



Photometric Test Report

Relevant Standards

- IES LM-79-2008
- ANSI C82.77:2014

Prepared For RAB Lighting Inc.

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Report Number

DLF2408109-3a

Test Date

2024/8/28

Issue Date

2024/9/1

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		168
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	31.3
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		5.37
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	6.70%
		20.00%	277V	14.41%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.940
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3045±175	3102
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		86
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		23
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		86
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		98
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18% ≤ IES Rcs,h1 ≤ +23%		-9%
Zonal Lumen Requirement (0°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	100%		53.83%
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%		11.16%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.021
(Goniophotometer - Section 4.2)		Non-Worst Case		0.038
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		5.37
(Goniophotometer - Section 4.2)		Non-Worst Case		4.55

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/28	SA-CLBT	ES1-02	C1
2	Goniophotometer Test	2024/8/28	SA-CLBT	ES1-02	C1
3	THD and PF Test	2024/8/28	SA-CLBT	ES1-02	C1

Remark(If any)

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3.0 Production Description

Luminaire Description: SA-CLBT

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.	SA-CLBT	Sample ID.	C1
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	0.038	4.57	0.994
277.00	60	0.021	5.39	0.940

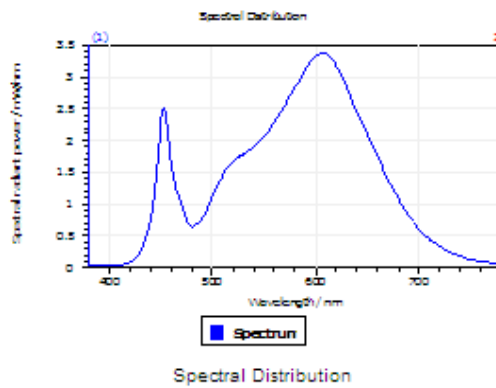
Test Result

CCT (K)	CRI	R9	Duv
3102	86	23	-0.0038

Rf	Rg	IES Rcs,h1
86	98	-9%

4.1 Integrating Sphere Test

Results



Spectral values

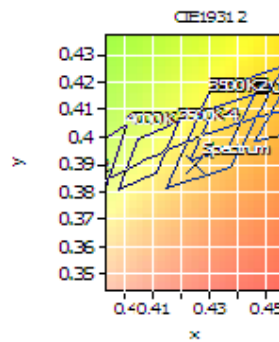
DominantWavelength 583.92 nm
 Purity 0.447
 PeakWavelength 606.39 nm
 Radiant Power 0.5273 W
 Width50%:

Color Coordinates

Correlated Color Temperat 3102 K
 x: 0.4248 u: 0.2485 u': 0.2485
 y: 0.3905 v: 0.3427 v': 0.5141

CRI01	85.8	CRI09	23.1
CRI02	93.6	CRI10	85.0
CRI03	96.0	CRI11	84.9
CRI04	84.6	CRI12	74.2
CRI05	86.2	CRI13	87.9
CRI06	92.0	CRI14	98.7
CRI07	84.2	CRI15	79.8
CRI08	65.4	CRI16	77.1

ResultsCRI 86.0



PlankDistance 3.8E-003

4.1 Integrating Sphere Test

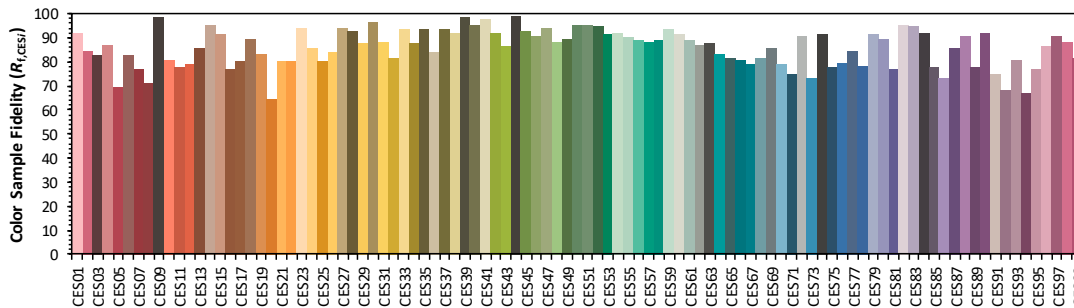
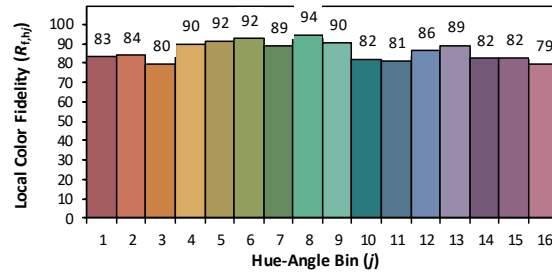
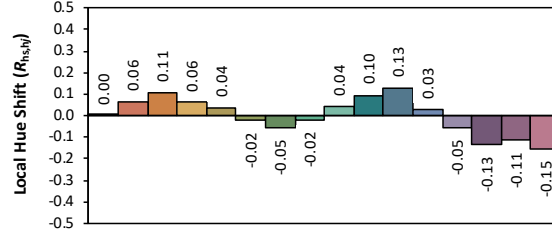
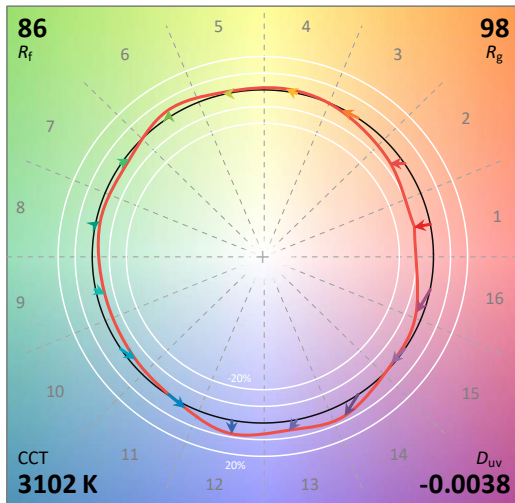
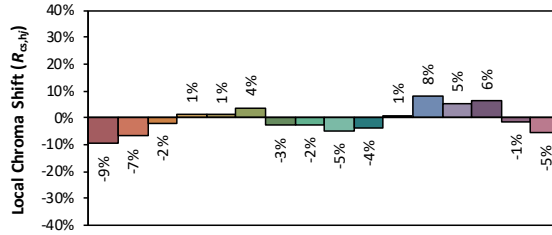
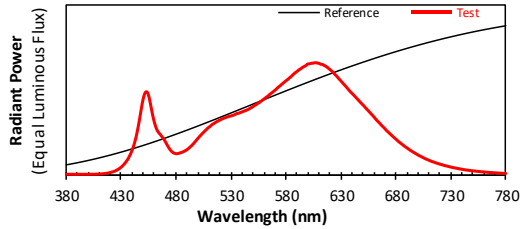
IES TM-30-18 Color Rendition Report

Source: DLF2408109-3a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/28

Model: SA-CLBT



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

x 0.4248
 y 0.3905
 u' 0.2485
 v' 0.5141

CIE 13.3-1995 (CRI)	
R_a	87
R_g	26

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength							
WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)
380	3.07E-05	485	6.85E-04	590	3.11E-03	695	7.10E-04
385	3.11E-05	490	7.69E-04	595	3.23E-03	700	6.13E-04
390	2.98E-05	495	9.17E-04	600	3.34E-03	705	5.27E-04
395	2.94E-05	500	1.11E-03	605	3.37E-03	710	4.51E-04
400	3.00E-05	505	1.29E-03	610	3.36E-03	715	3.90E-04
405	3.16E-05	510	1.44E-03	615	3.29E-03	720	3.35E-04
410	3.76E-05	515	1.56E-03	620	3.17E-03	725	2.87E-04
415	5.18E-05	520	1.66E-03	625	3.01E-03	730	2.47E-04
420	8.06E-05	525	1.73E-03	630	2.83E-03	735	2.12E-04
425	1.35E-04	530	1.78E-03	635	2.65E-03	740	1.81E-04
430	2.40E-04	535	1.85E-03	640	2.46E-03	745	1.54E-04
435	4.28E-04	540	1.90E-03	645	2.29E-03	750	1.33E-04
440	7.46E-04	545	1.96E-03	650	2.11E-03	755	1.15E-04
445	1.36E-03	550	2.06E-03	655	1.93E-03	760	9.96E-05
450	2.27E-03	555	2.17E-03	660	1.75E-03	765	8.48E-05
455	2.40E-03	560	2.29E-03	665	1.57E-03	770	7.34E-05
460	1.63E-03	565	2.42E-03	670	1.40E-03	775	6.33E-05
465	1.25E-03	570	2.55E-03	675	1.23E-03	780	5.54E-05
470	1.02E-03	575	2.69E-03	680	1.09E-03		
475	7.52E-04	580	2.83E-03	685	9.47E-04		
480	6.47E-04	585	2.97E-03	690	8.23E-04		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SA-CLBT	Sample ID.	C1
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	277.03	60	0.021	5.37	0.940
NON-WROST CASE	120.04	60	0.038	4.55	0.994

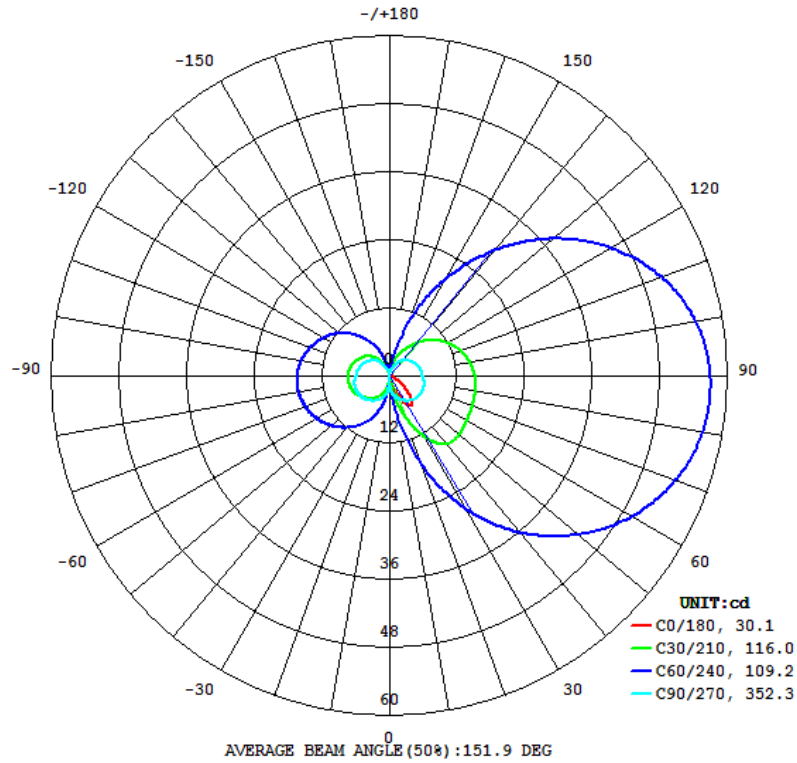
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
168	58.2	360.0	30.1	352.3	31.3

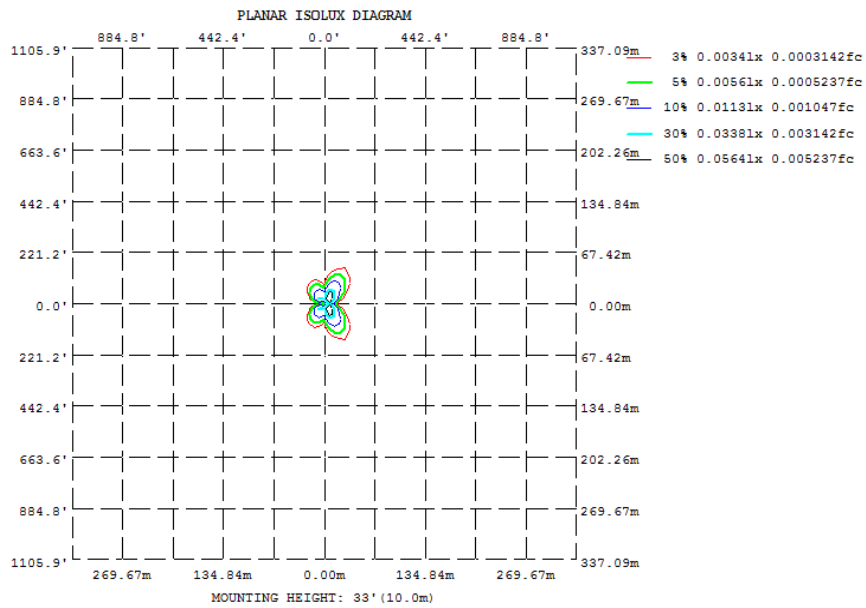
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)	BUG rating
53.83%	11.16%	B0-U3-G1

4.2 Goniophotometer Test

Light Distribution Curve



Isolux Plot



4.2 Goniophotometer Test

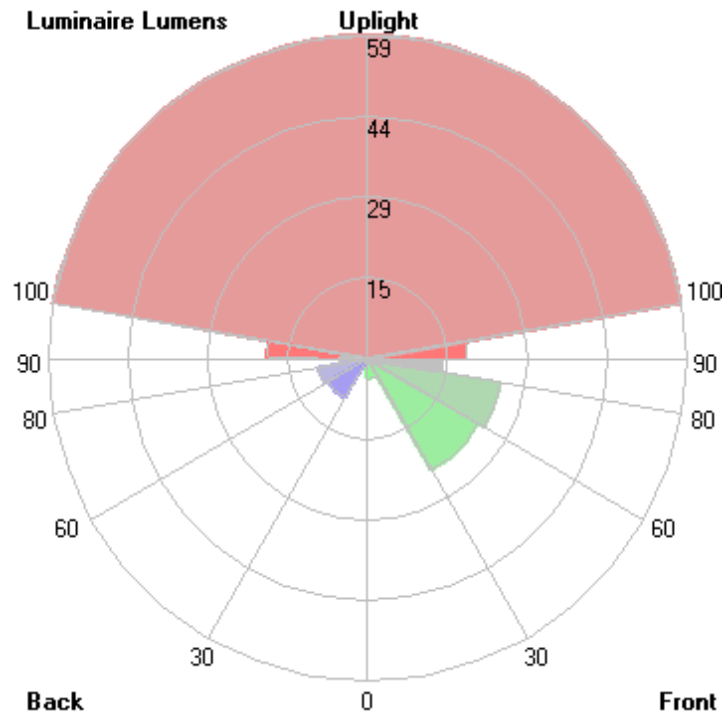
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	0.1071	4.212	3.102	2.443	0.0675	2.443	3.102	4.212
20	1.865	12.74	4.329	5.713	0.0906	5.713	4.329	12.74
30	5.488	21.43	5.155	7.832	0.1054	7.832	5.155	21.43
40	6.518	28.01	5.794	9.467	0.1677	9.467	5.794	28.01
50	4.366	32.32	6.231	10.81	0.2022	10.81	6.231	32.32
60	2.175	35.39	6.491	11.88	0.2189	11.88	6.491	35.39
70	0.9376	37.50	6.538	12.62	0.2057	12.62	6.538	37.50
80	0.4648	38.62	6.372	13.00	0.1824	13.00	6.372	38.62
90	0.2735	38.59	6.036	13.03	0.1561	13.03	6.036	38.59
100	0.2532	37.18	5.841	12.70	0.1268	12.70	5.841	37.18
110	0.2356	34.30	5.524	12.02	0.0815	12.02	5.524	34.30
120	0.2111	30.11	5.027	10.99	0.0587	10.99	5.027	30.11
130	0.1682	24.90	4.392	9.636	0.0218	9.636	4.392	24.90
140	0.1215	19.07	3.639	7.954	0.0240	7.954	3.639	19.07
150	0.0683	13.24	2.512	5.825	0.0214	5.825	2.512	13.24
160	0.0358	7.625	1.430	3.104	0.0174	3.104	1.430	7.625
170	0.0194	1.565	0.5578	0.4535	0.0165	0.4535	0.5578	1.565
180	0.0143	0.0149	0.0106	0.0180	0.0158	0.0180	0.0106	0.0149
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	0.13	0 - 10	0.13	0.08%
10-20	1.32	0 - 20	1.45	0.86%
20-30	3.95	0 - 30	5.40	3.22%
30-40	7.45	0 - 40	12.85	7.66%
40-50	10.83	0 - 50	23.68	14.12%
50-60	13.76	0 - 60	37.44	22.33%
60-70	16.19	0 - 70	53.63	31.98%
70-80	17.92	0 - 80	71.55	42.67%
80-90	18.72	0 - 90	90.27	53.83%
90-100	18.42	0 - 100	108.69	64.82%
100-110	17.00	0 - 110	125.69	74.96%
110-120	14.56	0 - 120	140.25	83.64%
120-130	11.45	0 - 130	151.70	90.47%
130-140	8.09	0 - 140	159.79	95.29%
140-150	4.93	0 - 150	164.72	98.23%
150-160	2.33	0 - 160	167.05	99.62%
160-170	0.61	0 - 170	167.66	99.99%
170-180	0.02	0 - 180	167.68	100.00%

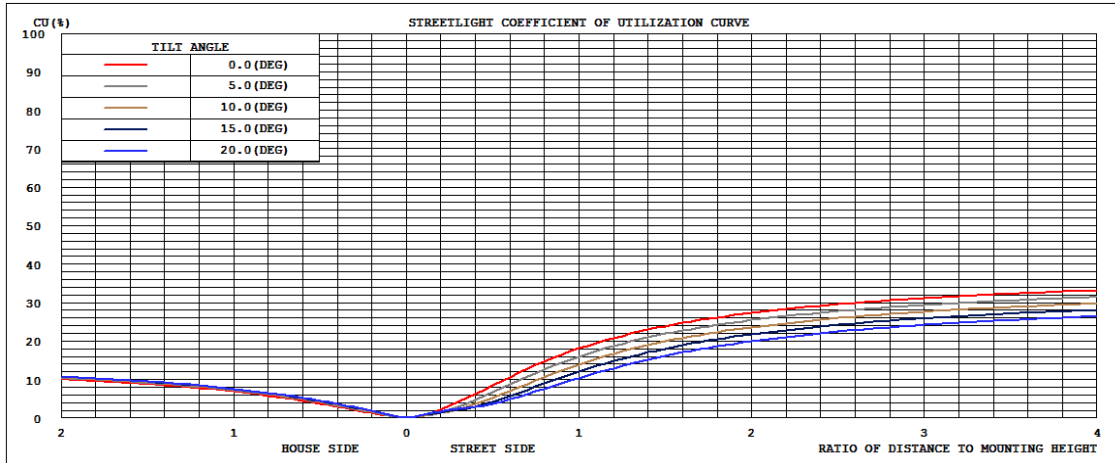
4.2 Goniophotometer Test

LCS/BUG

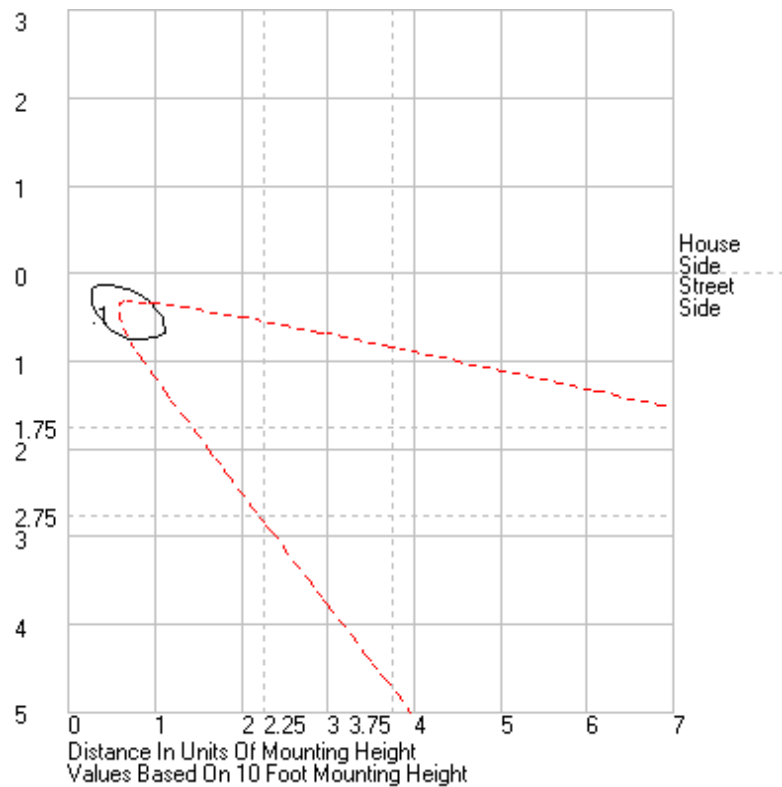


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	3.7	N.A.	2.2
FM - Front-Medium (30-60)	23.6	N.A.	14.1
FH - Front-High (60-80)	25.0	N.A.	14.9
FVH - Front-Very High (80-90)	13.8	N.A.	8.2
BL - Back-Low (0-30)	1.7	N.A.	1.0
BM - Back-Medium (30-60)	8.4	N.A.	5.0
BH - Back-High (60-80)	9.1	N.A.	5.4
BVH - Back-Very High (80-90)	5.0	N.A.	3.0
UL - Uplight-Low (90-100)	18.4	N.A.	11.0
UH - Uplight-High (100-180)	59.0	N.A.	35.2
Total	167.7	N.A.	100.0
BUG Rating	B0-U3-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	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066
1	0.04	0.08	0.1	0.08	0.06	0.06	0.06	0.06	0.07	0.09	0.11	0.09	0.05	0.09	0.11	0.09	0.07	0.06	0.06	0.06	0.06	0.08	0.1	0.08	0.04
2	0.04	0.07	0.12	0.16	0.19	0.22	0.23	0.22	0.2	0.17	0.14	0.09	0.06	0.09	0.14	0.17	0.2	0.22	0.23	0.22	0.19	0.16	0.12	0.07	0.04
3	0.04	0.08	0.2	0.3	0.39	0.46	0.48	0.45	0.39	0.31	0.21	0.1	0.06	0.1	0.21	0.31	0.39	0.45	0.48	0.46	0.39	0.3	0.2	0.08	0.04
4	0.05	0.1	0.31	0.52	0.7	0.8	0.79	0.73	0.63	0.49	0.32	0.12	0.06	0.12	0.32	0.49	0.63	0.73	0.79	0.8	0.7	0.52	0.31	0.1	0.05
5	0.05	0.15	0.46	0.84	1.12	1.24	1.17	1.07	0.93	0.72	0.44	0.16	0.06	0.16	0.44	0.72	0.93	1.07	1.17	1.24	1.12	0.84	0.46	0.15	0.05
6	0.05	0.2	0.68	1.28	1.7	1.77	1.59	1.46	1.3	0.98	0.59	0.2	0.06	0.2	0.59	0.98	1.3	1.46	1.59	1.77	1.7	1.28	0.68	0.2	0.05
7	0.06	0.27	0.96	1.87	2.42	2.38	2.02	1.9	1.73	1.31	0.75	0.25	0.06	0.25	0.75	1.31	1.73	1.9	2.02	2.38	2.42	1.87	0.96	0.27	0.06
8	0.07	0.35	1.29	2.61	3.26	3.03	2.43	2.35	2.2	1.66	0.93	0.3	0.06	0.3	0.93	1.66	2.2	2.35	2.43	3.03	3.26	2.61	1.29	0.35	0.07
9	0.08	0.44	1.62	3.42	4.22	3.68	2.79	2.79	2.71	2.05	1.12	0.36	0.07	0.36	1.12	2.05	2.71	2.79	2.79	3.68	4.22	3.42	1.62	0.44	0.08
10	0.11	0.55	1.97	4.21	5.26	4.32	3.1	3.21	3.22	2.44	1.32	0.43	0.07	0.43	1.32	2.44	3.22	3.21	3.1	4.32	5.26	4.21	1.97	0.55	0.11
11	0.14	0.68	2.34	4.99	6.32	4.92	3.35	3.59	3.72	2.83	1.52	0.49	0.07	0.49	1.52	2.83	3.72	3.59	3.35	4.92	6.32	4.99	2.34	0.68	0.14
12	0.19	0.82	2.74	5.77	7.4	5.47	3.5	3.92	4.19	3.22	1.72	0.56	0.07	0.56	1.72	3.22	4.19	3.92	3.5	5.47	7.4	5.77	2.74	0.82	0.19
13	0.27	0.99	3.16	6.58	8.48	5.99	3.62	4.2	4.63	3.59	1.92	0.62	0.07	0.62	1.92	3.59	4.63	4.2	3.62	5.99	8.48	6.58	3.16	0.99	0.27
14	0.37	1.19	3.61	7.4	9.57	6.52	3.73	4.46	5.04	3.94	2.11	0.69	0.08	0.69	2.11	3.94	5.04	4.46	3.73	6.52	9.57	7.4	3.61	1.19	0.37
15	0.5	1.4	4.08	8.26	10.68	7.08	3.83	4.7	5.42	4.27	2.3	0.75	0.08	0.75	2.3	4.27	5.42	4.7	3.83	7.08	10.68	8.26	4.08	1.4	0.5
16	0.67	1.66	4.58	9.13	11.82	7.67	3.94	4.94	5.79	4.59	2.48	0.81	0.08	0.81	2.48	4.59	5.79	4.94	3.94	7.67	11.82	9.13	4.58	1.66	0.67
17	0.87	1.94	5.09	10.01	12.98	8.27	4.04	5.17	6.14	4.89	2.66	0.88	0.09	0.88	2.66	4.89	6.14	5.17	4.04	8.27	12.98	10.01	5.09	1.94	0.87
18	1.12	2.25	5.62	10.91	14.12	8.88	4.14	5.39	6.48	5.17	2.83	0.94	0.09	0.94	2.83	5.17	6.48	5.39	4.14	8.88	14.12	10.91	5.62	2.25	1.12
19	1.46	2.61	6.16	11.81	15.27	9.5	4.23	5.6	6.8	5.45	2.99	1	0.09	1	2.99	5.45	6.8	5.6	4.23	9.5	15.27	11.81	6.16	2.61	1.46
20	1.86	3.05	6.73	12.74	16.41	10.11	4.33	5.8	7.12	5.71	3.14	1.06	0.09	1.06	3.14	5.71	7.12	5.8	4.33	10.11	16.41	12.74	6.73	3.05	1.86
21	2.26	3.5	7.32	13.65	17.55	10.73	4.42	6	7.42	5.97	3.28	1.11	0.09	1.11	3.28	5.97	7.42	6	4.42	10.73	17.55	13.65	7.32	3.5	2.26
22	2.65	3.94	7.92	14.56	18.67	11.34	4.51	6.2	7.71	6.2	3.42	1.16	0.09	1.16	3.42	6.2	7.71	6.2	4.51	11.34	18.67	14.56	7.92	3.94	2.65
23	3.03	4.38	8.56	15.47	19.79	11.95	4.6	6.39	8	6.43	3.55	1.21	0.08	1.21	3.55	6.43	8	6.39	4.6	11.95	19.79	15.47	8.56	4.38	3.03
24	3.38	4.81	9.17	16.37	20.89	12.56	4.68	6.57	8.29	6.65	3.66	1.25	0.09	1.25	3.66	6.65	8.29	6.57	4.68	12.56	20.89	16.37	9.17	4.81	3.38
25	3.74	5.24	9.77	17.26	21.98	13.15	4.77	6.76	8.57	6.86	3.78	1.3	0.1	1.3	3.78	6.86	8.57	6.76	4.77	13.15	21.98	17.26	9.77	5.24	3.74
26	4.11	5.65	10.36	18.13	23.04	13.75	4.85	6.94	8.84	7.06	3.89	1.34	0.1	1.34	3.89	7.06	8.84	6.94	4.85	13.75	23.04	18.13	10.36	5.65	4.11
27	4.48	6.05	10.92	18.98	24.12	14.33	4.93	7.11	9.11	7.25	4	1.38	0.11	1.38	4	7.25	9.11	7.11	4.93	14.33	24.12	18.98	10.92	6.05	4.48
28	4.83	6.44	11.47	19.82	25.16	14.91	5.01	7.28	9.37	7.45	4.12	1.43	0.11	1.43	4.12	7.45	9.37	7.28	5.01	14.91	25.16	19.82	11.47	6.44	4.83
29	5.17	6.81	11.98	20.63	26.19	15.48	5.08	7.45	9.62	7.64	4.24	1.48	0.12	1.48	4.24	7.64	9.62	7.45	5.08	15.48	26.19	20.63	11.98	6.81	5.17
30	5.49	7.18	12.48	21.43	27.19	16.05	5.15	7.61	9.87	7.83	4.35	1.53	0.11	1.53	4.35	7.83	9.87	7.61	5.15	16.05	27.19	21.43	12.48	7.18	5.49
31	5.79	7.52	12.97	22.19	28.17	16.6	5.23	7.77	10.11	8.01	4.45	1.57	0.11	1.57	4.45	8.01	10.11	7.77	5.23	16.6	28.17	22.19	12.97	7.52	5.79
32	6.07	7.83	13.42	22.92	29.13	17.15	5.3	7.93	10.35	8.19	4.54	1.62	0.11	1.62	4.54	8.19	10.35	7.93	5.3	17.15	29.13	22.92	13.42	7.83	6.07
33	6.32	8.11	13.86	23.63	30.08	17.7	5.36	8.09	10.59	8.36	4.64	1.66	0.12	1.66	4.64	8.36	10.59	8.09	5.36	17.7	30.08	23.63	13.86	8.11	6.32
34	6.52	8.35	14.25	24.32	31.02	18.23	5.43	8.24	10.81	8.53	4.74	1.71	0.13	1.71	4.74	8.53	10.81	8.24	5.43	18.23	31.02	24.32	14.25	8.35	6.52
35	6.66	8.55	14.62	25	31.93	18.75	5.5	8.38	11.03	8.69	4.83	1.75	0.14	1.75	4.83	8.69	11.03	8.38	5.5	18.75	31.93	25	14.62	8.55	6.66
36	6.75	8.69	14.94	25.65	32.82	19.27	5.56	8.53	11.25	8.85	4.93	1.79	0.14	1.79	4.93	8.85	11.25	8.53	5.56	19.27	32.82	25.65	14.94	8.69	6.75
37	6.77	8.77	15.23	26.27	33.7	19.77	5.62	8.67	11.46	9.01	5.02	1.83	0.15	1.83	5.02	9.01	11.46	8.67	5.62	19.77	33.7	26.27	15.23	8.77	6.77
38	6.73	8.8	15.48	26.88	34.56	20.28	5.68	8.81	11.67	9.17	5.11	1.88	0.16	1.88	5.11	9.17	11.67	8.81	5.68	20.28	34.56	26.88	15.48	8.8	6.73
39	6.65	8.77	15.67	27.45	35.41	20.77	5.74	8.95	11.87	9.32	5.21	1.92	0.16	1.92	5.21	9.32	11.87	8.95	5.74	20.77	35.41	27.45	15.67	8.77	6.65
40	6.52	8.71	15.82	28.01	36.24	21.26	5.79	9.08	12.07	9.47	5.3	1.96	0.17	1.96	5.3	9.47	12.07	9.08	5.79	21.26	36.24	28.01	15.82	8.71	6.52
41	6.36	8.61	15.94	28.53	37.04	21.73	5.85	9.21	12.26	9.61	5.38	1.99	0.17	1.99	5.38	9.61	12.26	9.21	5.85	21.73	37.04	28.53	15.94	8.61	6.36
42	6.18	8.49	16.03	29.03	37.83	22.2	5.9	9.34	12.45	9.76	5.47	2.03	0.18	2.03	5.47	9.76	12.45	9.34	5.9	22.2	37.83	29.03	16.03	8.49	6.18
43	5.98	8.35	16.11	29.5	38.59	22.65	5.94	9.46	12.64	9.9	5.56	2.07	0.18	2.07	5.56	9.9	12.64	9.46	5.94	22.65	38.59	29.5	16.11	8.35	5.98
44	5.77	8.19	16.16	29.94	39.37	23.1	5.99	9.57	12.82	10.04	5.64	2.1	0.19	2.1	5.64	10.04	12.82	9.57	5.99	23.1	39.37	29.94	16.16	8.19	5.77
45	5.55	8.03	16.19	30.38	40.11	23.54	6.03	9.68	13	10.18	5.73	2.14	0.19	2.14	5.73	10.18	13	9.68	6.03	23.54	40.11	30.38	16.19	8.03	5.55
46	5.32	7.85	16.21	30.79	40.85	23.97	6.08	9.8	13.17	10.31	5.81	2.17	0.19	2.17	5.81	10.31	13.17	9.8	6.08	23.97	40.85	30.79	16.21	7.85	5.32
47	5.09	7.67	16.23	31.2	41.56	24.39	6.12	9.9	13.33	10.44	5.89	2.2	0.19	2.2	5.89	10.44	13.33	9.9	6.12	24.39	41.56	31.2	16.23	7.67	5.09
48	4.85	7.49	16.23	31.57	42.27	24.81	6.16	10.01	13.49	10.57	5.97	2.23	0.2	2.23	5.97	10.57	13.49	10.01	6.16	24.81	42.27	31.57	16.23	7.49	4.85
49	4.61	7.29	16.24	31.95	42.95	25.22	6.19	10.11	13.65	10.69	6.04	2.27	0.2	2.27	6.04	10.69	13.65	10.11	6.19	25.22	42				



51	4.12	6.9	16.21	32.67	44.3	26.02	6.27	10.31	13.95	10.93	6.19	2.32	0.2	2.32	6.19	10.93	13.95	10.31	6.27	26.02	44.3	32.67	16.21	6.9	4.12
52	3.88	6.69	16.19	33	44.96	26.41	6.3	10.4	14.09	11.05	6.26	2.35	0.21	2.35	6.26	11.05	14.09	10.4	6.3	26.41	44.96	33	16.19	6.69	3.88
53	3.64	6.5	16.16	33.33	45.59	26.78	6.33	10.49	14.23	11.16	6.33	2.38	0.21	2.38	6.33	11.16	14.23	10.49	6.33	26.78	45.59	33.33	16.16	6.5	3.64
54	3.41	6.31	16.14	33.66	46.22	27.15	6.36	10.58	14.37	11.28	6.4	2.4	0.21	2.4	6.4	11.28	14.37	10.58	6.36	27.15	46.22	33.66	16.14	6.31	3.41
55	3.19	6.12	16.11	33.97	46.83	27.51	6.39	10.66	14.51	11.39	6.46	2.43	0.21	2.43	6.46	11.39	14.51	10.66	6.39	27.51	46.83	33.97	16.11	6.12	3.19
56	2.97	5.93	16.07	34.27	47.43	27.86	6.41	10.75	14.64	11.49	6.52	2.45	0.22	2.45	6.52	11.49	14.64	10.75	6.41	27.86	47.43	34.27	16.07	5.93	2.97
57	2.76	5.75	16.04	34.57	47.99	28.21	6.44	10.83	14.77	11.59	6.58	2.47	0.22	2.47	6.58	11.59	14.77	10.83	6.44	28.21	47.99	34.57	16.04	5.75	2.76
58	2.55	5.58	16.02	34.85	48.56	28.54	6.46	10.9	14.89	11.69	6.64	2.5	0.22	2.5	6.64	11.69	14.89	10.9	6.46	28.54	48.56	34.85	16.02	5.58	2.55
59	2.36	5.41	15.99	35.13	49.1	28.86	6.48	10.98	15.01	11.79	6.7	2.52	0.22	2.52	6.7	11.79	15.01	10.98	6.48	28.86	49.1	35.13	15.99	5.41	2.36
60	2.17	5.25	15.95	35.39	49.64	29.17	6.49	11.04	15.13	11.88	6.75	2.54	0.22	2.54	6.75	11.88	15.13	11.04	6.49	29.17	49.64	35.39	15.95	5.25	2.17
61	2	5.09	15.92	35.64	50.16	29.47	6.51	11.11	15.24	11.97	6.81	2.56	0.22	2.56	6.81	11.97	15.24	11.11	6.51	29.47	50.16	35.64	15.92	5.09	2
62	1.84	4.95	15.89	35.89	50.65	29.77	6.52	11.17	15.35	12.06	6.86	2.58	0.22	2.58	6.86	12.06	15.35	11.17	6.52	29.77	50.65	35.89	15.89	4.95	1.84
63	1.7	4.82	15.86	36.13	51.13	30.05	6.53	11.23	15.44	12.14	6.91	2.6	0.22	2.6	6.91	12.14	15.44	11.23	6.53	30.05	51.13	36.13	15.86	4.82	1.7
64	1.56	4.69	15.84	36.34	51.58	30.32	6.54	11.29	15.54	12.22	6.96	2.62	0.22	2.62	6.96	12.22	15.54	11.29	6.54	30.32	51.58	36.34	15.84	4.69	1.56
65	1.43	4.57	15.81	36.57	52.02	30.58	6.54	11.34	15.63	12.3	7	2.64	0.21	2.64	7	12.3	15.63	11.34	6.54	30.58	52.02	36.57	15.81	4.57	1.43
66	1.31	4.46	15.79	36.77	52.45	30.83	6.55	11.39	15.72	12.37	7.05	2.65	0.21	2.65	7.05	12.37	15.72	11.39	6.55	30.83	52.45	36.77	15.79	4.46	1.31
67	1.2	4.35	15.77	36.97	52.86	31.07	6.55	11.43	15.8	12.43	7.09	2.67	0.21	2.67	7.09	12.43	15.8	11.43	6.55	31.07	52.86	36.97	15.77	4.35	1.2
68	1.11	4.26	15.75	37.15	53.24	31.3	6.55	11.47	15.88	12.5	7.13	2.68	0.21	2.68	7.13	12.5	15.88	11.47	6.55	31.3	53.24	37.15	15.75	4.26	1.11
69	1.02	4.17	15.73	37.33	53.62	31.52	6.54	11.51	15.95	12.56	7.16	2.69	0.21	2.69	7.16	12.56	15.95	11.51	6.54	31.52	53.62	37.33	15.73	4.17	1.02
70	0.94	4.09	15.71	37.5	53.97	31.72	6.54	11.54	16.03	12.62	7.2	2.71	0.21	2.71	7.2	12.62	16.03	11.54	6.54	31.72	53.97	37.5	15.71	4.09	0.94
71	0.87	4.02	15.7	37.66	54.32	31.92	6.53	11.57	16.09	12.67	7.23	2.72	0.2	2.72	7.23	12.67	16.09	11.57	6.53	31.92	54.32	37.66	15.7	4.02	0.87
72	0.8	3.96	15.69	37.8	54.62	32.1	6.52	11.6	16.15	12.72	7.26	2.73	0.2	2.73	7.26	12.72	16.15	11.6	6.52	32.1	54.62	37.8	15.69	3.96	0.8
73	0.74	3.89	15.67	37.94	54.92	32.28	6.51	11.62	16.2	12.77	7.29	2.74	0.2	2.74	7.29	12.77	16.2	11.62	6.51	32.28	54.92	37.94	15.67	3.89	0.74
74	0.69	3.84	15.66	38.08	55.2	32.44	6.5	11.64	16.26	12.81	7.32	2.75	0.2	2.75	7.32	12.81	16.26	11.64	6.5	32.44	55.2	38.08	15.66	3.84	0.69
75	0.65	3.79	15.65	38.19	55.47	32.6	6.48	11.66	16.31	12.85	7.34	2.76	0.19	2.76	7.34	12.85	16.31	11.66	6.48	32.6	55.47	38.19	15.65	3.79	0.65
76	0.6	3.74	15.63	38.3	55.72	32.73	6.46	11.67	16.35	12.89	7.36	2.77	0.19	2.77	7.36	12.89	16.35	11.67	6.46	32.73	55.72	38.3	15.63	3.74	0.6
77	0.56	3.7	15.62	38.4	55.93	32.86	6.44	11.68	16.39	12.92	7.39	2.78	0.19	2.78	7.39	12.92	16.39	11.68	6.44	32.86	55.93	38.4	15.62	3.7	0.56
78	0.53	3.66	15.6	38.49	56.12	32.99	6.42	11.69	16.42	12.95	7.4	2.78	0.19	2.78	7.4	12.95	16.42	11.69	6.42	32.99	56.12	38.49	15.6	3.66	0.53
79	0.5	3.62	15.59	38.56	56.32	33.08	6.4	11.69	16.45	12.98	7.42	2.79	0.18	2.79	7.42	12.98	16.45	11.69	6.4	33.08	56.32	38.56	15.59	3.62	0.5
80	0.46	3.59	15.58	38.62	56.48	33.18	6.37	11.69	16.47	13	7.43	2.79	0.18	2.79	7.43	13	16.47	11.69	6.37	33.18	56.48	38.62	15.58	3.59	0.46
81	0.44	3.56	15.56	38.68	56.63	33.26	6.34	11.68	16.49	13.02	7.45	2.8	0.18	2.8	7.45	13.02	16.49	11.68	6.34	33.26	56.63	38.68	15.56	3.56	0.44
82	0.41	3.53	15.55	38.72	56.74	33.34	6.32	11.68	16.52	13.04	7.46	2.8	0.18	2.8	7.46	13.04	16.52	11.68	6.32	33.34	56.74	38.72	15.55	3.53	0.41
83	0.39	3.5	15.52	38.75	56.84	33.4	6.28	11.67	16.52	13.05	7.47	2.81	0.18	2.81	7.47	13.05	16.52	11.67	6.28	33.4	56.84	38.75	15.52	3.5	0.39
84	0.36	3.48	15.5	38.76	56.93	33.45	6.25	11.65	16.53	13.05	7.47	2.81	0.17	2.81	7.47	13.05	16.53	11.65	6.25	33.45	56.93	38.76	15.5	3.48	0.36
85	0.34	3.45	15.47	38.77	57	33.48	6.22	11.64	16.53	13.06	7.48	2.81	0.17	2.81	7.48	13.06	16.53	11.64	6.22	33.48	57	38.77	15.47	3.45	0.34
86	0.32	3.43	15.44	38.76	57.04	33.51	6.18	11.62	16.53	13.06	7.48	2.81	0.17	2.81	7.48	13.06	16.53	11.62	6.18	33.51	57.04	38.76	15.44	3.43	0.32
87	0.31	3.41	15.41	38.75	57.04	33.53	6.15	11.6	16.52	13.06	7.48	2.81	0.16	2.81	7.48	13.06	16.52	11.6	6.15	33.53	57.04	38.75	15.41	3.41	0.31
88	0.29	3.39	15.37	38.7	57.04	33.52	6.11	11.58	16.51	13.05	7.48	2.81	0.16	2.81	7.48	13.05	16.51	11.58	6.11	33.52	57.04	38.7	15.37	3.39	0.29
89	0.28	3.37	15.33	38.66	57.02	33.52	6.07	11.55	16.5	13.04	7.47	2.81	0.16	2.81	7.47	13.04	16.5	11.55	6.07	33.52	57.02	38.66	15.33	3.37	0.28
90	0.27	3.35	15.28	38.59	56.97	33.51	6.04	11.53	16.47	13.03	7.47	2.81	0.16	2.81	7.47	13.03	16.47	11.53	6.04	33.51	56.97	38.59	15.28	3.35	0.27
91	0.27	3.34	15.24	38.51	56.9	33.48	6	11.5	16.45	13.01	7.46	2.81	0.15	2.81	7.46	13.01	16.45	11.5	6	33.48	56.9	38.51	15.24	3.34	0.27
92	0.27	3.32	15.19	38.42	56.82	33.44	5.98	11.46	16.42	12.99	7.45	2.81	0.15	2.81	7.45	12.99	16.42	11.46	5.98	33.44	56.82	38.42	15.19	3.32	0.27
93	0.26	3.3	15.13	38.32	56.7	33.39	5.95	11.42	16.39	12.96	7.43	2.8	0.15	2.8	7.43	12.96	16.39	11.42	5.95	33.39	56.7	38.32	15.13	3.3	0.26
94	0.26	3.28	15.07	38.2	56.57	33.33	5.93	11.39	16.34	12.94	7.42	2.8	0.14	2.8	7.42	12.94	16.34	11.39	5.93	33.33	56.57	38.2	15.07	3.28	0.26
95	0.26	3.27	15	38.07	56.4	33.26	5.92	11.35	16.3	12.91	7.4	2.79	0.14	2.79	7.4	12.91	16.3	11.35	5.92	33.26	56.4	38.07	15	3.27	0.26
96	0.26	3.25	14.94	37.92	56.24	33.18	5.91	11.3	16.25	12.87	7.39	2.79	0.14	2.79	7.39	12.87	16.25	11.3	5.91	33.18	56.24	37.92	14.94	3.25	0.26
97	0.26	3.23	14.86	37.75	56.05	33.08	5.89	11.26	16.2	12.83	7.36	2.78	0.14	2.78	7.36	12.83	16.2	11.26	5.89	33.08	56.05	37.75	14.86	3.23	0.26
98	0.26	3.22	14.79	37.57	55.82	32.99	5.88	11.21	16.14	12.79	7.34	2.77	0.13	2.77	7.34	12.79	16.14	11.21	5.88	32.99	55.82	37.57	14.79	3.22	0.26
99	0.25	3.2	14.71	37.38	55.57	32.87	5.86	11.15	16.08	12.75	7.32	2.77	0.13	2.77	7.32	12.75	16.08	11.15	5.86	32.87	55.57	37.38	14.71	3.2	0.25
100	0.25	3.18	14.62	37.18	55.3	32.73	5.84	11.1	16.01	12.7	7.29	2.76	0.13												



106	0.24	3.06	14.01	35.62	53.2	31.69	5.67	10.7	15.5	12.33	7.09	2.69	0.11	2.69	7.09	12.33	15.5	10.7	5.67	31.69	53.2	35.62	14.01	3.06	0.24
107	0.24	3.04	13.89	35.31	52.78	31.46	5.64	10.63	15.4	12.26	7.05	2.68	0.11	2.68	7.05	12.26	15.4	10.63	5.64	31.46	52.78	35.31	13.89	3.04	0.24
108	0.24	3.02	13.76	34.99	52.32	31.22	5.6	10.54	15.3	12.18	7.01	2.66	0.1	2.66	7.01	12.18	15.3	10.54	5.6	31.22	52.32	34.99	13.76	3.02	0.24
109	0.24	2.99	13.63	34.65	51.86	30.97	5.56	10.45	15.19	12.1	6.96	2.64	0.09	2.64	6.96	12.1	15.19	10.45	5.56	30.97	51.86	34.65	13.63	2.99	0.24
110	0.24	2.97	13.5	34.3	51.36	30.71	5.52	10.37	15.07	12.02	6.91	2.63	0.08	2.63	6.91	12.02	15.07	10.37	5.52	30.71	51.36	34.3	13.5	2.97	0.24
111	0.23	2.95	13.36	33.93	50.84	30.43	5.48	10.27	14.95	11.93	6.86	2.6	0.07	2.6	6.86	11.93	14.95	10.27	5.48	30.43	50.84	33.93	13.36	2.95	0.23
112	0.23	2.92	13.22	33.56	50.31	30.15	5.44	10.18	14.82	11.84	6.81	2.58	0.06	2.58	6.81	11.84	14.82	10.18	5.44	30.15	50.31	33.56	13.22	2.92	0.23
113	0.23	2.89	13.07	33.17	49.74	29.85	5.39	10.07	14.69	11.74	6.76	2.56	0.06	2.56	6.76	11.74	14.69	10.07	5.39	29.85	49.74	33.17	13.07	2.89	0.23
114	0.23	2.87	12.93	32.77	49.18	29.54	5.34	9.97	14.55	11.64	6.7	2.54	0.06	2.54	6.7	11.64	14.55	9.97	5.34	29.54	49.18	32.77	12.93	2.87	0.23
115	0.22	2.84	12.77	32.36	48.58	29.21	5.29	9.87	14.42	11.54	6.64	2.51	0.06	2.51	6.64	11.54	14.42	9.87	5.29	29.21	48.58	32.36	12.77	2.84	0.22
116	0.22	2.81	12.61	31.92	47.98	28.88	5.24	9.76	14.27	11.44	6.58	2.49	0.05	2.49	6.58	11.44	14.27	9.76	5.24	28.88	47.98	31.92	12.61	2.81	0.22
117	0.22	2.78	12.45	31.49	47.35	28.54	5.19	9.64	14.13	11.33	6.52	2.46	0.06	2.46	6.52	11.33	14.13	9.64	5.19	28.54	47.35	31.49	12.45	2.78	0.22
118	0.22	2.75	12.28	31.04	46.7	28.19	5.14	9.53	13.97	11.22	6.46	2.43	0.06	2.43	6.46	11.22	13.97	9.53	5.14	28.19	46.7	31.04	12.28	2.75	0.22
119	0.21	2.72	12.11	30.59	46.03	27.82	5.08	9.41	13.82	11.11	6.39	2.41	0.06	2.41	6.39	11.11	13.82	9.41	5.08	27.82	46.03	30.59	12.11	2.72	0.21
120	0.21	2.68	11.93	30.11	45.35	27.45	5.03	9.29	13.66	10.99	6.32	2.38	0.06	2.38	6.32	10.99	13.66	9.29	5.03	27.45	45.35	30.11	11.93	2.68	0.21
121	0.21	2.65	11.75	29.63	44.66	27.05	4.97	9.17	13.49	10.87	6.25	2.35	0.06	2.35	6.25	10.87	13.49	9.17	4.97	27.05	44.66	29.63	11.75	2.65	0.21
122	0.21	2.62	11.57	29.14	43.95	26.66	4.91	9.04	13.33	10.74	6.18	2.32	0.05	2.32	6.18	10.74	13.33	9.04	4.91	26.66	43.95	29.14	11.57	2.62	0.21
123	0.2	2.58	11.38	28.65	43.22	26.26	4.85	8.91	13.16	10.62	6.11	2.29	0.05	2.29	6.11	10.62	13.16	8.91	4.85	26.26	43.22	28.65	11.38	2.58	0.2
124	0.2	2.54	11.19	28.13	42.48	25.85	4.79	8.78	12.99	10.48	6.03	2.26	0.04	2.26	6.03	10.48	12.99	8.78	4.79	25.85	42.48	28.13	11.19	2.54	0.2
125	0.19	2.5	10.99	27.62	41.72	25.42	4.72	8.64	12.8	10.35	5.95	2.23	0.04	2.23	5.95	10.35	12.8	8.64	4.72	25.42	41.72	27.62	10.99	2.5	0.19
126	0.19	2.46	10.8	27.08	40.95	24.99	4.66	8.5	12.61	10.22	5.87	2.19	0.04	2.19	5.87	10.22	12.61	8.5	4.66	24.99	40.95	27.08	10.8	2.46	0.19
127	0.18	2.42	10.6	26.56	40.17	24.56	4.59	8.36	12.42	10.07	5.79	2.16	0.03	2.16	5.79	10.07	12.42	8.36	4.59	24.56	40.17	26.56	10.6	2.42	0.18
128	0.18	2.38	10.39	26.01	39.38	24.11	4.53	8.22	12.23	9.93	5.71	2.13	0.02	2.13	5.71	9.93	12.23	8.22	4.53	24.11	39.38	26.01	10.39	2.38	0.18
129	0.17	2.34	10.18	25.46	38.57	23.65	4.46	8.08	12.03	9.78	5.62	2.09	0.02	2.09	5.62	9.78	12.03	8.08	4.46	23.65	38.57	25.46	10.18	2.34	0.17
130	0.17	2.29	9.98	24.9	37.76	23.2	4.39	7.93	11.83	9.64	5.53	2.05	0.02	2.05	5.53	9.64	11.83	7.93	4.39	23.2	37.76	24.9	9.98	2.29	0.17
131	0.16	2.25	9.76	24.33	36.92	22.73	4.32	7.78	11.62	9.48	5.44	2.01	0.02	2.01	5.44	9.48	11.62	7.78	4.32	22.73	36.92	24.33	9.76	2.25	0.16
132	0.16	2.2	9.55	23.76	36.08	22.26	4.25	7.63	11.41	9.32	5.35	1.96	0.02	1.96	5.35	9.32	11.41	7.63	4.25	22.26	36.08	23.76	9.55	2.2	0.16
133	0.15	2.16	9.33	23.19	35.24	21.78	4.18	7.47	11.2	9.17	5.25	1.92	0.02	1.92	5.25	9.17	11.2	7.47	4.18	21.78	35.24	23.19	9.33	2.16	0.15
134	0.15	2.11	9.11	22.61	34.38	21.29	4.11	7.32	10.98	9.01	5.16	1.87	0.02	1.87	5.16	9.01	10.98	7.32	4.11	21.29	34.38	22.61	9.11	2.11	0.15
135	0.15	2.06	8.88	22.02	33.51	20.8	4.04	7.16	10.76	8.84	5.06	1.82	0.02	1.82	5.06	8.84	10.76	7.16	4.04	20.8	33.51	22.02	8.88	2.06	0.15
136	0.14	2.01	8.65	21.44	32.62	20.3	3.97	7	10.53	8.67	4.95	1.77	0.02	1.77	4.95	8.67	10.53	7	3.97	20.3	32.62	21.44	8.65	2.01	0.14
137	0.14	1.96	8.43	20.84	31.74	19.79	3.89	6.84	10.31	8.5	4.85	1.71	0.02	1.71	4.85	8.5	10.31	6.84	3.89	19.79	31.74	20.84	8.43	1.96	0.14
138	0.13	1.92	8.2	20.26	30.85	19.26	3.81	6.68	10.08	8.32	4.74	1.67	0.02	1.67	4.74	8.32	10.08	6.68	3.81	19.26	30.85	20.26	8.2	1.92	0.13
139	0.13	1.87	7.97	19.66	29.96	18.74	3.72	6.52	9.84	8.14	4.63	1.62	0.02	1.62	4.63	8.14	9.84	6.52	3.72	18.74	29.96	19.66	7.97	1.87	0.13
140	0.12	1.82	7.74	19.07	29.06	18.22	3.64	6.35	9.61	7.95	4.51	1.58	0.02	1.58	4.51	7.95	9.61	6.35	3.64	18.22	29.06	19.07	7.74	1.82	0.12
141	0.12	1.77	7.51	18.47	28.15	17.69	3.55	6.19	9.37	7.77	4.4	1.53	0.02	1.53	4.4	7.77	9.37	6.19	3.55	17.69	28.15	18.47	7.51	1.77	0.12
142	0.11	1.72	7.28	17.88	27.24	17.13	3.45	6.03	9.13	7.57	4.28	1.48	0.02	1.48	4.28	7.57	9.13	6.03	3.45	17.13	27.24	17.88	7.28	1.72	0.11
143	0.11	1.67	7.05	17.3	26.33	16.56	3.35	5.87	8.89	7.37	4.15	1.43	0.02	1.43	4.15	7.37	8.89	5.87	3.35	16.56	26.33	17.3	7.05	1.67	0.11
144	0.1	1.63	6.83	16.71	25.41	15.99	3.24	5.71	8.64	7.17	4.02	1.38	0.02	1.38	4.02	7.17	8.64	5.71	3.24	15.99	25.41	16.71	6.83	1.63	0.1
145	0.1	1.58	6.6	16.13	24.5	15.4	3.13	5.55	8.39	6.96	3.89	1.33	0.02	1.33	3.89	6.96	8.39	5.55	3.13	15.4	24.5	16.13	6.6	1.58	0.1
146	0.09	1.53	6.38	15.54	23.57	14.81	3.02	5.39	8.13	6.75	3.76	1.28	0.02	1.28	3.76	6.75	8.13	5.39	3.02	14.81	23.57	15.54	6.38	1.53	0.09
147	0.08	1.48	6.14	14.96	22.64	14.22	2.9	5.23	7.88	6.53	3.63	1.23	0.02	1.23	3.63	6.53	7.88	5.23	2.9	14.22	22.64	14.96	6.14	1.48	0.08
148	0.08	1.44	5.93	14.39	21.71	13.6	2.78	5.07	7.61	6.3	3.49	1.18	0.02	1.18	3.49	6.3	7.61	5.07	2.78	13.6	21.71	14.39	5.93	1.44	0.08
149	0.07	1.39	5.72	13.8	20.78	12.97	2.65	4.91	7.35	6.06	3.34	1.13	0.02	1.13	3.34	6.06	7.35	4.91	2.65	12.97	20.78	13.8	5.72	1.39	0.07
150	0.07	1.35	5.51	13.24	19.87	12.32	2.51	4.75	7.08	5.82	3.2	1.09	0.02	1.09	3.2	5.82	7.08	4.75	2.51	12.32	19.87	13.24	5.51	1.35	0.07
151	0.06	1.31	5.3	12.68	18.92	11.66	2.37	4.6	6.81	5.57	3.05	1.04	0.02	1.04	3.05	5.57	6.81	4.6	2.37	11.66	18.92	12.68	5.3	1.31	0.06
152	0.06	1.27	5.1	12.12	17.99	11	2.23	4.44	6.54	5.32	2.9	0.97	0.02	0.97	2.9	5.32	6.54	4.44	2.23	11	17.99	12.12	5.1	1.27	0.06
153	0.05	1.23	4.89	11.57	17.03	10.32	2.1	4.29	6.27	5.05	2.74	0.9	0.02	0.9	2.74	5.05	6.27	4.29	2.1	10.32	17.03	11.57	4.89	1.23	0.05
154	0.05	1.2	4.7	11.02	16.09	9.63	1.97	4.13	5.98	4.78	2.58	0.82	0.02	0.82	2.58	4.78	5.98	4.13	1.97	9.63	16.09	11.02	4.7	1.2	0.05
155	0.05	1.16	4.5	10.46	15.12	8.93	1.85	3.97	5.68	4.51	2.42	0.75	0.02	0.75	2.42	4.51	5.68	3.97	1.85	8.93	15.12	10.46	4.5	1.16	0.05



161	0.03	0.91	3.3	7.06	9.11	4.93	1.37	2.89	3.75	2.82	1.44	0.17	0.02	0.17	1.44	2.82	3.75	2.89	1.37	4.93	9.11	7.06	3.3	0.91	0.03
162	0.03	0.86	3.08	6.47	8.11	4.33	1.31	2.67	3.41	2.54	1.29	0.14	0.02	0.14	1.29	2.54	3.41	2.67	1.31	4.33	8.11	6.47	3.08	0.86	0.03
163	0.03	0.79	2.84	5.86	7.11	3.76	1.24	2.44	3.07	2.27	1.12	0.12	0.02	0.12	1.12	2.27	3.07	2.44	1.24	3.76	7.11	5.86	2.84	0.79	0.03
164	0.03	0.71	2.58	5.24	6.17	3.25	1.17	2.2	2.73	2.01	0.95	0.09	0.02	0.09	0.95	2.01	2.73	2.2	1.17	3.25	6.17	5.24	2.58	0.71	0.03
165	0.03	0.62	2.32	4.62	5.28	2.78	1.08	1.96	2.39	1.75	0.78	0.06	0.02	0.06	0.78	1.75	2.39	1.96	1.08	2.78	5.28	4.62	2.32	0.62	0.03
166	0.02	0.51	2.05	4	4.43	2.35	0.98	1.7	2.06	1.47	0.6	0.04	0.02	0.04	0.6	1.47	2.06	1.7	0.98	2.35	4.43	4	2.05	0.51	0.02
167	0.02	0.4	1.76	3.39	3.64	1.97	0.88	1.46	1.73	1.16	0.44	0.02	0.02	0.02	0.44	1.16	1.73	1.46	0.88	1.97	3.64	3.39	1.76	0.4	0.02
168	0.02	0.31	1.42	2.78	2.91	1.62	0.77	1.22	1.43	0.86	0.31	0.02	0.02	0.02	0.31	0.86	1.43	1.22	0.77	1.62	2.91	2.78	1.42	0.31	0.02
169	0.02	0.21	1.1	2.17	2.25	1.31	0.66	1	1.11	0.61	0.18	0.02	0.02	0.02	0.18	0.61	1.11	1	0.66	1.31	2.25	2.17	1.1	0.21	0.02
170	0.02	0.12	0.72	1.57	1.7	1.03	0.56	0.79	0.73	0.45	0.1	0.02	0.02	0.02	0.1	0.45	0.73	0.79	0.56	1.03	1.7	1.57	0.72	0.12	0.02
171	0.02	0.05	0.38	0.99	1.23	0.79	0.46	0.61	0.48	0.35	0.05	0.02	0.02	0.02	0.05	0.35	0.48	0.61	0.46	0.79	1.23	0.99	0.38	0.05	0.02
172	0.02	0.03	0.14	0.54	0.86	0.59	0.37	0.45	0.37	0.21	0.03	0.02	0.02	0.02	0.03	0.21	0.37	0.45	0.37	0.59	0.86	0.54	0.14	0.03	0.02
173	0.02	0.02	0.05	0.28	0.51	0.42	0.28	0.28	0.25	0.12	0.02	0.02	0.02	0.02	0.02	0.12	0.25	0.28	0.28	0.42	0.51	0.28	0.05	0.02	0.02
174	0.01	0.02	0.03	0.12	0.23	0.23	0.19	0.14	0.13	0.04	0.02	0.02	0.02	0.02	0.02	0.04	0.13	0.14	0.19	0.23	0.23	0.12	0.03	0.02	0.01
175	0.01	0.02	0.02	0.03	0.08	0.1	0.1	0.06	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.06	0.1	0.1	0.08	0.03	0.02	0.02	0.01
176	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.01
177	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01
178	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01
179	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01
180	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	SA-CLBT	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the ANSI C82.77:2014.
 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
120.01	60	0.038	4.57	0.994	6.70%
277.00	60	0.021	5.39	0.940	14.41%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2023/12/24	2024/12/23
DLF108	Auxiliary Lamp	2023/12/24	2024/12/23
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2023/12/24	2024/12/23
DLF116	AC Power Source	2023/12/16	2024/12/15
DLF516	Power Meter	2023/12/16	2024/12/15
DLF112	Temperature Recorder	2023/12/28	2024/12/27
DLF114	Temperature & Humidity Datalogger	2023/12/28	2024/12/27
DLF101	Goniophotometer	2023/12/24	2024/12/23
DLF511	AC Power Source	2023/12/16	2024/12/15
DLF512	AC Power Source	2023/12/16	2024/12/15
DLF513	AC Power Source	2023/12/16	2024/12/15
DLF507	DC Power Source	2023/12/16	2024/12/15
DLF111	Temperature & Humidity Datalogger	2023/12/28	2024/12/27
DLF119	Power Meter	2023/12/16	2024/12/15
DLF031	Temperature data logger	2024/6/20	2025/6/19
DLF073	Power Analyzer	2024/6/20	2025/6/19
DLF003	Temperature & Humidity Datalogger	2024/6/20	2025/6/19

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