12.60	19.32	1725	179.8
80	7.387	14.98	88.14	6.064	2.404	7.665	162.5	20.48
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	1310.60	0 - 10	1310.60	2.65%
10-20	3957.99	0 - 20	5268.59	10.65%
20-30	6910.53	0 - 30	12179.12	24.62%
30-40	9371.81	0 - 40	21550.93	43.57%
40-50	10033.23	0 - 50	31584.16	63.86%
50-60	9281.14	0 - 60	40865.30	82.62%
60-70	6499.33	0 - 70	47364.63	95.76%
70-80	1981.93	0 - 80	49346.56	99.77%
80-90	114.16	0 - 90	49460.72	100.00%
90-100	0.00	0 - 100	49460.72	100.00%
100-110	0.00	0 - 110	49460.72	100.00%
110-120	0.00	0 - 120	49460.72	100.00%
120-130	0.00	0 - 130	49460.72	100.00%
130-140	0.00	0 - 140	49460.72	100.00%
140-150	0.00	0 - 150	49460.72	100.00%
150-160	0.00	0 - 160	49460.72	100.00%
160-170	0.00	0 - 170	49460.72	100.00%
170-180	0.00	0 - 180	49460.72	100.00%

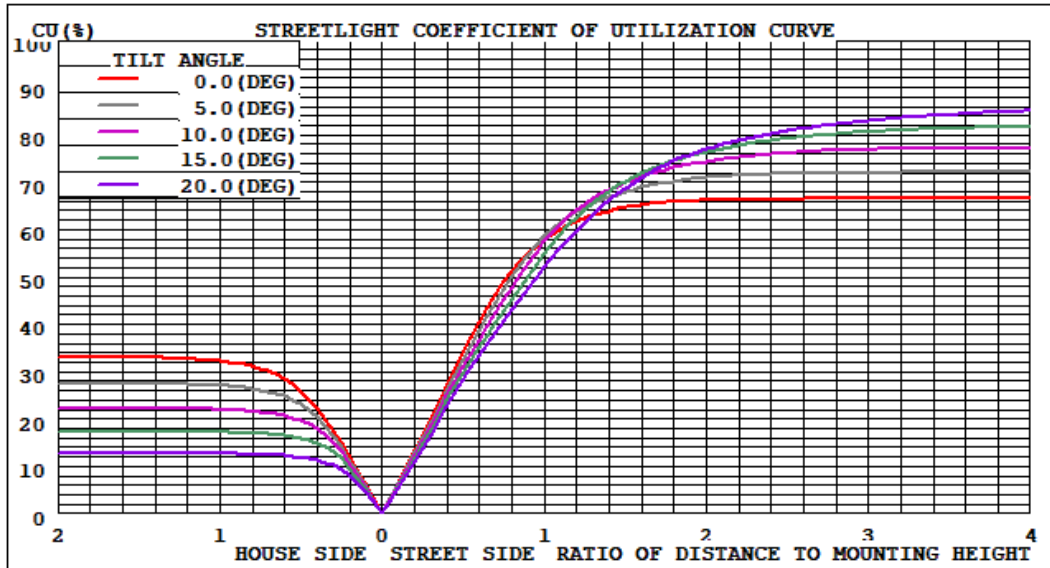
## 4.2 Goniophotometer Test

LCS/BUG

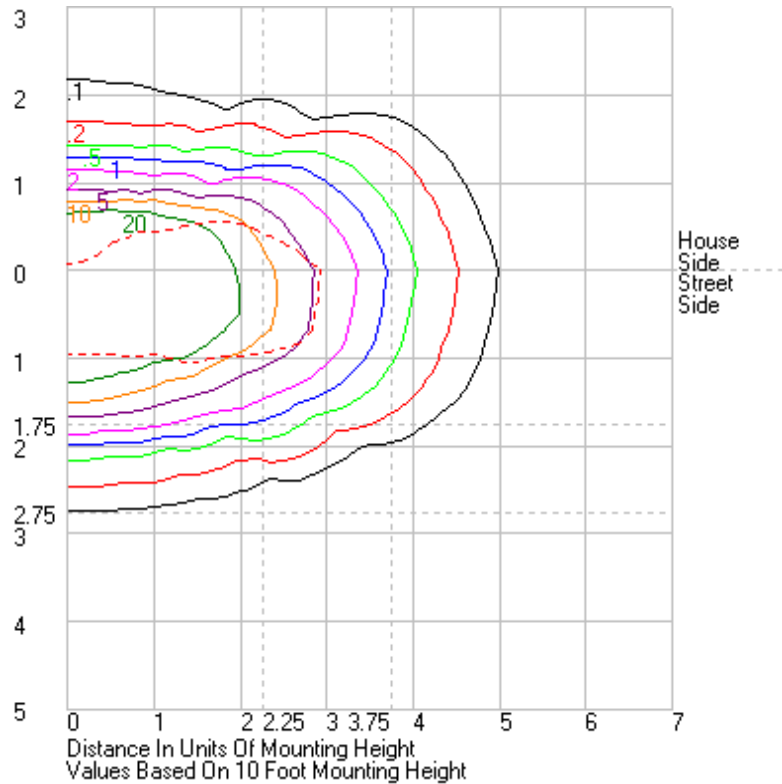


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	7033.3	N.A.	14.2
FM - Front-Medium (30-60)	20081.6	N.A.	40.6
FH - Front-High (60-80)	5798.7	N.A.	11.7
FVH - Front-Very High (80-90)	70.9	N.A.	0.1
BL - Back-Low (0-30)	5145.8	N.A.	10.4
BM - Back-Medium (30-60)	8604.5	N.A.	17.4
BH - Back-High (60-80)	2682.5	N.A.	5.4
BVH - Back-Very High (80-90)	43.3	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>49460.7</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B5-U0-G4</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	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	13727.1	
1	13751.4	13737.9	13724.5	13711	13697.7	13682.2	13670.8	13659.7	13653	13648.3	13639.5	13635	13627	13715.6	13704.4	13695.7	13691.3	13677.9	13675.6	13671.4	13671	13667.3	13666.5	13666.8	13666.8	13751.4
2	13803.1	13786.9	13766.8	13746	13720.2	13697.4	13679.3	13666.2	13657.4	13637.5	13613.3	13592.8	13675	13668.4	13676.3	13691.2	13700.2	13693.6	13686.7	13691.2	13696.4	13705.4	13713.7	13718.8	13803.1	
3	13882	13862.7	13829.1	13793.9	13756	13721.7	13695.1	13681.8	13655.4	13597.7	13538.1	13496.2	13545.5	13556.4	13596.7	13650	13697.6	13711.5	13704.7	13716.7	13732.2	13754.7	13780.7	13799.8	13882	
4	14013.2	13985.4	13929.2	13862.8	13804.7	13751.4	13718.1	13701.9	13639.7	13533.3	13433.6	13357.2	13415.9	13444.3	13498.7	13597.8	13677.6	13732.3	13728	13745.7	13777.4	13824.1	13881.9	13926.8	14013.2	
5	14183.2	14147.5	14069.1	13963.9	13861.5	13791.1	13745.1	13722.2	13615.4	13454	13292.5	13167.3	13238.3	13279.8	13400.5	13516.2	13654.6	13752.6	13761.7	13788.4	13835.9	13923.1	14024.5	14096.2	14183.2	
6	14369.5	14328	14232.6	14088.8	13939.6	13844.8	13782.9	13749.2	13586.2	13352	13106.5	12930.9	12987.3	13045.7	13218.5	13434.5	13628	13776.8	13801.7	13835.1	13909.5	14047	14192.7	14281.9	14369.5	
7	14552.1	14511.5	14402.4	14233.3	14034.6	13904.9	13829.5	13776.2	13548.4	13218.8	12889.3	12671.8	12728.3	12802.3	13004.9	13327.6	13593.3	13803.7	13846.6	13894.3	14001.3	14197	14367.2	14473.6	14552.1	
8	14727.7	14676.7	14567.8	14387.8	14150.5	13972.2	13884.3	13805.6	13507.9	13071.3	12670.6	12431.9	12477.6	12560.7	12794.9	13173.5	13555	13828.5	13901.4	13959.5	14109.9	14348.9	14542.5	14646.3	14727.7	
9	14891.5	14849.4	14731.5	14547	14278.4	14050.5	13944.6	13839	13451.8	12901.7	12463.7	12186	12211.2	12316.6	12589.8	13014	13513	13860.6	13966.5	14034.1	14236.7	14505.1	14706	14819.7	14891.5	
10	15087.3	15026.1	14879.6	14687.4	14410.3	14134.1	14011.3	13872.6	13391.1	12740.7	12251.4	11925.4	11938.2	12054	12382.2	12856.6	13470.8	13895.8	14041.1	14121.7	14372.1	14659.7	14864	14995.7	15087.3	
11	15264.3	15203.2	15047.6	14836.7	14548.9	14225.7	14085.6	13911	13317.8	12593.9	12022.6	11680.1	11696.2	11807.3	12155.6	12713.8	13336.6	13939.8	14124.1	14218.7	14515	14811.5	15026	15177.1	15264.3	
12	15456.3	15381.4	15220.8	14969.8	14687.8	14328.3	14164.3	13950.9	13237.6	12444.3	11811.3	11474.5	11487.3	11606.5	11945.9	12564.4	13316.2	13982.3	14209.8	14322.7	14664.2	14958.4	15206	15344.5	15456.3	
13	15662.6	15569.1	15372	15124.1	14822.9	14437.1	14253.1	13996.5	13161.8	12285.2	11627.6	11297.6	11319.4	11435.4	11771.2	12394.2	13245.2	14029.2	14310.3	14438.5	14815.7	15101.1	15356.9	15527.8	15662.6	
14	15859.2	15782.6	15544.2	15284.8	14947.2	14552.7	14344.7	14046.2	13089.4	12128.5	11459	11141.2	11169.3	11278	11609.9	12244.9	13175.5	14075.8	14411	14562.1	14955.1	15281.6	15534.8	15741.8	15859.2	
15	16006.9	15936.1	15745	15426.4	15083.2	14680.8	14443.6	14097.7	13027.9	11984.6	11333.3	11018.1	11084.4	11170	11481.4	12103.7	13116.5	14120.5	14520.9	14693.7	15104.4	15440.6	15723.3	15908.1	16006.9	
16	16144.1	16079.6	15925.2	15582.6	15217.2	14818.4	14554	14153.6	12972.3	11863.9	11204.1	10963.5	11073.6	11131.1	11363.6	11985.2	13058	14166.5	14635.4	14834.1	15263	15586.4	15916.9	16054.2	16144.1	
17	16318.9	16234.5	16064.2	15745.1	15346.9	14951.8	14666.6	14207.8	12923.1	11754.7	11118.5	10967.3	11087	11137.9	11296	11884.5	12987.7	14209	14762.7	14976.9	15409.6	15763.5	16070	16215.7	16318.9	
18	16625.9	16467	16208.2	15948.5	15503.8	15096.3	14797.1	14265.8	12864.6	11675.7	11086.6	10982.8	11097.6	11158.7	11291.7	11801.4	12916.6	14258.3	14887.9	15139.5	15554.6	15948.1	16229.6	16426.3	16625.9	
19	16965.5	16781.1	16384.5	16130.2	15665.7	15245.4	14925.3	14329.6	12810.5	11596.8	11104.3	10980.8	11078.9	11159	11309.2	11721.4	12856.1	14300.4	15018.6	15299.6	15733.4	16154.7	16402.1	16745.3	16965.5	
20	17395.6	17169.8	16648.4	16277.1	15818.5	15399.5	15066.1	14393.2	12765.3	11537	11131.3	10944.9	10994.4	11115.6	11334.2	11678.7	12793.9	14338.9	15161.7	15461.7	15904.4	16344.8	16616.3	17105.1	17395.6	
21	17941.6	17635.2	16969	16452.1	15976	15558.8	15217.3	14459.8	12726	11516.1	11140.2	10833.6	10822.2	10996.4	11340.2	11671	12755.8	14386.4	15310	15636	16066.4	16511.3	16940.4	17558.3	17941.6	
22	18546.1	18216.6	17340.5	16627	16157.8	15717.6	15374.9	14527.3	12704.9	11537.5	11121.3	10653.3	10568.6	10806.5	11309.4	11708.3	12726.8	14441.3	15468.8	15811.4	16227.2	16694	17268.8	18102.5	18546.1	
23	19107.8	18789.7	17797.4	16841.5	16347.1	15875.3	15541	14599	12695.6	11592.9	11047.5	10385.5	10220.9	10530.8	11210.5	11761.1	12706	14497.5	15630.4	15990	16422.3	16901.1	17685.2	18690.5	19107.8	
24	19645.6	19323.7	18342.6	17149.2	16570	16039.3	15715.6	14681.4	12691.2	11643.4	10914.2	10028.9	9781.71	10154.3	11051.4	11804.7	12707.8	14564.8	15806.1	16173.4	16612.9	17130.8	18187.6	19239	19645.6	
25	20168.1	19849	18893.5	17476.4	16799.5	16206.9	15902.9	14763.6	12708.6	11688.3	11078	9587.93	9262.35	9694.16	10815.9	11841.2	12709.6	14641.6	15984.6	16358	16833.9	17443.8	18742.5	19757.8	20168.1	
26	20681	20360.3	19411.9	17850.5	17018.3	16385.7	16090	14855.2	12731.1	11723.9	10434.1	9082.71	8673.76	9170.13	10506.2	11850.6	12723.3	14723.1	16164.9	16544.7	17070.7	17783	19276.4	20280	20681	
27	21140.5	20840.1	19908.5	18276.8	17220.9	16555.9	16291.1	14946.8	12758.2	11722.7	10089.9	8512.43	8015	8578.83	10113.5	11814.9	12752.2	14806.2	16359.1	16731.3	17292.9	18159.5	19794	20773.2	21140.5	
28	21561.1	21273.1	20399.1	18787.7	17453.5	16733.3	16495.6	15049	12793.1	11677.9	9675.67	7886.97	7257.7	7912.13	9663.97	11731.5	12804.4	14889.3	16559.1	16924.3	17527.3	18595.0	20294.7	21215	21561.1	
29	21902	21670.4	20866.7	19322.2	17695	16918.4	16698	15158.7	12851.1	11588.8	9207.22	7158.01	6455.38	7171.38	9154.48	11595.5	12890.1	14972.8	16759.2	17121.3	17762.8	19094.9	20786.3	21611.2	21902	
30	22112	21966.2	21290.4	19832.4	17970.7	17110.7	16915.3	15276.9	12936	11444.8	8689.92	6418.49	5663.03	6374.81	8599.07	11410.5	12995.3	15057.8	16970	17307.6	18011.2	19634.3	21250.2	21925.1	22112	
31	22203.5	22129.2	21689.8	20324.7	18257.9	17304.9	17119.4	15387.9	13038.8	11260.1	8108.96	5691.67	4922.58	5602.37	7966.11	11155.3	13093.3	15143.5	17180.1	17494.4	18280.3	20165.1	21657.2	22097	22203.5	
32	22116.5	22168.4	22017.7	20805.5	18604.6	17493.2	17329	15501.8	13147.9	11005.6	7442.65	4964.84	4253.06	4884.77	7257.75	10841.5	13191.9	15238.7	17386.6	17689.8	18570.5	20673.3	22024	22163.4	22116.5	
33	21803.4	22007.4	22242.1	21276.4	18983	17683.3	17536.9	15614	13253.8	10704.3	6752.45	4316.66	3638.46	4240.18	6540	10497.1	13283.4	15334.4	17605.3	17893.2	18879.2	21175.5	22330.2	22053	21803.4	
34	21240.8	21622.8	22364.4	21731.4	19368.5	17878.6	17733.9	15731.3	13355.8	10357.4	6087.24	3723.52	3106.72	3632.66	5840.2	10102.1	13363	15430.9	17818	18095.1	19247.4	21670.7	22508	21726.1	21240.8	
35	20491.4	20990	22334.5	22154.9	19794.4	18090.3	17929.1	15857.6	13444.6	9956.36	5422.18	3192.5	2661.91	3122.74	5175.15	9648.52	13419.6	15534.7	18032.1	18299.1	19619.4	22145.8	22595.1	21195.5	20491.4	
36	19633.6	20203.9	22117.3	22553.4	20233.4	18292.8	18109.4	15979.3	13501.9	9494.28	4783.58	2752.35	2299.66	2690.41	4546.37	9141.64	13440.5	15646.8	18245.1	18486.4	20009.2	22589.2	22526	20487.1	19633.6	
37	18803.6	19351.9	21664.7	22914.5	20729.4	18469	18295.5	16096	13524.7	8960.03	4202.76	2377.33	1993.12	2322.13	3972.54	8551.85	13427	15767.3	18441.7	18683.4	20437.6	23002.4	22244.5	19682.4	18803.6	
38	18108.2	18569.5	21014.9	23194.6	21212.8	18679.9	18453.3	16220.7	13509.3	8367.82	3665.35	2060.41	1747.1	2021.53	3460.03	7909.98	13374	15888.1	18638.4	18890.8	20903.6	23395.1	21781.2	18902.1	18108.2	
39																										



51	8661.28	8893.69	10171.5	15752.7	24739.9	22205	20604.6	17697.8	8243.76	1808.36	970.74	632.9	520.82	645.18	984.94	1678.71	7655.74	17215.7	20726.9	21866.2	26034.9	18260.6	11014.5	9282.41	8661.28	
52	8124.92	8365.39	9644.83	14453.2	24378.9	22597.3	20792.8	17782.4	7545.01	1590.8	891.23	532.39	424.08	536.37	904.56	1523.06	6967.05	17253.4	20930.2	22243.7	26053.7	17208.4	10466.4	8775.95	8124.92	
53	7616.38	7859.84	9125.71	13147.9	23900.5	22959.9	20964.1	17831.8	6897.57	1452.46	800.27	431.87	343.33	437.72	813.61	1428.74	6279.92	17255.3	21132.6	22633.7	25955.2	16006.9	9946.96	8246.62	7616.38	
54	7108.35	7358.4	8607.16	11965.2	23267.2	23318	21119.8	17835.5	6261.12	1353.01	693.91	349.07	279.65	356.27	709.45	1350.66	5622.47	17226	21314.8	23018.7	25715.2	14774.3	9425.59	7737.92	7108.35	
55	6567.91	6836.53	8083.89	11006.3	22609.2	23661.2	21248	17783.7	5630.71	1277.52	595.25	285.45	228.63	293.12	596.17	1272.74	4993.35	17149.8	21479.3	23382.6	25352.3	13541	8908.85	7225.67	6567.91	
56	5950.24	6233.16	7573.23	10237.4	21906.6	23979.2	21342.3	17652.7	5014.59	1200.32	492.17	234.05	191.22	240.07	493.89	1199.44	4399.47	17025	21630.8	23733	24836.9	12315.8	8377.77	6680.28	5950.24	
57	5332.24	5639.82	7045.29	9550.38	21060.6	24297.5	21412.1	17434.2	4433.86	1105.76	397.99	198.83	168.57	201.67	408.21	1109.71	3863.06	16842.5	21757.9	24056.1	24120.3	11347.2	7847.2	6070.62	5332.24	
58	4562.33	4983.89	6492.91	8982.46	20083.4	24604.1	21435.4	17163.1	3900.6	994.14	328.31	175.94	159.28	178.02	336.58	1001.42	3387.58	16585.9	21847.2	24348.6	23374.9	10499.2	7319.99	5412.57	4562.33	
59	3737.71	4163.69	5945.97	8427.4	18953.9	24868.6	21405.6	16788.8	3418.22	869.99	272.77	165.53	154.15	167.58	278.55	883.64	2948.93	16256.3	21897.4	24619.2	22547.6	9807.92	6752.08	4661.6	3737.71	
60	2958.26	3346.53	5169.59	7857.26	17666.7	25052.4	21312.9	16316	2982.64	743.28	232.97	160.54	150.92	162.29	236.3	754.1	2559.2	15820.8	21913.9	24854.6	21614.1	9212.49	6111.04	3825.74	2958.26	
61	2249.19	2584.83	4385.02	7260.06	16119.9	25147.4	21160	15759.1	2579.04	633.7	205.01	156.76	147.69	158.61	207.42	631.21	2223.27	15266	21880.5	25061.2	20560.7	8620.92	5402.13	3018.93	2249.19	
62	1635.05	1904.59	3522.93	6630.8	14522.4	25069	20911.7	15085.6	2243.52	534.99	188.54	153.55	144.83	155.53	191.03	527.1	1957.85	14584.3	21800.3	25221.9	19383.2	8017.71	4627.29	2294.61	1635.05	
63	1136.1	1353.69	2732.02	5834.4	12973.3	24736.2	20551.9	14338.1	1977.22	436.28	181.6	150.48	142.4	152.74	183.8	435.56	1778.72	13752.8	21651.1	25314.9	18022.5	7374.69	3740.96	1728.33	1136.1	
64	815.62	929.89	2006.3	5035.86	11601.5	24076.4	20045.3	13467.6	1773.33	361.11	176.34	147.5	140.07	149.87	178.6	358.9	1642.17	12921.4	21410.3	25277.7	16492.8	6675.99	2920.7	1243.22	815.62	
65	674.29	720.13	1410.55	4199	10490.3	23062.8	19409.9	12556.2	1603.58	303.86	171.44	144.54	137.81	147.01	173.85	300.36	1496.54	12038.2	21077.3	25045.8	14824.3	5867.98	2175.32	855.58	674.29	
66	566.15	603.89	979.4	3272.38	9463.09	21790.5	18667.9	11535.8	1441.87	262.66	166.62	141.7	135.8	144.33	169.44	257.71	1346.65	11101.5	20612	24574.4	13132.1	5003.49	1685.61	686.19	566.15	
67	458.46	496.79	754.04	2444.65	8412.16	20278.6	17840	10500.8	1274.47	234.23	161.97	139.13	134.06	141.94	165.06	226.06	1196.29	10134.3	19992.2	23744.9	11549.8	4132.83	1195.9	568.32	458.46	
68	362.19	401.46	626.86	1726.22	7330.03	18644	16905.6	9449.07	1099.48	218.05	157.43	136.89	132.46	139.82	160.81	208.25	1023.2	9114.46	19206.5	22579.8	10177.7	3251.19	832.97	466.44	362.19	
69	292.9	331.7	520.92	1196.39	6225.7	16936	15830.9	8365.78	933.62	210.77	153.27	134.52	130.01	137.74	156.91	200.05	865.26	8076.97	18290.7	21191.8	8926.38	2421	666.74	385.3	292.9	
70	234.99	272.07	414.99	842.84	5095.43	15089.2	14619.8	7289.24	779.81	205.3	149.6	131.02	126.01	134.63	153.34	193.15	723.09	7007.92	17248.6	19608.8	7789.72	1797.58	546.51	318.53	234.99	
71	201.93	226.16	344.97	660.94	3965.15	13022.1	13154.7	6204.53	641.04	200.01	145.9	125.85	120.47	130.03	149.2	186.85	599.09	6015.51	16143.8	17896.7	6651.06	1276.11	450.88	258.5	201.93	
72	185.26	206.84	285.91	553.11	2981.86	10852.5	11531	5205.6	542.68	194.98	140.88	118.88	112.87	123.64	145.03	181.22	488.69	5093.04	14756.1	15961.1	5486.98	879.86	376.48	221.75	185.26	
73	169.13	189.21	248.45	445.82	2044.27	8543.34	9465.84	4206.66	444.87	190.06	133.54	108.96	102.15	114.65	138.8	176.6	401.01	4270.6	13237.8	13839.7	4315.32	689.74	311.26	203.11	169.13	
74	154.98	172.66	225.21	355.08	1310.95	6231.07	7259.3	3310.28	390.76	184.74	124.24	95.12	87.54	102.08	130.59	172.67	348.93	3527.16	11701.4	11717.7	3302.51	548.3	263.56	185.46	154.98	
75	142.51	158.07	203.19	292.61	841.76	4550.97	5339.95	2559.04	352.97	176.95	110.2	77.39	69.71	85.09	119.13	167.97	316.93	2873.61	9511.79	9242.8	2476.04	445.68	237.96	169.15	142.51	
76	130.56	144.21	182.63	252.42	633.7	2878.8	3709.75	1911.49	330.82	165.35	90.98	61.34	52.94	66.15	102.76	158.06	302.8	2268.89	7148.3	6823.27	1834	367.92	213.85	154.54	130.56	
77	117.85	129.96	164.05	225	500.14	1938.78	2373.51	1370.94	325.14	148.36	69.62	48.33	40.23	49.85	82.15	145.17	298.92	1798.18	4915.41	4668.53	1191.96	305.12	192.08	139.93	117.85	
78	104.11	114.11	144.7	198.73	366.58	1336.4	1615.57	971.4	322.28	121.75	55.91	35.33	32.28	38.78	61.54	132.15	295.16	1389.4	3314.24	3138.57	728.88	264.68	172.22	124.62	104.11	
79	89.14	97.66	124.86	174.6	299.61	973.11	1157.99	661.17	308.08	88.47	42.45	29.64	27.49	31.91	46.45	106.73	291	983.52	2182.26	2049.39	549.2	233.54	151.42	108.41	89.14	
80	73.87	80.91	103.64	149.77	258.91	717.81	881.39	500.14	274.08	60.64	32.39	25.59	24.04	27.57	37.06	76.65	278.08	681.39	1625.11	1552.13	432.99	204.8	130.63	91.13	73.87	
81	61.41	65.62	83.74	122.79	226.48	532.7	664.97	342.52	207.69	47.31	27.39	22.24	21.09	24.07	31.21	53.54	250.38	454.76	1076.93	1055.98	348.57	177.56	108.97	74.34	61.41	
82	50.97	55.12	66.43	95.91	192.28	372.68	518.73	228.17	125.98	34.23	23.21	19.24	18.4	20.96	26.71	40.4	182.17	323.02	807.87	736.88	291.15	149.53	87.61	59.99	50.97	
83	40.54	44.64	54.46	73.15	145.72	247.65	372.63	169.51	69.32	27.57	19.48	16.5	16.02	18.16	22.88	32.85	113.96	242.6	620.23	540.78	251.11	121.47	69.52	48.59	40.54	
84	33.59	35.56	42.56	55.76	98.94	180.69	243.72	120.45	53.09	22.54	16.33	14.09	13.79	15.72	19.6	27.5	61.41	189.96	459.98	385.31	210.11	94.05	55.48	39.81	33.59	
85	27.44	27.93	31.33	40.81	65.49	119.65	152.52	79.5	37.65	18.27	13.55	11.62	11.56	13.39	16.83	23.25	43.04	140.32	328.44	277.71	161.67	72.71	44.13	32.53	27.44	
86	20.47	19.71	21.32	26.61	45.5	70.44	88.7	54.47	25.21	14.54	10.99	9.68	9.52	11.06	14.39	19.75	33.47	90.82	231.05	202.32	113.4	54.55	34.24	25.14	20.47	
87	12.36	11.29	11.82	15.17	25.69	45.55	51.85	35.05	17.24	10.99	8.75	8.04	7.86	9.34	11.94	16.13	25.78	58.07	146.07	135.22	75.23	38.57	24.26	16.82	12.36	
88	5.29	5.58	6.42	6.63	10.32	21.26	28.39	15.63	10.77	7.5	6.26	5.73	6.26	7.41	9.45	12.31	19.14	37.23	76.91	77.45	43.01	25.03	14.23	8.51	5.29	
89	2.77	2.08	3.62	4.34	5.01	7.66	4.94	5.74	7.09	4.66	3.71	2.88	3.91	5.04	6.52	8.48	13	24.56	44.02	44.43	26.3	11.5	4.27	1.76	2.77	
90	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	0
91	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	0
92	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	0
93	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	0
94	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	0
95	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	0
96	0	0	0	0																						





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.	ALEDXL2T/480	Sample ID.	V1
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
480.06	60	0.797	357.4	0.934	5.27%

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