

Photometric Test Report

Relevant Standards

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

Prepared For

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Project Number

DLF2409113

Report Number

DLF2409113-2a

Test Date

2024/8/31

Issue Date

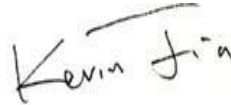
2024/9/2

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		2392
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	145.9
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		2261
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	137.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		16.4
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	13.73%
		20.00%	277V	14.96%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.988
		0.9	277V	0.931
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4031
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		16
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		84
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%		-11%
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		0.064
(Goniophotometer - Section 4.2)		Non-Worst Case		0.126
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		16.4
(Goniophotometer - Section 4.2)		Non-Worst Case		14.9

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/31	WPT @ 15W/4000K	N/A	B1
2	Goniophotometer Test	2024/8/31	WPT @ 15W/4000K	N/A	B1
3	THD and PF Test	2024/8/31	WPT @ 15W/4000K	N/A	B1

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.

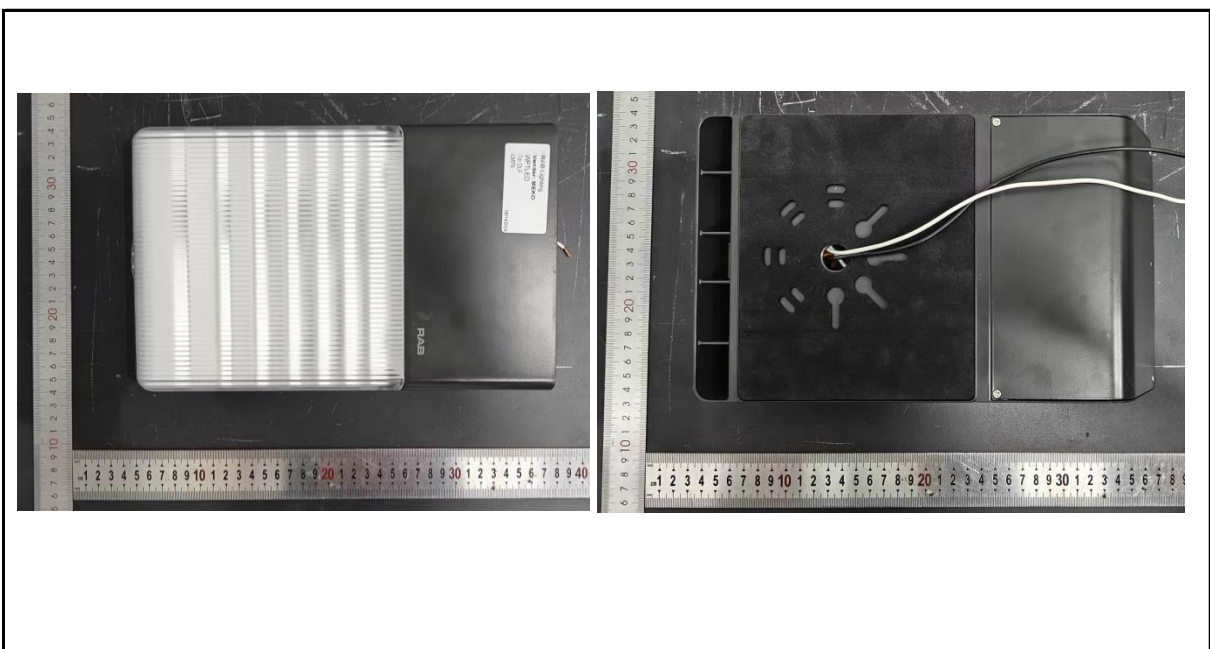
2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing 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 @ 15W/4000K

Electrical Specification: 120V-277V,50/60HZ

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	WPT @ 15W/4000K	Sample ID.	B1
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

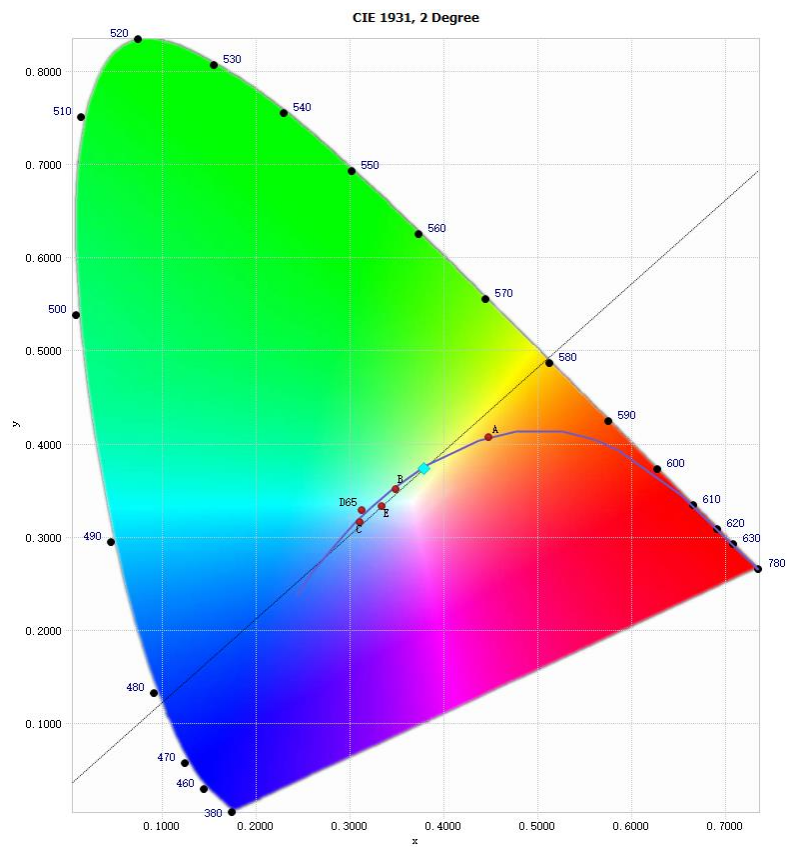
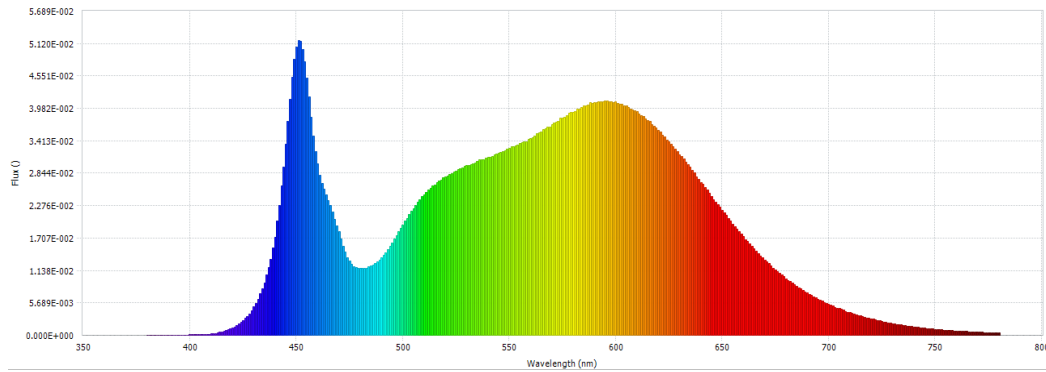
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.00	60	0.126	14.9	0.988
277.05	60	0.064	16.4	0.931

Test Result

CCT (K)	CRI	R9	Duv
4031	84	16	-0.0008

Rf	Rg	IES Rcs,h1
84	96	-11%

4.1 Integrating Sphere Test



4.1 Integrating Sphere Test

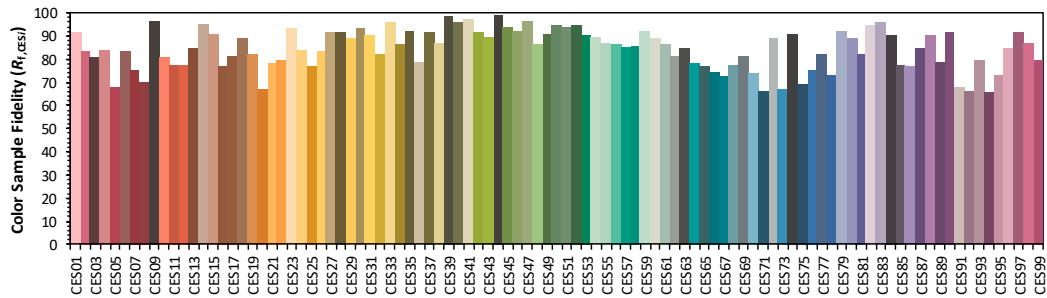
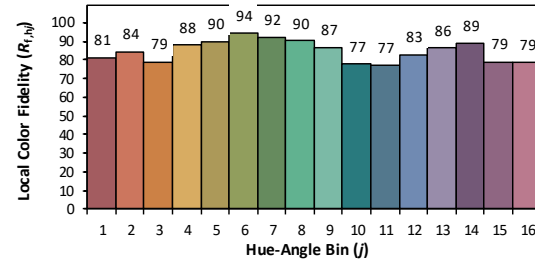
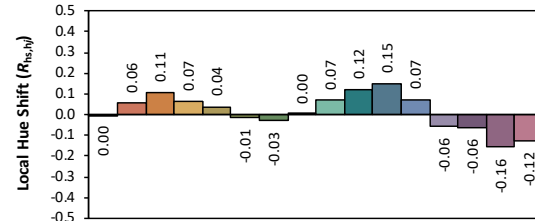
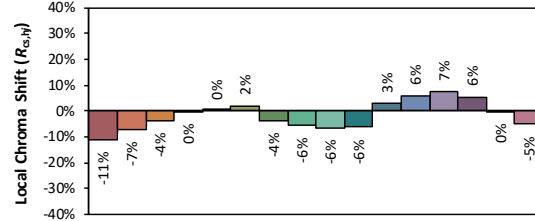
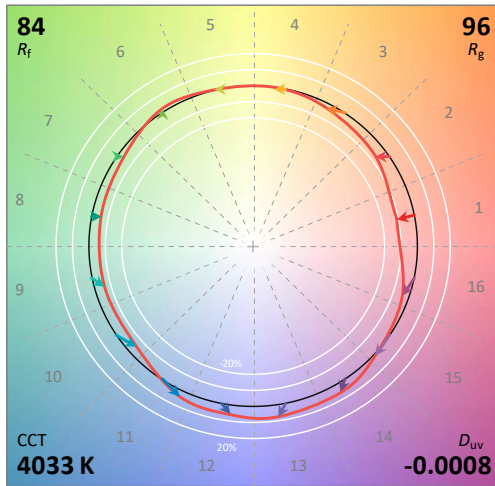
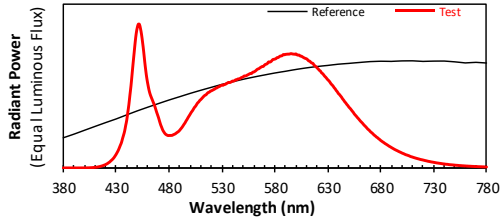
IES TM-30-18 Color Rendition Report

Source: DLF2409113-2a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/31

Model: WPT @ 15W/4000K



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

x 0.3784
 y 0.3737
 u' 0.2250
 v' 0.4999

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	6.11E-05	485	1.21E-02	590	4.08E-02	695	6.36E-03
385	5.74E-05	490	1.36E-02	595	4.11E-02	700	5.43E-03
390	5.50E-05	495	1.62E-02	600	4.10E-02	705	4.66E-03
395	4.92E-05	500	1.94E-02	605	4.02E-02	710	3.96E-03
400	7.59E-05	505	2.22E-02	610	3.92E-02	715	3.37E-03
405	1.21E-04	510	2.46E-02	615	3.77E-02	720	2.90E-03
410	2.54E-04	515	2.64E-02	620	3.60E-02	725	2.43E-03
415	5.90E-04	520	2.78E-02	625	3.40E-02	730	2.07E-03
420	1.27E-03	525	2.88E-02	630	3.17E-02	735	1.75E-03
425	2.61E-03	530	2.98E-02	635	2.95E-02	740	1.48E-03
430	4.95E-03	535	3.05E-02	640	2.68E-02	745	1.23E-03
435	9.16E-03	540	3.13E-02	645	2.44E-02	750	1.06E-03
440	1.72E-02	545	3.20E-02	650	2.19E-02	755	8.98E-04
445	3.35E-02	550	3.28E-02	655	1.95E-02	760	7.64E-04
450	5.05E-02	555	3.36E-02	660	1.73E-02	765	6.51E-04
455	4.51E-02	560	3.45E-02	665	1.52E-02	770	5.47E-04
460	3.01E-02	565	3.57E-02	670	1.32E-02	775	4.77E-04
465	2.37E-02	570	3.69E-02	675	1.15E-02	780	3.92E-04
470	1.82E-02	575	3.81E-02	680	9.93E-03		
475	1.30E-02	580	3.92E-02	685	8.62E-03		
480	1.17E-02	585	4.02E-02	690	7.42E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	WPT @ 15W/4000K	Sample ID.	B1
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	0.064	16.4	0.931
NON-WORST CASE	120.00	60	0.126	14.9	0.988

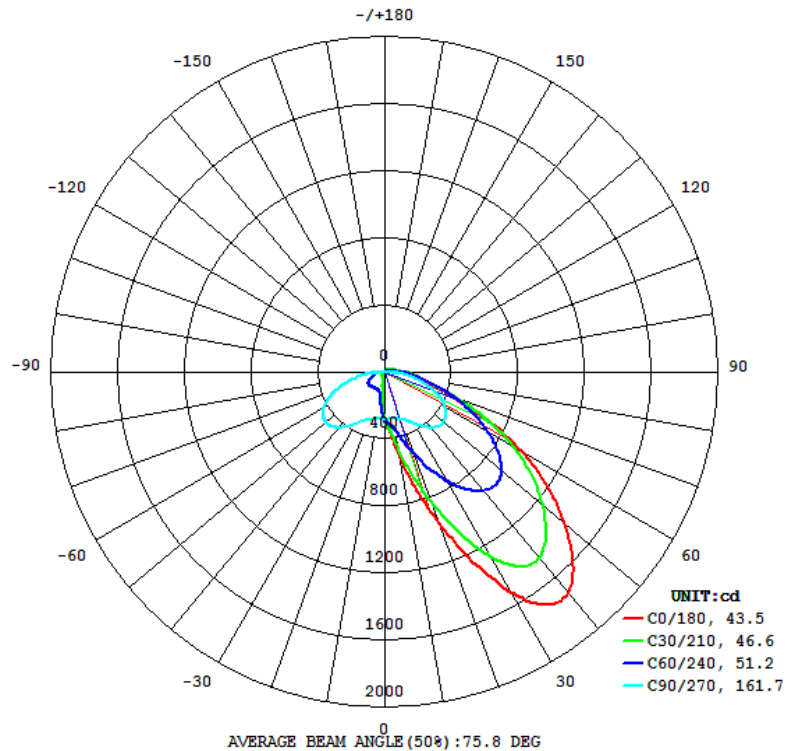
Test Result

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	2392	87.6	183.3	43.5	161.7	145.9
0° - 90° zones	2261	87.6	179.3	43.5	161.7	137.9

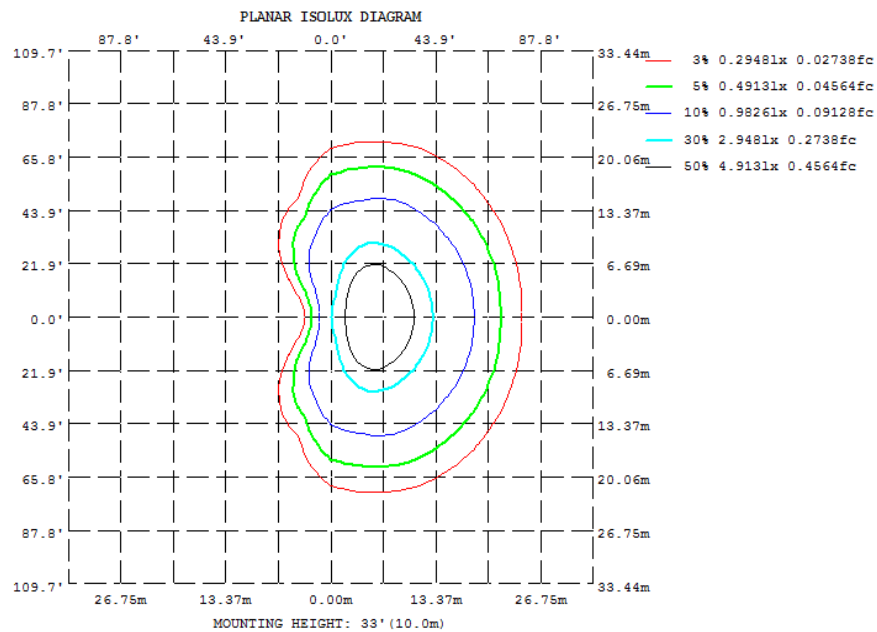
Zonal Lumen Requirement (80° - 90°)	BUG rating
4.27%	B0-U3-G1

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

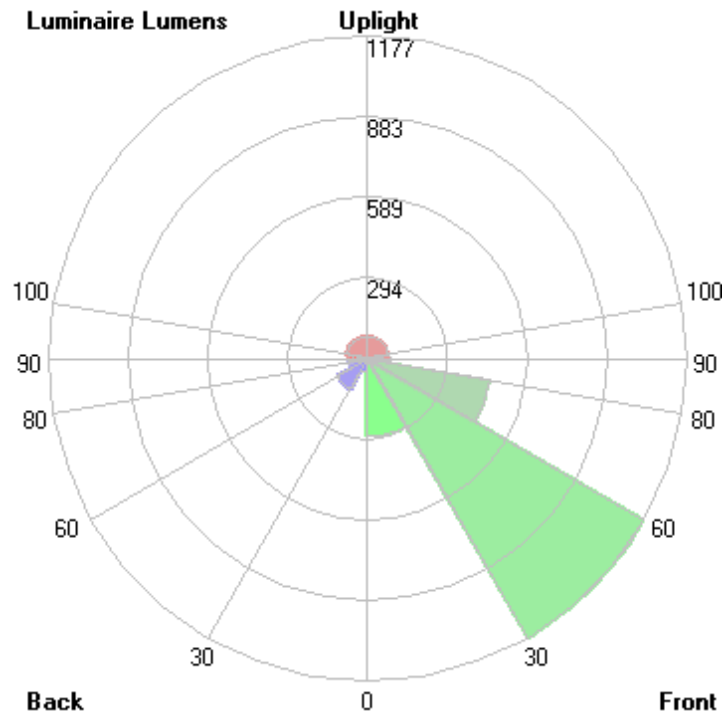
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	499.0	396.1	286.0	115.2	82.71	115.2	286.0	396.1
20	960.8	691.5	304.6	71.65	30.47	71.65	304.6	691.5
30	1512	1034	356.8	62.26	15.31	62.26	356.8	1034
40	1715	1228	436.3	63.04	8.421	63.04	436.3	1228
50	1410	1092	466.0	61.71	3.049	61.71	466.0	1092
60	944.2	812.7	422.7	49.83	0.2257	49.83	422.7	812.7
70	418.2	473.2	309.0	33.23	0.0885	33.23	309.0	473.2
80	204.6	228.9	156.5	19.97	0.0941	19.97	156.5	228.9
90	121.9	129.3	39.04	10.84	0.1483	10.84	39.04	129.3
100	78.64	77.44	12.03	6.467	0.4396	6.467	12.03	77.44
110	53.98	50.30	7.740	4.384	0.7365	4.384	7.740	50.30
120	36.70	34.37	5.793	3.328	0.9444	3.328	5.793	34.37
130	28.30	25.06	4.417	2.743	1.132	2.743	4.417	25.06
140	23.10	18.40	3.271	2.299	1.240	2.299	3.271	18.40
150	17.87	12.44	2.345	1.701	1.067	1.701	2.345	12.44
160	10.92	5.809	1.572	1.127	0.8401	1.127	1.572	5.809
170	1.975	1.292	0.9434	0.7937	0.7439	0.7937	0.9434	1.292
180	0.6533	0.6935	0.7071	0.6811	0.6518	0.6811	0.7071	0.6935
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	25.51	0 - 10	25.51	1.07%
10-20	92.88	0 - 20	118.39	4.95%
20-30	217.45	0 - 30	335.84	14.04%
30-40	379.59	0 - 40	715.43	29.90%
40-50	472.51	0 - 50	1187.94	49.65%
50-60	452.40	0 - 60	1640.34	68.56%
60-70	337.77	0 - 70	1978.11	82.68%
70-80	186.62	0 - 80	2164.73	90.48%
80-90	96.52	0 - 90	2261.25	94.51%
90-100	51.89	0 - 100	2313.14	96.68%
100-110	31.21	0 - 110	2344.35	97.99%
110-120	19.44	0 - 120	2363.79	98.80%
120-130	12.52	0 - 130	2376.31	99.32%
130-140	8.17	0 - 140	2384.48	99.66%
140-150	4.94	0 - 150	2389.42	99.87%
150-160	2.37	0 - 160	2391.79	99.97%
160-170	0.64	0 - 170	2392.43	100.00%
170-180	0.08	0 - 180	2392.51	100.00%

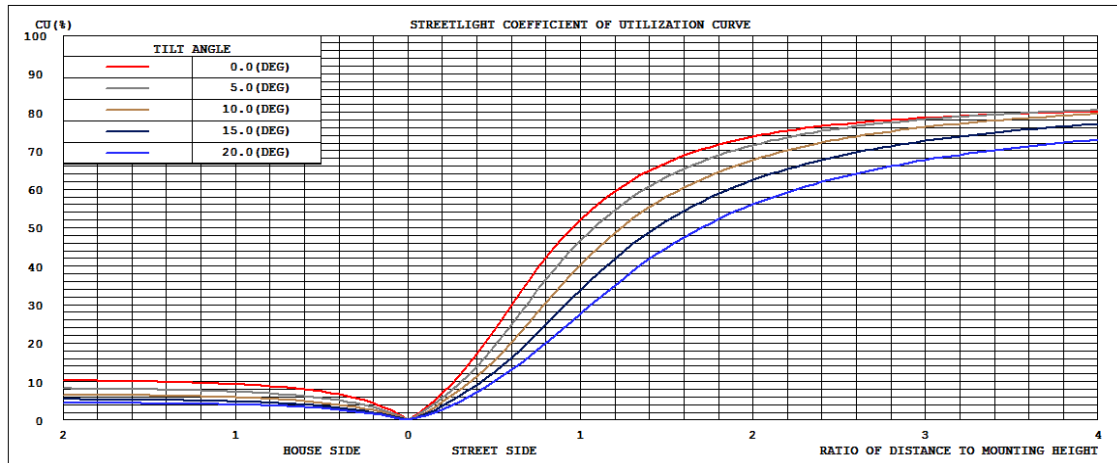
4.2 Goniophotometer Test

LCS/BUG

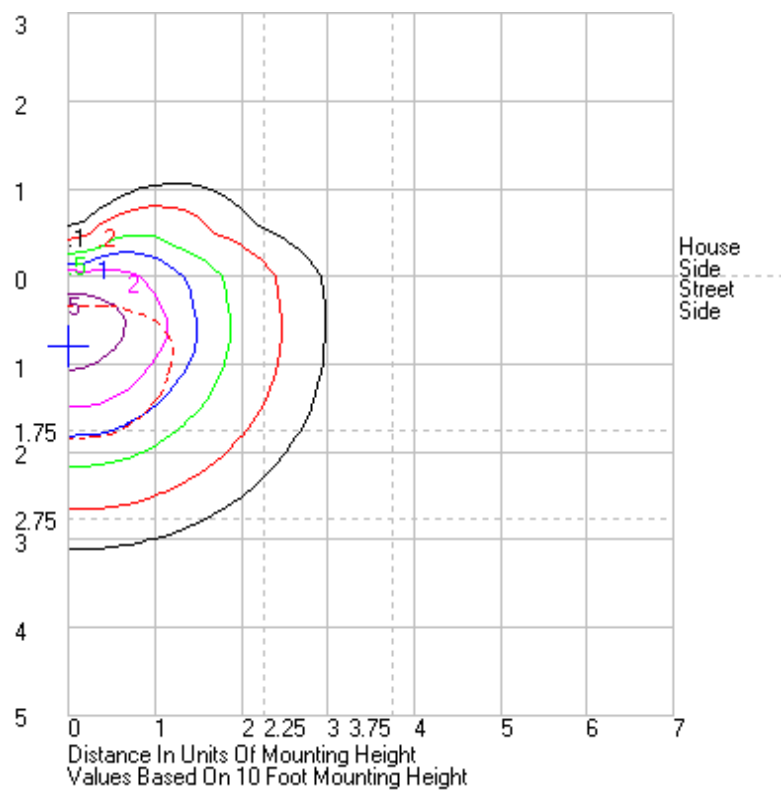


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	284.6	N.A.	11.9
FM - Front-Medium (30-60)	1177.2	N.A.	49.2
FH - Front-High (60-80)	455.9	N.A.	19.1
FVH - Front-Very High (80-90)	82.6	N.A.	3.5
BL - Back-Low (0-30)	51.2	N.A.	2.1
BM - Back-Medium (30-60)	127.3	N.A.	5.3
BH - Back-High (60-80)	68.5	N.A.	2.9
BVH - Back-Very High (80-90)	13.9	N.A.	0.6
UL - Uplight-Low (90-100)	51.9	N.A.	2.2
UH - Uplight-High (100-180)	79.4	N.A.	3.3
Total	2392.5	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	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427	287.427
1	301.57	300.66	299.27	296.99	294.17	290.73	286.79	283.18	279.63	276.55	274.33	272.53	273.04	272.53	274.33	276.55	279.63	283.18	286.79	290.73	294.17	296.99	299.27	300.66	301.57
2	313.25	311.87	309.53	305.64	300.18	293.7	286.23	278.7	271.04	263.32	256.62	251.85	251.52	251.85	256.62	263.32	271.04	278.7	286.23	293.7	300.18	305.64	309.53	311.87	313.25
3	323.16	321.64	318.31	313.02	305.69	296.36	285.3	273.63	260.58	246	232.47	223.2	221.91	223.2	232.47	246	260.58	273.63	285.3	296.36	305.69	313.02	318.31	321.64	323.16
4	334.28	331.99	326.91	319.53	310.53	299.06	284.73	268.52	248.2	224.46	202.89	188.49	186.07	188.49	202.89	224.46	248.2	268.52	284.73	299.06	310.53	319.53	326.91	331.99	334.28
5	349.17	345.25	337.01	326.39	315.2	301.86	284.35	263.43	234.5	200.22	173.18	158.92	157.29	158.92	173.18	200.22	234.5	263.43	284.35	301.86	315.2	326.39	337.01	345.25	349.17
6	368.67	362.99	350.72	334.57	319.49	304.32	284.16	258.24	220.04	175.12	147.68	133.73	128.54	133.73	147.68	175.12	220.04	258.24	284.16	304.32	319.49	334.57	350.72	362.99	368.67
7	394.69	386.52	368.66	345.31	324.27	306.81	284.24	253.41	204.66	154.54	126.24	115.97	113.59	115.97	126.24	154.54	204.66	253.41	284.24	306.81	324.27	345.31	368.66	386.52	394.69
8	424.95	414.68	390.76	359.21	329.96	309.11	284.66	248.88	189.53	137.35	113.62	104.78	102.33	104.78	113.62	137.35	189.53	248.88	284.66	309.11	329.96	359.21	390.76	414.68	424.95
9	459.45	447.45	417.19	375.99	336.87	311.17	285.19	244.77	175.21	124.05	104.04	94.89	92.27	94.89	104.04	124.05	175.21	244.77	285.19	311.17	336.87	375.99	417.19	447.45	459.45
10	499	483.87	447.08	396.08	345.68	313.06	285.99	240.97	162.72	115.18	95.84	85.32	82.71	85.32	95.84	115.18	162.72	240.97	285.99	313.06	345.68	396.08	447.08	483.87	499
11	538.69	522	479.73	418.72	356.11	315.02	287.1	237.4	152.23	108.58	88.09	76.4	73.46	76.4	88.09	108.58	152.23	237.4	287.1	315.02	356.11	418.72	479.73	522	538.69
12	581.16	562.1	514.91	444.1	368.54	317.25	288.27	234.57	144.32	103.09	80.67	68.39	65.56	68.39	80.67	103.09	144.32	234.57	288.27	317.25	368.54	444.1	514.91	562.1	581.16
13	623.47	602.87	551.22	471.42	382.6	319.91	289.69	232.06	137.57	98.15	73.86	61.58	58.56	61.58	73.86	98.15	137.57	232.06	289.69	319.91	382.6	471.42	551.22	602.87	623.47
14	667.03	643.67	587.87	500.63	398.52	323.21	291.24	229.75	132.42	93.4	67.68	55.55	52.45	55.55	67.68	93.4	132.42	229.75	291.24	323.21	398.52	500.63	587.87	643.67	667.03
15	713.37	687.4	625.67	530.55	415.93	327.21	293	227.69	128.93	88.84	62.68	49.95	47.48	49.95	62.68	88.84	128.93	227.69	293	327.21	415.93	530.55	625.67	687.4	713.37
16	760.52	731.88	663.89	561.62	434.75	331.83	294.88	225.88	126.29	84.61	57.9	45.45	43.1	45.45	57.9	84.61	126.29	225.88	294.88	331.83	434.75	561.62	663.89	731.88	760.52
17	807.54	777.38	704.03	593.18	454.71	337.34	296.91	224.65	124.28	80.75	53.72	41.6	39.31	41.6	53.72	80.75	124.28	224.65	296.91	337.34	454.71	593.18	704.03	777.38	807.54
18	857.11	824.54	744.92	625.52	475.84	343.7	299.28	223.85	122.74	77.29	50.32	38.22	35.99	38.22	50.32	77.29	122.74	223.85	299.28	343.7	475.84	625.52	744.92	824.54	857.11
19	907.54	872.62	786.69	658.36	497.37	350.87	301.75	223.49	121.4	74.24	47.4	35.31	33.08	35.31	47.4	74.24	121.4	223.49	301.75	350.87	497.37	658.36	786.69	872.62	907.54
20	960.77	922.74	829.57	691.51	519.51	358.77	304.62	223.45	120.24	71.65	44.9	32.73	30.47	32.73	44.9	71.65	120.24	223.45	304.62	358.77	519.51	691.51	829.57	922.74	960.77
21	1013.86	973.57	873.03	725.37	542.11	367.48	307.77	223.74	119.24	69.52	42.76	30.43	28.18	30.43	42.76	69.52	119.24	223.74	307.77	367.48	542.11	725.37	873.03	973.57	1013.86
22	1069.34	1024.85	917.33	759	564.83	376.63	311.1	224.55	118.33	67.78	40.92	28.42	26.09	28.42	40.92	67.78	118.33	224.55	311.1	376.63	564.83	759	917.33	1024.85	1069.34
23	1126.41	1078.82	962.47	794.07	588.13	386.56	315.05	225.85	117.62	66.41	39.29	26.57	24.22	26.57	39.29	66.41	117.62	225.85	315.05	386.56	588.13	794.07	962.47	1078.82	1126.41
24	1182.7	1131.52	1007.45	828.33	611.31	396.92	319.22	227.43	116.95	65.34	37.92	24.95	22.55	24.95	37.92	65.34	116.95	227.43	319.22	396.92	611.31	828.33	1007.45	1131.52	1182.7
25	1241.87	1186.41	1053.23	863.26	634.79	407.53	324.08	229.05	116.53	64.36	36.73	23.52	21.04	23.52	36.73	64.36	116.53	229.05	324.08	407.53	634.79	863.26	1053.23	1186.41	1241.87
26	1295.29	1241.55	1099.01	898.49	658.47	419.07	329.46	231.08	116.31	63.69	35.69	22.23	19.67	22.23	35.69	63.69	116.31	329.46	419.07	598.47	898.49	1099.01	1241.55	1295.29	
27	1348.85	1294.33	1144.23	933.15	681.92	430.74	335.41	233.37	116.18	63.2	34.8	21.06	18.44	21.06	34.8	63.2	116.18	233.37	335.41	430.74	681.92	933.15	1144.23	1294.33	1348.85
28	1404.51	1344.96	1188.94	967.45	705.46	442.53	342.11	235.93	116.25	62.78	34.02	19.99	17.29	19.99	34.02	62.78	116.25	235.93	342.11	442.53	705.46	967.45	1188.94	1344.96	1404.51
29	1459.73	1394.52	1231.75	1001.31	728.68	454.69	349.14	238.45	116.49	62.47	33.36	19.04	16.27	19.04	33.36	62.47	116.49	238.45	349.14	454.69	728.68	1001.31	1231.75	1394.52	1459.73
30	1511.64	1443.33	1272.86	1034.24	751.55	466.97	356.76	241.03	116.88	62.26	32.76	18.17	15.31	18.17	32.76	62.26	116.88	241.03	356.76	466.97	751.55	1034.24	1272.86	1443.33	1511.64
31	1560.34	1488.55	1308.44	1065.51	773.95	479.43	364.8	243.52	117.36	62.08	32.22	17.38	14.43	17.38	32.22	62.08	117.36	243.52	364.8	479.43	773.95	1065.51	1308.44	1488.55	1560.34
32	1603.79	1528.6	1340.73	1095.31	795.81	491.67	373.05	245.8	117.87	61.96	31.74	16.66	13.64	16.66	31.74	61.96	117.87	245.8	373.05	491.67	795.81	1095.31	1340.73	1528.6	1603.79
33	1641.29	1563.17	1371.17	1122.75	816.68	503.82	381.48	247.91	118.36	61.91	31.3	15.97	12.86	15.97	31.3	61.91	118.36	247.91	381.48	503.82	816.68	1122.75	1371.17	1563.17	1641.29
34	1671.04	1591.58	1396.94	1147.34	836.19	515.49	390.04	249.93	118.79	61.93	30.88	15.34	12.13	15.34	30.88	61.93	118.79	249.93	390.04	515.49	836.19	1147.34	1396.94	1591.58	1671.04
35	1693.75	1613.17	1417.55	1169.8	854.84	527.51	398.42	251.54	119.18	62	30.49	14.74	11.45	14.74	30.49	62	119.18	251.54	398.42	527.51	854.84	1169.8	1417.55	1613.17	1693.75
36	1711.11	1628.22	1433.01	1189.32	872.04	539.09	406.78	252.85	119.55	62.15	30.12	14.17	10.79	14.17	30.12	62.15	119.55	252.85	406.78	539.09	872.04	1189.32	1433.01	1628.22	1711.11
37	1721.16	1638.26	1442.26	1204.82	887.53	550.17	414.69	253.84	119.96	62.34	29.74	13.64	10.16	13.64	29.74	62.34	119.96	253.84	414.69	550.17	887.53	1204.82	1442.26	1638.26	1721.16
38	1724.96	1642.5	1447.52	1216.54	901.43	560.79	422.31	254.35	120.36	62.59	29.35	13.12	9.57	13.12	29.35	62.59	120.36	254.35	422.31	560.79	901.43	1216.54	1447.52	1642.5	1724.96
39	1722.66	1641.54	1447.82	1224.25	913.46	570.81	429.51	254.37	120.82	62.83	28.95	12.62	8.99	12.62	28.95	62.83	120.82	254.37	429.51	570.81	913.46	1224.25	1447.82	1641.54	1722.66
40	1714.95	1635.87	1444.21	1227.69	923.91	580.41	436.28	253.9	121.28	63.04	28.55	12.12	8.42	12.12	28.55	63.04	121.28	253.9	436.28	580.41	923.91	1227.69	1444.21	1635.87	1714.95
41	1701.98	1625.03	1436.85	1227.21	932.71	588.61	442.47	252.7	121.8	63.18	28.12	11.63	7.86	11.63	28.12	63.18	121.8	252.7	442.47	588.61	932.71	1227.21	1436.85	1625.03	1701.98
42	1682.16	1608.96	1425.2																						

50	1409.5	1370.22	1241.65	1091.92	917.73	617.71	465.95	220.96	125.82	61.71	22.52	7.04	3.05	7.04	22.52	61.71	125.82	220.96	465.95	617.71	917.73	1091.92	1241.65	1370.22	1409.5
51	1368.7	1334.17	1211.28	1066.82	904.97	614.9	464.88	216.32	125.42	61.05	21.8	6.65	2.61	6.65	21.8	61.05	125.42	216.32	464.88	614.9	904.97	1066.82	1211.28	1334.17	1368.7
52	1326.67	1298.72	1179.93	1040.58	889.96	610.95	463.29	211.52	124.84	60.24	21.09	6.21	2.25	6.21	21.09	60.24	124.84	211.52	463.29	610.95	889.96	1040.58	1179.93	1298.72	1326.67
53	1284.61	1262.36	1148.48	1014.12	873.22	606.08	460.9	206.83	124.15	59.35	20.36	5.84	1.98	5.84	20.36	59.35	124.15	206.83	460.9	606.08	873.22	1014.12	1148.48	1262.36	1284.61
54	1240.62	1221.66	1116.08	987.19	855	600.17	457.99	202.12	123.13	58.27	19.66	5.55	1.76	5.55	19.66	58.27	123.13	202.12	457.99	600.17	855	987.19	1116.08	1221.66	1240.62
55	1193.61	1179.21	1082.63	959.93	834.48	592.81	453.93	197.33	122.09	57.1	18.96	5.29	1.55	5.29	18.96	57.1	122.09	197.33	453.93	592.81	834.48	959.93	1082.63	1179.21	1193.61
56	1144.78	1134.57	1046.95	931.69	812.95	584.71	449.28	192.53	120.84	55.78	18.31	5.04	1.36	5.04	18.31	55.78	120.84	192.53	449.28	584.71	812.95	931.69	1046.95	1134.57	1144.78
57	1095.23	1088.54	1010.41	903.56	790.77	575.94	443.83	187.75	119.41	54.41	17.67	4.83	1.21	4.83	17.67	54.41	119.41	187.75	443.83	575.94	790.77	903.56	1010.41	1088.54	1095.23
58	1044.29	1041.35	971.92	873.79	767.6	566.23	437.46	183.1	118	52.98	17.07	4.63	1.08	4.63	17.07	52.98	118	183.1	437.46	566.23	767.6	873.79	971.92	1041.35	1044.29
59	994.03	993.77	932.45	843.68	743.47	556.1	430.34	178.41	116.05	51.42	16.47	4.48	0.98	4.48	16.47	51.42	116.05	178.41	430.34	556.1	743.47	843.68	932.45	993.77	994.03
60	944.17	946.78	892.67	812.74	719.11	545.31	422.7	173.79	114.04	49.83	15.92	4.23	0.23	4.23	15.92	49.83	114.04	173.79	422.7	545.31	719.11	812.74	892.67	946.78	944.17
61	892.52	898.65	852.6	780.83	693.55	533.25	413.9	169.1	111.84	48.19	15.38	3.49	0.09	3.49	15.38	48.19	111.84	169.1	413.9	533.25	693.55	780.83	852.6	898.65	892.52
62	842.8	850.52	812.29	748.52	667.87	520.22	404.98	164.61	109.13	46.54	14.81	3.37	0.09	3.37	14.81	46.54	109.13	164.61	404.98	520.22	667.87	748.52	812.29	850.52	842.8
63	789.29	801.65	771.63	715.81	641.2	506.06	395.2	160.05	106.31	44.88	13.86	3.29	0.09	3.29	13.86	44.88	106.31	160.05	395.2	506.06	641.2	715.81	771.63	801.65	789.29
64	735.2	750.29	729.95	682.91	614.58	490.78	384.92	155.4	102.93	43.21	13.28	3.21	0.09	3.21	13.28	43.21	102.93	155.4	384.92	490.78	614.58	682.91	729.95	750.29	735.2
65	679.33	697.11	686.4	649.38	587.66	474.2	374.05	150.73	99.11	41.55	12.84	3.12	0.09	3.12	12.84	41.55	99.11	150.73	374.05	474.2	587.66	649.38	686.4	697.11	679.33
66	623.69	641.79	647.54	614.93	560.34	455.93	362.17	145.98	95.31	39.7	12.4	3.04	0.09	3.04	12.4	39.7	95.31	145.98	362.17	455.93	560.34	614.93	647.54	641.79	623.69
67	568.93	589.13	599.72	580.28	533.34	437.16	349.97	141.2	91.26	37.85	11.97	2.97	0.09	2.97	11.97	37.85	91.26	141.2	349.97	437.16	533.34	580.28	599.72	589.13	568.93
68	514.18	536.98	551.76	544.93	505.56	416.88	336.84	136.37	87.21	36.26	11.55	2.89	0.09	2.89	11.55	36.26	87.21	136.37	336.84	416.88	505.56	544.93	551.76	536.98	514.18
69	463.41	487	506.77	509.02	477.49	396.3	323.29	131.73	83.32	34.73	11.13	2.81	0.09	2.81	11.13	34.73	83.32	131.73	323.29	396.3	477.49	509.02	506.77	487	463.41
70	418.17	441.07	463.79	473.16	448.75	375.03	309.01	126.92	79.32	33.23	10.73	2.73	0.09	2.73	10.73	33.23	79.32	126.92	309.01	375.03	448.75	473.16	463.79	441.07	418.17
71	379.33	400.97	424.57	438.46	420.49	353.58	294.29	122.15	75.34	31.75	10.32	2.64	0.09	2.64	10.32	31.75	75.34	122.15	294.29	353.58	420.49	438.46	424.57	400.97	379.33
72	346.25	365.96	389.43	405.39	392.3	332.2	279.4	117.29	71.49	30.33	9.93	2.56	0.09	2.56	9.93	30.33	71.49	117.29	279.4	332.2	392.3	405.39	389.43	365.96	346.25
73	319	336.18	358.37	374.55	364.72	310.73	264.1	112.42	67.84	28.93	9.54	2.48	0.09	2.48	9.54	28.93	67.84	112.42	264.1	310.73	364.72	374.55	358.37	336.18	319
74	295.59	310.61	331.33	346.42	338.65	289.94	248.58	107.37	64.63	27.57	9.17	2.4	0.09	2.4	9.17	27.57	64.63	107.37	248.58	289.94	338.65	346.42	331.33	310.61	295.59
75	275.31	288.73	307.29	321.07	313.98	269.02	233	102	61.33	26.22	8.79	2.32	0.09	2.32	8.79	26.22	61.33	102	233	269.02	313.98	321.07	307.29	288.73	275.31
76	258.38	269.49	286.65	298.25	291.56	249	217.71	96.25	58.18	24.92	8.43	2.25	0.09	2.25	8.43	24.92	58.18	96.25	217.71	249	291.56	298.25	286.65	269.49	258.38
77	243.07	252.75	268.38	278.07	271.21	229.43	202.17	90.17	55.3	23.64	8.08	2.17	0.09	2.17	8.08	23.64	55.3	90.17	202.17	229.43	271.21	278.07	268.38	252.75	243.07
78	229.08	237.7	251.98	259.96	252.28	210.72	186.86	83.8	52.39	22.37	7.73	2.1	0.09	2.1	7.73	22.37	52.39	83.8	186.86	210.72	252.28	259.96	251.98	237.7	229.08
79	216.48	223.94	237.08	243.66	235.05	193.01	171.59	77.58	49.69	21.16	7.4	2.02	0.09	2.02	7.4	21.16	49.69	77.58	171.59	193.01	235.05	243.66	237.08	223.94	216.48
80	204.56	211.38	223.41	228.93	218.79	176.35	156.54	71.62	47.04	19.97	7.09	1.95	0.09	1.95	7.09	19.97	47.04	71.62	156.54	176.35	218.79	228.93	223.41	211.38	204.56
81	193.9	199.8	210.96	215.49	204.01	160.46	141.56	66.09	44.37	18.84	6.78	1.88	0.1	1.88	6.78	18.84	44.37	66.09	141.56	160.46	204.01	215.49	210.96	199.8	193.9
82	183.85	189.08	199.46	203.12	190.46	146.34	126.94	61.34	41.8	17.73	6.47	1.82	0.1	1.82	6.47	17.73	41.8	61.34	126.94	146.34	190.46	203.12	199.46	189.08	183.85
83	174.14	179	188.74	191.72	178.29	132.75	113	56.79	39.35	16.68	6.17	1.75	0.1	1.75	6.17	16.68	39.35	56.79	113	132.75	178.29	191.72	188.74	179	174.14
84	165.4	169.67	178.67	181.08	167.13	120.24	99.96	52.74	36.89	15.68	5.89	1.69	0.11	1.69	5.89	15.68	36.89	52.74	99.96	120.24	167.13	181.08	178.67	169.67	165.4
85	156.92	160.85	169.32	171.16	156.93	109.3	87.97	49.11	34.59	14.73	5.62	1.64	0.11	1.64	5.62	14.73	34.59	49.11	87.97	109.3	156.93	171.16	169.32	160.85	156.92
86	149.11	152.77	160.53	161.82	147.68	99.72	76.72	45.8	32.41	13.85	5.36	1.58	0.12	1.58	5.36	13.85	32.41	45.8	76.72	99.72	147.68	161.82	160.53	152.77	149.11
87	141.63	144.94	152.33	153.07	138.87	91.11	66.21	42.65	30.31	13.03	5.11	1.53	0.12	1.53	5.11	13.03	30.31	42.65	66.21	91.11	138.87	153.07	152.33	144.94	141.63
88	134.66	137.4	144.46	144.75	130.63	83.92	56.37	39.68	28.38	12.26	4.88	1.48	0.13	1.48	4.88	12.26	28.38	39.68	56.37	83.92	130.63	144.75	144.46	137.4	134.66
89	128.1	130.61	136.78	136.62	123.1	77.62	46.98	36.85	26.57	11.51	4.66	1.43	0.14	1.43	4.66	11.51	26.57	36.85	46.98	77.62	123.1	136.62	136.78	130.61	128.1
90	121.92	124.27	130.01	129.3	116.05	72.2	39.04	34.19	24.91	10.84	4.45	1.39	0.15	1.39	4.45	10.84	24.91	34.19	39.04	72.2	116.05	129.3	130.01	124.27	121.92
91	116.27	118.32	123.47	122.49	109.47	67.7	32.43	31.68	23.37	10.22	4.25	1.35	0.16	1.35	4.25	10.22	23.37	31.68	32.43	67.7	109.47	122.49	123.47	118.32	116.27
92	110.9	112.78	117.51	115.97	103.22	63.29	27.12	29.35	21.91	9.65	4.06	1.31	0.17	1.31	4.06	9.65	21.91	29.35	27.12	63.29	103.22	115.97	117.51	112.78	110.9
93	105.88	107.55	111.84	109.96	97.42	59.31	23.01	27.22	20.6	9.13	3.89	1.28	0.18	1.28	3.89	9.13	20.6	27.22	23.01	59.31	97.42	109.96	111.84	107.55	105.88
94	101.17	102.68	106.55	104.27	91.94	55.76	20	25.25	19.38	8.64	3.73	1.25	0.2	1.25	3.73	8.64	19.38	25.25	20	55.76	91.94	104.27	106.55	102.68	101.1

104	67.44	68.01	69.03	65.08	54.35	31.54	9.76	13.36	11.07	5.45	2.68	1.16	0.56	1.16	2.68	5.45	11.07	13.36	9.76	31.54	54.35	65.08	69.03	68.01	67.44
105	65.02	65.53	66.37	62.27	51.8	29.92	9.34	12.63	10.51	5.24	2.61	1.16	0.59	1.16	2.61	5.24	10.51	12.63	9.34	29.92	51.8	62.27	66.37	65.53	65.02
106	62.77	63.07	63.89	59.48	49.33	28.39	8.96	11.97	9.99	5.04	2.55	1.15	0.62	1.15	2.55	5.04	9.99	11.97	8.96	28.39	49.33	59.48	63.89	63.07	62.77
107	60.47	60.84	61.49	57.06	46.99	26.94	8.61	11.36	9.52	4.86	2.49	1.16	0.65	1.16	2.49	4.86	9.52	11.36	8.61	26.94	46.99	57.06	61.49	60.84	60.47
108	58.24	58.6	59.11	54.71	44.72	25.6	8.3	10.8	9.07	4.69	2.43	1.16	0.68	1.16	2.43	4.69	9.07	10.8	8.3	25.6	44.72	54.71	59.11	58.6	58.24
109	56.08	56.46	56.9	52.45	42.6	24.34	8.01	10.28	8.65	4.53	2.38	1.16	0.71	1.16	2.38	4.53	8.65	10.28	8.01	24.34	42.6	52.45	56.9	56.46	56.08
110	53.98	54.34	54.72	50.3	40.59	23.16	7.74	9.79	8.26	4.38	2.34	1.17	0.74	1.17	2.34	4.38	8.26	9.79	7.74	23.16	40.59	50.3	54.72	54.34	53.98
111	51.9	52.26	52.63	48.23	38.69	22.06	7.49	9.34	7.89	4.24	2.3	1.17	0.76	1.17	2.3	4.24	7.89	9.34	7.49	22.06	38.69	48.23	52.63	52.26	51.9
112	49.84	50.24	50.6	46.27	36.96	21.02	7.26	8.92	7.56	4.12	2.26	1.17	0.79	1.17	2.26	4.12	7.56	8.92	7.26	21.02	36.96	46.27	50.6	50.24	49.84
113	47.82	48.24	48.65	44.43	35.31	20.02	7.05	8.53	7.25	3.99	2.22	1.18	0.81	1.18	2.22	3.99	7.25	8.53	7.05	20.02	35.31	44.43	48.65	48.24	47.82
114	45.84	46.34	46.77	42.68	33.78	19.1	6.84	8.16	6.94	3.88	2.18	1.18	0.82	1.18	2.18	3.88	6.94	8.16	6.84	19.1	33.78	42.68	46.77	46.34	45.84
115	43.97	44.52	45.04	41.07	32.36	18.24	6.65	7.82	6.66	3.77	2.14	1.18	0.83	1.18	2.14	3.77	6.66	7.82	6.65	18.24	32.36	41.07	45.04	44.52	43.97
116	42.23	42.86	43.4	39.56	31.01	17.43	6.46	7.49	6.39	3.66	2.11	1.18	0.85	1.18	2.11	3.66	6.39	7.49	6.46	17.43	31.01	39.56	43.4	42.86	42.23
117	40.64	41.32	41.88	38.14	29.76	16.68	6.28	7.19	6.14	3.57	2.08	1.18	0.87	1.18	2.08	3.57	6.14	7.19	6.28	16.68	29.76	38.14	41.88	41.32	40.64
118	39.21	39.92	40.48	36.83	28.58	15.96	6.11	6.92	5.91	3.48	2.06	1.19	0.9	1.19	2.06	3.48	5.91	6.92	6.11	15.96	28.58	36.83	40.48	39.92	39.21
119	37.89	38.61	39.16	35.57	27.48	15.27	5.95	6.66	5.68	3.4	2.04	1.2	0.92	1.2	2.04	3.4	5.68	6.66	5.95	15.27	27.48	35.57	39.16	38.61	37.89
120	36.7	37.42	37.91	34.37	26.44	14.65	5.79	6.41	5.47	3.33	2.02	1.21	0.94	1.21	2.02	3.33	5.47	6.41	5.79	14.65	26.44	34.37	37.91	37.42	36.7
121	35.59	36.31	36.75	33.26	25.45	14.06	5.64	6.17	5.28	3.26	2	1.22	0.97	1.22	2	3.26	5.28	6.17	5.64	14.06	25.45	33.26	36.75	36.31	35.59
122	34.55	35.28	35.65	32.17	24.51	13.49	5.5	5.95	5.09	3.19	1.99	1.23	1	1.23	1.99	3.19	5.09	5.95	5.5	13.49	24.51	32.17	35.65	35.28	34.55
123	33.58	34.3	34.6	31.13	23.64	12.95	5.35	5.74	4.92	3.13	1.97	1.24	1.03	1.24	1.97	3.13	4.92	5.74	5.35	12.95	23.64	31.13	34.6	34.3	33.58
124	32.69	33.36	33.61	30.15	22.79	12.45	5.21	5.54	4.75	3.07	1.96	1.25	1.05	1.25	1.96	3.07	4.75	5.54	5.21	12.45	22.79	30.15	33.61	33.36	32.69
125	31.85	32.51	32.66	29.21	21.99	11.96	5.07	5.35	4.59	3.01	1.94	1.25	1.07	1.25	1.94	3.01	4.59	5.35	5.07	11.96	21.99	29.21	32.66	32.51	31.85
126	31.04	31.69	31.75	28.32	21.22	11.48	4.94	5.17	4.45	2.95	1.93	1.26	1.08	1.26	1.93	2.95	4.45	5.17	4.94	11.48	21.22	28.32	31.75	31.69	31.04
127	30.31	30.9	30.87	27.46	20.49	11.03	4.81	5	4.31	2.89	1.91	1.26	1.1	1.26	1.91	2.89	4.31	5	4.81	11.03	20.49	27.46	30.87	30.9	30.31
128	29.6	30.15	30.02	26.63	19.79	10.61	4.68	4.83	4.17	2.84	1.9	1.26	1.11	1.26	1.9	2.84	4.17	4.83	4.68	10.61	19.79	26.63	30.02	30.15	29.6
129	28.93	29.44	29.2	25.83	19.12	10.2	4.55	4.67	4.04	2.79	1.88	1.26	1.12	1.26	1.88	2.79	4.04	4.67	4.55	10.2	19.12	25.83	29.2	29.44	28.93
130	28.3	28.75	28.42	25.06	18.47	9.81	4.42	4.52	3.92	2.74	1.87	1.27	1.13	1.27	1.87	2.74	3.92	4.52	4.42	9.81	18.47	25.06	28.42	28.75	28.3
131	27.69	28.1	27.66	24.32	17.85	9.43	4.29	4.37	3.81	2.7	1.85	1.27	1.15	1.27	1.85	2.7	3.81	4.37	4.29	9.43	17.85	24.32	27.66	28.1	27.69
132	27.11	27.45	26.93	23.59	17.24	9.07	4.17	4.23	3.7	2.65	1.84	1.27	1.16	1.27	1.84	2.65	3.7	4.23	4.17	9.07	17.24	23.59	26.93	27.45	27.11
133	26.55	26.85	26.22	22.89	16.66	8.72	4.04	4.09	3.59	2.61	1.82	1.27	1.17	1.27	1.82	2.61	3.59	4.09	4.04	8.72	16.66	22.89	26.22	26.85	26.55
134	26.02	26.25	25.53	22.2	16.1	8.38	3.92	3.96	3.49	2.56	1.81	1.27	1.18	1.27	1.81	2.56	3.49	3.96	3.92	8.38	16.1	22.2	25.53	26.25	26.02
135	25.5	25.68	24.87	21.53	15.55	8.05	3.8	3.84	3.39	2.52	1.79	1.27	1.2	1.27	1.79	2.52	3.39	3.84	3.8	8.05	15.55	21.53	24.87	25.68	25.5
136	25	25.12	24.21	20.88	15.02	7.74	3.69	3.71	3.3	2.48	1.77	1.27	1.21	1.27	1.77	2.48	3.3	3.71	3.69	7.74	15.02	20.88	24.21	25.12	25
137	24.52	24.57	23.57	20.24	14.49	7.45	3.58	3.6	3.21	2.44	1.76	1.27	1.22	1.27	1.76	2.44	3.21	3.6	3.58	7.45	14.49	20.24	23.57	24.57	24.52
138	24.06	24.03	22.94	19.62	13.99	7.16	3.48	3.48	3.11	2.39	1.74	1.26	1.23	1.26	1.74	2.39	3.11	3.48	3.48	7.16	13.99	19.62	22.94	24.03	24.06
139	23.57	23.49	22.32	19.01	13.49	6.87	3.37	3.37	3.02	2.35	1.72	1.25	1.24	1.25	1.72	2.35	3.02	3.37	3.37	6.87	13.49	19.01	22.32	23.49	23.57
140	23.1	22.97	21.7	18.4	12.99	6.59	3.27	3.25	2.93	2.3	1.69	1.25	1.24	1.25	1.69	2.3	2.93	3.25	3.27	6.59	12.99	18.4	21.7	22.97	23.1
141	22.63	22.44	21.11	17.8	12.5	6.31	3.17	3.14	2.84	2.24	1.66	1.23	1.23	1.23	1.66	2.24	2.84	3.14	3.17	6.31	12.5	17.8	21.11	22.44	22.63
142	22.14	21.9	20.5	17.2	12.02	6.02	3.08	3.04	2.75	2.19	1.63	1.22	1.22	1.22	1.63	2.19	2.75	3.04	3.08	6.02	12.02	17.2	20.5	21.9	22.14
143	21.67	21.37	19.91	16.61	11.55	5.74	2.99	2.94	2.66	2.14	1.61	1.21	1.22	1.21	1.61	2.14	2.66	2.94	2.99	5.74	11.55	16.61	19.91	21.37	21.67
144	21.17	20.83	19.31	16.03	11.07	5.45	2.89	2.84	2.57	2.08	1.57	1.19	1.2	1.19	1.57	2.08	2.57	2.84	2.89	5.45	11.07	16.03	19.31	20.83	21.17
145	20.66	20.28	18.7	15.45	10.58	5.17	2.8	2.74	2.48	2.02	1.53	1.17	1.18	1.17	1.53	2.02	2.48	2.74	2.8	5.17	10.58	15.45	18.7	20.28	20.66
146	20.13	19.72	18.1	14.86	10.09	4.91	2.7	2.63	2.39	1.96	1.49	1.14	1.16	1.14	1.49	1.96	2.39	2.63	2.7	4.91	10.09	14.86	18.1	19.72	20.13
147	19.6	19.15	17.49	14.29	9.62	4.65	2.61	2.54	2.3	1.89	1.44	1.11	1.14	1.11	1.44	1.89	2.3	2.54	2.61	4.65	9.62	14.29	17.49	19.15	19.6
148	19.04	18.57	16.87	13.69	9.14	4.4	2.52	2.44	2.21	1.83	1.4	1.08	1.11	1.08	1.4	1.83	2.21	2.44	2.52	4.4	9.14	13.69	16.87	18.57	19.04
149	18.47	17.96	16.25	13.06	8.67	4.16	2.43	2.35	2.13	1.76	1.35	1.06	1.08	1.06	1.35	1.76	2.13	2.35	2.43	4.16	8.67	13.06	16.25	17.96	18.47
150	17.87	17.35	15.62	12.44	8.2	3.92	2.35	2.26	2.04	1.7	1.32	1.04	1.07	1.04	1.32	1.7	2.04	2.26	2.35	3.92	8.2	12.44	15.62	17.35	17.87
151	17.26	16.71	14.98	11.8	7.73	3.68	2.26	2.17	1.97	1.64	1.28	1.02	1.06	1.02	1.28	1.64	1.97	2.17	2.26	3.68	7.73	11.8	14.98	16.71	17.26
152	16.63	16.06	14.32	11.17	7.22	3.46	2.18	2.09	1.89	1.58	1.24	1	1.04	1	1.24	1.58	1.89	2.09	2.18	3.46	7.22	11.17	14.32	16.06	16.63
153	15.98	15.39	13.6	10.55	6.7	3.23	2.1	2.01	1.81	1															

158	12.44	11.82	9.84	7.32	4.29	2.21	1.72	1.62	1.46	1.23	1	0.86	0.88	0.86	1	1.23	1.46	1.62	1.72	2.21	4.29	7.32	9.84	11.82	12.44
159	11.68	10.76	9.08	6.6	3.86	2.04	1.65	1.55	1.39	1.18	0.96	0.84	0.86	0.84	0.96	1.18	1.39	1.55	1.65	2.04	3.86	6.6	9.08	10.76	11.68
160	10.92	9.65	8.31	5.81	3.45	1.88	1.57	1.48	1.32	1.13	0.93	0.82	0.84	0.82	0.93	1.13	1.32	1.48	1.57	1.88	3.45	5.81	8.31	9.65	10.92
161	10.15	8.8	7.56	5.02	3.07	1.74	1.5	1.41	1.26	1.08	0.9	0.8	0.82	0.8	0.9	1.08	1.26	1.41	1.5	1.74	3.07	5.02	7.56	8.8	10.15
162	9.38	8.05	6.75	4.28	2.73	1.62	1.43	1.34	1.2	1.03	0.87	0.79	0.8	0.79	0.87	1.03	1.2	1.34	1.43	1.62	2.73	4.28	6.75	8.05	9.38
163	8.6	7.33	5.74	3.68	2.41	1.51	1.36	1.27	1.14	0.99	0.84	0.78	0.79	0.78	0.84	0.99	1.14	1.27	1.36	1.51	2.41	3.68	5.74	7.33	8.6
164	7.78	6.4	4.71	3.18	2.13	1.41	1.29	1.21	1.09	0.95	0.82	0.77	0.77	0.77	0.82	0.95	1.09	1.21	1.29	1.41	2.13	3.18	4.71	6.4	7.78
165	6.62	5.24	3.79	2.76	1.89	1.32	1.22	1.15	1.04	0.92	0.8	0.76	0.76	0.76	0.8	0.92	1.04	1.15	1.22	1.32	1.89	2.76	3.79	5.24	6.62
166	5.36	4.15	3.07	2.37	1.67	1.23	1.16	1.1	1	0.89	0.78	0.75	0.76	0.75	0.78	0.89	1	1.1	1.16	1.23	1.67	2.37	3.07	4.15	5.36
167	4.1	3.24	2.53	2.05	1.48	1.16	1.1	1.04	0.96	0.86	0.77	0.75	0.75	0.75	0.77	0.86	0.96	1.04	1.1	1.16	1.48	2.05	2.53	3.24	4.1
168	3.18	2.57	2.12	1.77	1.32	1.08	1.04	0.99	0.92	0.83	0.76	0.75	0.75	0.75	0.76	0.83	0.92	0.99	1.04	1.08	1.32	1.77	2.12	2.57	3.18
169	2.49	2.05	1.81	1.52	1.18	1.02	0.99	0.95	0.89	0.81	0.75	0.75	0.74	0.75	0.75	0.81	0.89	0.95	0.99	1.02	1.18	1.52	1.81	2.05	2.49
170	1.97	1.72	1.52	1.29	1.06	0.96	0.94	0.91	0.86	0.79	0.74	0.75	0.74	0.75	0.74	0.79	0.86	0.91	0.94	0.96	1.06	1.29	1.52	1.72	1.97
171	1.7	1.46	1.27	1.11	0.97	0.9	0.9	0.87	0.83	0.78	0.73	0.75	0.74	0.75	0.73	0.78	0.83	0.87	0.9	0.9	0.97	1.11	1.27	1.46	1.7
172	1.45	1.14	1.06	0.98	0.89	0.86	0.86	0.84	0.8	0.76	0.73	0.75	0.74	0.75	0.73	0.76	0.8	0.84	0.86	0.86	0.89	0.98	1.06	1.14	1.45
173	1.13	0.93	0.91	0.87	0.83	0.82	0.82	0.81	0.78	0.75	0.72	0.75	0.74	0.75	0.72	0.75	0.78	0.81	0.82	0.82	0.83	0.87	0.91	0.93	1.13
174	0.62	0.8	0.81	0.8	0.77	0.78	0.79	0.78	0.76	0.74	0.72	0.74	0.73	0.74	0.72	0.74	0.76	0.78	0.79	0.78	0.77	0.8	0.81	0.8	0.62
175	0.59	0.73	0.75	0.74	0.74	0.75	0.76	0.76	0.75	0.73	0.72	0.74	0.72	0.74	0.72	0.73	0.75	0.76	0.76	0.75	0.74	0.74	0.75	0.73	0.59
176	0.6	0.66	0.69	0.7	0.71	0.73	0.74	0.74	0.73	0.72	0.71	0.73	0.71	0.73	0.71	0.72	0.73	0.74	0.74	0.73	0.71	0.7	0.69	0.66	0.6
177	0.61	0.66	0.67	0.68	0.7	0.71	0.72	0.72	0.71	0.71	0.7	0.72	0.7	0.72	0.7	0.71	0.71	0.72	0.72	0.71	0.7	0.68	0.67	0.66	0.61
178	0.62	0.66	0.67	0.68	0.7	0.7	0.71	0.71	0.7	0.69	0.69	0.71	0.68	0.71	0.69	0.69	0.7	0.71	0.71	0.7	0.7	0.68	0.67	0.66	0.62
179	0.63	0.67	0.68	0.69	0.7	0.71	0.71	0.7	0.7	0.69	0.68	0.7	0.67	0.7	0.68	0.69	0.7	0.7	0.71	0.71	0.7	0.69	0.68	0.67	0.63
180	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	WPT @ 15W/4000K	Sample ID.	B1
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
120.00	60	0.126	14.9	0.988	13.73%
277.05	60	0.064	16.4	0.931	14.96%

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*****