

Photometric Test Report

Relevant Standards

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

Prepared For RAB Lighting Inc.

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Project Number

DLF2409113

Report Number

DLF2409113-6a

Test Date

2024/8/31

Issue Date

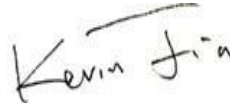
2024/9/2

Prepared By



Wangzun Zhu

Approved By



Kevin Jia

The results contained in this report pertain only to the tested sample.

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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		3507
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	142.0
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		3314
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	134.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		24.7
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	11.51%
		20.00%	277V	12.15%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.993
		0.9	277V	0.962
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	5074
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		8
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		96
IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%		4.27%
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		0.093
(Goniophotometer - Section 4.2)		Non-Worst Case		0.203
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		24.7
(Goniophotometer - Section 4.2)		Non-Worst Case		24.2

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/31	WPT @ 25W/5000K	N/A	F1
2	Goniophotometer Test	2024/8/31	WPT @ 25W/5000K	N/A	F1
3	THD and PF Test	2024/8/31	WPT @ 25W/5000K	N/A	F1

Remark(If any)

1、 This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.

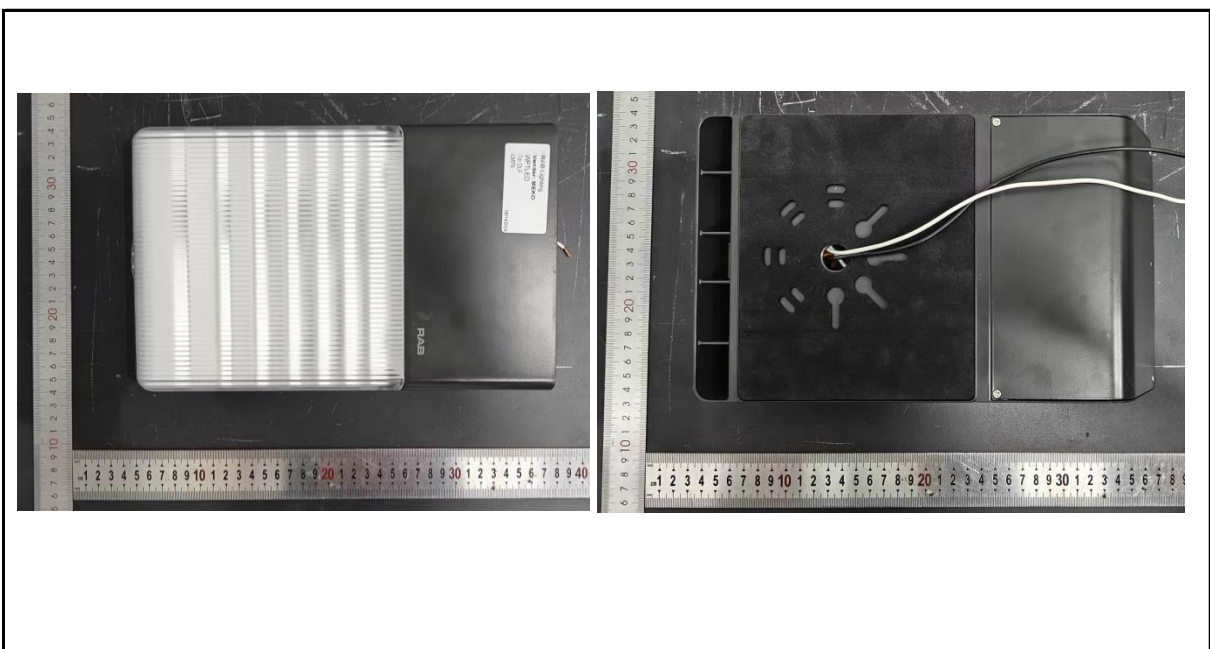
2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

3.0 Production Description

Luminaire Description: WPT @ 25W/5000K

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.	WPT @ 25W/5000K	Sample ID.	F1
Opreate 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 paramters 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

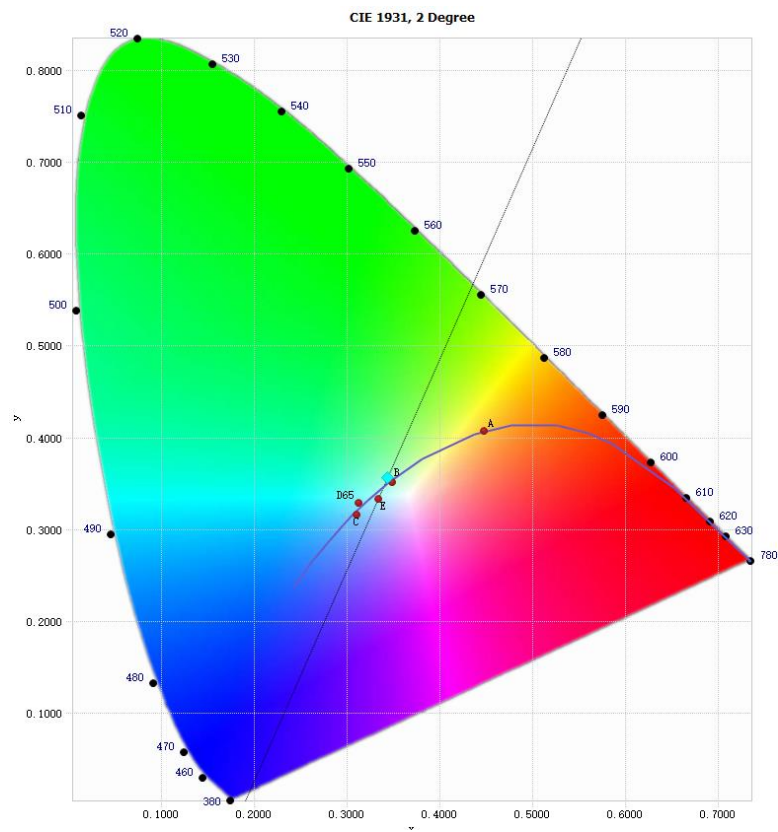
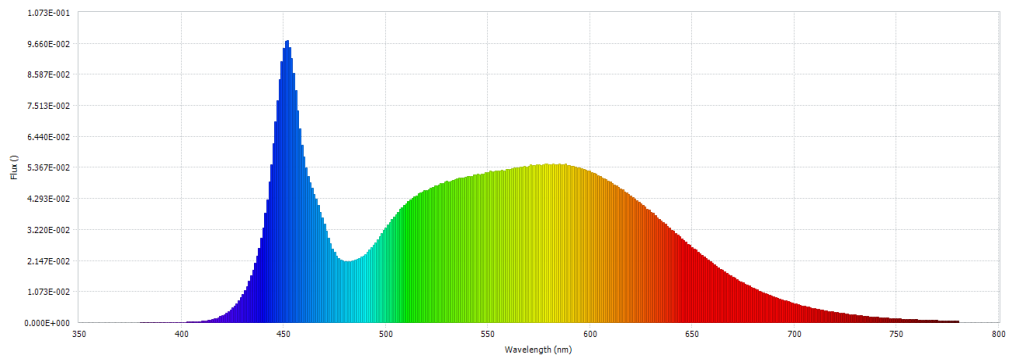
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.07	60	0.202	24.1	0.993
277.02	60	0.092	24.6	0.962

Test Result

CCT (K)	CRI	R9	Duv
5074	83	8	0.0032

Rf	Rg	IES Rcs,h1
83	96	-12%

4.1 Integrating Sphere Test



4.1 Integrating Sphere Test

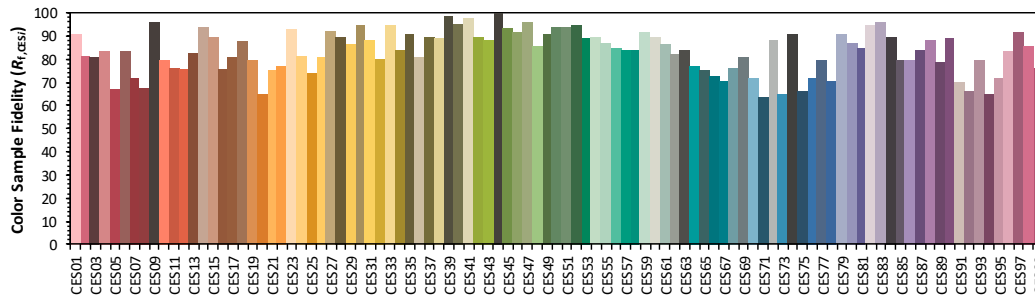
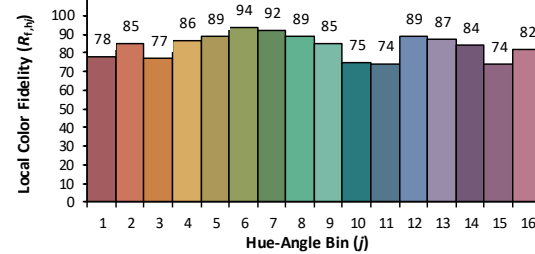
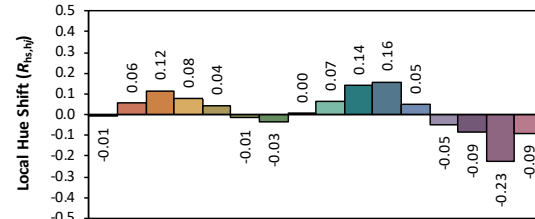
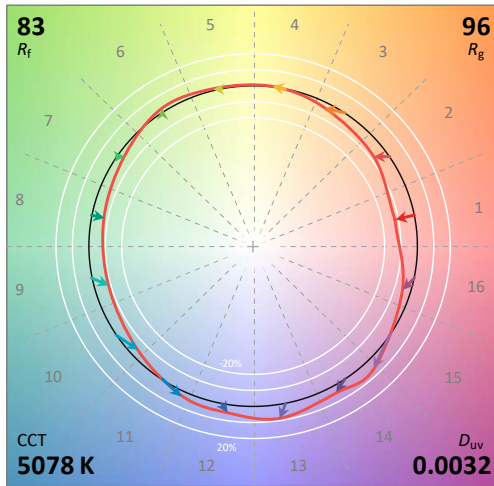
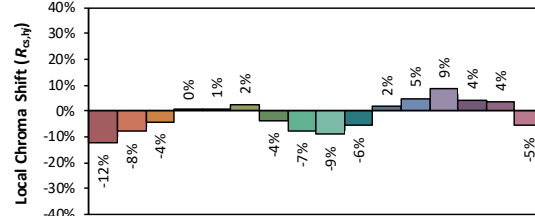
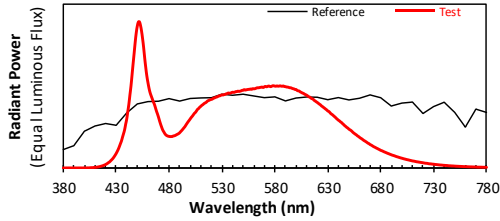
IES TM-30-18 Color Rendition Report

Source: DLF2409113-6a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/31

Model: WPT @ 25W/5000K



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

x 0.3435
 y 0.3567
 u' 0.2084
 v' 0.4869

CIE 13.3-1995
(CRI)

R_a 84
 R_g 14

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	7.77E-05	485	2.15E-02	590	5.43E-02	695	7.64E-03
385	1.01E-04	490	2.36E-02	595	5.36E-02	700	6.58E-03
390	7.33E-05	495	2.77E-02	600	5.24E-02	705	5.62E-03
395	9.62E-05	500	3.28E-02	605	5.05E-02	710	4.77E-03
400	1.10E-04	505	3.72E-02	610	4.86E-02	715	4.13E-03
405	2.01E-04	510	4.12E-02	615	4.63E-02	720	3.54E-03
410	4.38E-04	515	4.38E-02	620	4.38E-02	725	2.98E-03
415	1.08E-03	520	4.58E-02	625	4.10E-02	730	2.58E-03
420	2.38E-03	525	4.74E-02	630	3.81E-02	735	2.16E-03
425	5.02E-03	530	4.88E-02	635	3.52E-02	740	1.83E-03
430	9.72E-03	535	4.97E-02	640	3.20E-02	745	1.52E-03
435	1.81E-02	540	5.06E-02	645	2.90E-02	750	1.31E-03
440	3.28E-02	545	5.13E-02	650	2.60E-02	755	1.14E-03
445	6.20E-02	550	5.19E-02	655	2.32E-02	760	9.80E-04
450	9.48E-02	555	5.25E-02	660	2.05E-02	765	8.09E-04
455	8.62E-02	560	5.29E-02	665	1.81E-02	770	7.11E-04
460	5.72E-02	565	5.36E-02	670	1.57E-02	775	5.95E-04
465	4.44E-02	570	5.42E-02	675	1.37E-02	780	4.93E-04
470	3.40E-02	575	5.46E-02	680	1.18E-02		
475	2.42E-02	580	5.47E-02	685	1.03E-02		
480	2.11E-02	585	5.49E-02	690	8.89E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	WPT @ 25W/5000K	Sample ID.	F1
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	277.04	60	0.093	24.7	0.962
NON-WORST CASE	120.06	60	0.203	24.2	0.993

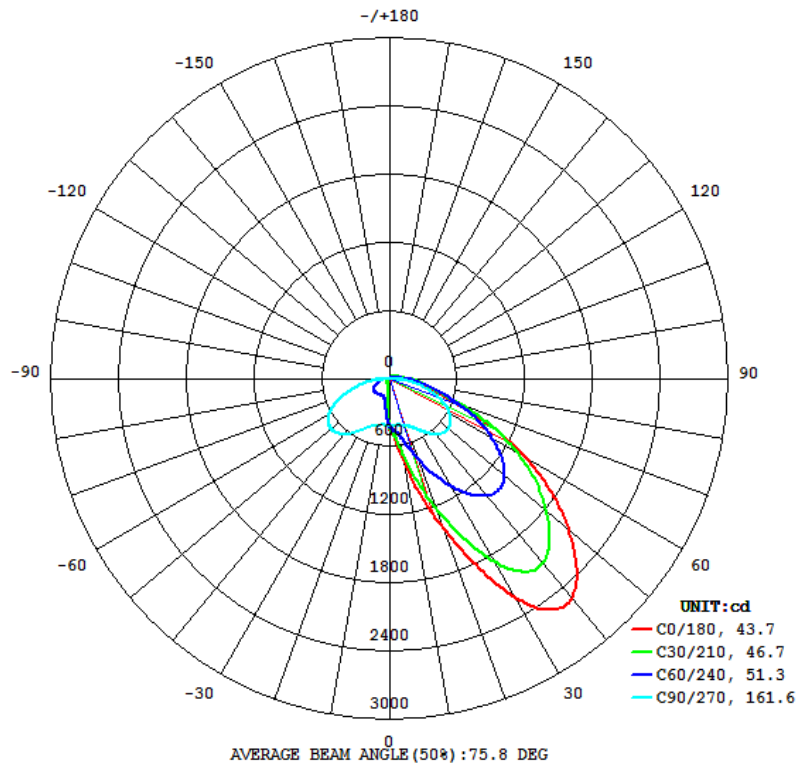
Test Result

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	3507	87.5	183.2	43.7	161.6	142.0
0° - 90° zones	3314	87.5	179.3	43.7	161.6	134.2

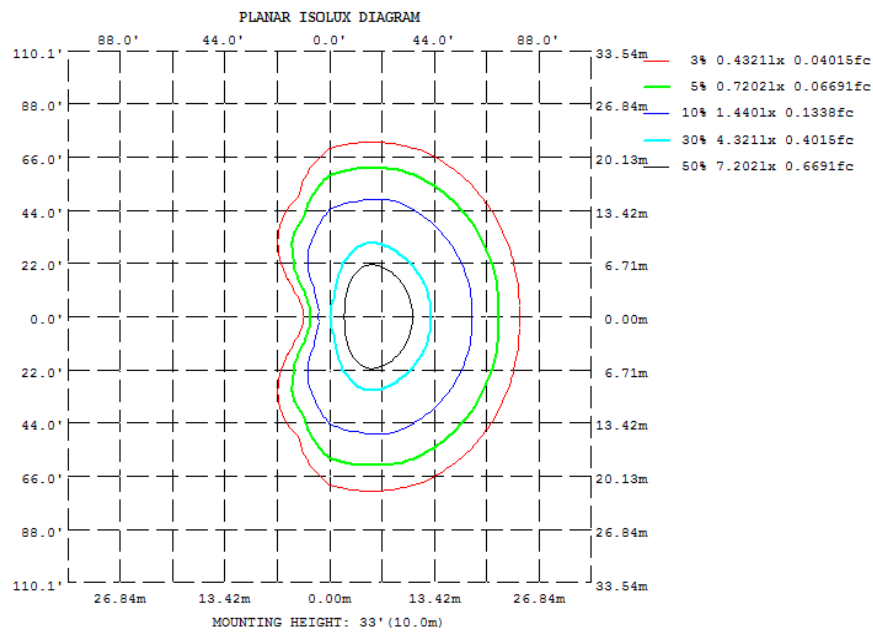
Zonal Lumen Requirement (80° - 90°)	BUG rating
4.27%	B0-U3-G2

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

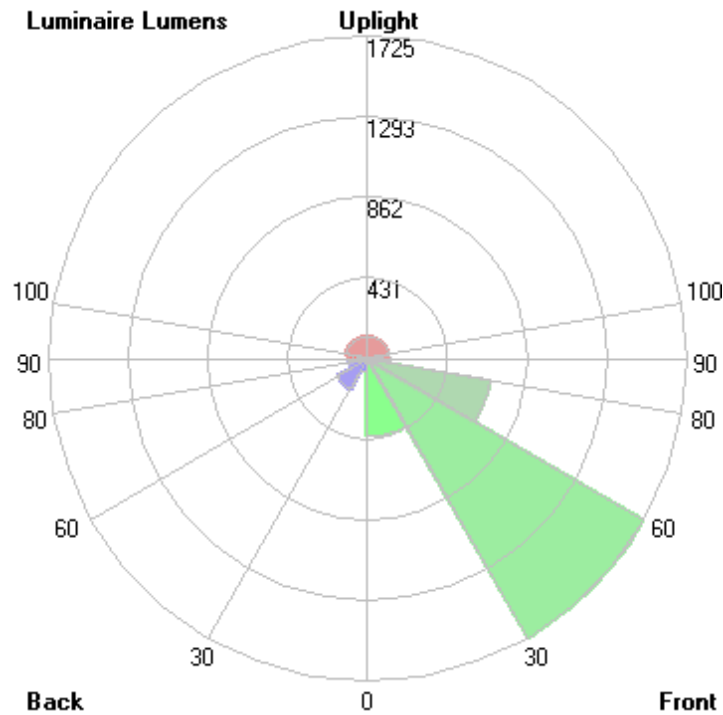
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	731.7	579.4	418.0	167.8	120.6	167.8	418.0	579.4
20	1398	1008	446.6	104.4	44.61	104.4	446.6	1008
30	2219	1502	525.1	91.06	22.41	91.06	525.1	1502
40	2515	1786	643.3	92.57	12.35	92.57	643.3	1786
50	2074	1590	685.9	90.66	4.515	90.66	685.9	1590
60	1392	1194	622.6	73.07	0.2898	73.07	622.6	1194
70	609.5	693.9	454.0	48.65	0.1294	48.65	454.0	693.9
80	299.6	336.8	227.9	29.11	0.1365	29.11	227.9	336.8
90	178.6	190.4	56.67	15.74	0.2155	15.74	56.67	190.4
100	115.2	113.8	17.60	9.353	0.6400	9.353	17.60	113.8
110	79.01	73.87	11.35	6.358	1.076	6.358	11.35	73.87
120	53.77	50.52	8.465	4.840	1.389	4.840	8.465	50.52
130	41.53	36.85	6.450	4.000	1.661	4.000	6.450	36.85
140	33.94	27.08	4.776	3.358	1.817	3.358	4.776	27.08
150	26.28	18.42	3.427	2.488	1.569	2.488	3.427	18.42
160	16.07	8.522	2.298	1.651	1.234	1.651	2.298	8.522
170	2.912	1.906	1.383	1.168	1.091	1.168	1.383	1.906
180	0.9554	1.012	1.035	0.9957	0.9563	0.9957	1.035	1.012
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	37.20	0 - 10	37.20	1.06%
10-20	135.67	0 - 20	172.87	4.93%
20-30	317.45	0 - 30	490.32	13.98%
30-40	555.47	0 - 40	1045.79	29.82%
40-50	692.23	0 - 50	1738.02	49.56%
50-60	663.82	0 - 60	2401.84	68.49%
60-70	496.62	0 - 70	2898.46	82.65%
70-80	274.24	0 - 80	3172.70	90.47%
80-90	141.56	0 - 90	3314.26	94.51%
90-100	76.16	0 - 100	3390.42	96.68%
100-110	45.77	0 - 110	3436.19	97.98%
110-120	28.52	0 - 120	3464.71	98.80%
120-130	18.38	0 - 130	3483.09	99.32%
130-140	12.00	0 - 140	3495.09	99.66%
140-150	7.27	0 - 150	3502.36	99.87%
150-160	3.51	0 - 160	3505.87	99.97%
160-170	0.95	0 - 170	3506.82	100.00%
170-180	0.12	0 - 180	3506.94	100.00%

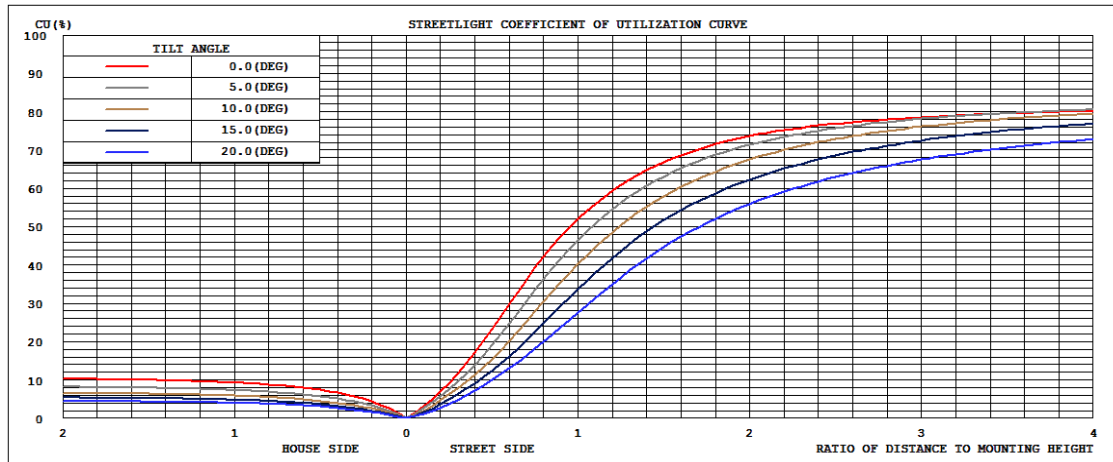
4.2 Goniophotometer Test

LCS/BUG

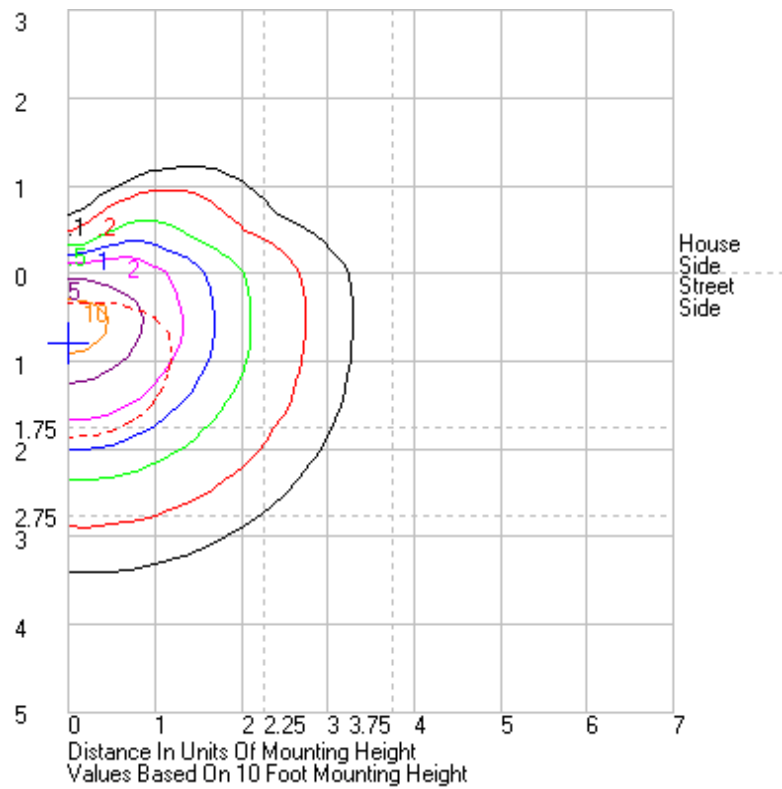


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	415.7	N.A.	11.9
FM - Front-Medium (30-60)	1724.6	N.A.	49.2
FH - Front-High (60-80)	670.3	N.A.	19.1
FVH - Front-Very High (80-90)	121.3	N.A.	3.5
BL - Back-Low (0-30)	74.7	N.A.	2.1
BM - Back-Medium (30-60)	186.9	N.A.	5.3
BH - Back-High (60-80)	100.6	N.A.	2.9
BVH - Back-Very High (80-90)	20.3	N.A.	0.6
UL - Uplight-Low (90-100)	76.2	N.A.	2.2
UH - Uplight-High (100-180)	116.5	N.A.	3.3
Total	3507.1	N.A.	100.0
BUG Rating	B0-U3-G2		

Coefficients of Utilization



Isolines



4.2 Goniophotometer Test

	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360
0	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	419.955	
1	441.96	439.26	437.23	433.94	429.82	424.69	419.1	413.43	408.29	403.2	399.65	397.53	399.57	397.53	399.65	403.2	408.29	413.43	419.1	424.69	429.82	433.94	437.23	439.26	441.96
2	459.83	456.45	452.68	446.8	438.83	429.08	418.04	406.7	395.07	382.81	372.77	365.64	367.85	365.64	372.77	382.81	395.07	406.7	418.04	429.08	438.83	446.8	452.68	456.45	459.83
3	474.46	471.02	466.13	457.95	447.05	433.11	416.77	399.26	378.87	356.42	336.24	322.56	323.93	322.56	336.24	356.42	378.87	399.26	416.77	433.11	447.05	457.95	466.13	471.02	474.46
4	491.11	486.31	479.11	467.76	454.59	437.09	415.93	391.39	360	324.23	292.85	271.2	270.79	271.2	292.85	324.23	360	391.39	415.93	437.09	454.59	467.76	479.11	486.31	491.11
5	512.65	505.29	493.44	477.78	461.34	441.1	415.38	383.36	339.58	288.79	247.22	224.4	221.81	224.4	247.22	288.79	339.58	383.36	415.38	441.1	461.34	477.78	493.44	505.29	512.65
6	541.17	531.23	513.03	490.03	467.95	445.18	415.12	375.65	317.77	252.27	209.56	191.04	188.24	191.04	209.56	252.27	317.77	375.65	415.12	445.18	467.95	490.03	513.03	531.23	541.17
7	580.01	565.04	538.8	505.47	474.96	448.88	415.11	368.73	295.09	221.26	183.38	168.63	166.89	168.63	183.38	221.26	295.09	368.73	415.11	448.88	474.96	505.47	538.8	565.04	580.01
8	625.18	606.06	572.48	524.92	483.13	452.52	415.85	361.79	273.11	197.75	165.32	152.97	150.98	152.97	165.32	197.75	273.11	361.79	415.85	452.52	483.13	524.92	572.48	606.06	625.18
9	676.1	651.03	610.65	549.33	493.28	455.48	416.77	355.43	252.51	179.96	151.74	138.07	135.08	138.07	151.74	179.96	252.51	355.43	416.77	455.48	493.28	549.33	610.65	651.03	676.1
10	731.68	704.23	651.2	579.41	505.66	458.58	417.98	349.72	234.67	167.77	139.67	123.98	120.57	123.98	139.67	167.77	234.67	349.72	417.98	458.58	505.66	579.41	651.2	704.23	731.68
11	791.34	760.92	698.58	612.43	520.89	461.47	419.55	344.46	219.84	158.16	127.79	111.06	107.52	111.06	127.79	158.16	219.84	344.46	419.55	461.47	520.89	612.43	698.58	760.92	791.34
12	854.09	819.02	750.12	646.94	538.61	464.79	421.46	340.51	208.11	150.22	117.11	99.4	95.84	99.4	117.11	150.22	208.11	340.51	421.46	464.79	538.61	646.94	750.12	819.02	854.09
13	916.81	879.36	802.94	685.98	559.36	468.67	423.67	336.69	199.43	142.82	107.24	89.1	85.61	89.1	107.24	142.82	199.43	336.69	423.67	468.67	559.36	685.98	802.94	879.36	916.81
14	981.72	941.97	858.39	728.78	582.61	473.44	426.09	332.94	192.73	135.46	98.31	80.16	76.85	80.16	98.31	135.46	192.73	332.94	426.09	473.44	582.61	728.78	858.39	941.97	981.72
15	1047.67	1006.21	914.55	772.9	609.58	478.99	428.84	330.11	187.83	129.15	90.6	72.66	69.41	72.66	90.6	129.15	187.83	330.11	428.84	478.99	609.58	772.9	914.55	1006.21	1047.67
16	1116.09	1071.71	972.25	818.07	637.44	485.94	431.71	327.59	184.03	123.02	83.89	66.06	62.96	66.06	83.89	123.02	184.03	327.59	431.71	485.94	637.44	818.07	972.25	1071.71	1116.09
17	1187.02	1138.54	1031.62	864.41	661.72	493.82	434.74	325.89	181.17	117.38	78.09	60.65	57.56	60.65	78.09	117.38	181.17	325.89	434.74	493.82	661.72	864.41	1031.62	1138.54	1187.02
18	1261.2	1206.35	1091.12	911.96	692.39	503.31	438.42	324.82	178.96	112.43	73.21	55.71	52.72	55.71	73.21	112.43	178.96	324.82	438.42	503.31	692.39	911.96	1091.12	1206.35	1261.2
19	1329.48	1277.49	1152.31	959.54	724.11	513.58	442.26	324.25	177.11	108.08	68.99	51.47	48.42	51.47	68.99	108.08	177.11	324.25	442.26	513.58	724.11	959.54	1152.31	1277.49	1329.48
20	1397.65	1347.66	1215.23	1008.18	756.46	525.11	446.56	324.38	175.38	104.36	65.59	47.69	44.61	47.69	65.59	104.36	175.38	324.38	446.56	525.11	756.46	1008.18	1215.23	1347.66	1397.65
21	1475.4	1419.2	1279.32	1057.25	789.34	537.68	451.3	325.34	173.97	101.33	62.44	44.39	41.24	44.39	62.44	101.33	173.97	325.34	451.3	537.68	789.34	1057.25	1279.32	1419.2	1475.4
22	1555.9	1493.82	1342.53	1107.03	822.62	551.29	456.78	326.63	172.68	98.81	59.61	41.43	38.26	41.43	59.61	98.81	172.68	326.63	456.78	551.29	822.62	1107.03	1342.53	1493.82	1555.9
23	1637.33	1571.87	1405.51	1158.05	856.82	565.87	462.58	328.64	171.64	96.78	57.31	38.79	35.46	38.79	57.31	96.78	171.64	328.64	462.58	565.87	856.82	1158.05	1405.51	1571.87	1637.33
24	1720.76	1649.88	1469.71	1208.24	890.74	581.33	468.94	330.94	170.93	95.25	55.35	36.47	33.08	36.47	55.35	95.25	170.93	330.94	468.94	581.33	890.74	1208.24	1469.71	1649.88	1720.76
25	1806.05	1730.14	1536.72	1259.31	924.96	597.11	476.3	333.57	170.28	93.97	53.59	34.36	30.83	34.36	53.59	93.97	170.28	333.57	476.3	597.11	924.96	1259.31	1536.72	1730.14	1806.05
26	1890.57	1809.82	1603.44	1310.24	959.39	613.76	484.36	336.99	169.97	93.04	52.1	32.46	28.81	32.46	52.1	93.04	169.97	336.99	484.36	613.76	959.39	1310.24	1603.44	1809.82	1890.57
27	1975.4	1889.02	1669.76	1358.29	993.93	630.91	493.25	340.55	169.91	92.35	50.85	30.76	27.01	30.76	50.85	92.35	169.91	340.55	493.25	630.91	993.93	1358.29	1669.76	1889.02	1975.4
28	2058.44	1966.18	1735.21	1406.4	1028.42	648.55	503.18	344.29	170.07	91.77	49.71	29.21	25.33	29.21	49.71	91.77	170.07	344.29	503.18	648.55	1028.42	1406.4	1735.21	1966.18	2058.44
29	2138.86	2041.23	1797.02	1454.32	1062.32	666.41	513.73	348.13	170.56	91.38	48.77	27.84	23.81	27.84	48.77	91.38	170.56	348.13	513.73	666.41	1062.32	1454.32	1797.02	2041.23	2138.86
30	2219.07	2114.48	1856.26	1501.88	1096.08	684.43	525.06	351.9	171.19	91.06	47.9	26.57	22.41	26.57	47.9	91.06	171.19	351.9	525.06	684.43	1096.08	1501.88	1856.26	2114.48	2219.07
31	2287.8	2180.49	1912.08	1547.95	1128.73	702.61	536.95	355.78	171.83	90.85	47.13	25.41	21.12	25.41	47.13	90.85	171.83	355.78	536.95	702.61	1128.73	1547.95	1912.08	2180.49	2287.8
32	2350.93	2240.04	1962.72	1591.05	1160.63	720.8	549.16	359.48	172.66	90.75	46.44	24.36	19.93	24.36	46.44	90.75	172.66	359.48	549.16	720.8	1160.63	1591.05	1962.72	2240.04	2350.93
33	2406.59	2291.51	2008.54	1631.5	1191.2	738.81	561.6	362.72	173.4	90.71	45.78	23.36	18.81	23.36	45.78	90.71	173.4	362.72	561.6	738.81	1191.2	1631.5	2008.54	2291.51	2406.59
34	2450.02	2332.73	2047.01	1667.67	1219.55	756.39	574.16	365.43	174.06	90.78	45.18	22.44	17.76	22.44	45.18	90.78	174.06	365.43	574.16	756.39	1219.55	1667.67	2047.01	2332.73	2450.02
35	2484.16	2365.43	2076.92	1700.22	1247.28	774.05	586.77	367.9	174.78	90.91	44.6	21.57	16.75	21.57	44.6	90.91	174.78	367.9	586.77	774.05	1247.28	1700.22	2076.92	2365.43	2484.16
36	2508.36	2388.31	2099.29	1728.35	1272.63	790.73	599.02	369.83	175.35	91.16	44.05	20.74	15.81	20.74	44.05	91.16	175.35	369.83	599.02	790.73	1272.63	1728.35	2099.29	2388.31	2508.36
37	2522.99	2403.23	2113.55	1751.35	1295.37	807.19	611.04	371.39	175.91	91.49	43.49	19.95	14.9	19.95	43.49	91.49	175.91	371.39	611.04	807.19	1295.37	1751.35	2113.55	2403.23	2522.99
38	2529.28	2410.4	2120.78	1769.24	1315.67	823.01	622.22	372.37	176.56	91.88	42.94	19.19	14.04	19.19	42.94	91.88	176.56	372.37	622.22	823.01	1315.67	1769.24	2120.78	2410.4	2529.28
39	2526.48	2409.15	2121.71	1780.49	1333.38	837.93	633.12	372.48	177.29	92.24	42.36	18.44	13.2	18.44	42.36	92.24	177.29	372.48	633.12	837.93	1333.38	1780.49	2121.71	2409.15	2526.48
40	2514.96	2401.33	2116.6	1785.64	1348.69	852.04	643.3	371.85	178.11	92.57	41.78	17.73	12.35	17.73	41.78	92.57	178.11	371.85	643.3	852.04	1348.69	1785.64	2116.6	2401.33	2514.96
41	2495.67	2385.45	2105.86	1785.3	1359.68	864.66	652.11	370.28	179.06	92.79	41.16	17.01	11.54	17.01	41.16	92.79									

50	2073.7	2017.89	1818.23	1590.44	1335.95	907.49	685.88	323.89	185.32	90.66	32.98	10.28	4.52	10.28	32.98	90.66	185.32	323.89	685.88	907.49	1335.95	1590.44	1818.23	2017.89	2073.7
51	2015.84	1964.26	1774.85	1554.34	1318.09	903.58	683.92	317.02	184.95	89.67	31.92	9.71	3.93	9.71	31.92	89.67	184.95	317.02	683.92	903.58	1318.09	1554.34	1774.85	1964.26	2015.84
52	1953.88	1909.57	1730.36	1516.39	1297.52	897.34	681.5	310.03	184.13	88.43	30.86	9.08	3.37	9.08	30.86	88.43	184.13	310.03	681.5	897.34	1297.52	1516.39	1730.36	1909.57	1953.88
53	1891.97	1853.4	1684.27	1478.79	1274.65	889.88	678.42	303.26	183.05	87.12	29.8	8.54	2.97	8.54	29.8	87.12	183.05	303.26	678.42	889.88	1274.65	1478.79	1684.27	1853.4	1891.97
54	1827.88	1794.41	1637.83	1439.93	1250.63	881.17	674.45	296.41	181.66	85.54	28.79	8.13	2.64	8.13	28.79	85.54	181.66	296.41	674.45	881.17	1250.63	1439.93	1637.83	1794.41	1827.88
55	1758.36	1732.7	1588.62	1400.5	1221.05	870.64	668.7	289.49	180.03	83.77	27.76	7.74	2.33	7.74	27.76	83.77	180.03	289.49	668.7	870.64	1221.05	1400.5	1588.62	1732.7	1758.36
56	1687.89	1667.38	1537.06	1359.68	1189.57	859.24	661.67	282.41	178.37	81.85	26.82	7.38	2.06	7.38	26.82	81.85	178.37	282.41	661.67	859.24	1189.57	1359.68	1537.06	1667.38	1687.89
57	1614.63	1600.21	1483.36	1319.85	1156.98	847.21	653.42	275.4	176.28	79.82	25.92	7.08	1.83	7.08	25.92	79.82	176.28	275.4	653.42	847.21	1156.98	1319.85	1483.36	1600.21	1614.63
58	1539.67	1531.66	1427.79	1279.56	1123.47	833.39	644.17	268.43	173.94	77.68	25	6.8	1.65	6.8	25	77.68	173.94	268.43	644.17	833.39	1123.47	1279.56	1427.79	1531.66	1539.67
59	1466.49	1462.01	1370.05	1238.57	1088.22	818.54	634.3	261.6	171.15	75.39	24.14	6.59	1.46	6.59	24.14	75.39	171.15	261.6	634.3	818.54	1088.22	1238.57	1370.05	1462.01	1466.49
60	1392.03	1392.41	1313.72	1193.72	1052.86	803.05	622.65	254.79	168.1	73.07	23.35	6.08	0.29	6.08	23.35	73.07	168.1	254.79	622.65	803.05	1052.86	1193.72	1313.72	1392.41	1392.03
61	1316.48	1324.84	1256.84	1147.29	1016.05	784.91	609.68	247.89	164.74	70.67	22.56	5.04	0.13	5.04	22.56	70.67	164.74	247.89	609.68	784.91	1016.05	1147.29	1256.84	1324.84	1316.48
62	1242.12	1256.63	1199.1	1099.84	978.72	765.45	595.74	241.58	161.15	68.23	21.67	4.9	0.13	4.9	21.67	68.23	161.15	241.58	595.74	765.45	978.72	1099.84	1199.1	1256.63	1242.12
63	1163.06	1184.89	1138.8	1052.35	940.43	744.44	581.4	234.98	156.8	65.81	20.13	4.78	0.13	4.78	20.13	65.81	156.8	234.98	581.4	744.44	940.43	1052.35	1138.8	1184.89	1163.06
64	1083.23	1109.25	1077.25	1003.37	901.57	721.36	566.08	228.14	151.82	63.37	19.38	4.65	0.13	4.65	19.38	63.37	151.82	228.14	566.08	721.36	901.57	1003.37	1077.25	1109.25	1083.23
65	999.76	1029.83	1012.52	953.96	862.46	696.71	549.9	221.22	146.13	60.93	18.73	4.53	0.13	4.53	18.73	60.93	146.13	221.22	549.9	696.71	862.46	953.96	1012.52	1029.83	999.76
66	912.96	948.83	946.27	903.06	822.75	669.45	532.32	214.27	140.07	58.13	18.09	4.42	0.13	4.42	18.09	58.13	140.07	214.27	532.32	669.45	822.75	903.06	946.27	948.83	912.96
67	829.51	868.72	878.6	851.86	783.25	641.32	514.06	207.63	134.25	55.43	17.46	4.3	0.13	4.3	17.46	55.43	134.25	207.63	514.06	641.32	783.25	851.86	878.6	868.72	829.51
68	749.57	790.46	810.11	799.54	742.3	611.66	494.72	200.87	128.28	53.1	16.83	4.18	0.13	4.18	16.83	53.1	128.28	200.87	494.72	611.66	742.3	799.54	810.11	790.46	749.57
69	674.45	716.3	744.34	746.65	700.79	581.29	474.97	194.06	122.42	50.86	16.22	4.07	0.13	4.07	16.22	50.86	122.42	194.06	474.97	581.29	700.79	746.65	744.34	716.3	674.45
70	609.49	646.11	681.13	693.86	660.83	550.75	454.05	186.71	116.63	48.65	15.62	3.95	0.13	3.95	15.62	48.65	116.63	186.71	454.05	550.75	660.83	693.86	681.13	646.11	609.49
71	556.92	590.28	624.47	643.82	618.96	520.01	431.95	179.9	110.58	46.48	15.03	3.83	0.13	3.83	15.03	46.48	110.58	179.9	431.95	520.01	618.96	643.82	624.47	590.28	556.92
72	507.14	538.82	573.46	596.42	577.39	487.7	410.41	173.04	104.92	44.4	14.46	3.71	0.13	3.71	14.46	44.4	104.92	173.04	410.41	487.7	577.39	596.42	573.46	538.82	507.14
73	466.86	494.97	527.25	550.73	536.67	456.29	387.82	165.82	99.65	42.33	13.88	3.59	0.13	3.59	13.88	42.33	99.65	165.82	387.82	456.29	536.67	550.73	527.25	494.97	466.86
74	432.52	457.43	487.17	509.72	498.48	425.22	365.04	158.42	94.67	40.3	13.33	3.47	0.13	3.47	13.33	40.3	94.67	158.42	365.04	425.22	498.48	509.72	487.17	457.43	432.52
75	403.49	424.74	452.2	472.26	462.29	395.12	342.1	150.33	89.92	38.34	12.79	3.36	0.13	3.36	12.79	38.34	89.92	150.33	342.1	395.12	462.29	472.26	452.2	424.74	403.49
76	378.13	396.66	421.43	438.89	429.18	365.68	319.1	141.67	85.39	36.42	12.26	3.25	0.13	3.25	12.26	36.42	85.39	141.67	319.1	365.68	429.18	438.89	421.43	396.66	378.13
77	355.62	371.97	394.76	409.16	398.9	337.34	295.85	132.65	81.07	34.53	11.74	3.14	0.13	3.14	11.74	34.53	81.07	132.65	295.85	337.34	398.9	409.16	394.76	371.97	355.62
78	335.74	349.77	370.45	382.38	371.2	310.02	272.97	123.05	76.92	32.66	11.23	3.03	0.13	3.03	11.23	32.66	76.92	123.05	272.97	310.02	371.2	382.38	370.45	349.77	335.74
79	316.84	329.5	348.7	358.38	345.81	283.79	250.47	113.81	72.87	30.88	10.75	2.92	0.13	2.92	10.75	30.88	72.87	113.81	250.47	283.79	345.81	358.38	348.7	329.5	316.84
80	299.61	311.05	328.56	336.75	322.03	258.92	227.85	104.87	68.9	29.11	10.27	2.82	0.14	2.82	10.27	29.11	68.9	104.87	227.85	258.92	322.03	336.75	328.56	311.05	299.61
81	284	293.88	310.25	316.71	299.86	235.91	205.5	96.81	65.07	27.45	9.82	2.72	0.14	2.72	9.82	27.45	65.07	96.81	205.5	235.91	299.86	316.71	310.25	293.88	284
82	268.96	278.1	293.23	298.7	280.11	214.44	183.9	89.5	61.31	25.83	9.36	2.63	0.14	2.63	9.36	25.83	61.31	89.5	183.9	214.44	280.11	298.7	293.23	278.1	268.96
83	255.26	263.36	277.49	281.82	262.09	195.19	163.63	82.95	57.6	24.29	8.94	2.53	0.15	2.53	8.94	24.29	57.6	82.95	163.63	195.19	262.09	281.82	277.49	263.36	255.26
84	242.14	249.39	262.67	266.17	245.61	177.27	145.03	77.14	54.02	22.82	8.53	2.45	0.16	2.45	8.53	22.82	54.02	77.14	145.03	177.27	245.61	266.17	262.67	249.39	242.14
85	229.67	236.51	248.83	251.48	230.5	161.15	126.88	71.77	50.62	21.42	8.13	2.36	0.16	2.36	8.13	21.42	50.62	71.77	126.88	161.15	230.5	251.48	248.83	236.51	229.67
86	218.29	224.38	235.78	237.67	216.83	147.27	110.56	66.92	47.41	20.13	7.75	2.28	0.17	2.28	7.75	20.13	47.41	66.92	110.56	147.27	216.83	237.67	235.78	224.38	218.29
87	207.34	212.93	223.58	224.79	204.08	134.53	94.63	62.23	44.33	18.9	7.39	2.21	0.18	2.21	7.39	18.9	44.33	62.23	94.63	134.53	204.08	224.79	223.58	212.93	207.34
88	197.07	202.27	212.09	212.57	192.03	123.4	79.95	57.99	41.49	17.77	7.06	2.13	0.19	2.13	7.06	17.77	41.49	57.99	79.95	123.4	192.03	212.57	212.09	202.27	197.07
89	187.53	192.31	201.29	201.08	180.96	114.08	67.2	53.86	38.86	16.72	6.74	2.07	0.2	2.07	6.74	16.72	38.86	53.86	67.2	114.08	180.96	201.08	201.29	192.31	187.53
90	178.6	182.93	191.07	190.39	170.56	106.06	56.67	49.94	36.38	15.74	6.44	2.01	0.22	2.01	6.44	15.74	36.38	49.94	56.67	106.06	170.56	190.39	191.07	182.93	178.6
91	170.19	174.17	181.7	180.3	160.87	99.1	47.24	46.3	34.12	14.85	6.15	1.95	0.23	1.95	6.15	14.85	34.12	46.3	47.24	99.1	160.87	180.3	181.7	174.17	170.19
92	162.35	165.85	172.86	170.84	151.89	92.77	39.19	42.88	31.98	14	5.87	1.89	0.24	1.89	5.87	14	31.98	42.88	39.19	92.77	151.89	170.84	172.86	165.85	162.35
93	155.06	158.3	164.56	161.91	143.27	87.12	33.39	39.74	30.06	13.26	5.62	1.84	0.26	1.84	5.62	13.26	30.06	39.74	33.39	87.12	143.27	161.91	164.56	158.3	155.06
94	148.14	151.19	156.81	153.55	134.93	81																			

104	98.89	99.89	101.4	95.13	79.71	46.31	14.3	19.47	16.11	7.89	3.88	1.68	0.82	1.68	3.88	7.89	16.11	19.47	14.3	46.31	79.71	95.13	101.4	99.89	98.89
105	95.26	96.18	97.47	91.16	75.97	43.92	13.71	18.43	15.31	7.58	3.78	1.68	0.86	1.68	3.78	7.58	15.31	18.43	13.71	43.92	75.97	91.16	97.47	96.18	95.26
106	91.85	92.69	93.7	87.35	72.38	41.67	13.16	17.47	14.56	7.31	3.69	1.68	0.9	1.68	3.69	7.31	14.56	17.47	13.16	41.67	72.38	87.35	93.7	92.69	91.85
107	88.49	89.29	90.16	83.79	68.95	39.6	12.63	16.59	13.87	7.05	3.6	1.68	0.95	1.68	3.6	7.05	13.87	16.59	12.63	39.6	68.95	83.79	90.16	89.29	88.49
108	85.24	85.98	86.74	80.35	65.68	37.62	12.17	15.77	13.23	6.8	3.53	1.69	0.99	1.69	3.53	6.8	13.23	15.77	12.17	37.62	65.68	80.35	86.74	85.98	85.24
109	82.05	82.79	83.49	77.07	62.61	35.78	11.74	15.02	12.63	6.57	3.46	1.69	1.03	1.69	3.46	6.57	12.63	15.02	11.74	35.78	62.61	77.07	83.49	82.79	82.05
110	79.01	79.73	80.3	73.87	59.62	34.06	11.35	14.3	12.05	6.36	3.39	1.7	1.08	1.7	3.39	6.36	12.05	14.3	11.35	34.06	59.62	73.87	80.3	79.73	79.01
111	75.97	76.64	77.2	70.83	56.83	32.39	10.98	13.66	11.52	6.16	3.33	1.7	1.12	1.7	3.33	6.16	11.52	13.66	10.98	32.39	56.83	70.83	77.2	76.64	75.97
112	72.9	73.71	74.23	67.97	54.3	30.9	10.64	13.04	11.02	5.97	3.27	1.71	1.16	1.71	3.27	5.97	11.02	13.04	10.64	30.9	54.3	67.97	74.23	73.71	72.9
113	69.91	70.76	71.35	65.25	51.87	29.45	10.32	12.46	10.56	5.8	3.22	1.72	1.19	1.72	3.22	5.8	10.56	12.46	10.32	29.45	51.87	65.25	71.35	70.76	69.91
114	67.03	67.96	68.62	62.74	49.64	28.09	10.01	11.92	10.11	5.63	3.17	1.72	1.21	1.72	3.17	5.63	10.11	11.92	10.01	28.09	49.64	62.74	68.62	67.96	67.03
115	65.04	65.38	66.06	60.35	47.56	26.84	9.73	11.42	9.69	5.47	3.11	1.72	1.22	1.72	3.11	5.47	9.69	11.42	9.73	26.84	47.56	60.35	66.06	65.38	65.04
116	62.29	62.98	63.75	58.11	45.58	25.64	9.45	10.95	9.3	5.32	3.07	1.72	1.25	1.72	3.07	5.32	9.3	10.95	9.45	25.64	45.58	58.11	63.75	62.98	62.29
117	59.53	60.71	61.52	56.04	43.75	24.52	9.19	10.51	8.94	5.19	3.03	1.73	1.28	1.73	3.03	5.19	8.94	10.51	9.19	24.52	43.75	56.04	61.52	60.71	59.53
118	57.44	58.6	59.43	54.1	42.03	23.48	8.93	10.09	8.59	5.07	3	1.74	1.32	1.74	3	5.07	8.59	10.09	8.93	23.48	42.03	54.1	59.43	58.6	57.44
119	55.54	56.71	57.51	52.25	40.39	22.48	8.7	9.71	8.27	4.95	2.97	1.75	1.35	1.75	2.97	4.95	8.27	9.71	8.7	22.48	40.39	52.25	57.51	56.71	55.54
120	53.77	54.97	55.68	50.52	38.89	21.56	8.46	9.34	7.97	4.84	2.94	1.77	1.39	1.77	2.94	4.84	7.97	9.34	8.46	21.56	38.89	50.52	55.68	54.97	53.77
121	52.17	53.32	53.99	48.85	37.43	20.68	8.24	9	7.68	4.74	2.91	1.78	1.43	1.78	2.91	4.74	7.68	9	8.24	20.68	37.43	48.85	53.99	53.32	52.17
122	50.64	51.8	52.37	47.28	36.06	19.85	8.02	8.67	7.41	4.64	2.89	1.8	1.47	1.8	2.89	4.64	7.41	8.67	8.02	19.85	36.06	47.28	52.37	51.8	50.64
123	49.24	50.37	50.83	45.76	34.77	19.07	7.81	8.37	7.17	4.55	2.87	1.81	1.51	1.81	2.87	4.55	7.17	8.37	7.81	19.07	34.77	45.76	50.83	50.37	49.24
124	47.94	49.02	49.37	44.32	33.53	18.31	7.6	8.07	6.93	4.47	2.86	1.83	1.54	1.83	2.86	4.47	6.93	8.07	7.6	18.31	33.53	44.32	49.37	49.02	47.94
125	46.71	47.77	47.98	42.95	32.36	17.59	7.39	7.8	6.71	4.38	2.83	1.83	1.57	1.83	2.83	4.38	6.71	7.8	7.39	17.59	32.36	42.95	47.98	47.77	46.71
126	45.55	46.56	46.65	41.64	31.23	16.92	7.2	7.53	6.49	4.29	2.81	1.84	1.59	1.84	2.81	4.29	6.49	7.53	7.2	16.92	31.23	41.64	46.65	46.56	45.55
127	44.46	45.41	45.36	40.36	30.15	16.25	7	7.28	6.28	4.21	2.79	1.85	1.61	1.85	2.79	4.21	6.28	7.28	7	16.25	30.15	40.36	45.36	45.41	44.46
128	43.43	44.32	44.12	39.16	29.12	15.62	6.82	7.04	6.09	4.14	2.77	1.85	1.63	1.85	2.77	4.14	6.09	7.04	6.82	15.62	29.12	39.16	44.12	44.32	43.43
129	42.45	43.27	42.92	37.99	28.14	15.03	6.64	6.82	5.9	4.07	2.75	1.85	1.64	1.85	2.75	4.07	5.9	6.82	6.64	15.03	28.14	37.99	42.92	43.27	42.45
130	41.53	42.27	41.77	36.85	27.18	14.44	6.45	6.6	5.72	4	2.72	1.85	1.66	1.85	2.72	4	5.72	6.6	6.45	14.44	27.18	36.85	41.77	42.27	41.53
131	40.65	41.3	40.67	35.76	26.27	13.89	6.26	6.38	5.56	3.93	2.7	1.86	1.68	1.86	2.7	3.93	5.56	6.38	6.26	13.89	26.27	35.76	40.67	41.3	40.65
132	39.8	40.37	39.59	34.7	25.38	13.36	6.08	6.17	5.4	3.87	2.68	1.86	1.7	1.86	2.68	3.87	5.4	6.17	6.08	13.36	25.38	34.7	39.59	40.37	39.8
133	38.98	39.47	38.57	33.67	24.53	12.85	5.9	5.98	5.25	3.8	2.66	1.86	1.72	1.86	2.66	3.8	5.25	5.98	5.9	12.85	24.53	33.67	38.57	39.47	38.98
134	38.2	38.61	37.55	32.67	23.71	12.37	5.73	5.79	5.1	3.74	2.64	1.86	1.74	1.86	2.64	3.74	5.1	5.79	5.73	12.37	23.71	32.67	37.55	38.61	38.2
135	37.46	37.76	36.56	31.69	22.89	11.89	5.55	5.6	4.95	3.68	2.61	1.86	1.75	1.86	2.61	3.68	4.95	5.6	5.55	11.89	22.89	31.69	36.56	37.76	37.46
136	36.74	36.94	35.62	30.74	22.11	11.43	5.39	5.42	4.81	3.62	2.59	1.86	1.77	1.86	2.59	3.62	4.81	5.42	5.39	11.43	22.11	30.74	35.62	36.94	36.74
137	36.01	36.13	34.67	29.79	21.35	10.98	5.23	5.25	4.68	3.56	2.57	1.85	1.79	1.85	2.57	3.56	4.68	5.25	5.23	10.98	21.35	29.79	34.67	36.13	36.01
138	35.33	35.35	33.74	28.87	20.6	10.54	5.08	5.08	4.55	3.49	2.54	1.85	1.8	1.85	2.54	3.49	4.55	5.08	5.08	10.54	20.6	28.87	33.74	35.35	35.33
139	34.63	34.56	32.84	27.97	19.86	10.12	4.92	4.91	4.41	3.43	2.51	1.84	1.81	1.84	2.51	3.43	4.41	4.91	4.92	10.12	19.86	27.97	32.84	34.56	34.63
140	33.94	33.78	31.94	27.08	19.14	9.7	4.78	4.75	4.28	3.36	2.48	1.83	1.82	1.83	2.48	3.36	4.28	4.75	4.78	9.7	19.14	27.08	31.94	33.78	33.94
141	33.25	33	31.05	26.2	18.42	9.3	4.63	4.59	4.15	3.28	2.43	1.8	1.8	1.8	2.43	3.28	4.15	4.59	4.63	9.3	18.42	26.2	31.05	33	33.25
142	32.54	32.23	30.16	25.33	17.72	8.89	4.49	4.44	4.02	3.2	2.39	1.79	1.79	1.79	2.39	3.2	4.02	4.44	4.49	8.89	17.72	25.33	30.16	32.23	32.54
143	31.84	31.45	29.28	24.46	17.02	8.47	4.36	4.29	3.89	3.13	2.35	1.77	1.79	1.77	2.35	3.13	3.89	4.29	4.36	8.47	17.02	24.46	29.28	31.45	31.84
144	31.12	30.64	28.4	23.6	16.32	8.05	4.22	4.14	3.76	3.04	2.3	1.74	1.76	1.74	2.3	3.04	3.76	4.14	4.22	8.05	16.32	23.6	28.4	30.64	31.12
145	30.37	29.84	27.52	22.74	15.62	7.64	4.09	4	3.63	2.95	2.24	1.73	1.73	1.71	2.24	2.95	3.63	4	4.09	7.64	15.62	22.74	27.52	29.84	30.37
146	29.6	29.03	26.64	21.89	14.91	7.26	3.95	3.85	3.49	2.86	2.18	1.67	1.7	1.67	2.18	2.86	3.49	3.85	3.95	7.26	14.91	21.89	26.64	29.03	29.6
147	28.8	28.19	25.74	21.04	14.2	6.88	3.81	3.71	3.37	2.77	2.11	1.63	1.67	1.63	2.11	2.77	3.37	3.71	3.81	6.88	14.2	21.04	25.74	28.19	28.8
148	28	27.32	24.84	20.18	13.51	6.51	3.68	3.57	3.23	2.67	2.05	1.59	1.63	1.59	2.05	2.67	3.23	3.57	3.68	6.51	13.51	20.18	24.84	27.32	28
149	27.15	26.44	23.93	19.33	12.81	6.14	3.55	3.43	3.11	2.58	1.98	1.55	1.59	1.55	1.98	2.58	3.11	3.43	3.55	6.14	12.81	19.33	23.93	26.44	27.15
150	26.28	25.55	23	18.42	12.12	5.79	3.43	3.3	2.99	2.49	1.93	1.52	1.57	1.52	1.93	2.49	2.99	3.3	3.43	5.79	12.12	18.42	23	25.55	26.28
151	25.37	24.61	22.05	17.46	11.42	5.44	3.31	3.18	2.88	2.4	1.87	1.5	1.55	1.5	1.87	2.4	2.88	3.18	3.31	5.44	11.42	17.46	22.05	24.61	25.37
152	24.43	23.65	21.1	16.53	10.71	5.1	3.19	3.06	2.76	2.32	1.82	1.47	1.53	1.47	1.82	2.32	2.76	3.06	3.19	5.1	10.71	16.53	21.1	23.65	24.43
153	23.47	22.67																							

158	18.3	17.45	14.61	10.9	6.34	3.26	2.52	2.38	2.13	1.81	1.47	1.27	1.3	1.27	1.47	1.81	2.13	2.38	2.52	3.26	6.34	10.9	14.61	17.45	18.3
159	17.19	16.34	13.54	9.77	5.7	3.01	2.41	2.27	2.03	1.72	1.41	1.23	1.26	1.23	1.41	1.72	2.03	2.27	2.41	3.01	5.7	9.77	13.54	16.34	17.19
160	16.07	14.83	12.45	8.52	5.1	2.78	2.3	2.16	1.94	1.65	1.36	1.21	1.23	1.21	1.36	1.65	1.94	2.16	2.3	2.78	5.1	8.52	12.45	14.83	16.07
161	14.94	13.32	11.26	7.31	4.54	2.57	2.19	2.06	1.84	1.58	1.32	1.19	1.21	1.19	1.32	1.58	1.84	2.06	2.19	2.57	4.54	7.31	11.26	13.32	14.94
162	13.79	11.97	9.96	6.28	4.03	2.38	2.09	1.96	1.76	1.51	1.28	1.17	1.18	1.17	1.28	1.51	1.76	1.96	2.09	2.38	4.03	6.28	9.96	11.97	13.79
163	12.66	10.81	8.51	5.44	3.57	2.21	1.98	1.86	1.68	1.45	1.24	1.15	1.16	1.15	1.24	1.45	1.68	1.86	1.98	2.21	3.57	5.44	8.51	10.81	12.66
164	11.42	9.43	6.88	4.69	3.15	2.07	1.89	1.77	1.6	1.4	1.21	1.14	1.14	1.14	1.21	1.4	1.6	1.77	1.89	2.07	3.15	4.69	6.88	9.43	11.42
165	9.84	7.67	5.61	4.07	2.79	1.94	1.79	1.69	1.53	1.35	1.18	1.12	1.12	1.12	1.18	1.35	1.53	1.69	1.79	1.94	2.79	4.07	5.61	7.67	9.84
166	7.73	5.95	4.57	3.51	2.47	1.81	1.7	1.61	1.46	1.3	1.15	1.11	1.11	1.11	1.15	1.3	1.46	1.61	1.7	1.81	2.47	3.51	4.57	5.95	7.73
167	6.08	4.8	3.73	3.05	2.19	1.7	1.61	1.53	1.4	1.26	1.13	1.1	1.1	1.1	1.13	1.26	1.4	1.53	1.61	1.7	2.19	3.05	3.73	4.8	6.08
168	4.77	3.77	3.14	2.62	1.95	1.59	1.53	1.46	1.35	1.22	1.11	1.1	1.1	1.1	1.11	1.22	1.35	1.46	1.53	1.59	1.95	2.62	3.14	3.77	4.77
169	3.65	3.03	2.68	2.24	1.74	1.49	1.45	1.4	1.3	1.19	1.1	1.1	1.09	1.1	1.1	1.19	1.3	1.4	1.45	1.49	1.74	2.24	2.68	3.03	3.65
170	2.91	2.55	2.24	1.91	1.57	1.4	1.38	1.34	1.26	1.17	1.09	1.1	1.09	1.1	1.09	1.17	1.26	1.34	1.38	1.4	1.57	1.91	2.24	2.55	2.91
171	2.51	2.15	1.87	1.64	1.43	1.33	1.32	1.28	1.21	1.14	1.08	1.1	1.09	1.1	1.08	1.14	1.21	1.28	1.32	1.33	1.43	1.64	1.87	2.15	2.51
172	2.13	1.67	1.57	1.44	1.31	1.26	1.25	1.23	1.18	1.12	1.07	1.09	1.09	1.09	1.07	1.12	1.18	1.23	1.25	1.26	1.31	1.44	1.57	1.67	2.13
173	1.62	1.36	1.34	1.28	1.21	1.2	1.2	1.18	1.14	1.1	1.06	1.09	1.08	1.09	1.06	1.1	1.14	1.18	1.2	1.2	1.21	1.28	1.34	1.36	1.62
174	0.89	1.18	1.19	1.17	1.13	1.14	1.15	1.14	1.12	1.08	1.06	1.09	1.07	1.09	1.06	1.08	1.12	1.14	1.15	1.14	1.13	1.17	1.19	1.18	0.89
175	0.86	1.06	1.09	1.08	1.08	1.1	1.11	1.11	1.09	1.07	1.05	1.08	1.06	1.08	1.05	1.07	1.09	1.11	1.11	1.1	1.08	1.08	1.09	1.06	0.86
176	0.87	0.97	1.01	1.02	1.04	1.07	1.08	1.08	1.07	1.05	1.04	1.08	1.05	1.08	1.04	1.05	1.07	1.08	1.08	1.07	1.04	1.02	1.01	0.97	0.87
177	0.89	0.96	0.97	1	1.02	1.04	1.05	1.05	1.04	1.03	1.02	1.06	1.02	1.06	1.02	1.03	1.04	1.05	1.05	1.04	1.02	1	0.97	0.96	0.89
178	0.91	0.97	0.98	1	1.02	1.03	1.04	1.03	1.03	1.01	1.01	1.04	1	1.04	1.01	1.01	1.03	1.03	1.04	1.03	1.02	1	0.98	0.97	0.91
179	0.93	0.98	0.99	1	1.02	1.03	1.03	1.03	1.02	1	1	1.03	0.98	1.03	1	1	1.02	1.03	1.03	1.03	1.02	1	0.99	0.98	0.93
180	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	WPT @ 25W/5000K	Sample ID.	F1
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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
120.07	60	0.202	24.1	0.993	11.51%
277.02	60	0.092	24.6	0.962	12.15%

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*****