

# 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

**DLF2111113-13a**

## Test Date

**2021/11/25**

## Issue Date

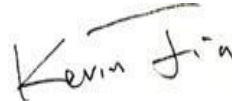
**2021/12/1**

## Prepared By



Wangzun Zhu

## Approved By



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		48137
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	151.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		317.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	3.60%
		20.00%	277V	11.46%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.999
		0.9	277V	0.957
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4004
		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		9
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		85
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		95
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-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%		0.52%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		120
(Goniophotometer - Section 4.2)		Non-Worst Case		277
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		2.651
(Goniophotometer - Section 4.2)		Non-Worst Case		1.183
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		317.8
(Goniophotometer - Section 4.2)		Non-Worst Case		313.2

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/25	ALEDXL5TN	M1
2	Goniophotometer Test	2021/11/25	ALEDXL5TN	M1
3	THD and PF Test	2021/11/25	ALEDXL5TN	M1

### 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.

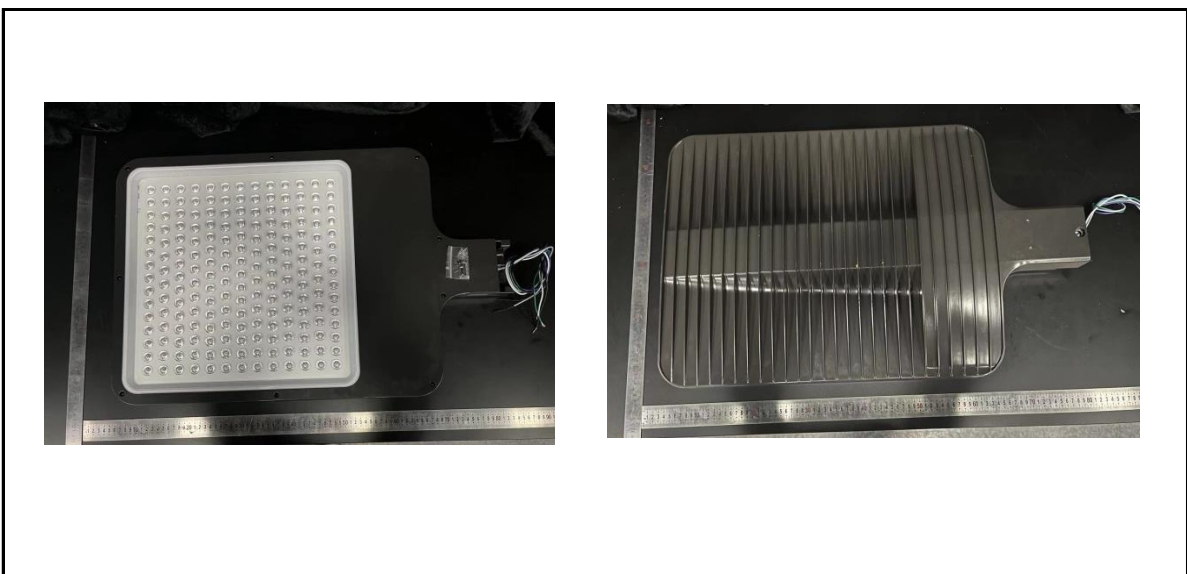
## 3.0 Production Description

**Luminaire Description:** ALEDXL5TN

**Description:** 345W/45,000 lm @ 4000K

**Electrical Specification:** 120V-277V,50/60HZ

### Photos of Luminaire Characteristics



## 4.0 LM-79 Measurement and Test Results

### 4.1 Integrating Sphere Test

Model No.	ALEDXL5TN	Sample ID.	M1
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
120.02	60	2.636	316.2	0.999
277.06	60	1.178	312.2	0.957

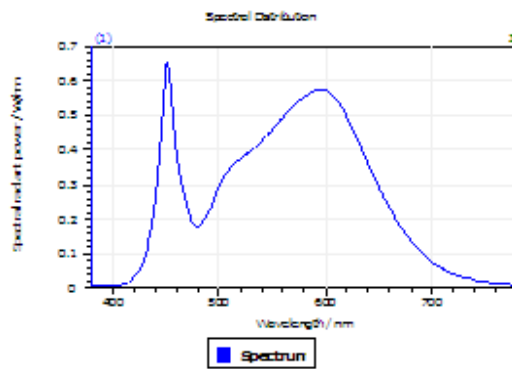
#### Test Result

CCT (K)	CRI	R9	Duv
4004	83	9	0.0005

Rf	Rg	IES Rcs,h1
85	95	-12%

## 4.1 Integrating Sphere Test

### Results



#### Spectral values

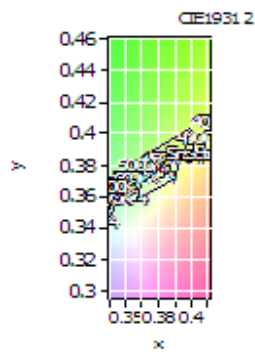
DominantWavelength	578.78 nm
Purity	0.277
PeakWavelength	451.47 nm
Radiant Power	101.1 W
Width50%	20.81 nm

#### Color Coordinates

Correlated Color Temperatur 4004 K

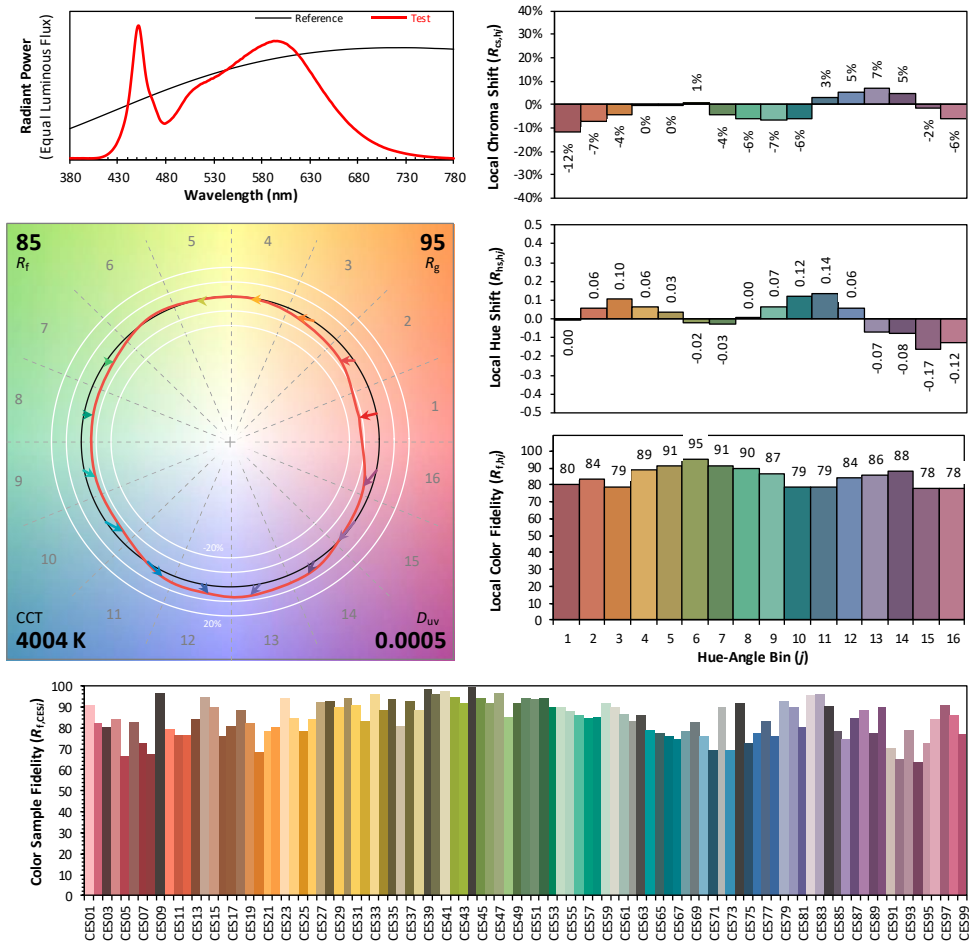
x: 0.3806 u: 0.2247 u': 0.2247  
y: 0.3779 v: 0.3347 v': 0.5021

ResultsCRICRI01	81.6	ResultsCRICRI09	8.6
ResultsCRICRI02	90.1	ResultsCRICRI10	76.6
ResultsCRICRI03	95.7	ResultsCRICRI11	80.9
ResultsCRICRI04	81.8	ResultsCRICRI12	63.9
ResultsCRICRI05	81.8	ResultsCRICRI13	83.7
ResultsCRICRI06	86.1	ResultsCRICRI14	98.0
ResultsCRICRI07	85.8	ResultsCRICRI15	75.2
ResultsCRICRI08	64.2	ResultsCRICRI16	72.6
ResultsCRI	83.4		



PlanckDistance 5.0E-004

## 4.1 Integrating Sphere Test



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

$x$  0.3806  
 $y$  0.3779  
 $u'$  0.2247  
 $v'$  0.5021

CIE 13.3-1995  
(CRI)

$R_a$  83  
 $R_9$  9

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.	ALEDXL5TN	Sample ID.	M1
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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 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  $\pm 0.2$  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  $0.5^{\circ}$  vertical intervals and  $10^{\circ}$  horizontal intervals.

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.00	60	2.651	317.8	0.999
NON-WORST CASE	277.05	60	1.183	313.2	0.956

#### Test Result

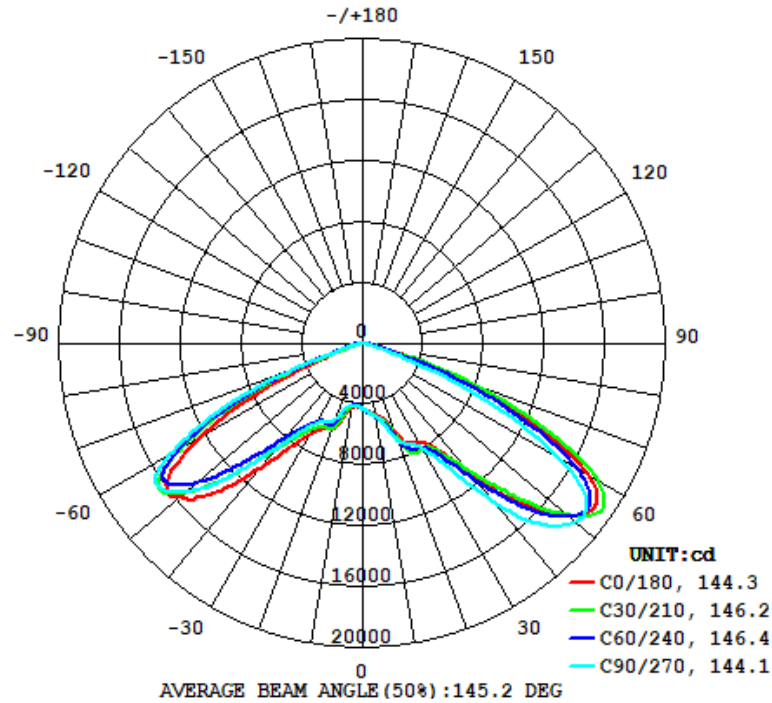
Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
48137	163.3	153.0	144.3	144.1	151.5

Zonal Lumen Requirement ( $0^{\circ}$ - $90^{\circ}$ )	Zonal Lumen Requirement ( $80^{\circ}$ - $90^{\circ}$ )	BUG rating
100.00%	0.52%	B5-U0-G4

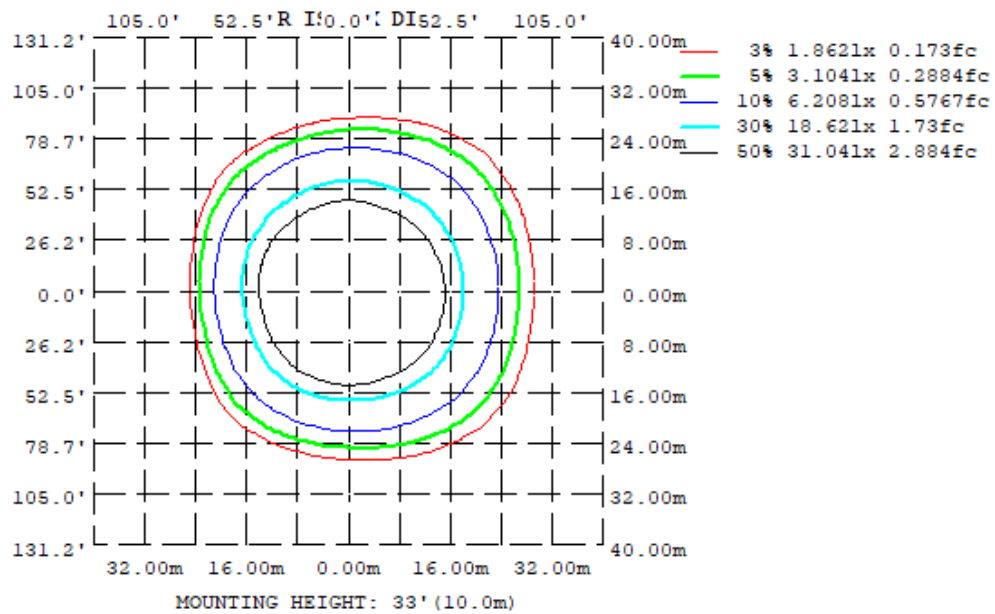


## 4.2 Goniophotometer Test

### Light Distrubtion Curve



### Isolux Plot





## 4.2 Goniophotometer Test

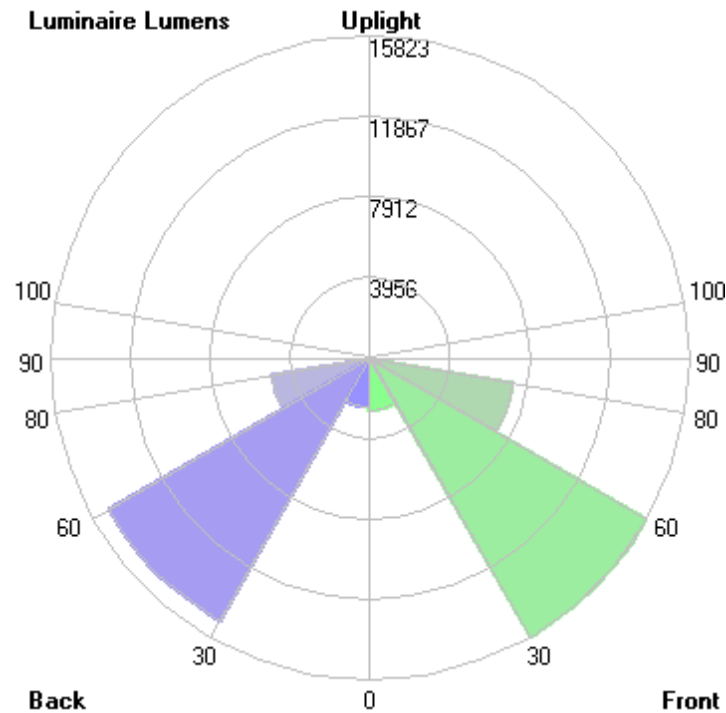
### Zonal Lumen Summary

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315
10	475.8	492.3	488.1	460.2	435.2	416.6	418.7	446.4
20	610.1	646.7	672.4	671.4	600.2	588.6	535.1	550.8
30	753.9	795.8	805.1	718.8	688.9	621.4	606.6	670.6
40	1126	1088	1367	1068	1089	837.8	901.2	845.8
50	1764	1767	1826	1665	1565	1442	1517	1448
60	1713	1774	1474	1435	1251	1460	1482	1689
70	650.4	743.7	352.6	407.2	196.9	449.6	421.4	810.4
80	78.27	80.45	26.31	47.80	36.96	52.36	27.55	82.48
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	422.44	0 - 10	422.44	0.88%
10-20	1475.86	0 - 20	1898.30	3.94%
20-30	3114.77	0 - 30	5013.07	10.41%
30-40	5259.78	0 - 40	10272.85	21.34%
40-50	10502.92	0 - 50	20775.77	43.16%
50-60	14967.71	0 - 60	35743.48	74.25%
60-70	10197.19	0 - 70	45940.67	95.44%
70-80	1947.28	0 - 80	47887.95	99.48%
80-90	249.45	0 - 90	48137.40	100.00%
90-100	0.00	0 - 100	48137.40	100.00%
100-110	0.00	0 - 110	48137.40	100.00%
110-120	0.00	0 - 120	48137.40	100.00%
120-130	0.00	0 - 130	48137.40	100.00%
130-140	0.00	0 - 140	48137.40	100.00%
140-150	0.00	0 - 150	48137.40	100.00%
150-160	0.00	0 - 160	48137.40	100.00%
160-170	0.00	0 - 170	48137.40	100.00%
170-180	0.00	0 - 180	48137.40	100.00%

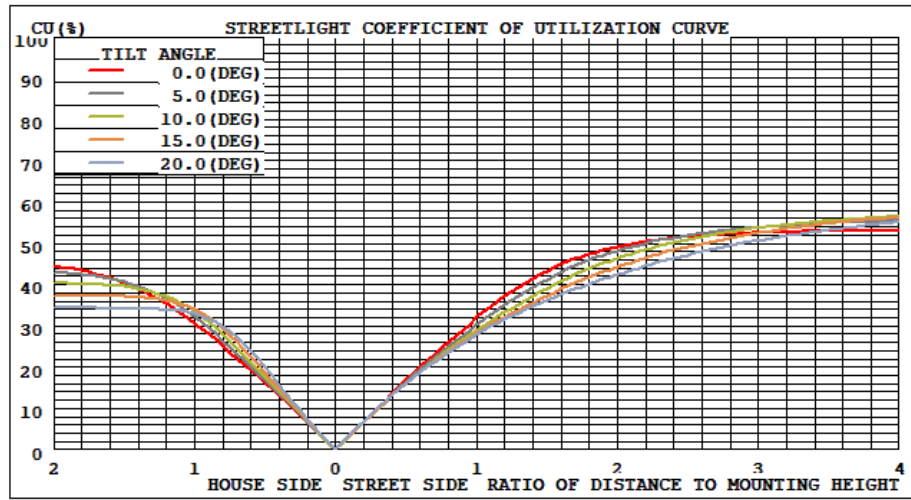
## 4.2 Goniophotometer Test

LCS/BUG

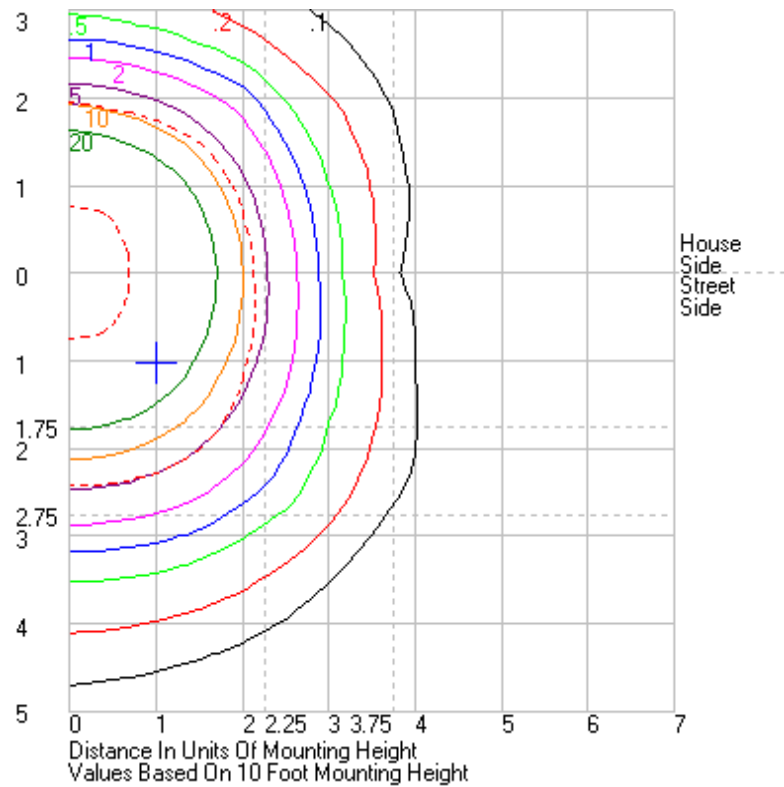


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	2574.2	N.A.	5.3
FM - Front-Medium (30-60)	15823.2	N.A.	32.9
FH - Front-High (60-80)	7207.4	N.A.	15.0
FVH - Front-Very High (80-90)	169.9	N.A.	0.4
BL - Back-Low (0-30)	2438.9	N.A.	5.1
BM - Back-Medium (30-60)	14907.2	N.A.	31.0
BH - Back-High (60-80)	4937.1	N.A.	10.3
BVH - Back-Very High (80-90)	79.5	N.A.	0.2
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>48137.4</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	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97	4314.97
1	4345.62	4356.77	4361.27	4363.86	4362.91	4360.26	4357.93	4349.1	4337.25	4323.94	4310.8	4297.8	4288.97	4283.63	4276.34	4273.84	4273.11	4276.03	4287.17	4296.07	4306.03	4316.87	4326.84	4335.78	4345.62
2	4382.63	4399.74	4409.77	4415.87	4413.85	4406.99	4398.57	4379.46	4357.24	4334.58	4309.83	4285.07	4265.6	4252.07	4240.44	4235.38	4237.9	4244.62	4262.16	4280.34	4300.56	4321.85	4344.05	4363.5	4382.63
3	4418.22	4443.78	4459.84	4466.19	4462.78	4455.51	4442.19	4413.37	4380.12	4343.02	4308.93	4274.44	4244.94	4222.87	4207.65	4204	4208.39	4219.7	4242.2	4269.11	4301.02	4333.22	4364.85	4394.09	4418.22
4	4453.18	4486.44	4506.04	4517.86	4519.5	4511	4493.26	4457.07	4408.37	4357.57	4311.09	4268.25	4228.09	4200.22	4184.08	4179.73	4183.09	4196.11	4223.95	4260.91	4302.66	4345.6	4386.27	4425.04	4453.18
5	4493.23	4533.2	4555.34	4573.68	4584.33	4572.88	4549.71	4503.61	4441.36	4380.08	4317.84	4265.35	4214.29	4180.32	4166.01	4160.76	4162.86	4176.48	4208.17	4253.2	4305.86	4358.89	4409	4457.44	4493.23
6	4540.72	4586.83	4612.71	4636.8	4647.56	4635.53	4609.85	4555.48	4484.22	4406.39	4333.79	4275.46	4215.99	4174.87	4151.49	4148.11	4146.59	4156.3	4190.15	4245.07	4310.52	4374.12	4434.82	4495.07	4540.72
7	4592.89	4646	4680.78	4702.99	4713.67	4704.8	4676.58	4613.54	4534.05	4441.82	4363.81	4298.96	4230.44	4182.59	4151.46	4138.49	4133.3	4142.68	4179.41	4239.99	4312.81	4390.43	4469.06	4538.26	4592.89
8	4645.69	4709.74	4751.82	4775.68	4780.73	4773.04	4741.5	4672.62	4585.05	4487.77	4405.07	4333.09	4256.82	4202.61	4164.21	4137.28	4130.61	4138.56	4175.76	4238.29	4317.75	4407.89	4505.76	4585.23	4645.69
9	4701.95	4774.3	4823.51	4850.08	4852.2	4845.71	4811.74	4740.61	4639.1	4538.89	4458.74	4380.83	4298.65	4236.15	4188.54	4145.32	4134.76	4142.85	4179.86	4244.55	4326.16	4433.52	4543.04	4631.12	4701.95
10	4758.26	4839.85	4896.03	4923.02	4927.13	4918.35	4881.42	4810.91	4696.64	4601.51	4521.29	4440.04	4352.09	4286.45	4227	4166.19	4142.93	4151.51	4187.1	4257.25	4345.01	4464.19	4583.18	4682.81	4758.26
11	4823.8	4912.27	4972.37	4999.84	5005.01	4986.27	4953.8	4884.07	4768.04	4675.09	4602.57	4514.99	4420.86	4349.74	4276.55	4200.51	4164.72	4167.95	4203.18	4274.67	4373.29	4495.9	4629.18	4738.56	4823.8
12	4894.32	4988.17	5049.3	5078.23	5080.03	5059	5035.73	4968.77	4850.98	4763.08	4695.16	4612.87	4508.14	4426.52	4341.4	4248.55	4204.95	4195.92	4228.11	4300.72	4407.43	4535.91	4681.06	4801.45	4894.32
13	4972.11	5069.37	5131.46	5158.36	5159.76	5147.5	5131.34	5072.41	4963.21	4884.78	4824.93	4748	4631.65	4535	4427.9	4323.15	4265.1	4239.98	4268.23	4338.97	4448.79	4581.91	4737.41	4870.33	4972.11
14	5056.95	5160.79	5215.62	5242.23	5250.86	5259.19	5260.54	5213.47	5122.36	5043.32	4997.77	4937.78	4805.11	4696.42	4556.19	4434.56	4354.14	4310.06	4331.83	4395.73	4499.72	4635.83	4801.67	4946.96	5056.95
15	5147	5251.36	5310.79	5333.2	5356.65	5399.14	5433.24	5403.5	5329.37	5257.63	5221.52	5174.46	5032.86	4911.67	4751.73	4592.63	4484.98	4417.7	4430.34	4476.87	4563.22	4696.34	4873.78	5027.79	5147
16	5253.04	5358.51	5417.63	5452.42	5512.46	5594.89	5657.9	5651.97	5600.59	5536.27	5513.71	5454.52	5297.11	5177.33	5017.15	4822.81	4666.54	4574.2	4576.71	4597.08	4657.74	4776.74	4962.14	5124.23	5253.04
17	5385.39	5493.64	5560.85	5606.99	5708.94	5835.94	5917.69	5918.76	5906.65	5842.11	5807.75	5716.52	5551.26	5449.2	5309.04	5103.2	4889.14	4766.16	4756.01	4759.6	4784.46	4886.62	5072.39	5251.51	5385.39
18	5573.51	5679.28	5751.02	5820.91	5958.35	6100.97	6184.93	6204.27	6222.1	6178.28	6097.77	5934.73	5764.71	5685.79	5581.9	5413.64	5139.53	4979.77	4969.02	4957.57	4958.12	5039.3	5229.85	5431.77	5573.51
19	5819.29	5914.34	5996.44	6118.21	6257.77	6394.25	6465.61	6492.92	6531.94	6482.86	6332.11	6096.45	5909.76	5856.42	5809.71	5677.32	5387.81	5186.64	5174.47	5174.68	5170.21	5245.89	5446.1	5661.39	5819.29
20	6101.37	6218.45	6337.09	6466.53	6566.27	6674.69	6723.88	6748.3	6794	6713.56	6491.6	6208.66	6002.41	5961.66	5964.63	5886.26	5594.33	5365.36	5351.12	5403.39	5417.16	5507.61	5708.9	5935.93	6101.37
21	6415.65	6571.59	6743.78	6861.98	6902.07	6916.6	6937.31	6948.14	6993.86	6869.5	6589.77	6277.7	6060.45	6021.17	6053.58	6014.94	5738.47	5500.95	5492.35	5599.13	5680.22	5801.34	6013.78	6209.25	6415.65
22	6725.35	6925.79	7161.02	7261.25	7187.63	7105.06	7082.81	7080.06	7115.92	6948.01	6628.88	6309.56	6098.26	6055.49	6099.11	6073.32	5812.09	5591.29	5587.98	5758.1	5934.88	6109.62	6280.23	6463.77	6725.35
23	7002.23	7268.08	7549.33	7623.11	7407.27	7255.08	7191.26	7168.56	7170.56	6970	6640.98	6329.83	6126.05	6074.74	6107.53	6077.23	5833.81	5637.38	5652.88	5871.94	6147.93	6333.04	6519.77	6739.46	7002.23
24	7183.5	7522.81	7842.81	7867.73	7579.15	7377.35	7284.9	7243.75	7185.08	6960.18	6640.35	6350.42	6161.44	6094.81	6101.78	6042.74	5826.33	5669.09	5705.7	5957.14	6309.58	6556.45	6731.3	6900.23	7183.5
25	7294.01	7681.01	8018.52	7992.94	7700.94	7475.85	7365.08	7301.66	7186.35	6941.84	6637.52	6383.09	6221.68	6135.23	6105.21	6007.81	5805.25	5695.61	5753	6022.62	6412.05	6731.28	6863.46	7000.63	7294.01
26	7358.91	7772.15	8079.49	8045.07	7774.02	7548.26	7443.34	7347.02	7193.28	6930.17	6642.46	6440.37	6308.67	6205.7	6125.05	5997.38	5786.75	5712.2	5793.55	6076.44	6465.98	6803.26	6943.24	7061.63	7358.91
27	7397.53	7811.53	8069.99	8043.29	7803.64	7624.52	7537.64	7412.64	7215.87	6941.08	6671.09	6524.04	6428.77	6296.74	6173.33	6013.17	5784.6	5728.53	5831.54	6111.61	6479.08	6809.15	6980.47	7093.06	7397.53
28	7426.85	7825.47	8039.82	8010.09	7822.6	7720.26	7665.73	7512.41	7280.15	6985.23	6736.24	6632.52	6561.79	6421.21	6248.13	6055.36	5809.73	5769.95	5884	6132.9	6468.91	6768.15	6982.37	7115.91	7426.85
29	7467.78	7835.46	8004.4	7970.16	7857.45	7846.04	7836.21	7653.79	7383.62	7064.17	6835.83	6778.07	6695.61	6556.36	6354.69	6121.42	5867.15	5836.93	5961.8	6172.6	6453.16	6726.35	6969.04	7140.07	7467.78
30	7538.68	7859.57	7985.92	7957.63	7917.91	8003.1	8050.59	7842.11	7526.19	7187.91	6972.53	6955.34	6888.66	6691.87	6483.98	6213.7	5946.18	5927.77	6065.69	6231.7	6454.25	6706.25	6967.31	7194.27	7538.68
31	7638.47	7906.28	7999.97	7982.32	8018.12	8220.01	8308.48	8078.62	7713.03	7334.34	7133.04	7152.45	7105.62	6882.56	6613.27	6326.34	6054.56	6050.06	6202.06	6319.1	6488.95	6711.82	6990.32	7275.97	7638.47
32	7777.05	7993.19	8063.04	8056.21	8170.53	8479.37	8612.27	8362.21	7934.34	7520.15	7327.13	7385.17	7347.89	7099.15	6767.85	6462.57	6185.24	6199.88	6348.28	6442.64	6563.86	6746.85	7045.95	7389.75	7777.05
33	7958	8136.13	8179.95	8188.53	8389.17	8801.61	8979.43	8712.1	8218.51	7753.27	7563.04	7650.36	7609.22	7337.6	6957.34	6598.79	6338.68	6384.67	6486.56	6577.91	6638.77	6818.84	7145.81	7546.53	7958
34	8185.23	8331.42	8356.47	8380.34	8676.75	9213.19	9465.27	9124.77	8553.25	8026.39	7842.67	7959.07	7906.74	7599.71	7169.29	6743.21	6502.49	6569.45	6732.45	6742.48	6749.41	6923.85	7290.37	7747.15	8185.23
35	8471.98	8598.38	8596.47	8644.43	9036.62	9709.85	10023.8	9634.76	8947.45	8350.55	8165.08	8316.26	8250.86	7902.6	7404.39	6934.94	6666.87	6771.87	6986.06	6968.22	7069.76	7069.61	7476.5	7994.19	8471.98
36	8818.35	8947	8913.92	8979.6	9471.4	10297.8	10662.3	10229.6	9403.15	8718.79	8528.29	8713.56	8654.16	8247.17	7674.96	7147.54	6875.61	7034.75	7279.96	7232.78	7128.26	7256.98	7707.86	8298.49	8818.35
37	9300.17	9402.03	9310.03	9366.94	9957.8	10950.4	11383.5	10885.2	9920.71	9146.15	8950.64	9199.62	9115.06	8669.03	7985.57	7397.89	7129.71	7350.21	7620.02	7542.17	7376.25	7481.74	7987.98	8679.31	9300.17
38	9880.28	9920.4	9748	9820.12	10514.1	11647.2	12122.6	11583.7	10505.6	9611.3	9404.09	9673.87	9619.18	9151.46	8342.77	7685	7								

Page 13 of 17

Page 14 of 17

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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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



## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

Model No.	ALEDXL5TN	Sample ID.	M1
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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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
120.02	60	2.636	316.2	0.999	3.60%
277.06	60	1.178	312.2	0.957	11.46%

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