



Photometric Test Report

Relevant Standards

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

Prepared For RAB Lighting Inc.

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Test Date

2024/9/13

Issue Date

2024/9/14

Prepared By

Wangzun Zhu

Approved By

Kevin Jia

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1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2 (0°-180° zones)	IES LM-79-2008	300		332
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	40.1
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		167
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	20.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		8.27
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	8.63%
		20.00%	277V	21.38%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.990
		0.9	277V	0.903
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3045±175	3035
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		85
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		19
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		98
IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18% ≤ IES Rcs,h1 ≤ +23%		-10%
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%		9.28%
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		0.033
(Goniophotometer - Section 4.2)		Non-Worst Case		0.064
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		8.27
(Goniophotometer - Section 4.2)		Non-Worst Case		7.66

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/9/13	SA-SLWP	ES1-02	A1
2	Goniophotometer Test	2024/9/13	SA-SLWP	ES1-02	A1
3	THD and PF Test	2024/9/13	SA-SLWP	ES1-02	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: SA-SLWP

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-SLWP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.1	Humidity (%RH)	57.0

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	0.064	7.66	0.990
277.09	60	0.033	8.27	0.903

Test Result

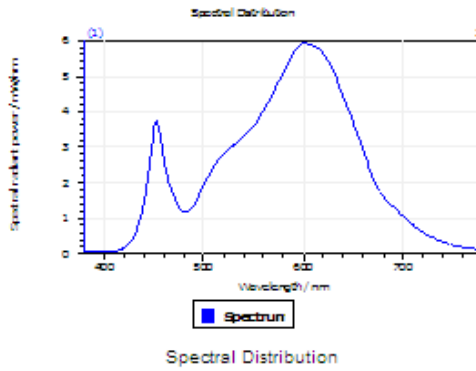
CCT (K)	CRI	R9	Duv
3035	85	19	-0.003

Rf	Rg	IES Rcs,h1
85	98	-10%

4.1 Integrating Sphere Test

Original Series: 01/20/2000 1 Counts

Results



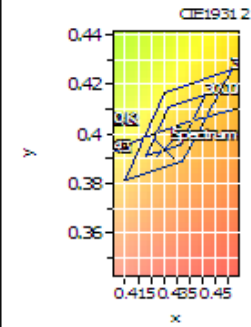
Spectral values

DominantWavelength 583.82 nm
 Purity 0.475
 PeakWavelength 604.97 nm
 Radiant Power 0.9149 W
 Width50%:

Color Coordinates

Correlated Color Temperat 3035 K
 x: 0.4303 u: 0.2504 u: 0.2504
 y: 0.3944 v: 0.3443 v: 0.5165

CRI01	84.4	CRI09	19.1
CRI02	93.0	CRI10	83.3
CRI03	98.2	CRI11	83.2
CRI04	83.3	CRI12	74.1
CRI05	84.6	CRI13	86.7
CRI06	91.0	CRI14	98.8
CRI07	84.0	CRI15	78.3
CRI08	64.0	CRI16	75.9
ResultsCRI	85.1		



PlanckDistance 3.0E-003

4.1 Integrating Sphere Test

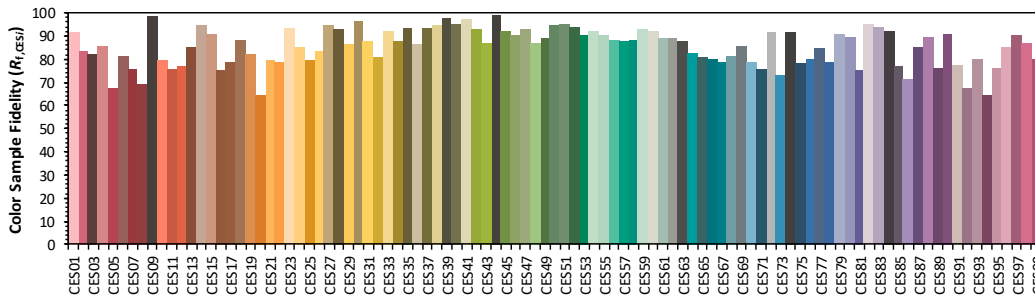
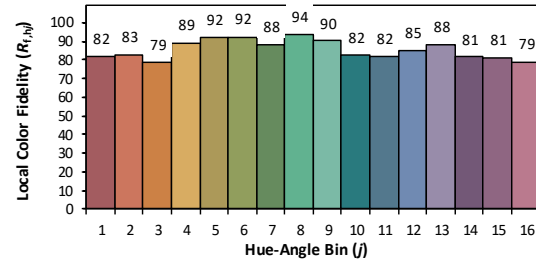
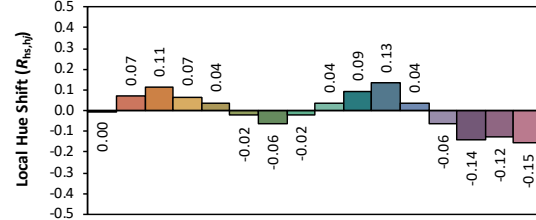
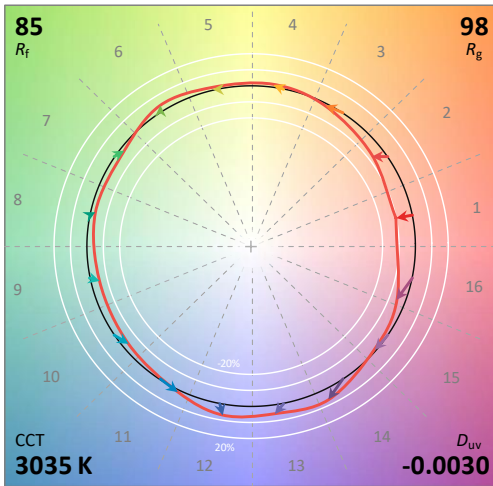
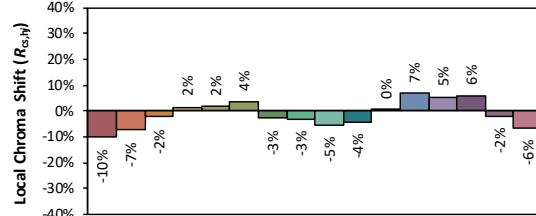
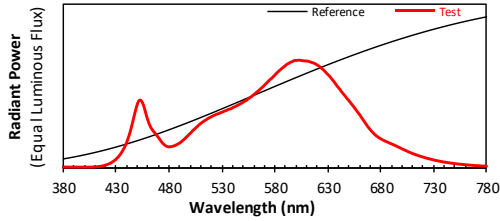
IES TM-30-18 Color Rendition Report

Source: DLF2409106-1a

Manufacturer: RAB Lighting Inc.

Date: 2024/9/13

Model: SA-SLWP



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

x 0.4303
 y 0.3944
 u' 0.2504
 v' 0.5165

CIE 13.3-1995 (CRI)	
R_a	85
R_g	21

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	5.61E-05	485	1.22E-03	590	5.62E-03	695	1.20E-03
385	5.40E-05	490	1.37E-03	595	5.80E-03	700	1.06E-03
390	5.22E-05	495	1.61E-03	600	5.90E-03	705	9.27E-04
395	5.26E-05	500	1.90E-03	605	5.89E-03	710	8.02E-04
400	5.09E-05	505	2.19E-03	610	5.86E-03	715	6.96E-04
405	5.27E-05	510	2.45E-03	615	5.78E-03	720	6.01E-04
410	6.44E-05	515	2.65E-03	620	5.64E-03	725	5.20E-04
415	9.64E-05	520	2.81E-03	625	5.42E-03	730	4.48E-04
420	1.64E-04	525	2.95E-03	630	5.13E-03	735	3.84E-04
425	2.82E-04	530	3.06E-03	635	4.79E-03	740	3.28E-04
430	4.95E-04	535	3.18E-03	640	4.41E-03	745	2.84E-04
435	8.43E-04	540	3.31E-03	645	4.04E-03	750	2.44E-04
440	1.42E-03	545	3.45E-03	650	3.69E-03	755	2.12E-04
445	2.37E-03	550	3.61E-03	655	3.32E-03	760	1.84E-04
450	3.49E-03	555	3.80E-03	660	2.93E-03	765	1.57E-04
455	3.56E-03	560	4.02E-03	665	2.51E-03	770	1.37E-04
460	2.62E-03	565	4.26E-03	670	2.11E-03	775	1.18E-04
465	2.03E-03	570	4.53E-03	675	1.81E-03	780	1.03E-04
470	1.67E-03	575	4.83E-03	680	1.61E-03		
475	1.30E-03	580	5.10E-03	685	1.46E-03		
480	1.16E-03	585	5.37E-03	690	1.33E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SA-SLWP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 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	277.02	60	0.033	8.27	0.903
NON-WORST CASE	120.02	60	0.064	7.66	0.990

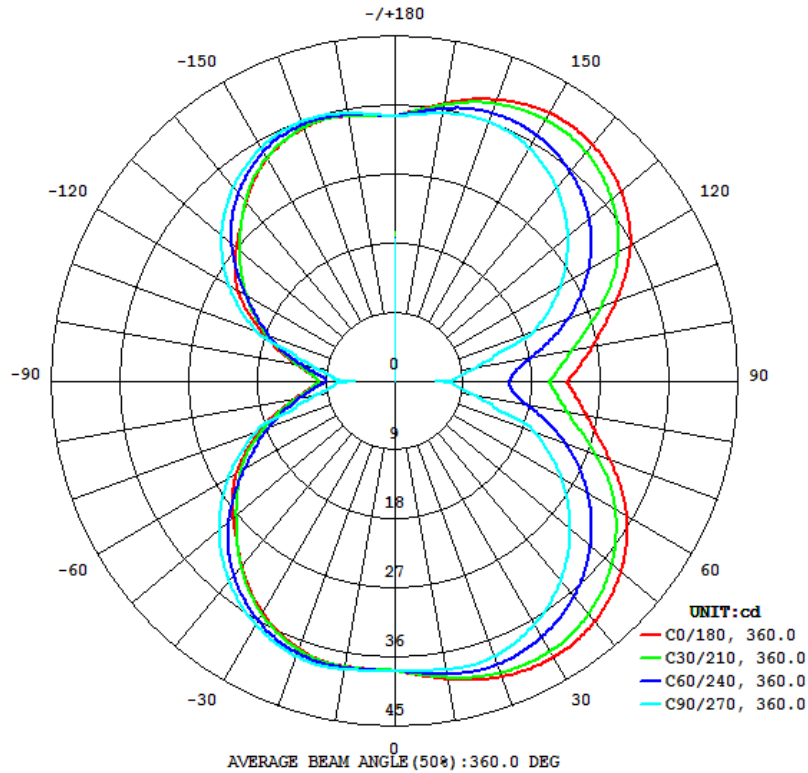
Test Result

Result type	Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
		C0-180	C90-270	C0-180	C90-270	
0°-180° zones	332	360.0	360.0	360.0	360.0	40.1
0°-90° zones	167	179.7	179.3	155.9	142.1	20.2

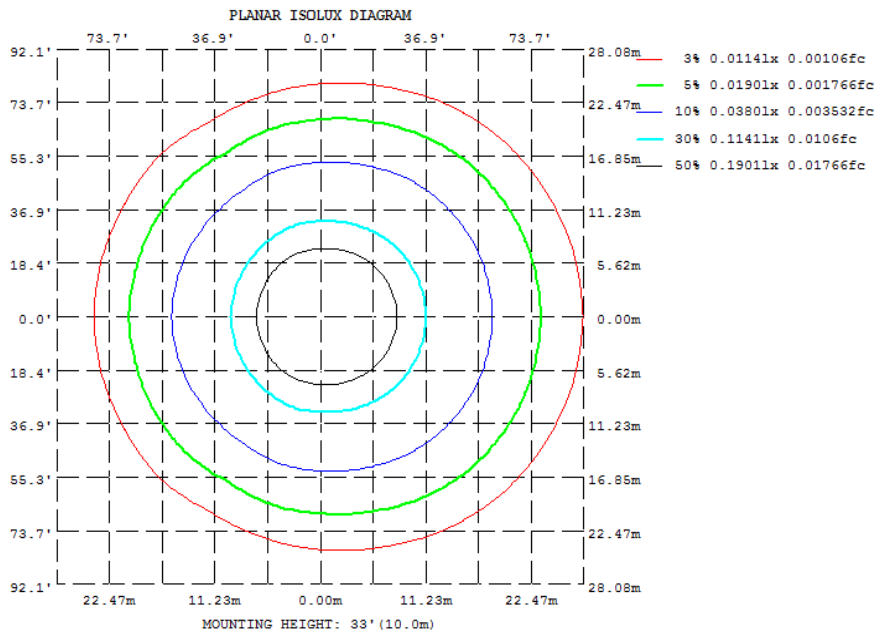
Zonal Lumen Requirement (80°-90°)	BUG rating
9.28%	B0-U3-G0

4.2 Goniophotometer Test

Light Distribution Curve



Isolux Plot



4.2 Goniophotometer Test

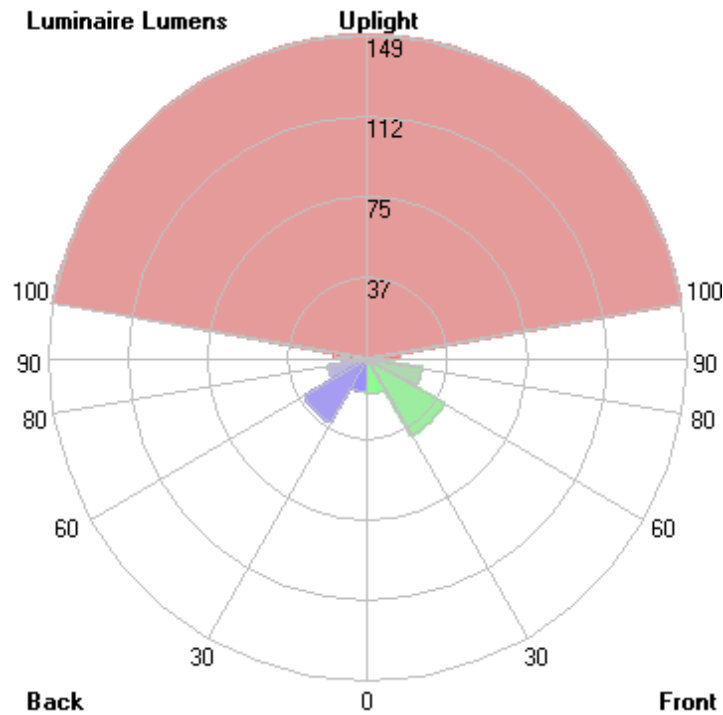
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	39.41	39.00	38.17	37.87	37.77	37.87	38.17	39.00
20	40.97	39.88	38.13	37.49	37.09	37.49	38.13	39.88
30	41.57	39.64	36.59	35.44	34.88	35.44	36.59	39.64
40	40.80	38.24	33.88	32.11	31.29	32.11	33.88	38.24
50	38.68	35.51	30.08	27.47	27.68	27.47	30.08	35.51
60	35.21	31.57	25.28	23.16	24.06	23.16	25.28	31.57
70	30.05	26.26	19.53	18.39	18.86	18.39	19.53	26.26
80	25.54	20.42	10.58	11.00	13.45	11.00	10.58	20.42
90	22.54	17.93	5.319	10.00	9.974	10.00	5.319	17.93
100	26.26	20.82	10.73	11.15	13.05	11.15	10.73	20.82
110	30.91	26.75	19.36	18.39	18.43	18.39	19.36	26.75
120	35.76	31.88	25.12	22.87	23.83	22.87	25.12	31.88
130	38.76	35.46	29.69	26.99	27.16	26.99	29.69	35.46
140	40.33	37.65	33.06	31.28	30.44	31.28	33.06	37.65
150	40.50	38.41	35.23	34.10	33.68	34.10	35.23	38.41
160	39.07	37.94	36.06	35.54	35.18	35.54	36.06	37.94
170	36.74	36.37	35.45	35.24	35.11	35.24	35.45	36.37
180	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)	Total (lm)	Percent
0-10	3.64	0 - 10	3.64 1.10%
10-20	10.96	0 - 20	14.60 4.39%
20-30	17.65	0 - 30	32.25 9.71%
30-40	22.83	0 - 40	55.08 16.58%
40-50	25.84	0 - 50	80.92 24.36%
50-60	26.45	0 - 60	107.37 32.32%
60-70	24.56	0 - 70	131.93 39.71%
70-80	19.93	0 - 80	151.86 45.71%
80-90	15.54	0 - 90	167.40 50.38%
90-100	15.66	0 - 100	183.06 55.10%
100-110	20.03	0 - 110	203.09 61.13%
110-120	24.57	0 - 120	227.66 68.52%
120-130	26.33	0 - 130	253.99 76.45%
130-140	25.45	0 - 140	279.44 84.11%
140-150	22.21	0 - 150	301.65 90.79%
150-160	16.92	0 - 160	318.57 95.88%
160-170	10.31	0 - 170	328.88 98.99%
170-180	3.37	0 - 180	332.25 100.00%

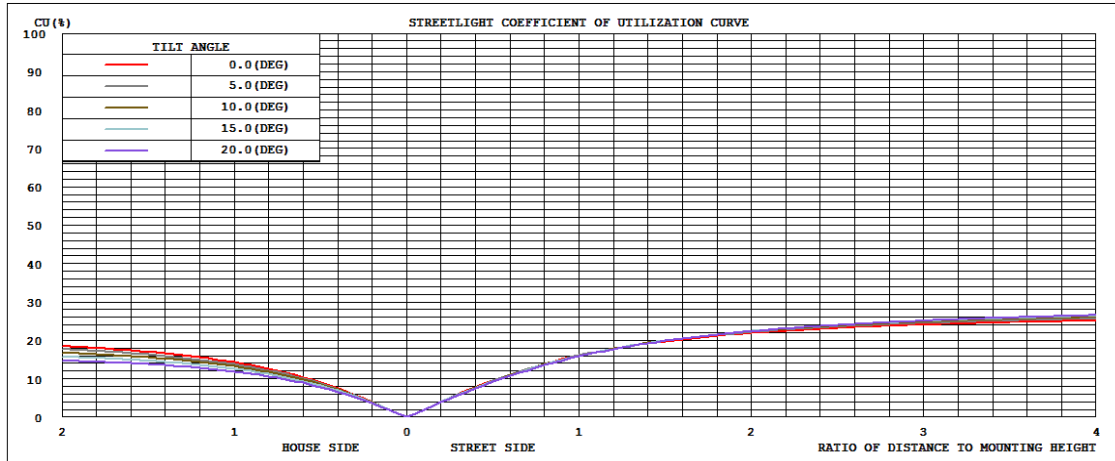
4.2 Goniophotometer Test

LCS/BUG

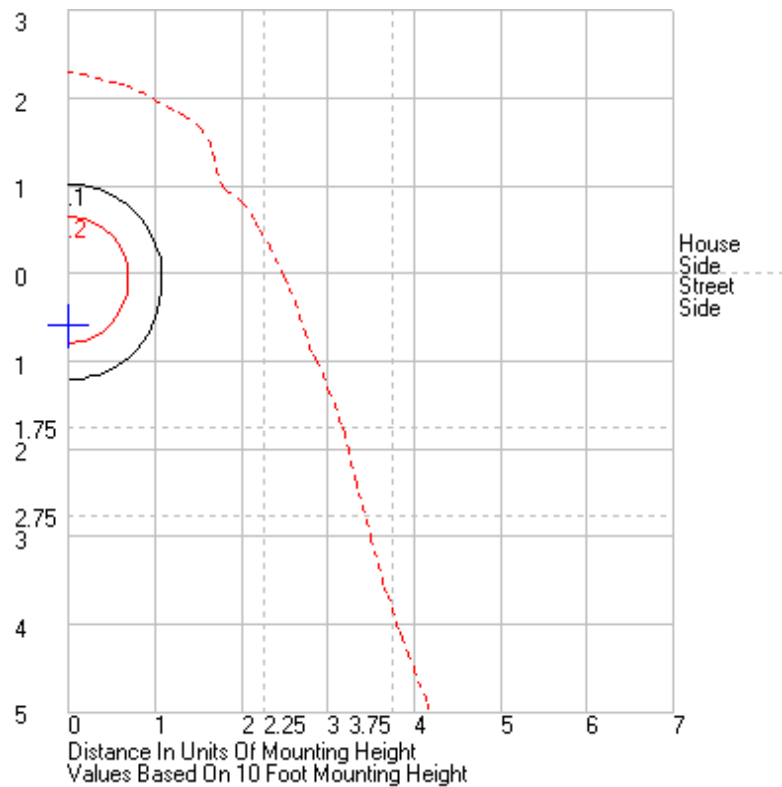


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	16.6	N.A.	5.0
FM - Front-Medium (30-60)	41.1	N.A.	12.4
FH - Front-High (60-80)	26.0	N.A.	7.8
FVH - Front-Very High (80-90)	9.8	N.A.	3.0
BL - Back-Low (0-30)	15.6	N.A.	4.7
BM - Back-Medium (30-60)	34.0	N.A.	10.2
BH - Back-High (60-80)	18.5	N.A.	5.6
BVH - Back-Very High (80-90)	5.7	N.A.	1.7
UL - Uplight-Low (90-100)	15.7	N.A.	4.7
UH - Uplight-High (100-180)	149.2	N.A.	44.9
Total	332.2	N.A.	100.0
BUG Rating	B0-U3-G0		

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	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71
1	37.85	37.84	37.82	37.8	37.78	37.75	37.72	37.71	37.7	37.69	37.69	37.69	37.69	37.69	37.69	37.69	37.7	37.71	37.72	37.75	37.78	37.8	37.82	37.84	37.85
2	38	37.98	37.96	37.91	37.87	37.81	37.75	37.73	37.71	37.69	37.69	37.67	37.68	37.67	37.69	37.69	37.71	37.73	37.75	37.81	37.87	37.91	37.96	37.98	38
3	38.15	38.13	38.09	38.05	37.96	37.89	37.8	37.77	37.73	37.72	37.69	37.68	37.68	37.68	37.69	37.72	37.73	37.77	37.8	37.89	37.96	38.05	38.09	38.13	38.15
4	38.32	38.3	38.25	38.18	38.07	37.95	37.82	37.79	37.76	37.74	37.72	37.69	37.69	37.69	37.72	37.74	37.76	37.79	37.82	37.95	38.07	38.18	38.25	38.3	38.32
5	38.49	38.46	38.4	38.3	38.18	38.03	37.87	37.83	37.79	37.75	37.72	37.7	37.7	37.7	37.72	37.75	37.79	37.83	37.87	38.03	38.18	38.3	38.4	38.46	38.49
6	38.67	38.63	38.57	38.44	38.3	38.11	37.92	37.87	37.83	37.78	37.76	37.72	37.71	37.72	37.76	37.78	37.83	37.87	37.92	38.11	38.3	38.44	38.57	38.63	38.67
7	38.85	38.81	38.72	38.59	38.4	38.19	37.97	37.91	37.85	37.81	37.77	37.74	37.73	37.74	37.77	37.81	37.85	37.91	37.97	38.19	38.4	38.59	38.72	38.81	38.85
8	39.04	38.99	38.88	38.74	38.51	38.28	38.04	37.96	37.89	37.83	37.79	37.76	37.74	37.76	37.79	37.83	37.89	37.96	38.04	38.28	38.51	38.74	38.88	38.99	39.04
9	39.23	39.17	39.05	38.86	38.63	38.38	38.11	38.01	37.92	37.85	37.8	37.77	37.76	37.77	37.8	37.85	37.92	38.01	38.11	38.38	38.63	38.86	39.05	39.17	39.23
10	39.41	39.35	39.22	39	38.75	38.46	38.17	38.06	37.96	37.87	37.82	37.78	37.77	37.78	37.82	37.87	37.96	38.06	38.17	38.46	38.75	39	39.22	39.35	39.41
11	39.6	39.53	39.39	39.13	38.85	38.54	38.23	38.09	37.97	37.88	37.83	37.8	37.78	37.8	37.83	37.88	37.97	38.09	38.23	38.54	38.85	39.13	39.39	39.53	39.6
12	39.79	39.7	39.53	39.27	38.95	38.62	38.28	38.14	37.99	37.89	37.83	37.8	37.78	37.8	37.83	37.89	37.99	38.14	38.28	38.62	38.95	39.27	39.53	39.7	39.79
13	39.98	39.88	39.68	39.38	39.04	38.69	38.33	38.16	38.01	37.89	37.81	37.79	37.77	37.79	37.81	37.89	38.01	38.16	38.33	38.69	39.04	39.38	39.68	39.88	39.98
14	40.16	40.05	39.81	39.49	39.12	38.74	38.35	38.18	38.01	37.86	37.8	37.77	37.76	37.77	37.8	37.86	38.01	38.18	38.35	38.74	39.12	39.49	39.81	40.05	40.16
15	40.33	40.2	39.95	39.59	39.19	38.77	38.36	38.16	38	37.83	37.75	37.74	37.73	37.74	37.75	37.83	38	38.16	38.36	38.77	39.19	39.59	39.95	40.2	40.33
16	40.48	40.34	40.07	39.67	39.23	38.78	38.35	38.13	37.97	37.8	37.72	37.66	37.63	37.66	37.72	37.8	37.97	38.13	38.35	38.78	39.23	39.67	40.07	40.34	40.48
17	40.61	40.48	40.19	39.74	39.27	38.78	38.32	38.09	37.91	37.75	37.64	37.54	37.51	37.54	37.64	37.75	37.91	38.09	38.32	38.78	39.27	39.74	40.19	40.48	40.61
18	40.74	40.6	40.28	39.81	39.29	38.75	38.27	38.04	37.84	37.68	37.54	37.41	37.38	37.41	37.54	37.68	37.84	38.04	38.27	38.75	39.29	39.81	40.28	40.6	40.74
19	40.86	40.71	40.36	39.86	39.3	38.72	38.2	37.98	37.75	37.59	37.38	37.27	37.24	37.27	37.38	37.59	37.75	37.98	38.2	38.72	39.3	39.86	40.36	40.71	40.86
20	40.97	40.81	40.43	39.88	39.28	38.66	38.13	37.9	37.68	37.49	37.23	37.12	37.09	37.12	37.23	37.49	37.68	37.9	38.13	38.66	39.28	39.88	40.43	40.81	40.97
21	41.08	40.91	40.5	39.92	39.25	38.59	38.04	37.8	37.59	37.35	37.07	36.95	36.92	36.95	37.07	37.35	37.59	37.8	38.04	38.59	39.25	39.92	40.5	40.91	41.08
22	41.17	40.99	40.55	39.93	39.21	38.51	37.92	37.69	37.48	37.18	36.89	36.77	36.74	36.77	36.89	37.18	37.48	37.69	37.92	38.51	39.21	39.93	40.55	40.99	41.17
23	41.26	41.06	40.6	39.93	39.15	38.42	37.81	37.56	37.36	37	36.7	36.59	36.55	36.59	36.7	37	37.36	37.56	37.81	38.42	39.15	39.93	40.6	41.06	41.26
24	41.34	41.13	40.64	39.93	39.09	38.31	37.67	37.41	37.21	36.81	36.5	36.39	36.35	36.39	36.5	36.81	37.21	37.41	37.67	38.31	39.09	39.93	40.64	41.13	41.34
25	41.4	41.18	40.66	39.9	39.01	38.19	37.51	37.25	37.05	36.62	36.28	36.16	36.14	36.16	36.28	36.62	37.05	37.25	37.51	38.19	39.01	39.9	40.66	41.18	41.4
26	41.46	41.22	40.68	39.87	38.92	38.06	37.36	37.07	36.87	36.41	36.05	35.93	35.91	35.93	36.05	36.41	36.87	37.07	37.36	38.06	38.92	39.87	40.68	41.22	41.46
27	41.5	41.25	40.68	39.84	38.81	37.92	37.18	36.89	36.67	36.2	35.81	35.69	35.67	35.69	35.81	36.2	36.67	36.89	37.18	37.92	38.81	39.84	40.68	41.25	41.5
28	41.54	41.28	40.68	39.78	38.71	37.75	37	36.7	36.47	35.96	35.55	35.43	35.42	35.43	35.55	35.96	36.47	36.7	37.75	38.71	39.78	40.68	41.28	41.54	
29	41.56	41.28	40.65	39.71	38.59	37.58	36.8	36.51	36.22	35.71	35.29	35.16	35.15	35.16	35.29	35.71	36.22	36.51	36.8	37.58	38.59	39.71	40.65	41.28	41.56
30	41.57	41.28	40.63	39.64	38.47	37.4	36.59	36.3	35.98	35.44	35.01	34.88	34.88	34.88	35.01	35.44	35.98	36.3	36.59	37.4	38.47	39.64	40.63	41.28	41.57
31	41.55	41.26	40.59	39.55	38.33	37.21	36.36	36.09	35.72	35.17	34.71	34.58	34.56	34.58	34.71	35.17	35.72	36.09	36.36	37.21	38.33	39.55	40.59	41.26	41.55
32	41.52	41.22	40.54	39.45	38.17	37	36.14	35.87	35.45	34.89	34.4	34.25	34.23	34.25	34.4	34.89	35.45	35.87	36.14	37	38.17	39.45	40.54	41.22	41.52
33	41.47	41.16	40.47	39.35	38.01	36.78	35.9	35.64	35.19	34.59	34.07	33.91	33.89	33.91	34.07	34.59	35.19	35.64	35.9	36.78	38.01	39.35	40.47	41.16	41.47
34	41.41	41.09	40.38	39.22	37.84	36.56	35.64	35.4	34.9	34.27	33.72	33.55	33.54	33.55	33.72	34.27	34.9	35.4	35.64	36.56	37.84	39.22	40.38	41.09	41.41
35	41.34	41	40.27	39.08	37.66	36.3	35.37	35.14	34.61	33.95	33.36	33.19	33.18	33.19	33.36	33.95	34.61	35.14	35.37	36.3	37.66	39.08	40.27	41	41.34
36	41.26	40.91	40.15	38.94	37.46	36.06	35.1	34.87	34.3	33.61	32.99	32.82	32.82	32.82	32.99	33.61	34.3	34.87	35.1	36.06	37.46	38.94	40.15	40.91	41.26
37	41.17	40.8	40.02	38.79	37.25	35.78	34.81	34.59	33.98	33.26	32.6	32.44	32.44	32.44	32.6	33.26	33.98	34.59	34.81	35.78	37.25	38.79	40.02	40.8	41.17
38	41.06	40.68	39.87	38.62	37.03	35.5	34.52	34.29	33.65	32.89	32.2	32.06	32.06	32.06	32.2	32.89	33.65	34.29	34.52	35.5	37.03	38.62	39.87	40.68	41.06
39	40.93	40.54	39.72	38.44	36.81	35.22	34.21	33.99	33.29	32.5	31.81	31.68	31.68	31.68	31.81	32.5	33.29	33.99	34.21	35.22	36.81	38.44	39.72	40.54	40.93
40	40.8	40.4	39.55	38.24	36.56	34.91	33.88	33.67	32.92	32.11	31.4	31.29	31.29	31.29	31.4	32.11	32.92	33.67	33.88	34.91	36.56	38.24	39.55	40.4	40.8
41	40.65	40.24	39.37	38.02	36.31	34.6	33.55	33.34	32.55	31.68	30.99	30.89	30.9	30.89	30.99	31.68	32.55	33.34	33.55	34.6	36.31	38.02	39.37	40.24	40.65
42	40.48	40.06	39.17	37.79	36.04	34.29	33.2	32.99	32.14	31.25	30.58	30.49	30.51	30.49	30.58	31.25	32.14	32.99	33.2	34.29	36.04	37.79	39.17	40.06	40.48
43	40.31	39.88	38.95	37.55	35.77	33.95	32.85	32.65	31.73	30.81	30.16	30.09	30.12	30.09	30.16	30.81	31.73	32.65	32.85	33.95	35.77	37.55	38.95	39.88	40.31
44	40.12	39.68	38.73	37.3	35.48	33.62	32.49	32.29	31.31	30.35	29.73	29.69	29.72	29.69	29.73	30.35	31.31	32.29	32.49	33.62	35.48	37.3	38.73	39.68	40.12
45	39.92	39.46	38.5	37.03	35.18	33.26	32.12	31.92	30.88	29.89	29.3	29.29	29.33	29.29	29.3	29.89	30.88	31.92	32.12	33.26	35.18	37.03	38.5	39.46	39.92
46	39.7	39.24	38.26	36.75	34.86	32.9	31.73	31.54	30.4																



50	38.68	38.19	37.13	35.51	33.5	31.34	30.08	29.78	28.47	27.47	27.17	27.48	27.68	27.48	27.17	27.47	28.47	29.78	30.08	31.34	33.5	35.51	37.13	38.19	38.68
51	38.4	37.9	36.82	35.18	33.12	30.93	29.63	29.31	27.92	26.97	26.78	27.12	27.34	27.12	26.78	26.97	27.92	29.31	29.63	30.93	33.12	35.18	36.82	37.9	38.4
52	38.1	37.59	36.5	34.82	32.73	30.49	29.18	28.83	27.38	26.47	26.4	26.77	27.01	26.77	26.4	26.47	27.38	28.83	29.18	30.49	32.73	34.82	36.5	37.59	38.1
53	37.78	37.27	36.16	34.45	32.34	30.05	28.72	28.33	26.83	25.97	26.02	26.4	26.66	26.4	26.02	25.97	26.83	28.33	28.72	30.05	32.34	34.45	36.16	37.27	37.78
54	37.46	36.93	35.81	34.09	31.93	29.61	28.26	27.82	26.27	25.48	25.64	26.04	26.31	26.04	25.64	25.48	26.27	27.82	28.26	29.61	31.93	34.09	35.81	36.93	37.46
55	37.12	36.59	35.44	33.69	31.51	29.16	27.78	27.3	25.7	25.01	25.25	25.67	25.96	25.67	25.25	25.01	25.7	27.3	27.78	29.16	31.51	33.69	35.44	36.59	37.12
56	36.76	36.23	35.07	33.3	31.07	28.71	27.29	26.77	25.13	24.62	24.87	25.29	25.59	25.29	24.87	24.62	25.13	26.77	27.29	28.71	31.07	33.3	35.07	36.23	36.76
57	36.39	35.85	34.68	32.89	30.64	28.24	26.8	26.22	24.56	24.25	24.49	24.9	25.22	24.9	24.49	24.25	24.56	26.22	26.8	28.24	30.64	32.89	34.68	35.85	36.39
58	36.01	35.46	34.27	32.46	30.19	27.76	26.3	25.67	23.97	23.88	24.12	24.51	24.84	24.51	24.12	23.88	23.97	25.67	26.3	27.76	30.19	32.46	34.27	35.46	36.01
59	35.62	35.06	33.86	32.02	29.72	27.27	25.79	25.1	23.4	23.52	23.73	24.12	24.46	24.12	23.73	23.52	23.4	25.1	25.79	27.27	29.72	32.02	33.86	35.06	35.62
60	35.21	34.64	33.43	31.57	29.25	26.77	25.28	24.52	22.82	23.16	23.35	23.71	24.06	23.71	23.35	23.16	22.82	24.52	25.28	26.77	29.25	31.57	33.43	34.64	35.21
61	34.73	34.21	32.99	31.11	28.77	26.26	24.73	23.93	22.24	22.81	22.96	23.29	23.57	23.29	22.96	22.81	22.24	23.93	24.73	26.26	28.77	31.11	32.99	34.21	34.73
62	34.23	33.71	32.54	30.63	28.27	25.75	24.21	23.34	21.67	22.45	22.56	22.8	23.07	22.8	22.56	22.45	21.67	23.34	24.21	25.75	28.27	30.63	32.54	33.71	34.23
63	33.72	33.19	32.07	30.14	27.77	25.22	23.66	22.72	21.1	22.07	22.14	22.3	22.56	22.3	22.14	22.07	21.1	22.72	23.66	25.22	27.77	30.14	32.07	33.19	33.72
64	33.21	32.67	31.55	29.64	27.24	24.68	23.1	22.09	20.61	21.68	21.67	21.8	22.05	21.8	21.67	21.68	20.61	22.09	23.1	24.68	27.24	29.64	31.55	32.67	33.21
65	32.69	32.13	30.99	29.13	26.69	24.12	22.52	21.46	20.16	21.28	21.15	21.29	21.52	21.29	21.15	21.28	20.16	21.46	22.52	24.12	26.69	29.13	30.99	32.13	32.69
66	32.16	31.59	30.42	28.61	26.13	23.55	21.96	20.8	19.68	20.86	20.63	20.78	21	20.78	20.63	20.86	19.68	20.8	21.96	23.55	26.13	28.61	30.42	31.59	32.16
67	31.64	31.04	29.85	28.07	25.56	22.98	21.36	20.13	19.18	20.42	20.09	20.27	20.47	20.27	20.09	20.42	19.18	20.13	21.36	22.98	25.56	28.07	29.85	31.04	31.64
68	31.11	30.49	29.26	27.52	24.99	22.4	20.76	19.43	18.63	19.89	19.55	19.75	19.93	19.75	19.55	19.89	18.63	19.43	20.76	22.4	24.99	27.52	29.26	30.49	31.11
69	30.58	29.94	28.67	26.89	24.41	21.79	20.16	18.72	18.09	19.15	19	19.23	19.4	19.23	19	19.15	18.09	18.72	20.16	21.79	24.41	26.89	28.67	29.94	30.58
70	30.05	29.4	28.09	26.26	23.82	21.17	19.53	18	17.56	18.39	18.46	18.72	18.86	18.72	18.46	18.39	17.56	18	19.53	21.17	23.82	26.26	28.09	29.4	30.05
71	29.52	28.86	27.5	25.63	23.21	20.54	18.9	17.25	17.07	17.62	17.92	18.2	18.33	18.2	17.92	17.62	17.07	17.25	18.9	20.54	23.21	25.63	27.5	28.86	29.52
72	29.01	28.32	26.92	25	22.6	19.9	18.27	16.46	16.58	16.85	17.38	17.69	17.79	17.69	17.38	16.85	16.58	16.46	18.27	19.9	22.6	25	26.92	28.32	29.01
73	28.49	27.79	26.35	24.36	21.98	19.25	16.41	15.6	16.11	16.06	16.84	17.18	17.26	17.18	16.84	16.06	16.11	15.6	16.41	19.25	21.98	24.36	26.35	27.79	28.49
74	27.99	27.27	25.79	23.74	21.35	18.59	14.6	14.75	15.65	15.27	16.31	16.67	16.74	16.67	16.31	15.27	15.65	14.75	14.6	18.59	21.35	23.74	25.79	27.27	27.99
75	27.5	26.76	25.24	23.13	20.68	17.93	13.84	13.94	15.16	14.47	15.78	16.17	16.22	16.17	15.78	14.47	15.16	13.94	13.84	17.93	20.68	23.13	25.24	26.76	27.5
76	27.08	26.3	24.7	22.53	20.02	17.25	13.15	13.24	14.69	13.68	15.26	15.64	15.64	15.26	14.69	13.68	13.15	13.24	14.69	17.25	20.02	22.53	24.7	26.3	27.08
77	26.68	25.88	24.19	21.95	19.36	16.59	12.47	12.67	14.23	12.9	14.74	15.07	15.07	14.74	12.9	14.23	12.67	12.47	16.59	19.36	21.95	24.19	25.88	26.68	
78	26.29	25.48	23.76	21.4	18.73	15.97	11.81	12.19	13.76	12.16	14.2	14.52	14.51	14.52	14.2	12.16	13.76	12.19	11.81	15.97	18.73	21.4	23.76	25.48	26.29
79	25.91	25.09	23.35	20.87	18.13	15.36	11.17	11.79	13.28	11.46	13.68	13.99	13.97	13.99	13.68	11.46	13.28	11.79	11.17	15.36	18.13	20.87	23.35	25.09	25.91
80	25.54	24.72	22.97	20.42	17.55	14.75	10.58	11.44	12.8	11	13.18	13.47	13.45	13.47	13.18	11	12.8	11.44	10.58	14.75	17.55	20.42	22.97	24.72	25.54
81	25.19	24.36	22.6	20.03	17.02	14.16	10	10.98	12.33	10.67	12.7	12.97	12.95	12.97	12.7	10.67	12.33	10.98	10	14.16	17.02	20.03	22.6	24.36	25.19
82	24.84	24.02	22.25	19.67	16.53	13.63	9.45	10.29	11.89	10.4	12.25	12.5	12.48	12.5	12.25	10.4	11.89	10.29	9.45	13.63	16.53	19.67	22.25	24.02	24.84
83	24.51	23.69	21.93	19.34	16.14	13.17	8.95	9.56	11.43	10.19	11.83	12.05	12.03	12.05	11.83	10.19	11.43	9.56	8.95	13.17	16.14	19.34	21.93	23.69	24.51
84	24.19	23.37	21.62	19.04	15.83	12.78	8.52	8.92	10.99	10.04	11.45	11.64	11.62	11.64	11.45	10.04	10.99	8.92	8.52	12.78	15.83	19.04	21.62	23.37	24.19
85	23.89	23.07	21.34	18.78	15.58	12.44	8.17	8.45	10.56	9.94	11.09	11.26	11.24	11.26	11.09	9.94	10.56	8.45	8.17	12.44	15.58	18.78	21.34	23.07	23.89
86	23.59	22.78	21.07	18.54	15.38	12.18	7.9	8.22	10.16	9.89	10.78	10.91	10.9	10.91	10.78	9.89	10.16	8.22	7.9	12.18	15.38	18.54	21.07	22.78	23.59
87	23.31	22.51	20.83	18.34	15.24	12.05	7.74	8.63	9.8	9.87	10.52	10.61	10.6	10.61	10.52	9.87	9.8	8.63	7.74	12.05	15.24	18.34	20.83	22.51	23.31
88	23.04	22.25	20.61	18.18	15.15	12	7.67	9.15	9.49	9.89	10.29	10.35	10.34	10.35	10.29	9.89	9.49	9.15	7.67	12	15.15	18.18	20.61	22.25	23.04
89	22.79	22.01	20.4	18.04	15.12	12.01	6.48	9.67	9.23	9.93	10.12	10.14	10.13	10.14	10.12	9.93	9.23	9.67	6.48	12.01	15.12	18.04	20.4	22.01	22.79
90	22.54	21.77	20.22	17.93	15.14	12.09	5.32	10.13	9.04	10	9.99	9.98	9.97	9.98	9.99	10	9.04	10.13	5.32	12.09	15.14	17.93	20.22	21.77	22.54
91	22.88	22.1	20.48	18.09	15.19	12.16	5.7	10.2	9.07	9.93	10.1	10.1	10.09	10.1	10.1	9.93	9.07	10.2	5.7	12.16	15.19	18.09	20.48	22.1	22.88
92	23.23	22.43	20.76	18.28	15.29	12.26	7.87	10.15	9.18	9.88	10.25	10.26	10.25	10.26	10.25	9.88	9.18	10.15	7.87	12.26	15.29	18.28	20.76	22.43	23.23
93	23.59	22.78	21.05	18.49	15.44	12.41	8.02	9.97	9.38	9.87	10.46	10.47	10.47	10.46	9.87	9.38	9.97	8.02	12.41	15.44	18.49	21.05	22.78	23.59	
94	23.95	23.13	21.36	18.74	15.63	12.61	8.23	9.69	9.66	9.89	10.7	10.73	10.73	10.7	9.89	9.66	9.69	8.23	12.61	15.63	18.74	21.36	23.13	23.95	
95	24.32	23.49	21.69	19.01	15.88	12.91	8.47	9.34	10.03	9.96	10.99	11.03	11.03	11.03	10.99	9.96	10.03	9.34	8.47	12.91	15.88	19.01	21.69	23.49	24.32
96	24.69	23.86	22.03	19.32	16.17	13.29	8.78	9.1	10.45	10.08	11.32	11.36	11.36	11.32	10.08	10.45	9.1	8.78	13.29	16.17	19.32	22.03	23.86	24.69	
97	25.07	24.24	22.38	19.65	16.52	13.74	9.17	9.04	10.91	10.25	11.68	11.74	11.74	11.68	10.25	10.91	9.04	9.17	13.74	16.52	19.65	22.38</			



104	27.94	27.12	25.37	23	20.47	17.62	13.17	13.03	14.47	13.8	14.89	15.11	15.14	15.11	14.89	13.8	14.47	13.03	13.17	17.62	20.47	23	25.37	27.12	27.94
105	28.38	27.6	25.91	23.61	21.13	18.39	13.86	13.38	15.04	14.57	15.37	15.64	15.7	15.64	15.37	14.57	15.04	13.38	13.86	18.39	21.13	23.61	25.91	27.6	28.38
106	28.88	28.11	26.47	24.23	21.78	19.02	14.57	14.08	15.62	15.34	15.85	16.16	16.23	16.16	15.85	15.34	15.62	14.08	14.57	19.02	21.78	24.23	26.47	28.11	28.88
107	29.38	28.63	27.03	24.85	22.38	19.62	15.78	14.85	16.12	16.11	16.34	16.7	16.77	16.7	16.34	16.11	16.12	14.85	15.78	19.62	22.38	24.85	27.03	28.63	29.38
108	29.89	29.15	27.6	25.48	22.98	20.22	17.25	15.63	16.61	16.89	16.83	17.23	17.32	17.23	16.83	16.89	16.61	15.63	17.25	20.22	22.98	25.48	27.6	29.15	29.89
109	30.4	29.68	28.17	26.11	23.58	20.81	18.72	16.43	17.1	17.65	17.32	17.78	17.87	17.78	17.32	17.65	17.1	16.43	18.72	20.81	23.58	26.11	28.17	29.68	30.4
110	30.91	30.21	28.74	26.75	24.16	21.39	19.36	17.29	17.58	18.39	17.82	18.33	18.43	18.33	17.82	18.39	17.58	17.29	19.36	21.39	24.16	26.75	28.74	30.21	30.91
111	31.42	30.73	29.32	27.37	24.74	21.97	19.99	18.11	18.07	19.1	18.31	18.88	18.99	18.88	18.31	19.1	18.07	18.11	19.99	21.97	24.74	27.37	29.32	30.73	31.42
112	31.93	31.26	29.89	27.98	25.31	22.54	20.6	18.86	18.55	19.77	18.79	19.43	19.55	19.43	18.79	19.77	18.55	18.86	20.6	22.54	25.31	27.98	29.89	31.26	31.93
113	32.44	31.78	30.45	28.53	25.86	23.09	21.21	19.58	19.03	20.24	19.28	19.97	20.1	19.97	19.28	20.24	19.03	19.58	21.21	23.09	25.86	28.53	30.45	31.78	32.44
114	32.94	32.29	31	29.05	26.4	23.64	21.81	20.28	19.51	20.66	19.78	20.52	20.66	20.52	19.78	20.66	19.51	20.28	21.81	23.64	26.4	29.05	31	32.29	32.94
115	33.43	32.8	31.54	29.55	26.93	24.18	22.39	20.99	19.99	21.06	20.27	21.06	21.21	21.06	20.27	21.06	19.99	20.99	22.39	24.18	26.93	29.55	31.54	32.8	33.43
116	33.92	33.29	32.07	30.05	27.45	24.71	22.96	21.68	20.46	21.44	20.75	21.59	21.75	21.59	20.75	21.44	20.46	21.68	22.96	24.71	27.45	30.05	32.07	33.29	33.92
117	34.4	33.78	32.57	30.53	27.96	25.23	23.51	22.35	20.97	21.82	21.21	22.12	22.29	22.12	21.21	22.12	20.97	22.35	23.51	25.23	27.96	30.53	32.57	33.78	34.4
118	34.86	34.26	33.01	31	28.44	25.74	24.06	23	21.51	22.17	21.65	22.64	22.82	22.64	21.65	22.17	21.51	23	24.06	25.74	28.44	31	33.01	34.26	34.86
119	35.32	34.73	33.44	31.44	28.92	26.23	24.6	23.63	22.06	22.53	22.09	23.14	23.33	23.14	22.09	22.53	22.06	23.63	24.6	26.23	28.92	31.44	33.44	34.73	35.32
120	35.76	35.13	33.85	31.88	29.39	26.73	25.12	24.24	22.62	22.87	22.51	23.55	23.83	23.55	22.51	22.87	22.62	24.24	25.12	26.73	29.39	31.88	33.85	35.13	35.76
121	36.12	35.51	34.25	32.31	29.84	27.2	25.64	24.83	23.17	23.21	22.93	23.93	24.21	23.93	22.93	23.21	23.17	24.83	25.64	27.2	29.84	32.31	34.25	35.51	36.12
122	36.48	35.87	34.62	32.72	30.27	27.67	26.14	25.41	23.73	23.55	23.35	24.3	24.58	24.3	23.35	23.55	23.73	25.41	26.14	27.67	30.27	32.72	34.62	35.87	36.48
123	36.81	36.22	34.99	33.12	30.7	28.12	26.62	25.97	24.28	23.91	23.77	24.66	24.94	24.66	23.77	23.91	24.28	25.97	26.62	28.12	30.7	33.12	34.99	36.22	36.81
124	37.14	36.56	35.35	33.5	31.11	28.56	27.1	26.52	24.83	24.28	24.18	25.01	25.28	25.01	24.18	24.28	24.83	26.52	27.1	28.56	31.11	33.5	35.35	36.56	37.14
125	37.44	36.88	35.69	33.86	31.51	29	27.56	27.04	25.37	24.66	24.58	25.35	25.62	25.35	24.58	24.66	25.37	27.04	27.56	29	31.51	33.86	35.69	36.88	37.44
126	37.74	37.18	36.01	34.21	31.89	29.42	28.01	27.55	25.91	25.11	24.98	25.69	25.94	25.69	24.98	25.11	25.91	27.55	28.01	29.42	31.89	34.21	36.01	37.18	37.74
127	38.01	37.48	36.33	34.55	32.26	29.83	28.46	28.05	26.44	25.58	25.37	26.02	26.26	26.02	25.37	25.58	26.44	28.05	28.46	29.83	32.26	34.55	36.33	37.48	38.01
128	38.28	37.75	36.62	34.87	32.61	30.23	28.88	28.52	26.96	26.05	25.75	26.34	26.57	26.34	25.75	26.05	26.96	28.52	28.88	30.23	32.61	34.87	36.62	37.75	38.28
129	38.53	38.02	36.9	35.18	32.96	30.6	29.29	28.97	27.47	26.51	26.12	26.65	26.87	26.65	26.12	26.51	27.47	28.97	29.29	30.6	32.96	35.18	36.9	38.02	38.53
130	38.76	38.26	37.17	35.46	33.28	30.98	29.69	29.42	27.97	26.99	26.5	26.97	27.16	26.97	26.5	26.99	27.97	29.42	29.69	30.98	33.28	35.46	37.17	38.26	38.76
131	38.98	38.49	37.43	35.74	33.6	31.34	30.08	29.84	28.47	27.45	26.88	27.27	27.46	27.27	26.88	27.45	28.47	29.84	30.08	31.34	33.6	35.74	37.43	38.49	38.98
132	39.18	38.7	37.67	36	33.9	31.67	30.46	30.24	28.93	27.91	27.31	27.58	27.75	27.58	27.31	27.91	28.93	30.24	30.46	31.67	33.9	36	37.67	38.7	39.18
133	39.37	38.9	37.89	36.26	34.18	32.01	30.83	30.63	29.37	28.37	27.73	27.88	28.04	27.88	27.73	28.37	29.37	30.63	30.83	32.01	34.18	36.26	37.89	38.9	39.37
134	39.55	39.09	38.09	36.49	34.45	32.33	31.18	31.01	29.79	28.8	28.16	28.19	28.32	28.19	28.16	28.8	29.79	31.01	31.18	32.33	34.45	36.49	38.09	39.09	39.55
135	39.71	39.27	38.28	36.72	34.7	32.65	31.52	31.35	30.22	29.25	28.58	28.56	28.61	28.56	28.58	29.25	30.22	31.35	31.52	32.65	34.7	36.72	38.28	39.27	39.71
136	39.87	39.44	38.47	36.93	34.95	32.95	31.85	31.68	30.62	29.67	28.99	28.94	28.98	28.94	28.99	29.67	30.62	31.68	31.85	32.95	34.95	36.93	38.47	39.44	39.87
137	40	39.58	38.64	37.13	35.18	33.25	32.16	31.99	31	30.1	29.39	29.31	29.35	29.31	29.39	30.1	31	31.99	32.16	33.25	35.18	37.13	38.64	39.58	40
138	40.13	39.72	38.79	37.31	35.4	33.55	32.47	32.29	31.36	30.5	29.79	29.69	29.72	29.69	29.79	30.5	31.36	32.29	32.47	33.55	35.4	37.31	38.79	39.72	40.13
139	40.24	39.84	38.92	37.49	35.61	33.82	32.77	32.57	31.71	30.89	30.18	30.06	30.08	30.06	30.18	30.89	31.71	32.57	32.77	33.82	35.61	37.49	38.92	39.84	40.24
140	40.33	39.94	39.04	37.65	35.81	34.09	33.06	32.84	32.05	31.28	30.58	30.43	30.44	30.43	30.58	31.28	32.05	32.84	33.06	34.09	35.81	37.65	39.04	39.94	40.33
141	40.41	40.03	39.16	37.79	35.99	34.34	33.33	33.09	32.36	31.63	30.96	30.79	30.8	30.79	30.96	31.63	32.36	33.09	33.33	34.34	35.99	37.79	39.16	40.03	40.41
142	40.48	40.11	39.26	37.91	36.16	34.58	33.59	33.34	32.66	31.96	31.33	31.15	31.16	31.15	31.33	31.96	32.66	33.34	33.59	34.58	36.16	37.91	39.26	40.11	40.48
143	40.53	40.17	39.34	38.02	36.33	34.8	33.84	33.56	32.95	32.28	31.7	31.5	31.51	31.5	31.7	32.28	32.95	33.56	33.84	34.8	36.33	38.02	39.34	40.17	40.53
144	40.57	40.22	39.41	38.11	36.48	35.01	34.07	33.78	33.23	32.58	32.07	31.85	31.85	31.85	32.07	32.58	33.23	33.78	34.07	35.01	36.48	38.11	39.41	40.22	40.57
145	40.59	40.26	39.47	38.19	36.62	35.21	34.29	34	33.51	32.87	32.41	32.18	32.18	32.18	32.41	32.87	33.51	34	34.29	35.21	36.62	38.19	39.47	40.26	40.59
146	40.6	40.28	39.51	38.26	36.74	35.4	34.51	34.2	33.77	33.13	32.72	32.51	32.5	32.51	32.72	33.13	33.77	34.2	34.51	35.4	36.74	38.26	39.51	40.28	40.6
147	40.6	40.28	39.52	38.32	36.86	35.58	34.71	34.39	34.03	33.39	32.99	32.82	32.81	32.82	32.99	33.39	34.03	34.39	34.71	35.58	36.86	38.32	39.52	40.28	40.6
148	40.58	40.28	39.52	38.36	36.96	35.74	34.9	34.59	34.26	33.64	33.25	33.13	33.11	33.13	33.25	33.64	34.26	34.59	34.9	35.74	36.96	38.36	39.52	40.28	40.58
149	40.55	40.26	39.51	38.4	37.05	35.9	35.08	34.77	34.48	33.87	33.5	33.43	33.4	33.43	33.5	33.87	34.48	34.77	35.08	35.9	37.05	38.4	39.51	40.26	40.55
150	40.5	40.2	39.48	38.41	37.14	36.03	35.23	34.95	34.69	34.1	33.74	33.67	33.68	33.67	33.74	34.1	34.69	34.95	35.23	36.03	37.14	38.41	39.48	40.2	40.5
151	40.41	40.12	39.43	38.42	37																				



158	39.44	39.25	38.82	38.13	37.35	36.63	36.02	35.79	35.59	35.42	35.1	35	34.98	35	35.1	35.42	35.59	35.79	36.02	36.63	37.35	38.13	38.82	39.25	39.44
159	39.26	39.09	38.68	38.04	37.32	36.64	36.04	35.82	35.63	35.49	35.2	35.11	35.09	35.11	35.2	35.49	35.63	35.82	36.04	36.64	37.32	38.04	38.68	39.09	39.26
160	39.07	38.91	38.53	37.94	37.28	36.63	36.06	35.85	35.68	35.54	35.29	35.2	35.18	35.2	35.29	35.54	35.68	35.85	36.06	36.63	37.28	37.94	38.53	38.91	39.07
161	38.88	38.73	38.39	37.83	37.22	36.6	36.06	35.85	35.72	35.57	35.37	35.28	35.25	35.28	35.37	35.57	35.72	35.85	36.06	36.6	37.22	37.83	38.39	38.73	38.88
162	38.68	38.54	38.23	37.71	37.14	36.56	36.04	35.85	35.73	35.57	35.43	35.35	35.32	35.35	35.43	35.57	35.73	35.85	36.04	36.56	37.14	37.71	38.23	38.54	38.68
163	38.47	38.34	38.05	37.6	37.05	36.51	36	35.85	35.71	35.56	35.47	35.39	35.37	35.39	35.47	35.56	35.71	35.85	36	36.51	37.05	37.6	38.05	38.34	38.47
164	38.25	38.14	37.86	37.44	36.94	36.44	35.97	35.82	35.68	35.54	35.46	35.43	35.41	35.43	35.46	35.54	35.68	35.82	35.97	36.44	36.94	37.44	37.86	38.14	38.25
165	38.03	37.91	37.66	37.29	36.83	36.36	35.92	35.76	35.64	35.51	35.45	35.43	35.44	35.43	35.45	35.51	35.64	35.76	35.92	36.36	36.83	37.29	37.66	37.91	38.03
166	37.78	37.67	37.45	37.11	36.71	36.26	35.85	35.71	35.59	35.47	35.42	35.39	35.39	35.39	35.42	35.47	35.59	35.71	35.85	36.26	36.71	37.11	37.45	37.67	37.78
167	37.52	37.43	37.24	36.94	36.57	36.16	35.75	35.64	35.52	35.42	35.37	35.34	35.33	35.34	35.37	35.42	35.52	35.64	35.75	36.16	36.57	36.94	37.24	37.43	37.52
168	37.26	37.19	37.02	36.75	36.42	36.04	35.67	35.55	35.45	35.36	35.32	35.27	35.26	35.27	35.32	35.36	35.45	35.55	35.67	36.04	36.42	36.75	37.02	37.19	37.26
169	37	36.94	36.79	36.57	36.25	35.92	35.57	35.47	35.37	35.31	35.25	35.2	35.19	35.2	35.25	35.31	35.37	35.47	35.57	35.92	36.25	36.57	36.79	36.94	37
170	36.74	36.69	36.57	36.37	36.09	35.78	35.45	35.37	35.29	35.24	35.17	35.13	35.11	35.13	35.17	35.24	35.29	35.37	35.45	35.78	36.09	36.37	36.57	36.69	36.74
171	36.49	36.44	36.34	36.18	35.94	35.65	35.35	35.27	35.22	35.17	35.09	35.06	35.04	35.06	35.09	35.17	35.22	35.27	35.35	35.65	35.94	36.18	36.34	36.44	36.49
172	36.24	36.21	36.11	35.97	35.77	35.52	35.25	35.2	35.14	35.08	35.01	34.98	34.96	34.98	35.01	35.08	35.14	35.2	35.25	35.52	35.77	35.97	36.11	36.21	36.24
173	36	35.97	35.89	35.76	35.61	35.38	35.14	35.1	35.06	34.98	34.94	34.9	34.89	34.9	34.94	34.98	35.06	35.1	35.14	35.38	35.61	35.76	35.89	35.97	36
174	35.76	35.74	35.68	35.56	35.41	35.24	35.05	35	34.95	34.89	34.86	34.83	34.82	34.83	34.86	34.89	34.95	35	35.05	35.24	35.41	35.56	35.68	35.74	35.76
175	35.54	35.52	35.46	35.37	35.24	35.09	34.92	34.89	34.85	34.83	34.79	34.77	34.75	34.77	34.79	34.83	34.85	34.89	34.92	35.09	35.24	35.37	35.46	35.52	35.54
176	35.33	35.31	35.27	35.19	35.09	34.96	34.82	34.8	34.78	34.75	34.73	34.71	34.7	34.71	34.73	34.75	34.78	34.8	34.82	34.96	35.09	35.19	35.27	35.31	35.33
177	35.12	35.12	35.07	35.03	34.94	34.85	34.74	34.73	34.71	34.7	34.68	34.66	34.66	34.66	34.68	34.7	34.73	34.74	34.85	34.94	35.03	35.07	35.12	35.12	35.12
178	34.94	34.93	34.91	34.86	34.81	34.75	34.68	34.67	34.66	34.65	34.64	34.63	34.63	34.63	34.64	34.65	34.66	34.67	34.68	34.75	34.81	34.86	34.91	34.93	34.94
179	34.77	34.77	34.75	34.73	34.7	34.67	34.63	34.63	34.62	34.62	34.62	34.62	34.61	34.62	34.62	34.62	34.62	34.63	34.63	34.67	34.7	34.73	34.75	34.77	34.77
180	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61	34.61

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	SA-SLWP	Sample ID.	A1
Temperature (°C)	25.1	Humidity (%RH)	57.0

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	0.064	7.66	0.990	8.63%
277.09	60	0.033	8.27	0.903	21.38%

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*****