

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

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Test Date

2022/7/29

Issue Date

2022/7/30

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		10637
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	130.7
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		81.4
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	1.98%
		20.00%	277V	6.99%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.999
		0.9	277V	0.964
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	3845
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40		1
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-13%
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%		0.24%
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		0.680
(Goniophotometer - Section 4.2)		Non-Worst Case		0.299
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		81.4
(Goniophotometer - Section 4.2)		Non-Worst Case		79.9

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2022/7/29	ALEDS2TN	A1
2	Goniophotometer Test	2022/7/29	ALEDS2TN	A1
3	THD and PF Test	2022/7/29	ALEDS2TN	A1

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.

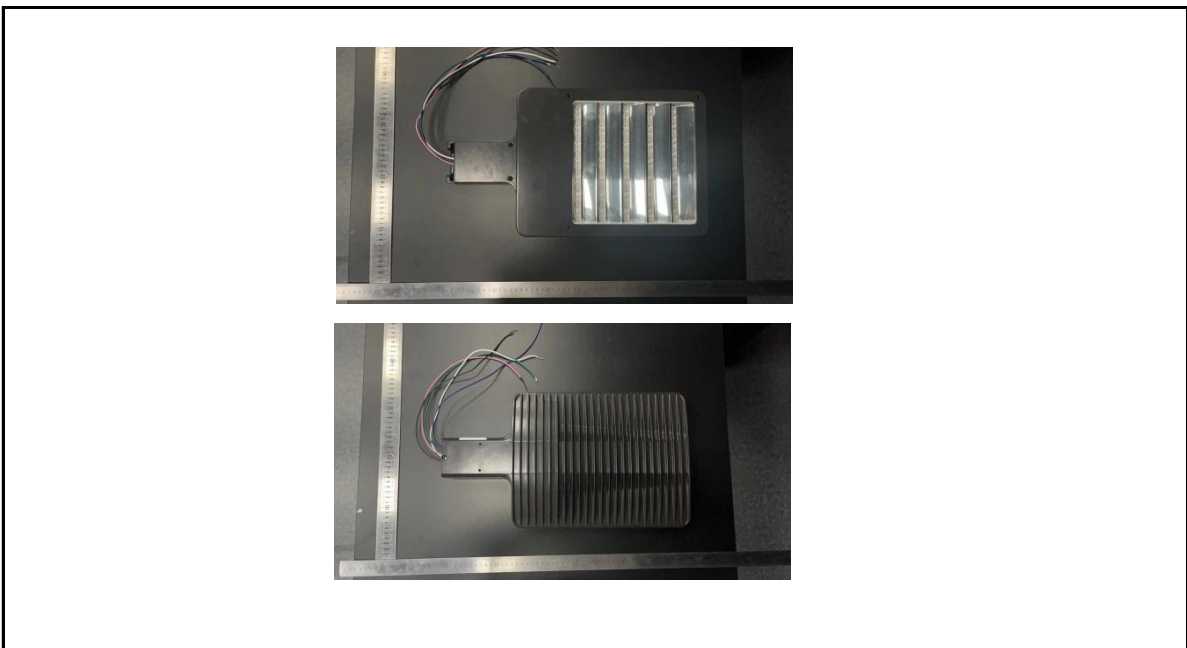
3.0 Production Description

Luminaire Description: ALEDS2TN

Description: 80W @ 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.	ALEDS2TN	Sample ID.	A1
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
120.01	60	0.678	81.3	0.999
277.00	60	0.296	79.1	0.964

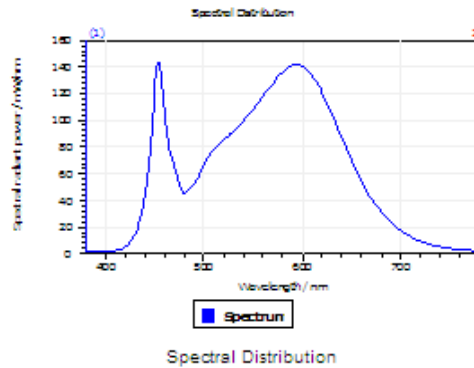
Test Result

CCT (K)	CRI	R9	Duv
3845	82	1	0.0012

Rf	Rg	IES Rcs,h1
83	93	-13%

4.1 Integrating Sphere Test

Results

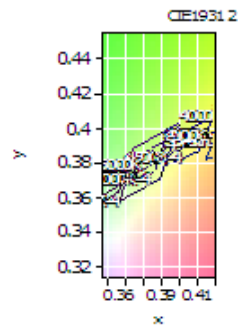


Spectral values

DominantWavelength 579.07 nm
Purity 0.319
PeakWavelength 453.76 nm
Radiant Power 23.84 W
Width50%:

Color Coordinates

Correlated Color Temperat 3845 K
x: 0.3885 u: 0.2274 u': 0.2274
y: 0.3841 v: 0.3373 v': 0.5060
CRI01 80.0 CRI09 0.8
CRI02 91.0 CRI10 78.7
CRI03 95.0 CRI11 76.6
CRI04 78.0 CRI12 63.4
CRI05 79.8 CRI13 83.0
CRI06 87.2 CRI14 97.7
CRI07 83.3 CRI15 72.6
CRI08 59.6 CRI16 69.3
ResultsCRI 81.7



PlanckDistance 1.2E-003

4.1 Integrating Sphere Test

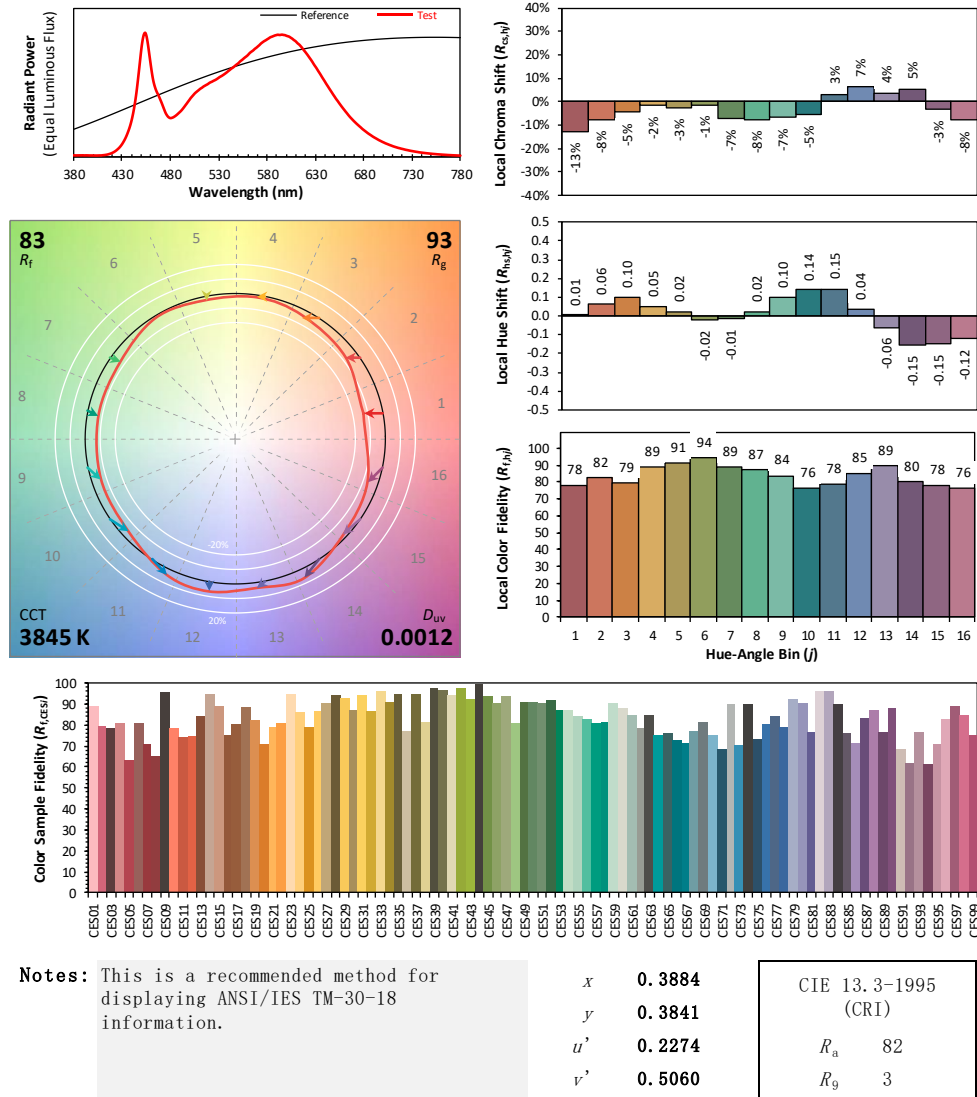
IES TM-30-18 Color Rendition Report

Source: DLF2207109-1a

Manufacturer: RAB Lighting Inc.

Date: 2022/7/29

Model: ALEDS2TN



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.	ALEDS2TN	Sample ID.	A1
Opreate 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 paramters 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 ± 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	120.01	60	0.680	81.4	0.998
NON-WROST CASE	277.03	60	0.299	79.9	0.964

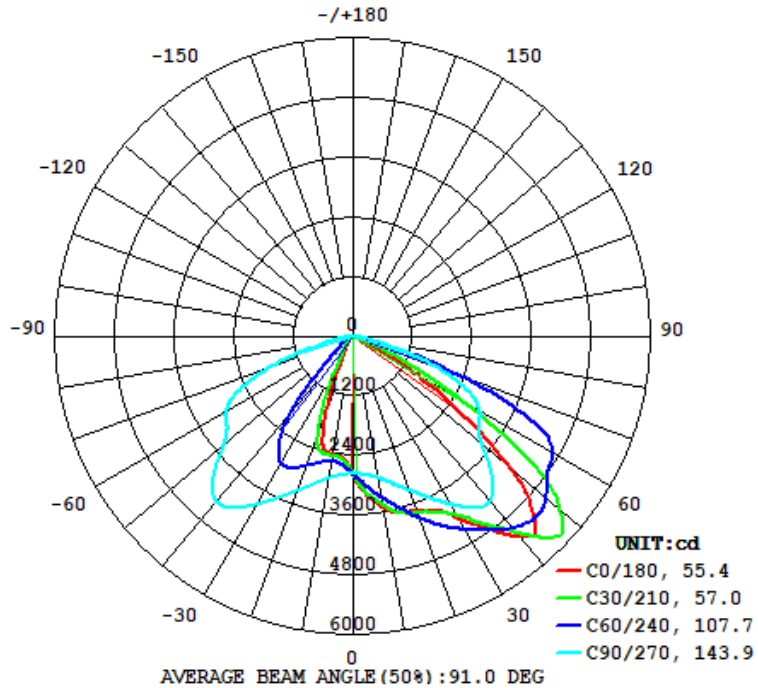
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
10637	90.4	158.4	55.4	143.9	130.7

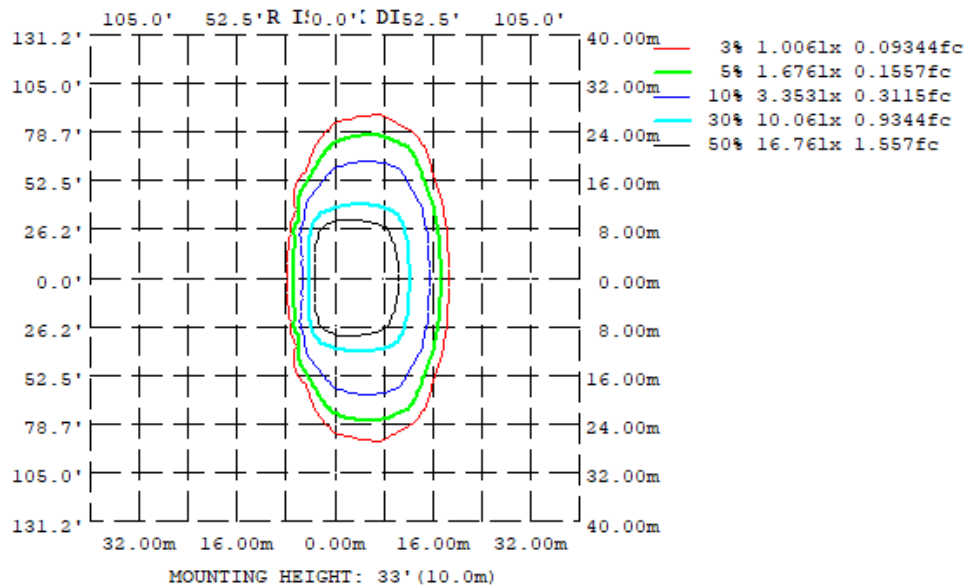
Zonal Lumen Requirement (0° - 90°)	Zonal Lumen Requirement (80° - 90°)	BUG rating
100.00%	0.24%	B2-U0-G1

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

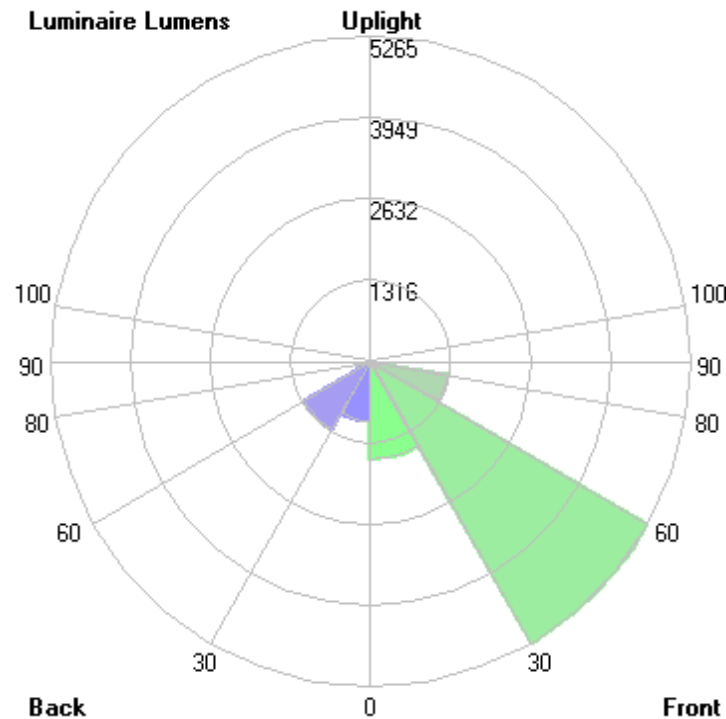
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	3485	3371	2888	2481	2426	2481	2888	3371
20	3725	3875	3291	2531	1604	2531	3291	3875
30	4222	4265	3898	1596	356.7	1596	3898	4265
40	5273	5108	4306	399.2	169.8	399.2	4306	5108
50	4189	6244	3413	216.5	70.33	216.5	3413	6244
60	1314	4196	2962	86.37	35.32	86.37	2962	4196
70	133.2	647.7	1753	42.55	12.27	42.55	1753	647.7
80	21.24	62.99	221.6	8.486	4.253	8.486	221.6	62.99
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:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	272.05	0 - 10	272.05	2.56%
10-20	864.36	0 - 20	1136.41	10.68%
20-30	1410.17	0 - 30	2546.58	23.94%
30-40	1988.09	0 - 40	4534.67	42.63%
40-50	2435.26	0 - 50	6969.93	65.52%
50-60	2114.36	0 - 60	9084.29	85.40%
60-70	1193.53	0 - 70	10277.82	96.62%
70-80	334.49	0 - 80	10612.31	99.76%
80-90	25.05	0 - 90	10637.36	100.00%
90-100	0.00	0 - 100	10637.36	100.00%
100-110	0.00	0 - 110	10637.36	100.00%
110-120	0.00	0 - 120	10637.36	100.00%
120-130	0.00	0 - 130	10637.36	100.00%
130-140	0.00	0 - 140	10637.36	100.00%
140-150	0.00	0 - 150	10637.36	100.00%
150-160	0.00	0 - 160	10637.36	100.00%
160-170	0.00	0 - 170	10637.36	100.00%
170-180	0.00	0 - 180	10637.36	100.00%

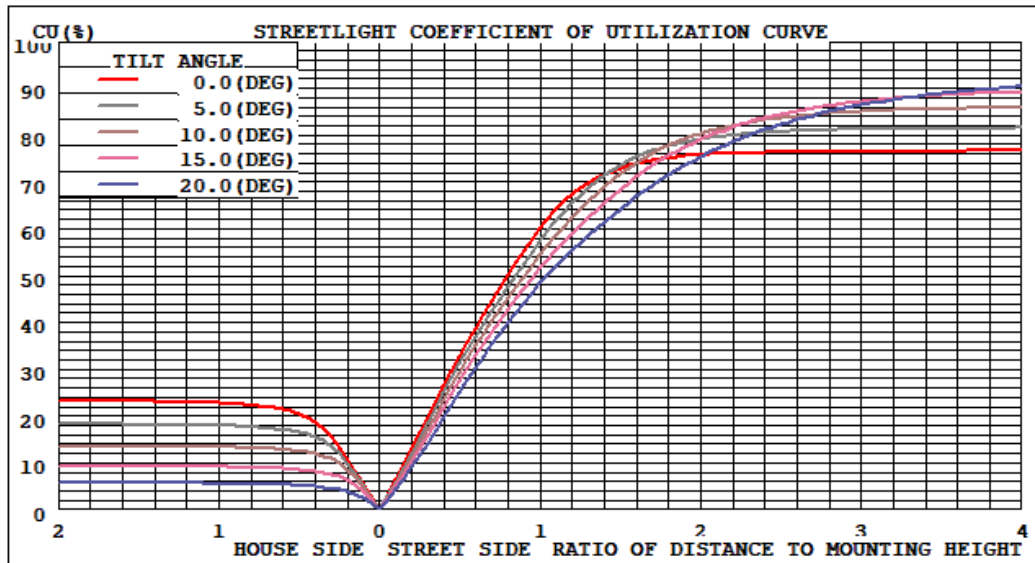
4.2 Goniophotometer Test

LCS/BUG

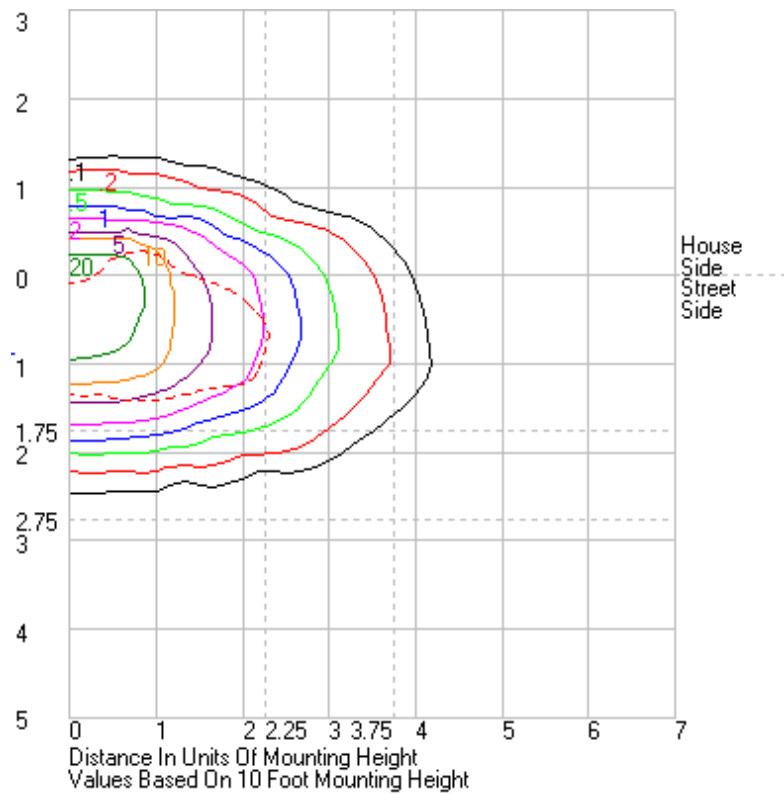


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	1577.2	N.A.	14.8
FM - Front-Medium (30-60)	5264.7	N.A.	49.5
FH - Front-High (60-80)	1295.5	N.A.	12.2
FVH - Front-Very High (80-90)	20.0	N.A.	0.2
BL - Back-Low (0-30)	969.4	N.A.	9.1
BM - Back-Medium (30-60)	1273.0	N.A.	12.0
BH - Back-High (60-80)	232.5	N.A.	2.2
BVH - Back-Very High (80-90)	5.0	N.A.	0.0
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	10637.3	N.A.	100.0
BUG Rating	B2-U0-G1		

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	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01	2763.01
1	2841.26	2840.52	2834.29	2821.94	2805.67	2786.65	2768.48	2748	2729.66	2712.3	2698.8	2690.61	2689.27	2690.61	2698.8	2712.3	2729.66	2748	2768.48	2786.65	2805.67	2821.94	2834.29	2840.52	2841.26
2	2931.33	2926.53	2908.97	2882.62	2848.87	2812.03	2772.16	2732.78	2694.59	2662.16	2638.99	2624.86	2621.1	2624.86	2638.99	2662.16	2694.59	2732.78	2772.16	2812.03	2848.87	2882.62	2908.97	2926.53	2931.33
3	3024.56	3018.19	2991.86	2951.29	2895.88	2837.05	2777.76	2716.61	2663.26	2619.67	2586.72	2567.77	2562.16	2567.77	2586.72	2619.67	2663.26	2716.61	2777.76	2837.05	2895.88	2951.29	2991.86	3018.19	3024.56
4	3111.09	3100.99	3073.15	3024.04	2949.33	2867.09	2784.26	2704.75	2634.49	2581	2543.37	2519.69	2510.84	2519.69	2543.37	2581	2634.49	2704.75	2784.26	2867.09	2949.33	3024.04	3073.15	3100.99	3111.09
5	3182.01	3174.86	3144.81	3089.48	3004.23	2896.58	2795.21	2694.51	2611.46	2549.07	2503	2476.75	2471.21	2476.75	2503	2549.07	2611.46	2694.51	2795.21	2896.58	3004.23	3089.48	3144.81	3174.86	3182.01
6	3242.82	3234.94	3206.43	3151.98	3059.69	2930.84	2806.16	2688.66	2591.19	2518.37	2471.28	2448.95	2443.32	2448.95	2471.28	2518.37	2591.19	2688.66	2806.16	2930.84	3059.69	3151.98	3206.43	3234.94	3242.82
7	3308.71	3296.81	3265.93	3209.46	3115.3	2970.47	2822.03	2684.18	2575.47	2494.39	2453.08	2439.61	2437.01	2439.61	2453.08	2494.39	2575.47	2684.18	2822.03	2970.47	3115.3	3209.46	3265.93	3296.81	3308.71
8	3362.54	3352.15	3321.85	3261.12	3169.81	3012.32	2839.62	2683.18	2561.63	2481.29	2450.47	2437.83	2435.28	2437.83	2450.47	2481.29	2561.63	2683.18	2839.62	3012.32	3169.81	3261.12	3321.85	3352.15	3362.54
9	3422.84	3410.64	3375.62	3315.94	3221.38	3056.24	2862.09	2686.65	2551.72	2476.9	2450.48	2435.36	2430.97	2435.36	2450.48	2476.9	2551.72	2686.65	2862.09	3056.24	3221.38	3315.94	3375.62	3410.64	3422.84
10	3484.99	3470.23	3429.63	3370.92	3273.19	3106.21	2887.74	2694.94	2547.6	2481.4	2451.22	2431.06	2425.58	2431.06	2451.22	2481.4	2547.6	2694.94	2887.74	3106.21	3273.19	3370.92	3429.63	3470.23	3484.99
11	3542.77	3530.14	3488.27	3420.56	3327	3159.26	2919.01	2707.47	2550.94	2487.16	2449.44	2426.23	2419.96	2426.23	2449.44	2487.16	2550.94	2707.47	2919.01	3159.26	3327	3420.56	3488.27	3530.14	3542.77
12	3588.43	3578.32	3546.38	3476.44	3384.86	3213.06	2951.58	2723.03	2559.46	2494.58	2446.98	2422.28	2415.12	2422.28	2446.98	2494.58	2559.46	2723.03	2951.58	3213.06	3384.86	3476.44	3546.38	3578.32	3588.43
13	3631.67	3623.26	3594.37	3533.43	3440.91	3268.06	2985.4	2741.45	2578.32	2500.95	2445.59	2415.34	2405.78	2415.34	2445.59	2500.95	2578.32	2741.45	2985.4	3268.06	3440.91	3533.43	3594.37	3623.26	3631.67
14	3656.96	3654.43	3640.99	3593.84	3496.6	3324.86	3023.89	2763.82	2600.28	2509.7	2442.45	2399.67	2379.64	2399.67	2442.45	2509.7	2600.28	2763.82	3023.89	3324.86	3496.6	3593.84	3640.99	3654.43	3656.96
15	3678.6	3676.25	3678.46	3649.91	3553.94	3382.33	3060.65	2786.58	2623.77	2517.29	2436.97	2364.21	2327.82	2364.21	2436.97	2517.29	2623.77	2786.58	3060.65	3382.33	3553.94	3649.91	3678.46	3676.25	3678.6
16	3695.21	3694.59	3705.78	3703.91	3612.85	3441.71	3103.42	2810.27	2651.25	2525.91	2418.05	2302.1	2247.23	2302.1	2418.05	2525.91	2651.25	2810.27	3103.42	3441.71	3612.85	3703.91	3705.78	3694.59	3695.21
17	3700.59	3706.61	3727.72	3754.7	3675.12	3503.03	3149.54	2840.02	2677.07	2534.34	2378.26	2209.42	2126.31	2209.42	2378.26	2534.34	2677.07	2840.02	3149.54	3503.03	3675.12	3754.7	3727.72	3706.61	3700.59
18	3699.23	3706.53	3749.26	3797.88	3739.26	3562.39	3192.18	2871.05	2704.53	2543.12	2319.39	2072.05	1969.99	2072.05	2319.39	2543.12	2704.53	2871.05	3192.18	3562.39	3739.26	3797.88	3749.26	3706.53	3699.23
19	3711.21	3713.22	3764.25	3837.93	3809.18	3623.81	3241.69	2906.94	2733.66	2543.06	2231.73	1913.66	1793.9	1913.66	2231.73	2543.06	2733.66	2906.94	3241.69	3623.81	3809.18	3837.93	3764.25	3713.22	3711.21
20	3725.46	3724.05	3770.33	3875.36	3875.14	3689.32	3290.62	2944.49	2763.5	2530.8	2103.63	1738.48	1604.49	1738.48	2103.63	2530.8	2763.5	2944.49	3290.62	3689.32	3875.14	3875.36	3770.33	3724.05	3725.46
21	3754.8	3746.78	3785.91	3912.97	3940.51	3755.48	3340.65	2984.47	2795.43	2505.57	1966.76	1553.11	1428.81	1553.11	1966.76	2505.57	2795.43	2984.47	3340.65	3755.48	3940.51	3912.97	3785.91	3746.78	3754.8
22	3787.1	3780.45	3805.17	3944.06	4005.54	3821.13	3394.98	3025.85	2829.12	2464.13	1811.82	1381.56	1253.12	1381.56	1811.82	2464.13	2829.12	3025.85	3394.98	3821.13	4005.54	3944.06	3805.17	3780.45	3787.1
23	3811.26	3809.41	3832.5	3969.89	4066.85	3890.42	3451.22	3072.38	2863.09	2399.13	1647.26	1207.21	1078.32	1207.21	1647.26	2399.13	2863.09	3072.38	3451.22	3890.42	4066.85	3969.89	3832.5	3809.41	3811.26
24	3836.39	3837.38	3870.41	3996	4129.98	3959.59	3506.01	3120.61	2895.75	2310.63	1493.83	1041.56	911.05	1041.56	1493.83	2310.63	2895.75	3120.61	3506.01	3959.59	4129.98	3996	3870.41	3837.38	3836.39
25	3865.99	3866.03	3911.56	4025.15	4192.43	4034.21	3568.07	3176.23	2924.4	2213.06	1336.06	883.06	759.93	883.06	1336.06	2213.06	2924.4	3176.23	3568.07	4034.21	4192.43	4025.15	3911.56	3866.03	3865.99
26	3909.36	3905.18	3947.28	4063.02	4250.25	4102.89	3631.23	3230.99	2946.55	2103.27	1191.02	736.01	623.97	736.01	1191.02	2103.27	2946.55	3230.99	3631.23	4102.89	4250.25	4063.02	3947.28	3905.18	3909.36
27	3957.3	3950.18	3990.19	4102.02	4309.83	4181.09	3697.37	3289.84	2959.13	1982.6	1036.38	618.65	518.59	618.65	1036.38	1982.6	2959.13	3289.84	3697.37	4181.09	4309.83	4102.02	3990.19	3950.18	3957.3
28	4028.64	4006.17	4032.5	4152.12	4369.67	4257.11	3760.95	3346.45	2963.37	1858.25	890.51	522.97	439.17	522.97	890.51	1858.25	2963.37	3346.45	3760.95	4257.11	4369.67	4152.12	4032.5	4006.17	4028.64
29	4115.91	4079.1	4089.38	4206.55	4424.54	4334.51	3830.1	3405.66	2955.87	1728.27	760.37	438.86	383.72	438.86	760.37	1728.27	2955.87	3405.66	3830.1	4334.51	4424.54	4206.55	4089.38	4079.1	4115.91
30	4221.93	4172.86	4145.22	4264.75	4476.91	4412.03	3897.6	3461.04	2932.57	1595.68	644.33	387.72	356.69	387.72	644.33	1595.68	2932.57	3461.04	3897.6	4412.03	4476.91	4264.75	4145.22	4172.86	4221.93
31	4324.24	4277.34	4214.55	4324.6	4531.17	4494.24	3965.61	3520.8	2891.65	1453.14	552.02	361.91	336.93	361.91	552.02	1453.14	2891.65	3520.8	3965.61	4494.24	4531.17	4324.6	4214.55	4277.34	4324.24
32	4415.59	4373.34	4299.41	4387.1	4585.07	4569.02	4033.13	3580.96	2835.64	1311.24	467.44	342.31	316.83	342.31	467.44	1311.24	2835.64	3580.96	4033.13	4569.02	4585.07	4387.1	4299.41	4373.34	4415.59
33	4511.2	4467.58	4401.51	4451.23	4640.12	4647.03	4099.21	3636.42	2764.53	1163.13	410.87	321.89	296.91	321.89	410.87	1163.13	2764.53	3636.42	4099.21	4647.03	4640.12	4451.23	4401.51	4467.58	4511.2
34	4595.62	4552.09	4511.09	4525.47	4701.35	4717.46	4159.66	3689.72	2683.39	1010.33	382.66	302.33	276.09	302.33	382.66	1010.33	2683.39	3689.72	4159.66	4717.46	4701.35	4525.47	4511.09	4552.09	4595.62
35	4702.38	4648.92	4611.86	4604.23	4757.4	4788.15	4213.64	3740.43	2592.01	864.13	361.44	282.43	256.52	282.43	361.44	864.13	2592.01	3740.43	4213.64	4757.4	4788.15	4604.23	4611.86	4648.92	4702.38
36	4824.37	4753.36	4715.44	4683.23	4815.4	4843.05	4259.8	3779.63	2489.08	729.3	342.57	261.95	237.44	261.95	342.57	729.3	2489.08	3779.63	4259.8	4843.05	4815.4	4683.23	4715.44	4753.36	4824.37
37	4937.31	4866.7	4811.06	4774.33	4872.53	4888.8	4294.52	3811.23	2376.6	618.3	321.83	243.05	218.55	243.05	321.83	618.3	2376.6	3811.23	4294.52	4888.8	4872.53	4774.33	4811.06	4866.7	4937.31
38	5063.5	4982.17	4916.32	4882.45	4928.58	4924.9	4316.63	3829.69	2246.78	523.2	302.03	223.91	201.16	223.91	302.03	523.2	2246.78	3829.69	4316.63	4924.9	492				

51	3874.27	4213.95	5329.05	6273.59	5024.9	4115.35	3320.09	2403.56	424.85	206.14	123.43	75.58	55.97	75.58	123.43	206.14	424.85	2403.56	3320.09	4115.35	5024.9	6273.59	5329.05	4213.95	3874.27
52	3553.63	3901.44	5169.6	6248.18	4964.89	4039.91	3236.85	2224.86	394.42	196.93	112.36	62.43	46.97	62.43	112.36	196.93	394.42	2224.86	3236.85	4039.91	4964.89	6248.18	5169.6	3901.44	3553.63
53	3222.07	3564.67	4957.85	6161.6	4905.32	3974.7	3183.08	2052.57	365.39	187.43	98.93	54.13	43.84	54.13	98.93	187.43	365.39	2052.57	3183.08	3974.7	4905.32	6161.6	4957.85	3564.67	3222.07
54	2887.11	3231.1	4683.92	6025.11	4849.17	3934.29	3135.53	1897.79	337.65	176.72	83.48	48.59	41.96	48.59	83.48	176.72	337.65	1897.79	3135.53	3934.29	4849.17	6025.11	4683.92	3231.1	2887.11
55	2583.91	2888.3	4365.59	5833.13	4799.1	3900.82	3109.99	1749.11	312.4	163.99	68.19	46.66	40.66	46.66	68.19	163.99	312.4	1749.11	3109.99	3900.82	4799.1	5833.13	4365.59	2888.3	2583.91
56	2281.59	2569.24	3998.41	5564.84	4758.51	3889.31	3090.49	1608.35	289.5	150.9	60.23	45.3	39.73	45.3	60.23	150.9	289.5	1608.35	3090.49	3889.31	4758.51	5564.84	3998.41	2569.24	2281.59
57	2009.85	2267.92	3611.35	5299.23	4730.11	3876.27	3063.7	1474.99	268.88	138.76	56.57	44.33	38.87	44.33	56.57	138.76	268.88	1474.99	3063.7	3876.27	4730.11	5299.23	3611.35	2267.92	2009.85
58	1762.39	1992.6	3190.67	4981.5	4726.23	3855.56	3034.44	1339.5	250.15	122.64	53.86	43.35	37.84	43.35	53.86	122.64	250.15	1339.5	3034.44	3855.56	4726.23	4981.5	3190.67	1992.6	1762.39
59	1530.54	1741.55	2774.51	4606.07	4706.5	3841.99	3002.73	1202.84	233.15	104.58	52.04	42.08	36.6	42.08	52.04	104.58	233.15	1202.84	3002.73	3841.99	4706.5	4606.07	2774.51	1741.55	1530.54
60	1313.7	1514.74	2389.55	4196.42	4669.97	3827.13	2961.7	1069.28	218.53	86.37	50.53	40.63	35.32	40.63	50.53	86.37	218.53	1069.28	2961.7	3827.13	4669.97	4196.42	2389.55	1514.74	1313.7
61	1079.02	1288.79	2025.54	3730.66	4599.15	3793.3	2900.35	942.51	204.52	72.77	48.89	39.05	33.92	39.05	48.89	72.77	204.52	942.51	2900.35	3793.3	4599.15	3730.66	2025.54	1288.79	1079.02
62	854.08	1059.66	1715.38	3245.55	4503.44	3733.02	2831.42	823.44	190.65	66.81	46.91	37.32	32.2	37.32	46.91	66.81	190.65	823.44	2831.42	3733.02	4503.44	3245.55	1715.38	1059.66	854.08
63	639.33	828.71	1464.17	2785.69	4377.4	3663.45	2758.3	716.45	177.1	64.02	45.02	35.23	30.1	35.23	45.02	64.02	177.1	716.45	2758.3	3663.45	4377.4	2785.69	1464.17	828.71	639.33
64	477.31	611.72	1209.49	2339.81	4171.32	3585.67	2654.45	621.76	162.11	61.68	42.96	32.85	27.83	32.85	42.96	61.68	162.11	621.76	2654.45	3585.67	4171.32	2339.81	1209.49	611.72	477.31
65	315.52	437.67	965.41	1958.27	3913.5	3471.22	2530.1	544.4	147.13	59.27	40.49	30.43	25.46	30.43	40.49	59.27	147.13	544.4	2530.1	3471.22	3913.5	1958.27	965.41	437.67	315.52
66	246.14	299.39	715.78	1630.62	3637.75	3335.79	2396.31	466.61	128.94	56.47	37.83	27.83	22.92	27.83	37.83	56.47	128.94	466.61	2396.31	3335.79	3637.75	1630.62	715.78	299.39	246.14
67	208.79	237.37	514.06	1344.7	3354.54	3194.68	2262.51	401.07	110.2	53.59	34.94	25	20.1	25	34.94	53.59	110.2	401.07	2262.51	3194.68	3354.54	1344.7	514.06	237.37	208.79
68	175.78	200.61	358.95	1085.87	3010.43	3015.7	2094.07	349.45	93.96	50.39	31.98	21.77	17.12	21.77	31.98	50.39	93.96	349.45	2094.07	3015.7	3010.43	1085.87	358.95	200.61	175.78
69	149.91	172.84	258.03	854.36	2629.25	2806.69	1922.52	307.35	82.01	46.61	28.62	18.5	14.69	18.5	28.62	46.61	82.01	307.35	1922.52	2806.69	2629.25	854.36	258.03	172.84	149.91
70	133.21	154.28	217.48	647.7	2258.7	2600.47	1753.06	271.25	75.05	42.55	24.89	15.77	12.27	15.77	24.89	42.55	75.05	271.25	1753.06	2600.47	2258.7	647.7	217.48	154.28	133.21
71	112.92	139.39	191.21	486.46	1884.09	2371.73	1570.19	240.82	70.41	38.15	21.13	13.48	10.32	13.48	21.13	38.15	70.41	240.82	1570.19	2371.73	1884.09	486.46	191.21	139.39	112.92
72	95.11	120.54	174.23	350.57	1530.5	2115.54	1375.16	216.77	65.53	33.46	17.71	11.56	9.19	11.56	17.71	33.46	65.53	216.77	1375.16	2115.54	1530.5	350.57	174.23	120.54	95.11
73	78.11	101.72	158.49	252.96	1196.47	1866.25	1171.25	190.93	59.68	28.61	15.26	10.35	8.34	10.35	15.26	28.61	59.68	190.93	1171.25	1866.25	1196.47	252.96	158.49	101.72	78.11
74	61.83	81.19	137.74	208.4	903.8	1600.88	993.99	168	53.19	23.6	13.36	9.38	7.63	9.38	13.36	23.6	53.19	168	993.99	1600.88	903.8	208.4	137.74	81.19	61.83
75	49.48	62.38	113.63	184.02	643.39	1334.65	800.41	142.51	46.85	19.34	11.72	8.53	6.97	8.53	11.72	19.34	46.85	142.51	800.41	1334.65	643.39	184.02	113.63	62.38	49.48
76	37.13	51.32	86.3	164.38	471.28	1076.71	650.11	118.14	40.07	16.18	10.46	7.71	6.35	7.71	10.46	16.18	40.07	118.14	650.11	1076.71	471.28	164.38	86.3	51.32	37.13
77	31.78	41.63	66.5	140.42	324.47	874.91	506.54	93.94	33.05	13.77	9.26	6.95	5.76	6.95	9.26	13.77	33.05	93.94	506.54	874.91	324.47	140.42	66.5	41.63	31.78
78	28.29	36.24	56.65	110.93	229.4	679.17	392.83	75.19	26.39	11.7	8.15	6.22	5.21	6.22	8.15	11.7	26.39	75.19	392.83	679.17	229.4	110.93	56.65	36.24	28.29
79	24.58	31.35	48.28	81.54	173.65	546.92	295.26	59.08	20.83	10.01	7.11	5.53	4.71	5.53	7.11	10.01	20.83	59.08	295.26	546.92	173.65	81.54	48.28	31.35	24.58
80	21.24	26.89	40.86	62.99	132.49	416.16	221.58	47.6	16.05	8.49	6.16	4.89	4.25	4.89	6.16	8.49	16.05	47.6	221.58	416.16	132.49	62.99	40.86	26.89	21.24
81	17.87	22.53	34.22	52.07	108.38	304.89	154	36.84	12.19	7.1	5.26	4.28	3.79	4.28	5.26	7.1	12.19	36.84	154	304.89	108.38	52.07	34.22	22.53	17.87
82	14.74	18.31	27.64	42.29	78.66	215.22	102.83	27.08	9.65	5.94	4.44	3.71	3.38	3.71	4.44	5.94	9.65	27.08	102.83	215.22	78.66	42.29	27.64	18.31	14.74
83	11.93	14.64	21.56	33.05	54.46	135.19	64.35	20.05	7.55	4.86	3.72	3.2	2.99	3.2	3.72	4.86	7.55	20.05	64.35	135.19	54.46	33.05	21.56	14.64	11.93
84	8.98	10.96	16.29	24.71	39.93	77.78	43.78	14.1	5.86	3.86	3.06	2.7	2.61	2.7	3.06	3.86	5.86	14.1	43.78	77.78	39.93	24.71	16.29	10.96	8.98
85	6.62	7.76	11.31	17.49	27.82	43.99	30.3	9.46	4.36	2.97	2.4	2.16	2.14	2.16	2.4	2.97	4.36	9.46	30.3	43.99	27.82	17.49	11.31	7.76	6.62
86	4.68	5.2	7.06	10.81	18.28	29.08	16.81	6	2.95	2.06	1.68	1.52	1.52	1.52	1.68	2.06	2.95	6	16.81	29.08	18.28	10.81	7.06	5.2	4.68
87	2.75	3.02	4.02	5.83	9.42	14.2	8.22	3.46	1.73	1.18	0.85	0.64	0.53	0.64	0.85	1.18	1.73	3.46	8.22	14.2	9.42	5.83	4.02	3.02	2.75
88	1.16	1.21	1.7	2.69	3.71	4.88	3.86	1.58	0.8	0.5	0.22	0.1	0.05	0.1	0.22	0.5	0.8	1.58	3.86	4.88	3.71	2.69	1.7	1.21	1.16
89	0.1	0.11	0.21	0.45	1.63	2.58	1.94	0.54	0.4	0.28	0.14	0.1	0.06	0.1	0.14	0.28	0.4	0.54	1.94	2.58	1.63	0.45	0.21	0.11	0.1
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
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
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
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
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
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
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
97	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
98	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
99	0	0	0	0																					

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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.	ALEDS2TN	Sample ID.	A1
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
120.01	60	0.678	81.3	0.999	1.98%
277.00	60	0.296	79.1	0.964	6.99%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2021/12/26	2022/12/25
DLF108	Auxiliary Lamp	2021/12/26	2022/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2021/12/26	2022/12/25
DLF116	AC Power Source	2021/12/26	2022/12/25
DLF113	Power Meter	2021/12/26	2022/12/25
DLF112	Temperature Recorder	2021/12/26	2022/12/25
DLF114	Temperature & Humidity Datalogger	2021/12/26	2022/12/25
DLF101	Goniophotometer	2021/12/26	2022/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2021/12/26	2022/12/25
DLF104	AC Power Source	2021/12/26	2022/12/25
DLF507	DC Power Source	2021/12/26	2022/12/25
DLF102	Power Meter	2021/12/26	2022/12/25
DLF111	Temperature & Humidity Datalogger	2021/12/26	2022/12/25
DLF119	Power Meter	2021/12/26	2022/12/25
DLF031	Temperature data logger	2021/12/26	2022/12/25
DLF022	Digital power meter	2021/12/26	2022/12/25
DLF003	Temperature & Humidity Datalogger	2021/12/26	2022/12/25

***** End of Test Report*****