

Photometric Test Report

Relevant Standards

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

Prepared For RAB Lighting Inc.

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Report Number

DLF2111113-4a

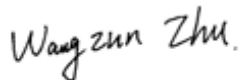
Test Date

2021/11/24

Issue Date

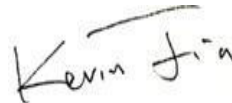
2021/12/1

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		37145
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	138.3
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		268.5
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	1.72%
		20.00%	277V	4.15%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.999
		0.9	277V	0.966
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4094
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40		13
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%		0.16%
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		2.242
(Goniophotometer - Section 4.2)		Non-Worst Case		0.976
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		268.5
(Goniophotometer - Section 4.2)		Non-Worst Case		260.4

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/24	ALEDLATN	D1
2	Goniophotometer Test	2021/11/24	ALEDLATN	D1
3	THD and PF Test	2021/11/24	ALEDLATN	D1

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.

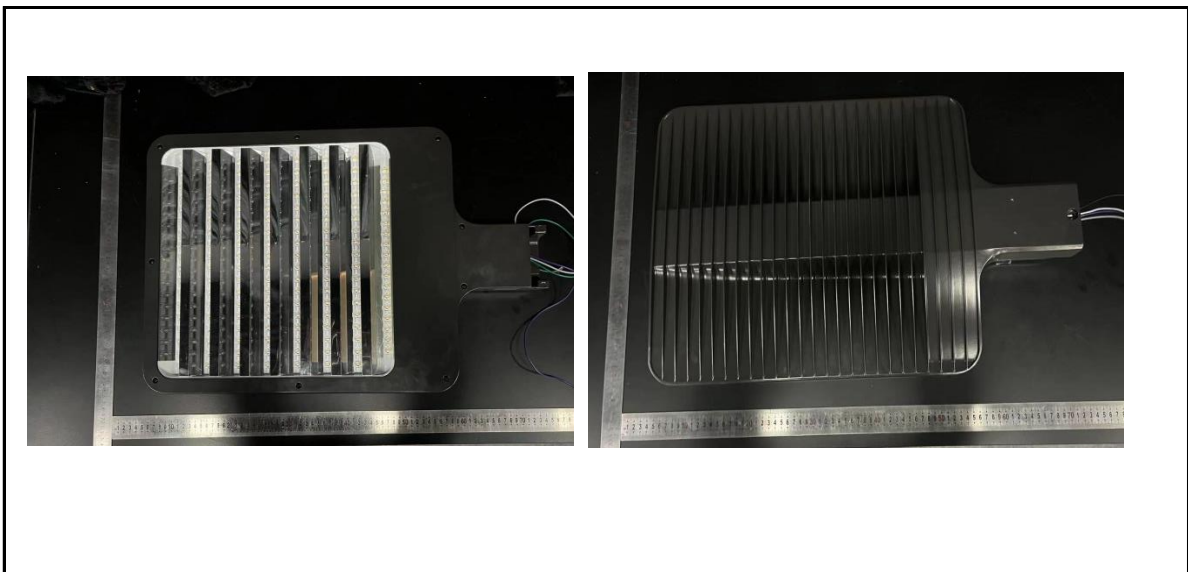
3.0 Production Description

Luminaire Description: ALEDLATN

Description: 260W/36,000 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.	ALEDLATN	Sample ID.	D1
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 ± 0.2 percent under load.

The sample was measured using 4π 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
120.04	60	2.234	268.0	0.999
277.01	60	0.964	257.9	0.966

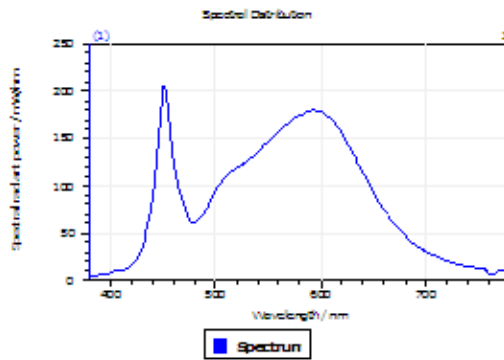
Test Result

CCT (K)	CRI	R9	Duv
4094	84	13	0.000011

Rf	Rg	IES Rcs,h1
85	95	-12%

4.1 Integrating Sphere Test

Results



Spectral values

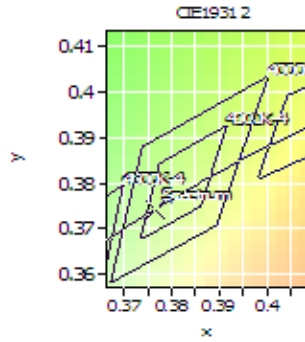
DominantWavelength	578.70 nm
Purity	0.253
PeakWavelength	451.37 nm
Radiant Power	33.16 W
Width50%	22.16 nm

Color Coordinates

Correlated Color Temperat 4094 K

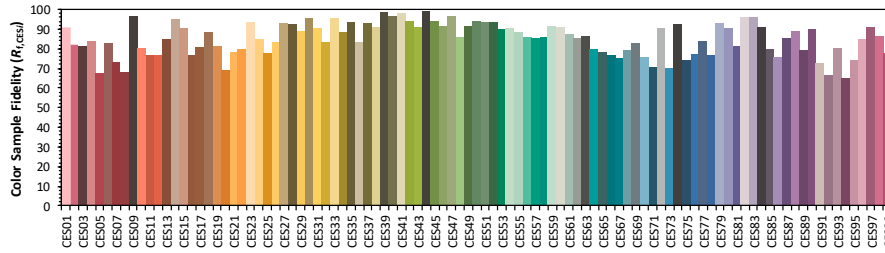
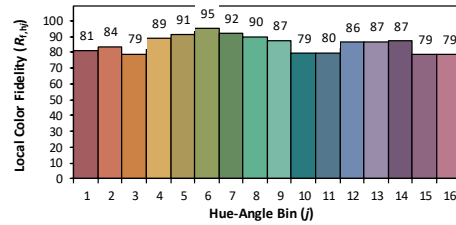
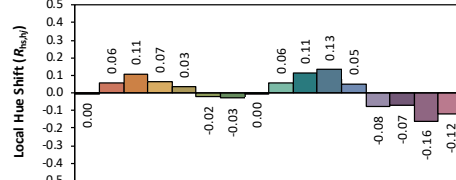
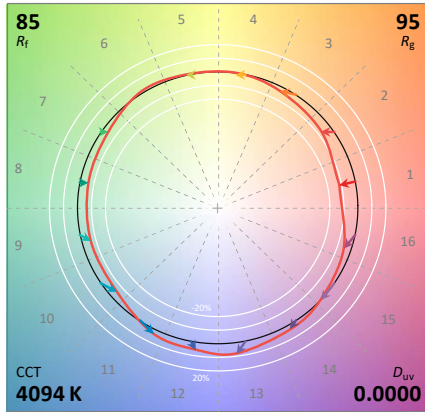
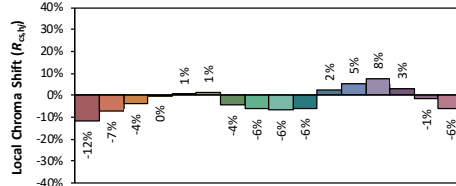
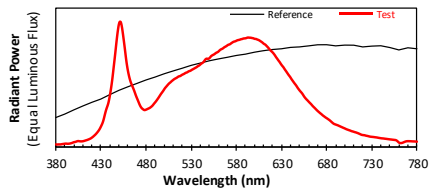
x: 0.3764 u: 0.2235 u': 0.2235
y: 0.3742 v: 0.3332 v': 0.4999

ResultsCRICRI01	82.1	ResultsCRICRI09	12.6
ResultsCRICRI02	90.2	ResultsCRICRI10	76.8
ResultsCRICRI03	95.7	ResultsCRICRI11	81.4
ResultsCRICRI04	82.6	ResultsCRICRI12	65.3
ResultsCRICRI05	82.6	ResultsCRICRI13	84.1
ResultsCRICRI06	86.3	ResultsCRICRI14	97.9
ResultsCRICRI07	86.3	ResultsCRICRI15	76.3
ResultsCRICRI08	66.0	ResultsCRICRI16	74.1
ResultsCRI	84.0		



PlanckDistance 1.1E-005

4.1 Integrating Sphere Test



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

x	0.3764	CIE 13.3-1995 (CRI)	
y	0.3742		
u'	0.2235		
v'	0.4999		
		R_a	84
		R_g	12

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.	ALEDLATN	Sample ID.	D1
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	119.91	60	2.242	268.5	0.999
NON-WROST CASE	277.02	60	0.976	260.4	0.963

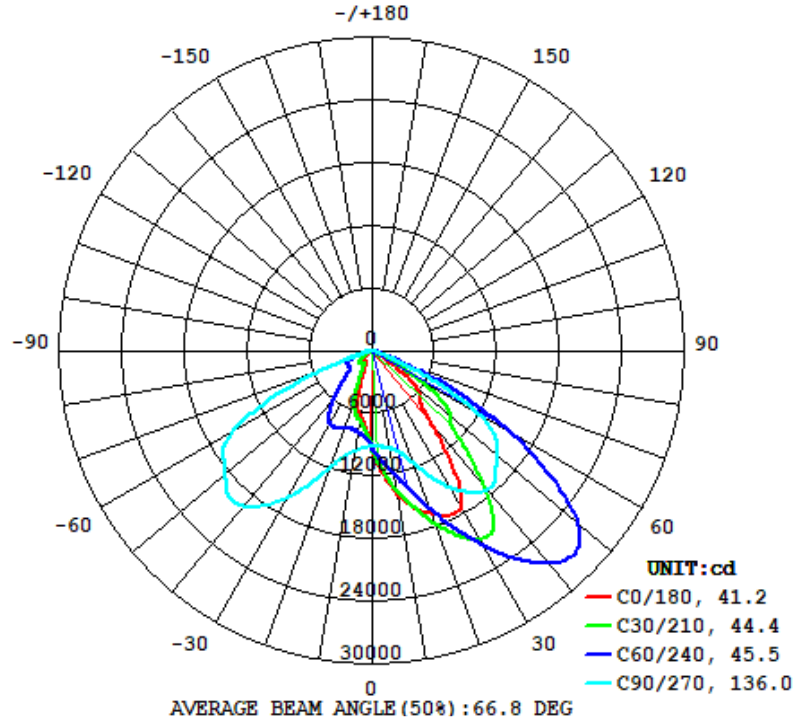
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
37145	83.1	149.1	41.2	136.0	138.3

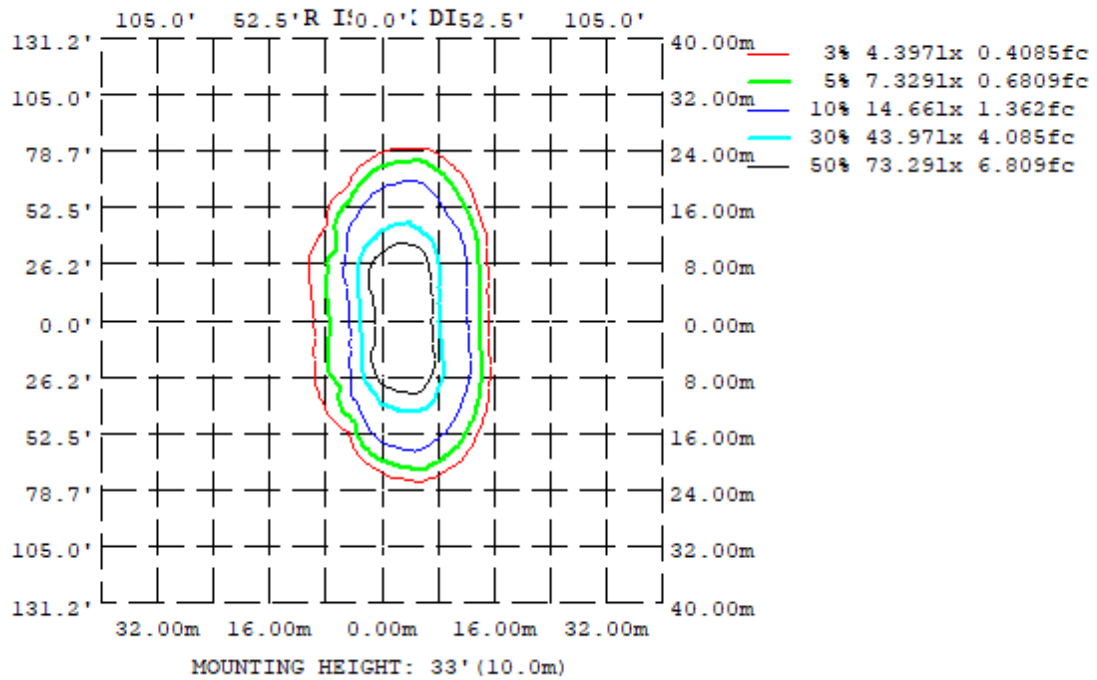
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)	BUG rating
100.00%	0.16%	B4-U0-G2

4.2 Goniophotometer Test

Light Distribution Curve



Isolux Plot



4.2 Goniophotometer Test

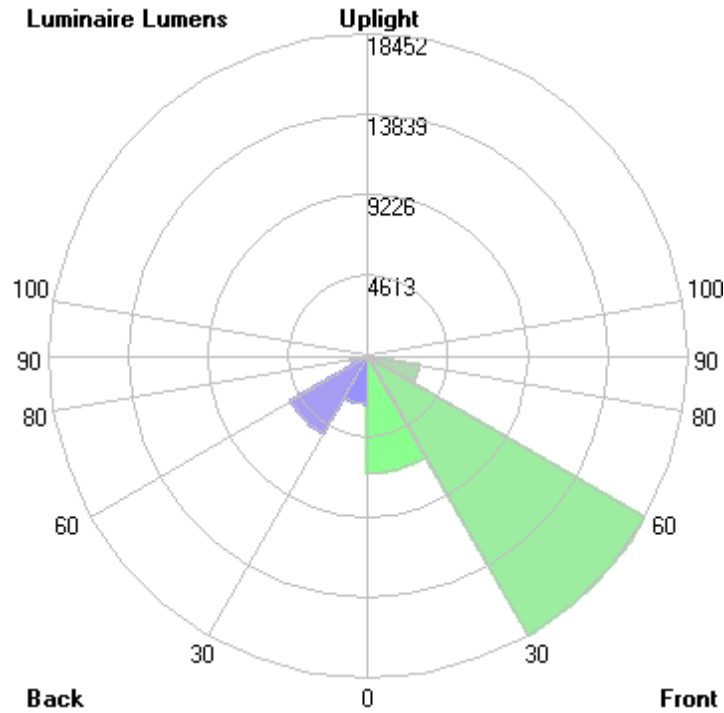
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1385	1278	949.1	713.9	650.9	731.3	974.1	1273
20	1655	1708	1131	592.1	346.6	653.9	1179	1697
30	1724	2236	1516	276.4	124.4	389.6	1613	2149
40	868.9	2531	1734	191.6	138.3	197.8	1944	2315
50	587.5	1685	1572	216.0	72.11	244.5	1837	1414
60	118.8	882.2	1138	122.6	9.393	182.3	1558	865.6
70	13.51	138.8	199.2	7.943	3.894	18.08	423.9	136.1
80	3.610	9.059	34.80	3.473	1.984	4.468	62.37	10.08
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	915.27	0 - 10	915.27	2.46%
10-20	3023.87	0 - 20	3939.14	10.60%
20-30	5540.65	0 - 30	9479.79	25.52%
30-40	7966.60	0 - 40	17446.39	46.97%
40-50	8505.02	0 - 50	25951.41	69.86%
50-60	7145.86	0 - 60	33097.27	89.10%
60-70	3438.79	0 - 70	36536.06	98.36%
70-80	550.65	0 - 80	37086.71	99.84%
80-90	58.66	0 - 90	37145.37	100.00%
90-100	0.00	0 - 100	37145.37	100.00%
100-110	0.00	0 - 110	37145.37	100.00%
110-120	0.00	0 - 120	37145.37	100.00%
120-130	0.00	0 - 130	37145.37	100.00%
130-140	0.00	0 - 140	37145.37	100.00%
140-150	0.00	0 - 150	37145.37	100.00%
150-160	0.00	0 - 160	37145.37	100.00%
160-170	0.00	0 - 170	37145.37	100.00%
170-180	0.00	0 - 180	37145.37	100.00%

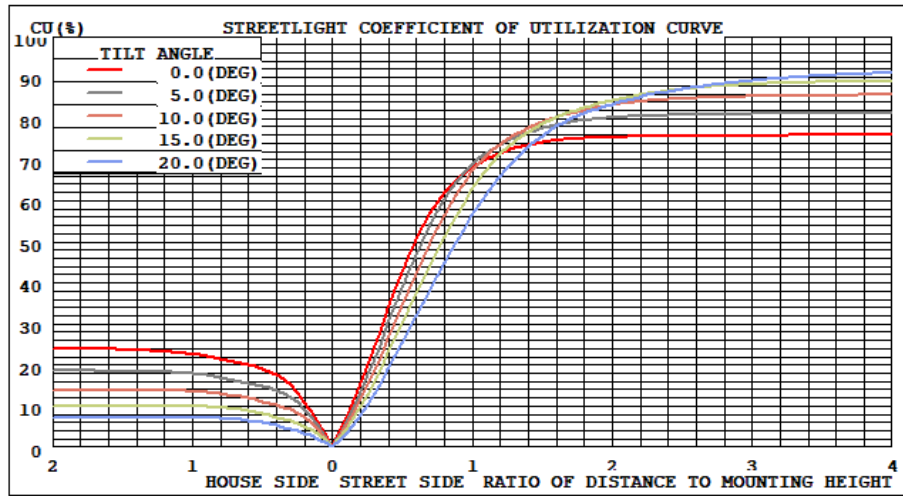
4.2 Goniophotometer Test

LCS/BUG

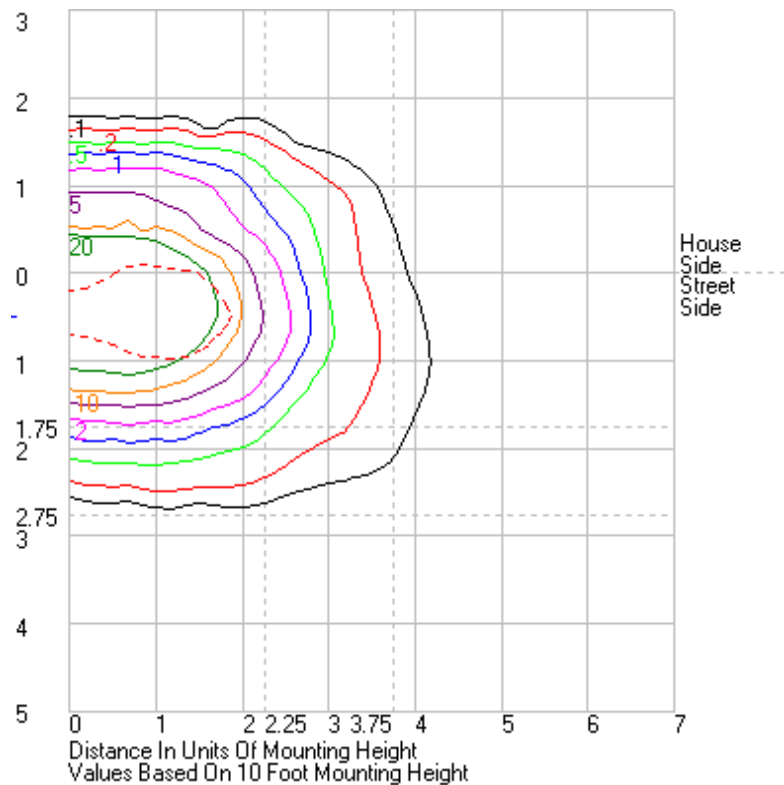


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	6715.7	N.A.	18.1
FM - Front-Medium (30-60)	18452.1	N.A.	49.7
FH - Front-High (60-80)	3006.2	N.A.	8.1
FVH - Front-Very High (80-90)	37.0	N.A.	0.1
BL - Back-Low (0-30)	2764.1	N.A.	7.4
BM - Back-Medium (30-60)	5165.3	N.A.	13.9
BH - Back-High (60-80)	983.2	N.A.	2.6
BVH - Back-Very High (80-90)	21.7	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
Total	37145.3	N.A.	100.0
BUG Rating	B4-U0-G2		

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	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4	9195.4
1	9733.44	9710.6	9656.71	9586.23	9478.69	9306.05	9171.75	9048.33	8928.01	8828.44	8748.4	8705.03	8634.68	8584.17	8552.59	8529.87	8516.97	8513.66	8510.22	8506.72	8503.17	8500.00	8497.12	8494.53	8492.24
2	10197.8	10157.9	10065.6	9912.07	9717.51	9433.31	9182.85	8945.41	8732.17	8560.82	8432.21	8356.75	8461.02	8488.99	8554.29	8674.27	8833.39	8983.17	9205.53	9433.65	9636.85	9814.22	9936	10013.6	10197.8
3	10636.9	10584.8	10459.4	10253.2	9963.18	9571.79	9203.08	8853.83	8561.36	8326.33	8154.75	8045.14	8136.9	8166.96	8273.79	8433.16	8659.3	8899.07	9237.59	9583.46	9896.92	10149.6	10327.9	10439.7	10636.9
4	11080.3	11027.3	10856.1	10585.7	10223.1	9716.09	9224.96	8775.4	8410.53	8117.98	7902.29	7766.78	7838.51	7885.86	8014.05	8225.72	8516.97	8831.6	9284.55	9745.83	10161.3	10482.6	10729.5	10872.8	11080.3
5	11537.4	11461.4	11252.6	10910.3	10468.3	9867.25	9258.35	8713.71	8275.86	7929.34	7670.75	7506.72	7558.07	7623.08	7781.59	8044.4	8386.35	8773.07	9334.91	9917.27	10421.1	10833.6	11127.6	11301.2	11537.4
6	11985.6	11906.1	11673.3	11271.7	10725.6	10022.8	9293.96	8659.86	8154.71	7754.2	7440.67	7238.18	7283.46	7352.82	7564.57	7869.14	8273.1	8735.53	9401.76	10099.3	10693.7	11181.9	11538.8	11748.7	11985.6
7	12452.5	12364.5	12095	11630.8	11002	10186.4	9337.54	8619.18	8050.3	7591	7221.68	6991.65	7025.13	7110.11	7348.3	7717.82	8178.21	8708.2	9469.63	10280.9	10984.8	11553.9	11958.4	12200.5	12452.5
8	12945.2	12830.9	12521.4	11997.3	11265.7	10349.3	9382.87	8581.07	7958.85	7424.63	7016.92	6781.59	6801.34	6894.92	7151.88	7578.27	8098.36	8686.21	9546.64	10467.7	11280.1	11928.4	12389.8	12659	12945.2
9	13398.1	13307.5	12988.4	12393.5	11556.8	10513.3	9431.25	8551.97	7868.04	7268.37	6846.55	6625.69	6638.88	6718.38	6985.44	7439.84	8032.7	8688.46	9644.31	10673.5	11592.8	12316.7	12849.3	13167.1	13398.1
10	13851.5	13759.9	13444	12779.4	11857.8	10686.4	9491.31	8536.03	7783.64	7139.18	6721.98	6508.07	6509.31	6600.31	6840.88	7313.31	7974.26	8690.81	9741.02	10888.3	11920.6	12734	13331.9	13636.7	13851.5
11	14262.2	14212.4	13899.5	13212.8	12169.2	10876.2	9558.04	8522.37	7693.26	7020.26	6616.18	6390.44	6361.36	6476.19	6745.96	7205.62	7921.61	8702.25	9846.54	11124.8	12260.5	13173.3	13792.3	14051.7	14262.2
12	14543.9	14564.5	14341.4	13631.2	12504.1	11079.7	9639.9	8531.02	7623.88	6940.15	6506.39	6231.72	6198.35	6331.61	6663.57	7113.02	7873.88	8726.97	9965.81	11369.5	12611.3	13634.2	14200.5	14369.5	14543.9
13	14853.3	14867.1	14744.5	14049.6	12853	11309.7	9735.51	8546.53	7564.31	6876.01	6396.59	6049.68	6004.93	6176.87	6557.22	7048.72	7832.36	8752.57	10084.6	11628.3	12994.5	14080.6	14545.5	14649.4	14853.3
14	15189.3	15224.9	15084.1	14486.5	13229.5	11563.8	9855.8	8579.96	7520.94	6791.84	6239.81	5821.01	5756.7	5977.86	6429.55	7009.05	7799.92	8798.8	10242.8	11917	13401.8	14508.3	14844.8	14989.5	15189.3
15	15538.7	15586.3	15441.2	14909.6	13625.7	11860.2	10011.9	8639.43	7499.72	6693.46	6050.62	5545.62	5471.66	5738.15	6297.59	6963.9	7780.62	8864.86	10410.1	12225.5	13826.5	14887.1	15200.3	15330.3	15538.7
16	15849.9	15976.9	15856.8	15320.4	14022.4	12192.2	10179.2	8706.14	7501.83	6574.11	5805.89	5215.33	5134.39	5454.49	6120.78	6903.04	7782.06	8949.28	10609.6	12573.8	14287.3	15245.8	15586.2	15669.3	15849.9
17	16094.9	16327.6	16279.9	15703.3	14470.4	12559.6	10408.5	8801.12	7521.65	6471.29	5529.3	4855.87	4764.62	5135.6	5910.09	6833.7	7801.65	9060.13	10853.7	12938.8	14745.9	15616.9	15985.6	15962.1	16094.9
18	16269.3	16643.9	16726.8	16118	14955.9	12949.2	10662.2	8925.16	7542.01	6340.08	5206.2	4449.33	4352.03	4769.73	5665.94	6752.1	7840.74	9188.78	11130	13339.1	15203.1	16049.2	16372.6	16204	16269.3
19	16418.4	16904.8	17175.2	16587.2	15456.4	13388.9	10954.8	9051.62	7546.71	6144.22	4852.2	4019.61	3904.93	4374.42	5386.19	6658.42	7896.59	9356.3	11445.4	13772.5	15664.7	16501.3	16731.2	16401.8	16418.4
20	16548.6	17132.9	17589.1	17077.7	15956.2	13843.3	11312.5	9224.68	7544.56	5920.6	4460.38	3587.34	3466.43	3943.27	5075.3	6538.97	7960.25	9555.29	11786.9	14235	16128.3	16971.3	17048	16567.5	16548.6
21	16730.1	17367.1	17988.2	17600.2	16478	14322.5	11656.4	9408.91	7526.87	5669.49	4050.38	3162.89	3048.27	3522.64	4726.82	6387.07	8022.76	9781.62	12166.1	14715.5	16588.6	17438.8	17332.7	16754.6	16730.1
22	16980.9	17642	18354.6	18105.3	16992.3	14825.5	12058.4	9598.07	7508.69	5392.04	3652.78	2781.4	2653.93	3119.77	4352.61	6215.25	8080.43	10034.2	12565.2	15231.9	17057.3	17908.2	17603.4	17007.4	16980.9
23	17171.9	17946.1	18725.2	18658.8	17517.3	15319	12465.4	9822.7	7472.86	5068.65	3256.14	2416.21	2299.38	2738.21	3961.78	6009.16	8126.34	10300.1	12988.5	15768.4	17575.6	18347.9	17918.2	17285.4	17171.9
24	17326.5	18181.1	19101.1	19214.4	18047.1	15845.1	12857.8	10029.1	7402.03	4723.91	2886.89	2098.64	1997.52	2394.05	3589.65	5768.53	8167.09	10591.6	13428.1	16317.1	18136.9	18774.5	18274.4	17496.7	17326.5
25	17415.4	18361.7	19495.6	19273.0	18582.4	16360	13280.2	10262.9	7313.24	4367.54	2560.42	1840.04	1749	2101.46	3223.59	5504.4	8202.49	10892.1	13879.2	16904	18710	19209	18606.6	17669.7	17415.4
26	17448.7	18487.2	19855.7	20268.7	19159.2	16883.7	13658	10497	7193.32	4007.86	2267.62	1632.87	1555.28	1844.91	2882.88	5203.38	8227.35	11201.1	14330.8	17494	19312.8	19624.7	18899.4	17778.7	17448.7
27	17442.1	18531.8	20164.1	20790.2	19733.9	17421.4	14059.1	10714.9	7035.11	3669.21	2103.53	1474.77	1413.49	1645.05	2572.57	4876.79	8243.82	11506.6	14785.5	18085.2	19893.6	20078.8	19154.1	17815.3	17442.1
28	17459.7	18543.1	20447.1	21308.6	20331.4	17958.2	14453.3	10960.3	6850.12	3341.09	1803.96	1367.55	1321.44	1492.52	2293.03	4543.22	8232.74	11802.9	15230.3	18678.5	20519.6	20565.3	19344.1	17843.5	17459.7
29	17421.7	18543.4	20650.6	21828.5	20911.1	18482.7	14803.8	11156.1	6622.96	3040.75	1640.58	1304.27	1270.91	1386.53	2048.47	4215.6	8195.89	12090.8	15683.8	19256.8	21133.6	21038.1	19484.6	17889.5	17421.7
30	17242.9	18482.1	20800.8	22357.2	21513	19011.9	15164.2	11340.9	6384.88	2763.95	1522.94	1271.33	1244.3	1327.06	1847.29	3896.46	8132.22	12359.1	16126.7	19815.5	21762.7	21489.8	19588.9	17866.4	17242.9
31	16899	18332.2	20890.1	22882.7	22123	19513.9	15482.6	11494.3	6147.26	2513.55	1451.4	1264	1250.15	1299.9	1686.62	3587.2	8019.26	12612.5	16559.7	20362.5	22355.4	21905.1	19702.4	17710.1	16899
32	16327.1	17999.6	20938	23369.3	22699.2	20009.3	15800.9	11593.3	5844.68	2288.62	1415.54	1291.22	1279.75	1300.83	1569.05	3287.57	7868.75	12861.5	16973	20899.5	22928.9	22293.8	19729.6	17337.5	16327.1
33	15637.4	17431.9	20923.4	23818.9	23288.4	20493.4	16095.1	11671.1	5530.52	2110.28	1405.12	1328.12	1310.02	1330.25	1503.02	3010.17	7692.36	13091.3	17359.2	21425.3	23507	22643.4	19636.1	16777.9	15637.4
34	14746.7	16718.3	20782.2	24200.4	23827.4	20947.9	16362.7	11691	5210.16	1969.96	1423.6	1362.6	1337.78	1370.21	1478.42	2762.98	7475.2	13304.6	17730.5	21929.6	24051.7	22946.4	19392.1	16086	14746.7
35	13673.6	15830.8	20513.3	24568.8	24347.1	21374.2	16619	11675.7	4899.83	1873.65	1472.77	1396.34	1363.36	1407.67	1478.27	2534.96	7221.4	13482.7	18085.1	22411	24607.9	23227.8	19868.7	15191.8	13673.6
36	12628.7	14732.8	20057.8	24855.1	24857.6	21755.5	16839.2	11619.7	4590.72	1828.16	1525.96	1425.99	1386.28	1441.41	1503.62	2344.44	6943.08	13637.3	18419.4	22889.2	25157.7	23457.4	18391	14138	12628.7
37	11598.7	13641.7	19367.9	25090	25320.3	22087.9	17035.7	11524.3	4280.75	1816.57	1578.32	1454.21	1406.56	1472.87	1553.87	2190.59	6638.48	13761.6	18738.6	23351.6	25681.2	23571.6	17631.8	13084.3	11598.7
38	10630.6	12616.5	18515.9	25272.2	25765.6	22367.2	17178	11394.2	3986.2	1829.57	1621.12	1480.57	1423.16	1503.07	1611.94	2074.44	6314.15	13850.7	19015.1	23782.3	26188.5	23581.9	16719.		



51	5573.27	6303.53	9712.7	15681.7	25166.7	21200.1	15511.3	6248.33	2613.72	2092.92	1235.75	765.59	662.91	872.59	1529.54	2463.72	2734.76	10919.1	18140.6	24600.8	24705.8	13421.3	8159.74	6010.17	5573.27	
52	5163.1	6059.32	9414.27	14527.8	24246	21064	15276.5	5832.4	2655.53	2011.7	1161.52	698.2	599.76	812.41	1465.1	2460.03	2692.92	10447.6	17941.7	24360.9	23446.7	12845.3	7937.05	5704.93	5163.1	
53	4615.74	5640.96	9042.54	13708.7	23195.6	20966.8	15082.9	5408.46	2683.75	1936.43	1093.77	620.61	530.8	749.04	1396.81	2423.73	2693.73	9971.14	17763.4	24162.5	22127.4	12500.3	7666.56	5292.6	4615.74	
54	3965.05	5042.91	8612.3	13064.5	22041.7	20823.8	14854.5	5005.23	2690.73	1861.17	1016.42	538.07	454.79	676.74	1330.43	2359.52	2715.91	9466.45	17591.4	23997	20758	12184.6	7340.92	4704.92	3965.05	
55	3324.12	4357.88	8122.1	12479.6	20954.7	20695	14572.5	4610.74	2688.43	1790.13	923.16	448.89	374.94	593.82	1262.23	2276.96	2743.64	8947.18	17421	23826	19437.9	11807.2	6925.72	4047.57	3324.12	
56	2756.99	3636.04	7513.27	11864.9	19831.9	20412.6	14200.1	4216.95	2679.95	1710.48	813.35	353.05	293.38	501.67	1179.82	2191.46	2768.5	8409.62	17222.2	23644.9	18073.8	11333.4	6332.28	3401.38	2756.99	
57	2255.83	2996.47	6696	11176.9	18730.4	19976.3	13665.5	3862.16	2650.68	1626.2	689.19	264.16	219.83	403.71	1077.01	2108.39	2781.1	7863.51	16975.2	23440.6	16659.9	10756.2	5555.42	2821.9	2255.83	
58	1785.05	2453.53	5761.77	10430.8	17575.3	19418.4	13077.4	3529.61	2596.39	1521.82	552.62	193.08	169.82	305.36	956.73	2021.7	2781.84	7299.16	16630.3	23151.4	15281.9	10120.1	4709.1	2319.17	1785.05	
59	1420.56	1933.87	4826.44	9626.94	16246.2	18586.4	12255.5	3222.01	2509.97	1382.83	415.93	141.02	120.38	223.79	815.17	1929.42	2767.43	6707.87	16174.2	22747.6	14231.8	9431.28	3882.8	1833.31	1420.56	
60	1187.58	1544.39	3902.57	8822.37	14846.7	17744.1	11379.8	2973.54	2406.58	1226.17	293.52	107.02	93.93	171.41	658.6	1822.77	2745.44	6113.86	15578.8	22118.3	13181.8	8656.24	3139.93	1571.49	1187.58	
61	1038.96	1299.54	3074.09	7873.17	13345.7	16648.4	10389.1	2751.82	2298.88	1042.1	201.84	86.02	78.21	119.67	500.38	1697.5	2736.9	5498.9	14818.6	21294.4	12298.5	7669.09	2475.24	1309.67	1038.96	
62	947.31	1147.52	2371.22	6816.21	11946.4	15389.7	9231.42	2570.59	2176.42	834.32	141.9	74.54	68.7	94.27	362.45	1534.12	2734.09	4912.22	13849.3	20106.1	11622	6531.38	1921.42	1109.08	947.31	
63	846.52	1054.45	1814.13	5678.74	10742	14100	8153.21	2412.13	2053.02	620.95	107.43	67.3	62.07	80.45	249.67	1354.84	2725.48	4343.87	12879.9	18625.9	10866.9	5293.89	1586.8	1015.42	846.52	
64	744.05	956.52	1481.73	4539.76	9564.13	12364.6	6955.61	2259.01	1905.13	456.01	89.79	62.43	56.83	71.9	192.6	1175.3	2692.64	3795.1	11788.1	16936.3	10016.9	4191.43	1351.44	916.98	744.05	
65	614.14	843.38	1325.19	3480.13	8419.5	10774.8	5892.76	2122.6	1731.82	291.35	79.69	57.59	52.55	65.61	135.52	962.22	2615.94	3290.96	10495.7	15070.2	9055.94	3245.06	1200.19	805.72	614.14	
66	478.82	699.5	1253.62	2650.56	7145.3	8976.76	4941.77	1982.75	1522.12	184.08	72.22	53.38	49.11	60.58	97.51	731.41	2496.45	2832.21	9109.39	13152.4	8016.46	2453.12	1126.6	668.11	478.82	
67	343.51	557.99	1160.91	2027.65	5849.97	7247.42	4012.11	1839.15	1308.56	130	67.07	50.22	46.45	56.34	85.09	523.7	2338.51	2441.47	7745.15	11233.7	6901.24	1909.74	1033.87	524.15	343.51	
68	238.25	405.43	1003.71	1674.87	4595.27	5933.46	3292.49	1697.53	1080.96	105.03	62.97	47.29	43.76	52.9	76.64	355.96	2163.64	2113.19	6404.45	9327.25	5699.87	1613.32	894.64	376.14	238.25	
69	174.11	274.3	797.97	1479.75	3389.4	4716.23	2559.11	1534.83	823.21	89.29	58.89	44.53	41.27	49.71	70.41	250.01	1961.67	1827.77	5241.95	7478.61	4466.86	1475.43	725.72	267.98	174.11	
70	135.05	196.15	597.38	1388.42	2462.61	3498.99	1992.42	1397.54	603.39	79.43	55.01	41.91	38.94	46.61	65.58	180.84	1730.89	1595.68	4239.33	5787.92	3258.72	1360.94	535.85	204.75	135.05	
71	112.1	147.39	425.7	1267.5	1729.91	2622.69	1539.07	1240.41	410.91	72.72	51.42	39.51	36.74	43.71	61.3	111.71	1474.38	1415.74	3377.15	4355.84	2377.27	1246.45	365.74	163.06	112.1	
72	97.85	122.27	254.02	1069.32	1340.14	1981.05	1165.62	1086.78	218.42	67.04	48.3	37.24	34.74	41.17	57.3	93.63	1217.86	1236.01	2605.32	3206.22	1761.57	1080.79	243.54	121.4	97.85	
73	85.4	106.54	175.63	790.83	1144.51	1597.47	936.43	922.74	145.41	62.27	45.28	35.05	32.87	38.78	53.33	81.26	956.68	1093.19	1942.63	2329.13	1519.24	804.77	197.38	106.21	85.4	
74	75.11	93.39	142.16	561.84	1091.86	1318.6	785.27	731.57	114.16	57.5	42.64	33.09	31.08	36.64	49.69	73.48	697.28	955.7	1521.6	1764.21	1414.5	540.4	151.21	92.95	75.11	
75	65.89	82.73	122.66	380.39	1087.14	1150.04	695.63	560.61	93.84	53.17	40.15	31.05	29.27	34.61	46.55	67.37	462.85	826.28	1106.25	1496.68	1311.47	327.04	120.47	82.28	65.89	
76	59.31	73.46	107.6	198.93	1025.33	1004.52	628.22	403.24	78.78	49.54	37.6	28.85	27.4	32.5	43.78	61.54	316.07	712.39	922.76	1229.15	1232.59	212.68	106.38	73.02	59.31	
77	52.75	65.12	94.85	151.71	852.74	871.45	562.96	265.85	68.06	46.61	34.71	26.61	25.44	30.21	41.31	56.27	215.05	602.3	821.38	1008.12	1005.3	172.35	94.61	64.84	52.75	
78	46.69	58.02	83.07	125.86	605.24	744.89	499.74	187.83	61.32	43.42	31.54	24.39	23.49	27.78	38.76	51.59	114.22	503.75	755.6	864.51	690.15	132.66	84.08	57.63	46.69	
79	41.31	50.93	72.2	106.71	410.44	612.07	423.34	133.52	54.62	39.28	28.48	22.37	21.65	25.39	35.82	47.92	90.59	403.65	692.95	781.88	413.7	116.09	74.8	51.05	41.31	
80	36.1	43.87	61.98	90.59	216.12	484.75	348.01	100.68	48.8	34.73	25.69	20.55	19.84	23.27	32.6	44.68	74.7	311.66	623.74	696.72	267.57	100.84	65.72	44.68	36.1	
81	31.06	37.36	52.36	75.21	135.85	357.44	273.2	78.81	43.93	30.44	23.26	18.91	18.21	21.27	29.57	41.11	63.84	237.61	549.93	555.71	193.71	87.43	56.79	38.79	31.06	
82	26.27	30.97	42.74	61.61	100.11	244.39	199.54	62.55	37	26.88	21.02	17.23	16.48	19.46	26.91	36.93	54.8	184.47	467.25	417.63	121.42	74.27	48.52	33.06	26.27	
83	21.34	24.7	33.87	48.9	75.59	162.05	142.44	50.22	30.38	23.66	18.79	15.46	14.92	17.43	24.48	32.62	47.66	139.09	376.56	269.56	99.38	61.85	40.31	27.46	21.34	
84	17.01	19.32	25.51	36.18	57.05	101.72	94.22	37.92	24.61	20.67	16.58	13.62	13.24	16.06	22.24	28.75	41.11	100.24	283.55	186.35	80.55	50.5	32.44	21.92	17.01	
85	13.16	14.24	18.05	25.16	40.09	63.83	59.32	27.92	19.58	17.19	13.64	11.35	11.56	13.73	19.98	25.42	34.53	74.26	205.8	104.5	63.2	39.58	25.02	17.3	13.16	
86	9.24	9.42	11.6	15.6	23.14	42.62	38.36	19.36	14.72	12.67	10.27	8.95	9.44	11.4	16.66	22.06	27.89	54.13	135.98	75.74	47.83	29.45	18.73	12.7	9.24	
87	5.6	5.55	5.95	7.97	11.64	21.8	17.54	12.07	9.86	8.44	7.17	6.72	7.38	9	12.89	17.71	22.11	39.14	78.31	52.4	33.39	20.72	12.72	8.11	5.6	
88	2.09	2.09	3.21	5.03	5.7	6.19	7.24	6.4	6.37	5.43	4.94	4.76	5.55	6.75	9.13	12.91	16.53	27.92	43.66	32.86	22.3	12.78	6.72	3.85	2.09	
89	0.18	0.26	0.48	2.16	2.62	3.81	4.38	3.94	3.79	2.68	2.7	2.81	3.65	4.74	6.16	8.16	10.95	18.59	27.86	20.61	11.21	4.93	1.76	0.24	0.18	
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	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.	ALEDLATN	Sample ID.	D1
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
120.04	60	2.234	268.0	0.999	1.72%
277.01	60	0.964	257.9	0.966	4.15%

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*****