

# Photometric Test Report

## Relevant Standards

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

## Prepared For

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## Project Number

**DLF2409113**

## Report Number

**DLF2409113-7a**

## Test Date

**2024/8/24**

## Issue Date

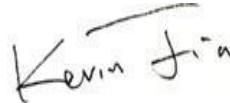
**2024/8/26**

## 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		4915
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	126.7
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		4648
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	119.8
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	10.22%
		20.00%	277V	9.39%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.981
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3045±175	3088
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		4
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		97
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%		4.29%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		120
(Goniophotometer - Section 4.2)		Non-Worst Case		277
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.325
(Goniophotometer - Section 4.2)		Non-Worst Case		0.142
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.8
(Goniophotometer - Section 4.2)		Non-Worst Case		38.7

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/24	WPT @ 40W/3000K	N/A	G1
2	Goniophotometer Test	2024/8/24	WPT @ 40W/3000K	N/A	G1
3	THD and PF Test	2024/8/24	WPT @ 40W/3000K	N/A	G1

### 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.

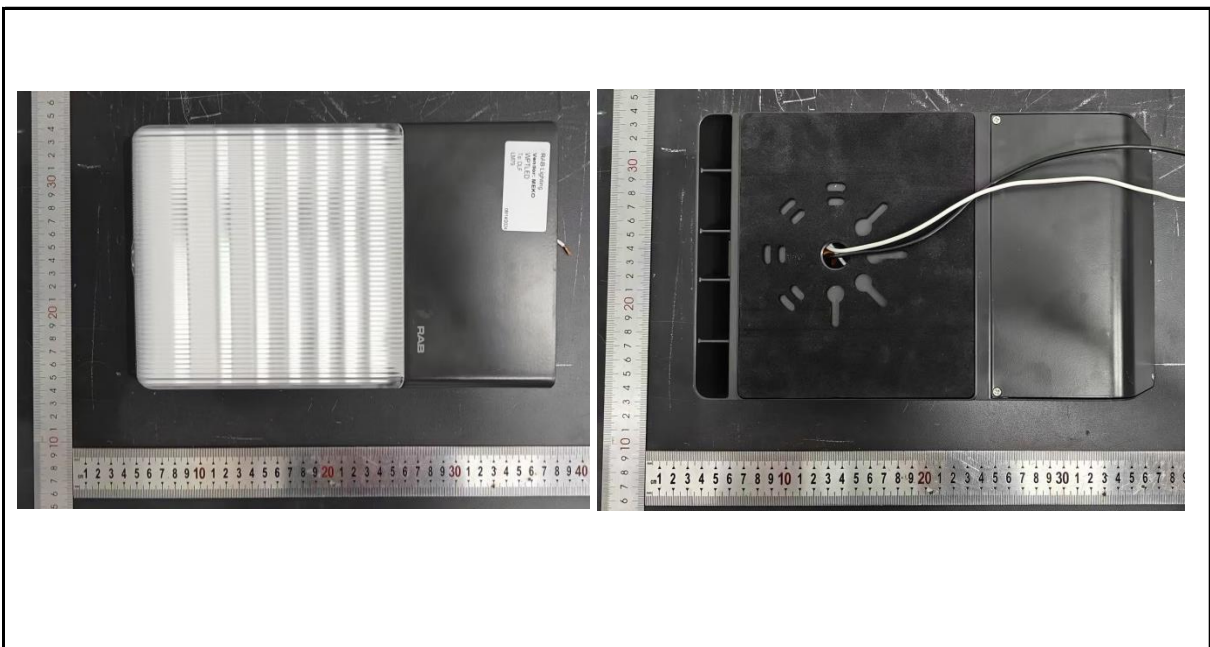
2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing 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 @ 40W/3000K

**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 @ 40W/3000K	Sample ID.	G1
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  $\pm 0.2$  percent under load.

The sample was measured using  $4\pi$  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

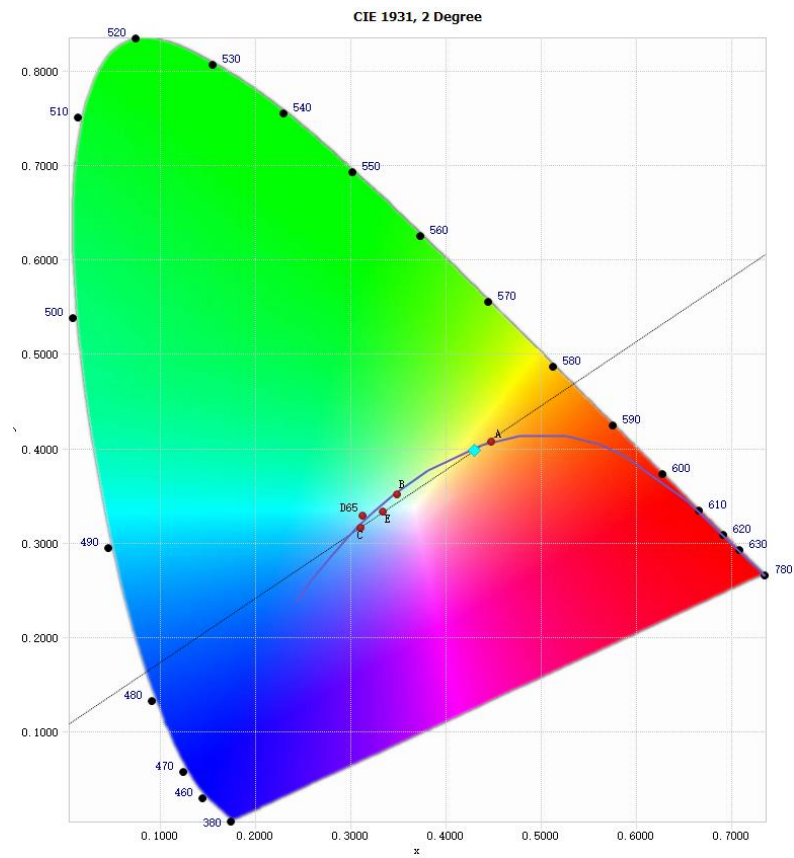
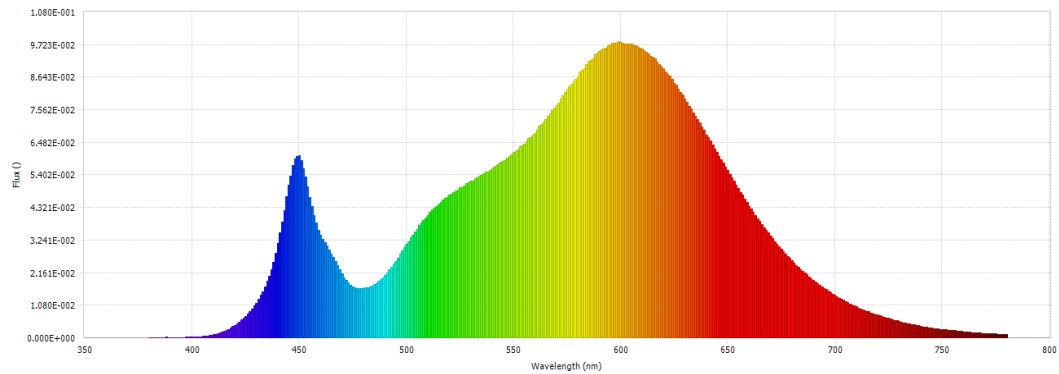
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.02	60	0.324	38.7	0.995
277.04	60	0.142	38.6	0.981

#### Test Result

CCT (K)	CRI	R9	Duv
3088	82	4	-0.0012

Rf	Rg	IES Rcs,h1
83	97	-12%

## 4.1 Integrating Sphere Test



## 4.1 Integrating Sphere Test

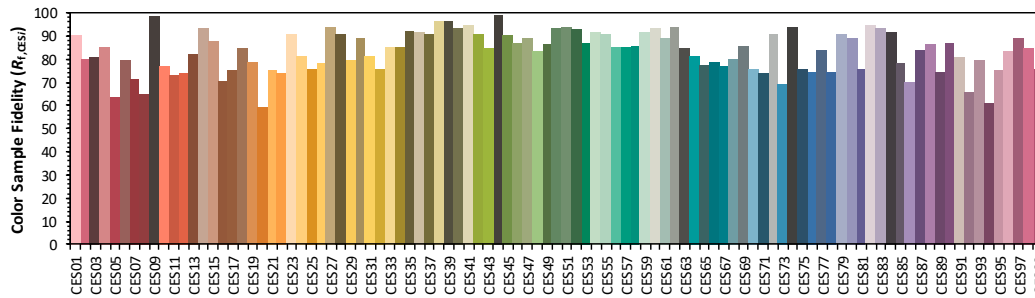
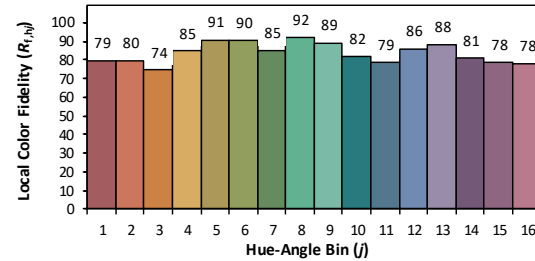
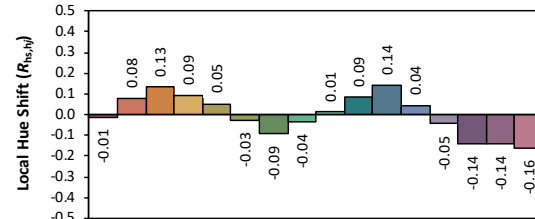
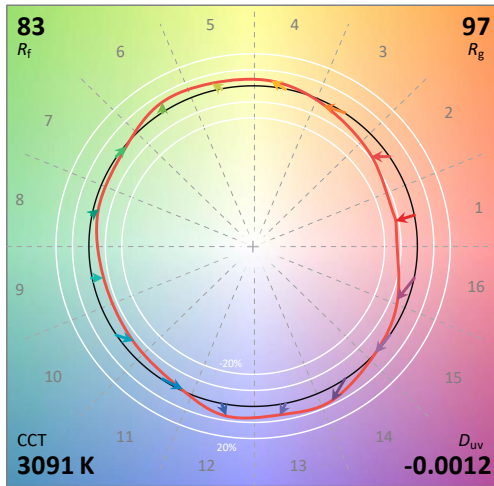
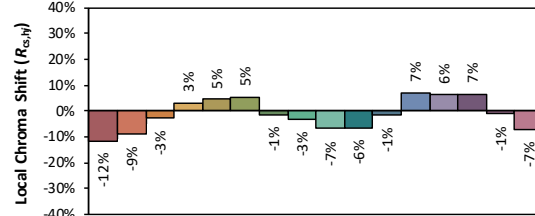
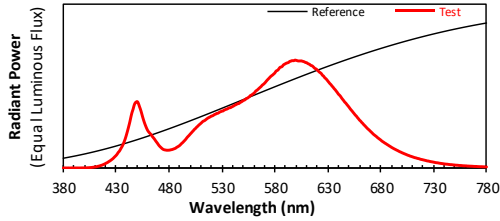
### IES TM-30-18 Color Rendition Report

Source: DLF2409113-7a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/24

Model: WPT @ 40W/3000K



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

$x$  0.4289  
 $y$  0.3982  
 $u'$  0.2479  
 $v'$  0.5178

CIE 13.3-1995  
(CRI)

$R_a$  82  
 $R_g$  8



#### 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	1.18E-04	485	1.76E-02	590	9.50E-02	695	1.64E-02
385	1.22E-04	490	2.06E-02	595	9.73E-02	700	1.40E-02
390	8.94E-05	495	2.54E-02	600	9.80E-02	705	1.20E-02
395	1.13E-04	500	3.10E-02	605	9.75E-02	710	1.02E-02
400	1.96E-04	505	3.60E-02	610	9.59E-02	715	8.75E-03
405	4.28E-04	510	4.07E-02	615	9.31E-02	720	7.50E-03
410	9.98E-04	515	4.43E-02	620	8.93E-02	725	6.40E-03
415	2.20E-03	520	4.73E-02	625	8.44E-02	730	5.40E-03
420	4.20E-03	525	4.97E-02	630	7.92E-02	735	4.55E-03
425	7.16E-03	530	5.19E-02	635	7.36E-02	740	3.80E-03
430	1.16E-02	535	5.38E-02	640	6.73E-02	745	3.24E-03
435	1.87E-02	540	5.60E-02	645	6.14E-02	750	2.77E-03
440	3.12E-02	545	5.86E-02	650	5.55E-02	755	2.35E-03
445	5.06E-02	550	6.14E-02	655	4.95E-02	760	2.01E-03
450	6.04E-02	555	6.43E-02	660	4.36E-02	765	1.72E-03
455	4.66E-02	560	6.79E-02	665	3.86E-02	770	1.49E-03
460	3.39E-02	565	7.25E-02	670	3.37E-02	775	1.26E-03
465	2.78E-02	570	7.69E-02	675	2.94E-02	780	1.04E-03
470	2.12E-02	575	8.23E-02	680	2.55E-02		
475	1.68E-02	580	8.66E-02	685	2.22E-02		
480	1.63E-02	585	9.17E-02	690	1.90E-02		

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	WPT @ 40W/3000K	Sample ID.	G1
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  $\pm 0.2$  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  $0.5^{\circ}$  vertical intervals and  $10^{\circ}$  horizontal intervals.

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.08	60	0.325	38.8	0.995
NON-WORST CASE	277.03	60	0.142	38.7	0.981

#### Test Result

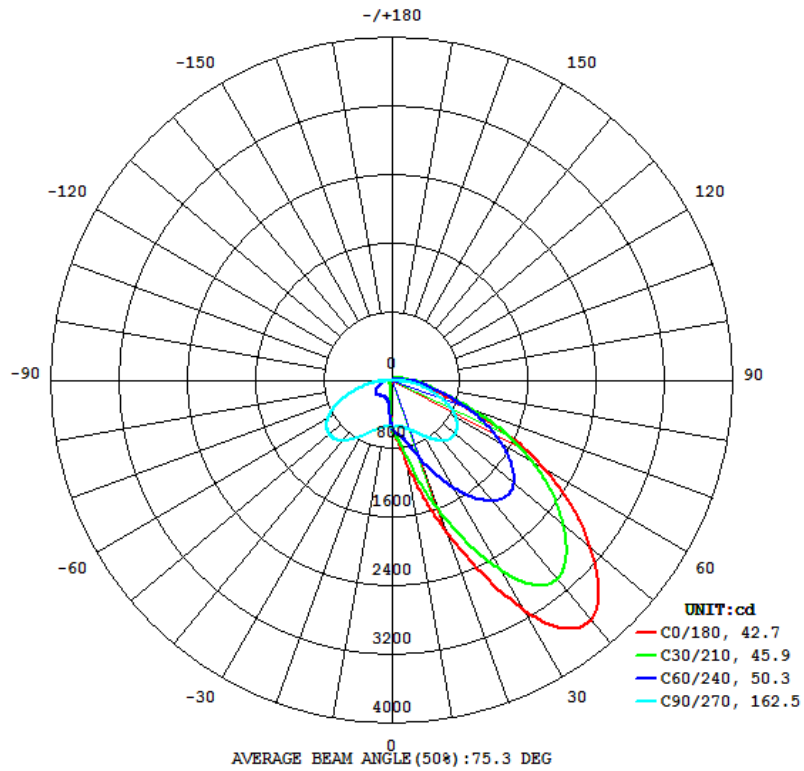
Result type	Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
		C0-180	C90-270	C0-180	C90-270	
$0^{\circ}$ - $180^{\circ}$ zones	4915	86.4	183.5	42.7	162.5	126.7
$0^{\circ}$ - $90^{\circ}$ zones	4648	86.4	179.3	42.7	162.5	119.8

Zonal Lumen Requirement ( $80^{\circ}$ - $90^{\circ}$ )	BUG rating
4.29%	B1-U3-G2

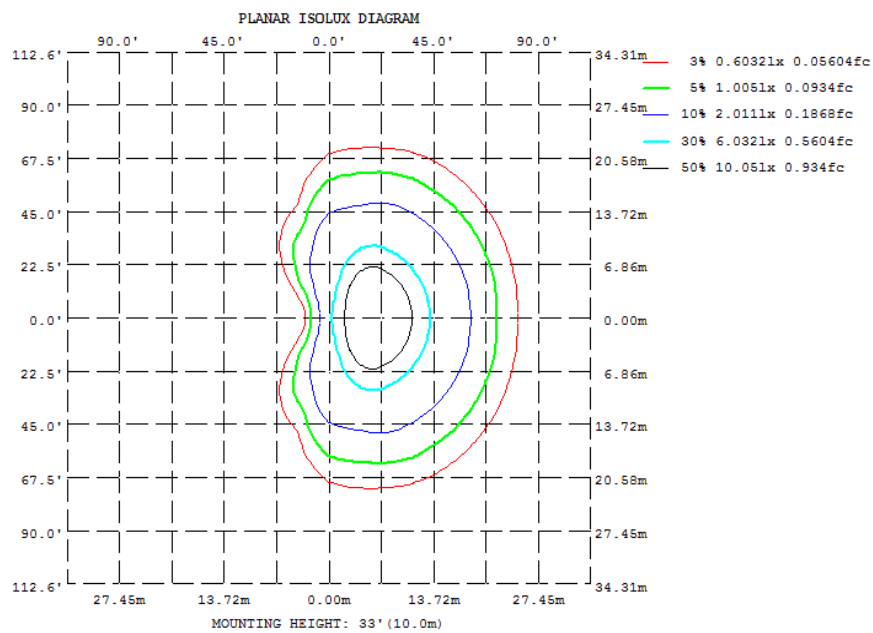


## 4.2 Goniophotometer Test

### Light Distrubtion Curve



### Isolux Plot



## 4.2 Goniophotometer Test

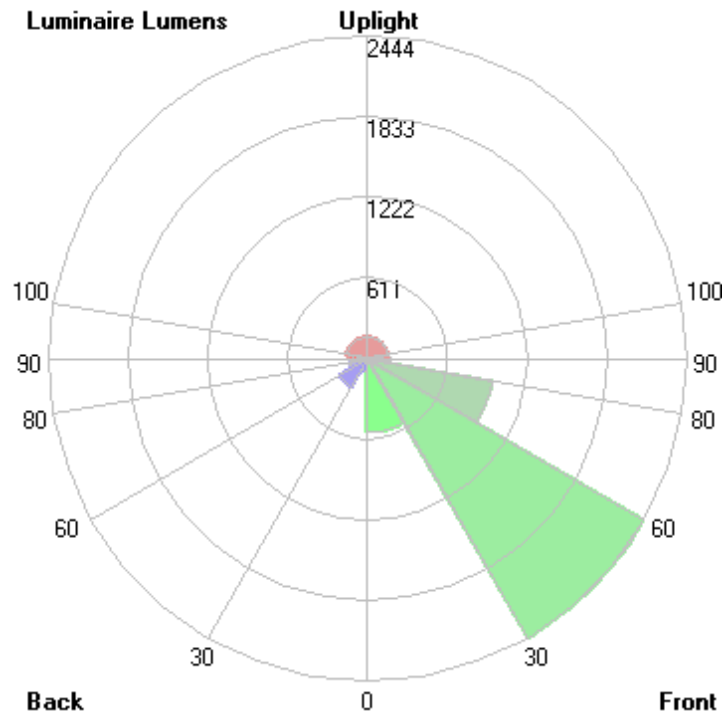
### Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	946.3	751.6	553.0	210.8	150.1	210.8	553.0	751.6
20	1882	1326	617.8	132.1	57.35	132.1	617.8	1326
30	3080	2041	753.0	119.5	29.96	119.5	753.0	2041
40	3636	2506	921.7	122.4	16.43	122.4	921.7	2506
50	3042	2279	972.0	118.4	6.814	118.4	972.0	2279
60	2058	1709	871.5	94.27	0.1824	94.27	871.5	1709
70	914.5	1011	626.9	60.98	0.1809	60.98	626.9	1011
80	438.0	484.2	312.6	36.47	0.1902	36.47	312.6	484.2
90	256.7	270.1	75.95	19.78	0.3056	19.78	75.95	270.1
100	162.0	159.2	23.11	11.92	0.9383	11.92	23.11	159.2
110	110.4	102.4	15.17	8.234	1.565	8.234	15.17	102.4
120	75.33	69.92	11.52	6.407	1.982	6.407	11.52	69.92
130	58.11	50.79	8.875	5.408	2.374	5.408	8.875	50.79
140	47.22	37.04	6.641	4.643	2.593	4.643	6.641	37.04
150	36.12	24.79	4.740	3.429	2.150	3.429	4.740	24.79
160	21.49	12.26	3.170	2.273	1.678	2.273	3.170	12.26
170	6.326	2.436	1.927	1.601	1.512	1.601	1.927	2.436
180	1.301	1.416	1.456	1.383	1.302	1.383	1.456	1.416
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	47.98	0 - 10	47.98	0.98%
10-20	176.96	0 - 20	224.94	4.58%
20-30	426.21	0 - 30	651.15	13.25%
30-40	768.81	0 - 40	1419.96	28.89%
40-50	979.32	0 - 50	2399.28	48.82%
50-60	946.67	0 - 60	3345.95	68.08%
60-70	712.12	0 - 70	4058.07	82.57%
70-80	390.84	0 - 80	4448.91	90.52%
80-90	199.37	0 - 90	4648.28	94.58%
90-100	105.96	0 - 100	4754.24	96.73%
100-110	63.12	0 - 110	4817.36	98.02%
110-120	39.34	0 - 120	4856.70	98.82%
120-130	25.36	0 - 130	4882.06	99.33%
130-140	16.51	0 - 140	4898.57	99.67%
140-150	9.94	0 - 150	4908.51	99.87%
150-160	4.75	0 - 160	4913.26	99.97%
160-170	1.39	0 - 170	4914.65	100.00%
170-180	0.17	0 - 180	4914.82	100.00%

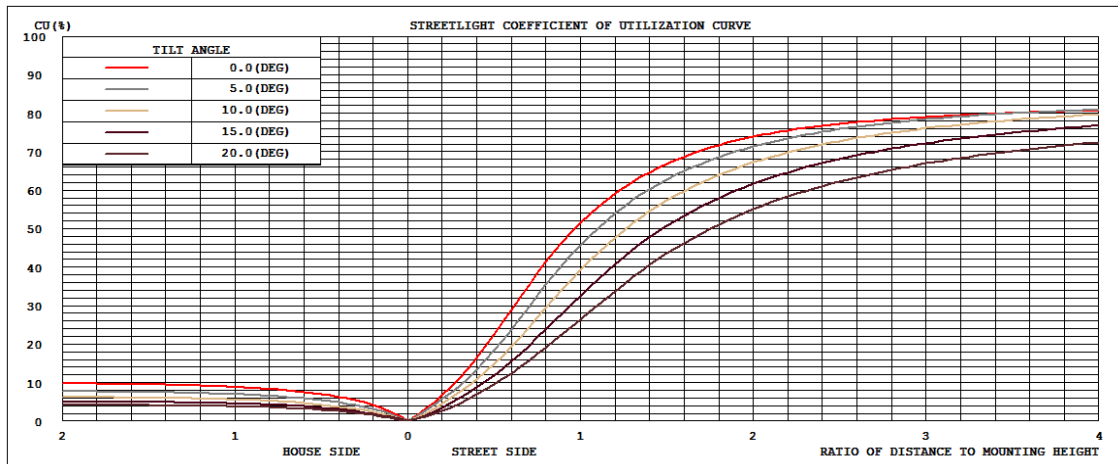
## 4.2 Goniophotometer Test

LCS/BUG

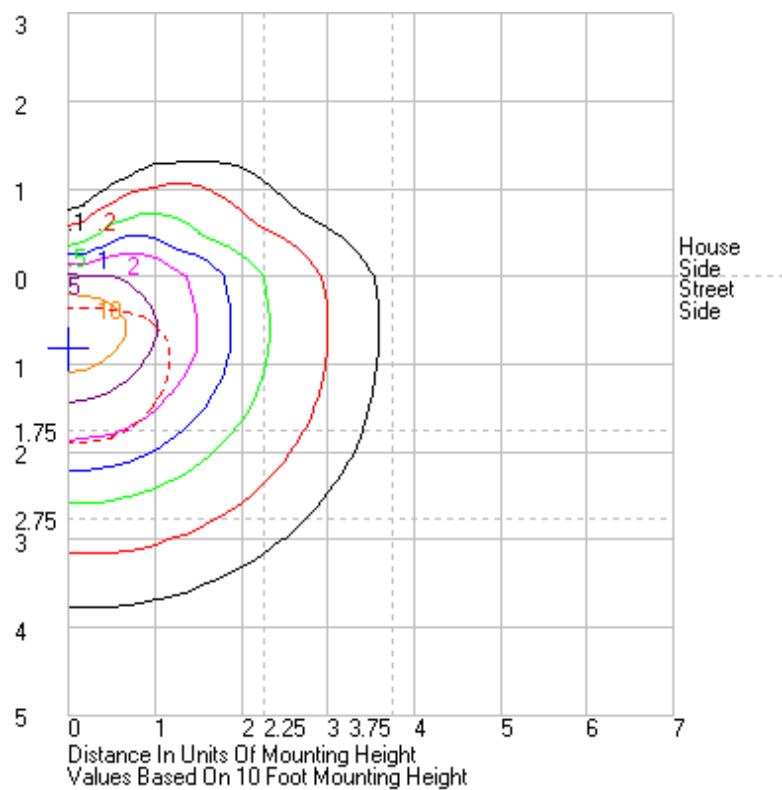


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	556.3	N.A.	11.3
FM - Front-Medium (30-60)	2443.6	N.A.	49.7
FH - Front-High (60-80)	967.6	N.A.	19.7
FVH - Front-Very High (80-90)	172.3	N.A.	3.5
BL - Back-Low (0-30)	94.9	N.A.	1.9
BM - Back-Medium (30-60)	251.2	N.A.	5.1
BH - Back-High (60-80)	135.3	N.A.	2.8
BVH - Back-Very High (80-90)	27.1	N.A.	0.6
UL - Uplight-Low (90-100)	106.0	N.A.	2.2
UH - Uplight-High (100-180)	160.6	N.A.	3.3
<b>Total</b>	<b>4914.9</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B1-U3-G2</b>		

## 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	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	551.944	
1	589.08	584.59	581.32	575.86	568.68	560.42	550.77	540.13	528.82	518.78	510.31	505.37	509.47	505.37	510.31	518.78	528.82	540.13	550.77	560.42	568.68	575.86	581.32	584.59	589.08
2	618.18	611.61	606.77	597.2	584.1	568.2	549.41	526.68	501.24	476.13	455.62	441.11	445.58	441.11	455.62	476.13	501.24	526.68	549.41	568.2	584.1	597.2	606.77	611.61	618.18
3	644.64	635.55	628.33	616.45	597.99	574.6	547.49	512.21	470.34	426.56	391.2	369.24	369.21	369.24	391.2	426.56	470.34	512.21	547.49	574.6	597.99	616.45	628.33	635.55	644.64
4	666.85	657.72	647.75	633.51	611.15	581.49	545.98	497.22	434.98	373.12	328.01	304.06	302.52	304.06	328.01	373.12	434.98	497.22	545.98	581.49	611.15	633.51	647.75	657.72	666.85
5	689.8	679.17	665.72	648.61	623.54	588.78	545.5	483.15	399.75	323.95	281.17	261.3	259.55	261.3	281.17	323.95	399.75	483.15	545.5	588.78	623.54	648.61	665.72	679.17	689.8
6	719.36	704.8	685.55	660.98	635.31	596.34	545.62	469.44	365.65	285.51	248.29	232.83	230.33	232.83	248.29	285.51	365.65	469.44	545.62	596.34	635.31	660.98	685.55	704.8	719.36
7	759.85	740.48	711.23	676.21	644.31	603.67	546.4	457.21	333.83	257.78	225.23	210.32	208.07	210.32	225.23	257.78	333.83	457.21	546.4	603.67	644.31	676.21	711.23	740.48	759.85
8	811.26	786.88	746.41	695.63	651.36	611	547.81	445.45	308.84	237.83	206.82	190.36	187.46	190.36	206.82	237.83	308.84	445.45	547.81	611	651.36	695.63	746.41	786.88	811.26
9	874.58	842.85	789.48	720.66	661.56	617.75	550.08	434.55	288.39	223.17	189.91	171.1	168.28	171.1	189.91	223.17	288.39	434.55	550.08	617.75	661.56	720.66	789.48	842.85	874.58
10	946.35	910.66	841.75	751.63	673.2	623.96	552.96	424.83	272.43	210.78	173.59	153.42	150.08	153.42	173.59	210.78	272.43	424.83	552.96	623.96	673.2	751.63	841.75	910.66	946.35
11	1026.52	984.84	902.74	790.4	687.59	629.16	556.78	416.38	260.96	199.33	158.65	136.89	131.98	136.89	158.65	199.33	260.96	416.38	556.78	629.16	687.59	790.4	902.74	984.84	1026.52
12	1112.65	1065.2	969.51	835.2	705.43	633.92	560.98	408.76	252.43	189.08	144.76	121.95	117.76	121.95	144.76	189.08	252.43	408.76	560.98	633.92	705.43	835.2	969.51	1065.2	1112.65
13	1200.77	1150.92	1042.82	884.18	727.56	638.32	566.1	402.37	245.96	178.87	132.15	109.99	106.09	109.99	132.15	178.87	245.96	402.37	566.1	638.32	727.56	884.18	1042.82	1150.92	1200.77
14	1290.8	1237.56	1119.23	940.88	752.79	642.93	571.4	397.11	241.09	169.49	121.71	99.63	95.87	99.63	121.71	169.49	241.09	397.11	571.4	642.93	752.79	940.88	1119.23	1237.56	1290.8
15	1377.38	1324.37	1196.56	1000.07	782.19	647.56	577.66	393.07	237.23	161.22	112.62	90.85	87.22	90.85	112.62	161.22	237.23	393.07	577.66	782.19	1000.07	1196.56	1324.37	1377.38	
16	1467.73	1413.97	1278.17	1061.61	815.62	653.3	584.19	390.01	233.78	153.74	104.91	83.3	79.63	83.3	104.91	153.74	233.78	390.01	584.19	815.62	1061.61	1278.17	1413.97	1467.73	
17	1568.75	1506.81	1357.89	1127.83	851.57	660.52	591.62	388.36	230.75	146.85	98.31	76.63	73.05	76.63	98.31	146.85	230.75	388.36	591.62	660.52	851.57	1127.83	1357.89	1506.81	1568.75
18	1668.08	1603.43	1439.69	1192.76	891.24	668.96	599.51	387.9	227.91	140.88	92.68	70.81	67.28	70.81	92.68	140.88	227.91	387.9	599.51	668.96	891.24	1192.76	1439.69	1603.43	1668.08
19	1772.7	1702.48	1526.7	1260.2	933.04	679.59	608.33	388.57	225.36	136.04	87.92	65.76	62.06	65.76	87.92	136.04	225.36	388.57	608.33	679.59	933.04	1260.2	1526.7	1702.48	1772.7
20	1882.3	1805.35	1613.59	1326.31	977.23	692.01	617.83	389.98	223.14	132.09	83.67	61.4	57.35	61.4	83.67	132.09	223.14	389.98	617.83	692.01	977.23	1326.31	1613.59	1805.35	1882.3
21	1990.86	1911.22	1703.58	1392.99	1022.77	705.71	628	392.45	221.21	128.92	80.05	57.31	53.25	57.31	80.05	128.92	221.21	392.45	628	705.71	1022.77	1392.99	1703.58	1911.22	1990.86
22	2105.12	2018.38	1795.88	1464.49	1069.04	721.09	638.92	395.69	219.72	126.38	76.99	53.58	49.56	53.58	76.99	126.38	219.72	395.69	638.92	721.09	1069.04	1464.49	1795.88	2018.38	2105.12
23	2221.79	2128.79	1889.22	1534.77	1116.72	738.21	650.54	399.53	218.62	124.34	74.29	50.35	46.17	50.35	74.29	124.34	218.62	399.53	650.54	738.21	1116.72	1534.77	1889.22	2128.79	2221.79
24	2341.57	2240.89	1983.33	1606.54	1164.22	756.24	662.66	404.06	217.91	122.86	71.97	47.49	43.18	47.49	71.97	122.86	217.91	404.06	662.66	756.24	1164.22	1606.54	1983.33	2240.89	2341.57
25	2460.91	2355.85	2079.66	1680.53	1212.61	775.85	675.65	409.03	217.82	121.73	70	44.91	40.41	44.91	70	121.73	217.82	409.03	675.65	775.85	1212.61	1680.53	2079.66	2355.85	2460.91
26	2586.31	2471.36	2174.43	1753	1260.55	796.46	689.59	414.34	218	120.93	68.24	42.6	37.92	42.6	68.24	120.93	218	414.34	689.59	796.46	1260.55	1753	2174.43	2471.36	2586.31
27	2714.18	2587.83	2272.64	1825.91	1306.57	818.13	704.16	420.18	218.72	120.38	66.73	40.49	35.7	40.49	66.73	120.38	218.72	420.18	704.16	818.13	1306.57	1825.91	2272.64	2587.83	2714.18
28	2835.46	2702.82	2367.81	1899.32	1353.21	840.99	719.45	426.19	219.62	119.94	65.41	38.62	33.6	38.62	65.41	119.94	219.62	426.19	719.45	840.99	1353.21	1899.32	2367.81	2702.82	2835.46
29	2958.92	2816.67	2461.33	1969.63	1401.9	864.56	735.91	432.49	220.76	119.68	64.2	36.9	31.71	36.9	64.2	119.68	220.76	432.49	735.91	864.56	1401.9	1969.63	2461.33	2816.67	2958.92
30	3079.66	2925.12	2553.77	2041.3	1449.85	889.01	753.01	438.62	221.97	119.55	63.18	35.29	29.96	35.29	63.18	119.55	221.97	438.62	753.01	889.01	1449.85	2041.3	2553.77	2925.12	3079.66
31	3189.79	3029.19	2639.32	2109.92	1496.86	913.22	770.07	444.35	223.15	119.47	62.16	33.87	28.32	33.87	62.16	119.47	223.15	444.35	770.07	913.22	1496.86	2109.92	2639.32	3029.19	3189.79
32	3295.27	3124.65	2719.2	2174.65	1543.63	937.53	788.15	450.04	224.44	119.51	61.37	32.52	26.82	32.52	61.37	119.51	224.44	450.04	788.15	937.53	1543.63	2174.65	2719.2	3124.65	3295.27
33	3387.04	3209.34	2794.95	2237.14	1588.74	962.58	806.58	455.46	225.77	119.65	60.61	31.26	25.39	31.26	60.61	119.65	225.77	455.46	806.58	962.58	1588.74	2237.14	2794.95	3209.34	3387.04
34	3465.46	3281.46	2859.26	2294.11	1631.58	986.76	824.76	460.35	227.09	119.96	59.86	30.1	24.07	30.1	59.86	119.96	227.09	460.35	824.76	986.76	1631.58	2294.11	2859.26	3281.46	3465.46
35	3530.91	3341.41	2915.57	2346.39	1672.66	1011.2	842.77	464.41	228.42	120.38	59.13	28.99	22.8	28.99	59.13	120.38	228.42	464.41	842.77	1011.2	1672.66	2346.39	2915.57	3341.41	3530.91
36	3578.16	3386.56	2957.66	2392.88	1711.4	1035.06	860.18	467.59	229.85	120.85	58.45	27.91	21.51	27.91	58.45	120.85	229.85	467.59	860.18	1035.06	1711.4	2392.88	2957.66	3386.56	3578.16
37	3613.08	3417.9	2988.17	2432.92	1746.48	1057.59	877.26	470.09	231.27	121.33	57.7	26.81	20.2	26.81	57.7	121.33	231.27	470.09	877.26	1057.59	1746.48	2432.92	2988.17	3417.9	3613.08
38	3634.69	3437.78	3008.4	2465.34	1779.41	1080	892.83	471.59	232.85	121.79	57.03	25.68	18.9	25.68	57.03	121.79	232.85	471.59	892.83	1080	1779.41	2465.34	3008.4	3437.78	3634.69
39	3642.32	3445.92	3017.84	2489.89	1808.13	1101.37	907.85	471.86	234.66	122.15	56.29	24.59	17.68	24.59	56.29	122.15	234.66	471.86	907.85	1101.37	1808.13	2489.89	3017.84	3445.92	3642.32
40	3635.59	3443.79	3018.58	2505.51	1833.17	1121.68	921.65	471.12	236.55	122.45	55.38	23.55	16.43	23.55	55.38	122.45	236.55	471.12	921.65	1121.68	1833.17	2505.51	3018.58	3443.79	3635.59
41	3617.48	3429.85	3010.33	2511.75	1855.43	1140.63	934.75	469.73	238.65	122.64	54.43														

50	3042.22	2940.3	2628.66	2278.84	1869.93	1223.32	972	418.45	248.96	118.4	43.69	14.44	6.81	14.44	43.69	118.4	248.96	418.45	972	1223.32	1869.93	2278.84	2628.66	2940.3	3042.22
51	2952.95	2863.61	2565.3	2229.77	1848.56	1221.38	969.57	410.28	247.92	116.96	42.39	13.7	6.23	13.7	42.39	116.96	247.92	410.28	969.57	1221.38	1848.56	2229.77	2565.3	2863.61	2952.95
52	2866.24	2785.91	2501.23	2176.9	1822.24	1215.7	964.86	402.12	246.58	115.27	40.98	12.99	5.53	12.99	40.98	115.27	246.58	402.12	964.86	1215.7	1822.24	2176.9	2501.23	2785.91	2866.24
53	2776.44	2706.82	2436.87	2123.99	1792.05	1208.88	958.09	394.25	245.16	113.28	39.58	12.22	4.97	12.22	39.58	113.28	245.16	394.25	958.09	1208.88	1792.05	2123.99	2436.87	2706.82	2776.44
54	2683.16	2622.56	2370.05	2068.31	1758.48	1199.68	950.06	385.97	243.64	111.17	38.26	11.63	4.55	11.63	38.26	111.17	243.64	385.97	950.06	1199.68	1758.48	2068.31	2370.05	2622.56	2683.16
55	2588	2535.1	2300.93	2012.94	1720.91	1187.93	940.7	377.89	241.65	108.77	36.85	11.12	4.14	11.12	36.85	108.77	241.65	377.89	940.7	1187.93	1720.91	2012.94	2300.93	2535.1	2588
56	2481.46	2442.22	2227.28	1954.7	1679.12	1173.27	930.02	370.42	239.43	106.15	35.44	10.64	3.8	10.64	35.44	106.15	239.43	370.42	930.02	1173.27	1679.12	1954.7	2227.28	2442.22	2481.46
57	2378.3	2347.61	2151.83	1895.49	1635.81	1156.89	918.76	362.79	236.99	103.38	34.21	10.28	3.6	10.28	34.21	103.38	236.99	362.79	918.76	1156.89	1635.81	1895.49	2151.83	2347.61	2378.3
58	2271.19	2248.13	2073.32	1834.74	1589.8	1138.47	904.74	355	234.1	100.38	33.03	10.04	3.4	10.04	33.03	100.38	234.1	355	904.74	1138.47	1589.8	1834.74	2073.32	2248.13	2271.19
59	2159.9	2148.49	1990.72	1772.01	1541.53	1118.1	888.98	347.54	230.7	97.39	31.93	9.43	1.62	9.43	31.93	97.39	230.7	347.54	888.98	1118.1	1541.53	1772.01	1990.72	2148.49	2159.9
60	2057.91	2049.4	1908.82	1709.26	1492.36	1096.72	871.49	339.97	226.24	94.27	30.95	7.23	0.18	7.23	30.95	94.27	226.24	339.97	871.49	1096.72	1492.36	1709.26	1908.82	2049.4	2057.91
61	1950.12	1949.08	1825.94	1643.58	1440.59	1073.06	853.06	332.08	220.89	90.95	29.91	6.49	0.18	6.49	29.91	90.95	220.89	332.08	853.06	1073.06	1440.59	1643.58	1825.94	1949.08	1950.12
62	1843.74	1850	1742.85	1577.51	1388.65	1047.64	833.44	323.78	215.18	87.66	27.34	6.33	0.18	6.33	27.34	87.66	215.18	323.78	833.44	1047.64	1388.65	1577.51	1742.85	1850	1843.74
63	1735.5	1746.31	1658.35	1510.66	1335.85	1020.72	811.95	315.9	208.83	84.39	25.65	6.17	0.18	6.17	25.65	84.39	208.83	315.9	811.95	1020.72	1335.85	1510.66	1658.35	1746.31	1735.5
64	1617.37	1638.48	1571.04	1443.36	1283.9	992.34	790.38	307.36	201.78	81.2	24.79	6.02	0.18	6.02	24.79	81.2	201.78	307.36	790.38	992.34	1283.9	1443.36	1571.04	1638.48	1617.37
65	1500.66	1527.37	1481.14	1375.1	1226.86	961.3	767.2	298.27	193.91	77.76	23.94	5.86	0.19	5.86	23.94	77.76	193.91	298.27	767.2	961.3	1226.86	1375.1	1481.14	1527.37	1500.66
66	1373.75	1411.85	1388.57	1307.11	1170.13	929.33	741.96	288.6	185.6	72.92	23.1	5.7	0.19	5.7	23.1	72.92	185.6	288.6	741.96	929.33	1170.13	1307.11	1388.57	1411.85	1373.75
67	1251.09	1298.45	1295.09	1236.82	1113.42	894.62	714.87	278.97	177.66	69.86	22.27	5.56	0.19	5.56	22.27	69.86	177.66	278.97	714.87	894.62	1113.42	1236.82	1295.09	1298.45	1251.09
68	1129.66	1183.95	1197.95	1162.17	1056.67	856.53	686.14	268.97	169.69	66.86	21.49	5.4	0.19	5.4	21.49	66.86	169.69	268.97	686.14	856.53	1056.67	1162.17	1197.95	1183.95	1129.66
69	1015.66	1073.24	1100.4	1086.96	999.05	816.4	657.15	259.49	161.83	64.01	20.7	5.25	0.18	5.25	20.7	64.01	161.83	259.49	657.15	816.4	999.05	1086.96	1100.4	1073.24	1015.66
70	914.53	970.91	1006.06	1011.13	940.75	774.16	626.88	250.22	153.88	60.98	19.92	5.1	0.18	5.1	19.92	60.98	153.88	250.22	626.88	774.16	940.75	1011.13	1006.06	970.91	914.53
71	824.96	878.49	920.29	936.26	880.41	730.18	595.7	240.31	145.7	58.36	19.16	4.94	0.18	4.94	19.16	58.36	145.7	240.31	595.7	730.18	880.41	936.26	920.29	878.49	824.96
72	749.51	798.53	841.07	865.13	821.19	687.19	563.72	231.2	138.49	55.79	18.42	4.79	0.18	4.79	18.42	55.79	138.49	231.2	563.72	687.19	821.19	865.13	841.07	798.53	749.51
73	687.79	730.47	772.93	798.1	763.48	643.33	531.54	221.7	131.66	53.14	17.69	4.63	0.18	4.63	17.69	53.14	131.66	221.7	531.54	643.33	763.48	798.1	772.93	730.47	687.79
74	638.61	672.72	713.04	737.3	707.82	599.83	499.63	211.49	125.25	50.58	16.98	4.48	0.18	4.48	16.98	50.58	125.25	211.49	499.63	599.83	707.82	737.3	713.04	672.72	638.61
75	597.54	626.08	659.69	682.24	655.7	555.83	468.07	200.53	119.08	48.12	16.28	4.34	0.18	4.34	16.28	48.12	119.08	200.53	468.07	555.83	655.7	682.24	659.69	626.08	597.54
76	556.47	583.2	616.19	634.36	610.54	512.88	436.08	188.78	113.18	45.62	15.6	4.19	0.18	4.19	15.6	45.62	113.18	188.78	436.08	512.88	610.54	634.36	616.19	583.2	556.47
77	522	544.11	575.91	591.65	567.07	471.12	404.97	176.07	107.37	43.26	14.95	4.05	0.18	4.05	14.95	43.26	107.37	176.07	404.97	471.12	567.07	591.65	575.91	544.11	522
78	491.52	510.91	538.8	551.65	526.69	431.33	374.08	163.45	101.81	40.91	14.31	3.91	0.18	3.91	14.31	40.91	101.81	163.45	374.08	431.33	526.69	551.65	538.8	510.91	491.52
79	464.05	480.4	506.23	515.99	489.72	393.93	343.33	151.04	96.4	38.66	13.69	3.77	0.19	3.77	13.69	38.66	96.4	151.04	343.33	393.93	489.72	515.99	506.23	480.4	464.05
80	438.03	452.73	476.39	484.22	455.33	358.46	312.58	139.17	91.09	36.47	13.07	3.64	0.19	3.64	13.07	36.47	91.09	312.58	476.39	484.22	455.33	476.39	452.73	438.03	438.03
81	414.47	427.27	448.96	455.19	423.97	325.28	282.68	128.82	85.82	34.35	12.49	3.52	0.2	3.52	12.49	34.35	85.82	128.82	282.68	325.28	423.97	455.19	448.96	427.27	414.47
82	392.15	403.5	423.98	428.39	395.01	294.86	253.08	119.72	80.7	32.31	11.91	3.4	0.2	3.4	11.91	32.31	80.7	119.72	253.08	294.86	395.01	428.39	423.98	403.5	392.15
83	371.23	381.7	400.72	403.83	369.03	266.44	225.56	111.4	75.72	30.4	11.38	3.28	0.21	3.28	11.38	30.4	75.72	111.4	225.56	266.44	369.03	403.83	400.72	381.7	371.23
84	351.89	361.18	378.85	381.02	345.39	241.01	199.03	104.01	70.97	28.54	10.85	3.17	0.22	3.17	10.85	28.54	70.97	104.01	199.03	241.01	345.39	381.02	378.85	361.18	351.89
85	333.11	341.76	358.31	359.34	323.8	218.17	174.29	97.21	66.35	26.83	10.35	3.06	0.23	3.06	10.35	26.83	66.35	97.21	174.29	218.17	323.8	359.34	358.31	341.76	333.11
86	316.05	323.75	339.25	339.43	304.23	198.2	151.15	90.88	62.55	25.21	9.88	2.96	0.24	2.96	9.88	25.21	62.55	90.88	151.15	198.2	304.23	339.43	339.25	323.75	316.05
87	299.84	306.84	321.2	320.31	285.67	180.47	128.69	84.78	58.39	23.69	9.42	2.87	0.25	2.87	9.42	23.69	58.39	84.78	128.69	180.47	285.67	320.31	321.2	306.84	299.84
88	284.3	290.91	304.2	302.42	268.66	165.78	109.23	78.97	54.36	22.27	8.99	2.78	0.26	2.78	8.99	22.27	54.36	78.97	109.23	165.78	268.66	302.42	304.2	290.91	284.3
89	270.26	276.22	288.32	285.67	252.85	152.91	91.79	73.42	50.86	20.98	8.58	2.7	0.28	2.7	8.58	20.98	50.86	73.42	91.79	152.91	252.85	285.67	288.32	276.22	270.26
90	256.66	262.09	273.29	270.08	237.95	140.73	75.95	68.11	47.6	19.78	8.2	2.62	0.31	2.62	8.2	19.78	47.6	68.11	75.95	140.73	237.95	270.08	273.29	262.09	256.66
91	244.06	249.15	259.38	255.26	224.13	131.1	62.41	63.32	44.65	18.65	7.85	2.55	0.32	2.55	7.85	18.65	44.65	63.32	62.41	131.1	224.13	255.26	259.38	249.15	244.06
92	232.47	236.92	246.25	241.38	211.23	122.54	52.71	58.8	41.86	17.61	7.51	2.48	0.34	2.48	7.51	17.61	41.86	58.8	52.71	122.54	211.23	241.38	246.25	236.92	232.47
93	221.55	225.65	234.03	228.4	199.05	114.83	44.15	54.46	39.35	16.68	7.19	2.43	0.37	2.43	7.19	16.68	39.35	54.46	44.15	114.83</					



104	138.33	139.73	141.97	132.2	109.53	60.43	18.89	27.01	21.18	10.12	5.11	2.31	1.2	2.31	5.11	10.12	21.18	27.01	18.89	60.43	109.53	132.2	141.97	139.73	138.33
105	133.18	134.52	136.39	126.57	104.35	57.41	18.11	25.6	20.14	9.74	4.99	2.31	1.26	2.31	4.99	9.74	20.14	25.6	18.11	57.41	104.35	126.57	136.39	134.52	133.18
106	128.34	129.51	131.05	121.2	99.38	54.5	17.41	24.27	19.16	9.39	4.88	2.32	1.32	2.32	4.88	9.39	19.16	24.27	17.41	54.5	99.38	121.2	131.05	129.51	128.34
107	123.66	124.67	125.96	116.13	94.61	51.78	16.77	23.05	18.27	9.07	4.78	2.32	1.38	2.32	4.78	9.07	18.27	23.05	16.77	51.78	94.61	116.13	125.96	124.67	123.66
108	119.08	120.06	121.2	111.32	90.02	49.25	16.2	21.93	17.42	8.77	4.69	2.34	1.44	2.34	4.69	8.77	17.42	21.93	16.2	49.25	90.02	111.32	121.2	120.06	119.08
109	114.64	115.61	116.55	106.76	85.68	46.84	15.65	20.88	16.64	8.49	4.61	2.35	1.5	2.35	4.61	8.49	16.64	20.88	15.65	46.84	85.68	106.76	116.55	115.61	114.64
110	110.39	111.34	112.13	102.39	81.64	44.59	15.17	19.89	15.91	8.23	4.53	2.37	1.56	2.37	4.53	8.23	15.91	19.89	15.17	44.59	81.64	102.39	112.13	111.34	110.39
111	106.15	107.05	107.82	98.19	77.81	42.46	14.7	18.98	15.21	7.99	4.46	2.38	1.62	2.38	4.46	7.99	15.21	18.98	14.7	42.46	77.81	98.19	107.82	107.05	106.15
112	102.02	102.98	103.75	94.25	74.34	40.47	14.27	18.13	14.58	7.77	4.39	2.39	1.67	2.39	4.39	7.77	14.58	18.13	14.27	40.47	74.34	94.25	103.75	102.98	102.02
113	97.99	99.01	99.76	90.49	70.99	38.6	13.87	17.32	13.98	7.55	4.32	2.4	1.71	2.4	4.32	7.55	13.98	17.32	13.87	38.6	70.99	90.49	99.76	99.01	97.99
114	93.98	95.12	96.04	86.95	67.89	36.83	13.48	16.58	13.41	7.34	4.25	2.4	1.73	2.4	4.25	7.34	13.41	16.58	13.48	36.83	67.89	86.95	96.04	95.12	93.98
115	90.26	91.51	92.47	83.66	65.02	35.2	13.12	15.88	12.87	7.15	4.19	2.41	1.76	2.41	4.19	7.15	12.87	15.88	13.12	35.2	65.02	83.66	92.47	91.51	90.26
116	86.71	88.12	89.12	80.57	62.32	33.62	12.77	15.23	12.35	6.97	4.14	2.42	1.8	2.42	4.14	6.97	12.35	15.23	12.77	33.62	62.32	80.57	89.12	88.12	86.71
117	83.49	84.95	86.04	77.67	59.81	32.15	12.44	14.63	11.89	6.82	4.09	2.43	1.84	2.43	4.09	6.82	11.89	14.63	12.44	32.15	59.81	77.67	86.04	84.95	83.49
118	80.54	82.11	83.13	74.95	57.37	30.78	12.12	14.05	11.44	6.67	4.05	2.45	1.89	2.45	4.05	6.67	11.44	14.05	12.12	30.78	57.37	74.95	83.13	82.11	80.54
119	77.88	79.43	80.41	72.38	55.09	29.48	11.82	13.52	11.03	6.54	4.02	2.47	1.93	2.47	4.02	6.54	11.03	13.52	11.82	29.48	55.09	72.38	80.41	79.43	77.88
120	75.33	76.95	77.87	69.92	52.98	28.24	11.52	13.01	10.63	6.41	3.99	2.49	1.98	2.49	3.99	6.41	10.63	13.01	11.52	28.24	52.98	69.92	77.87	76.95	75.33
121	73.08	74.68	75.44	67.61	50.99	27.1	11.24	12.51	10.27	6.28	3.96	2.51	2.03	2.51	3.96	6.28	10.27	12.51	11.24	27.1	50.99	67.61	75.44	74.68	73.08
122	70.96	72.51	73.15	65.4	49.08	26	10.95	12.07	9.92	6.17	3.94	2.53	2.09	2.53	3.94	6.17	9.92	12.07	10.95	26	49.08	65.4	73.15	72.51	70.96
123	68.98	70.49	70.97	63.31	47.29	24.94	10.68	11.64	9.6	6.06	3.92	2.55	2.15	2.55	3.92	6.06	9.6	11.64	10.68	24.94	47.29	63.31	70.97	70.49	68.98
124	67.11	68.62	68.94	61.33	45.58	23.96	10.41	11.24	9.3	5.96	3.9	2.57	2.19	2.57	3.9	5.96	9.3	11.24	10.41	23.96	45.58	61.33	68.94	68.62	67.11
125	65.36	66.8	66.94	59.36	43.94	23	10.14	10.85	9	5.86	3.88	2.58	2.23	2.58	3.88	5.86	9	10.85	10.14	23	43.94	59.36	66.94	66.8	65.36
126	63.81	65.13	65.05	57.53	42.37	22.09	9.88	10.48	8.72	5.76	3.85	2.59	2.26	2.59	3.85	5.76	8.72	10.48	9.88	22.09	42.37	57.53	65.05	65.13	63.81
127	62.26	63.54	63.25	55.73	40.88	21.22	9.63	10.13	8.45	5.66	3.83	2.6	2.29	2.6	3.83	5.66	8.45	10.13	9.63	21.22	40.88	55.73	63.25	63.54	62.26
128	60.8	61.99	61.5	54.02	39.47	20.4	9.38	9.8	8.2	5.57	3.8	2.6	2.32	2.6	3.8	5.57	8.2	9.8	9.38	20.4	39.47	54.02	61.5	61.99	60.8
129	59.46	60.49	59.81	52.38	38.11	19.6	9.12	9.47	7.97	5.49	3.78	2.61	2.35	2.61	3.78	5.49	7.97	9.47	9.12	19.6	38.11	52.38	59.81	60.49	59.46
130	58.11	59.07	58.17	50.79	36.79	18.82	8.87	9.16	7.74	5.41	3.76	2.61	2.37	2.61	3.76	5.41	7.74	9.16	8.87	18.82	36.79	50.79	58.17	59.07	58.11
131	56.88	57.71	56.59	49.26	35.53	18.1	8.63	8.88	7.54	5.34	3.73	2.62	2.41	2.62	3.73	5.34	7.54	8.88	8.63	18.1	35.53	49.26	56.59	57.71	56.88
132	55.66	56.37	55.06	47.77	34.31	17.39	8.38	8.59	7.34	5.26	3.71	2.62	2.44	2.62	3.71	5.26	7.34	8.59	8.38	17.39	34.31	47.77	55.06	56.37	55.66
133	54.46	55.1	53.57	46.31	33.12	16.72	8.14	8.32	7.14	5.19	3.68	2.62	2.46	2.62	3.68	5.19	7.14	8.32	8.14	16.72	33.12	46.31	53.57	55.1	54.46
134	53.36	53.85	52.15	44.91	31.97	16.07	7.9	8.06	6.96	5.11	3.66	2.62	2.48	2.62	3.66	5.11	6.96	8.06	7.9	16.07	31.97	44.91	52.15	53.85	53.36
135	52.27	52.64	50.74	43.53	30.86	15.42	7.67	7.8	6.79	5.04	3.63	2.61	2.51	2.61	3.63	5.04	6.79	7.8	7.67	15.42	30.86	43.53	50.74	52.64	52.27
136	51.22	51.45	49.37	42.18	29.77	14.83	7.45	7.56	6.61	4.96	3.6	2.61	2.53	2.61	3.6	4.96	6.61	7.56	7.45	14.83	29.77	42.18	49.37	51.45	51.22
137	50.21	50.29	48.01	40.86	28.71	14.23	7.24	7.32	6.43	4.89	3.57	2.6	2.55	2.6	3.57	4.89	6.43	7.32	7.24	14.23	28.71	40.86	48.01	50.29	50.21
138	49.21	49.17	46.7	39.58	27.67	13.65	7.03	7.1	6.26	4.81	3.53	2.59	2.57	2.59	3.53	4.81	6.26	7.1	7.03	13.65	27.67	39.58	46.7	49.17	49.21
139	48.21	48.04	45.4	38.28	26.64	13.1	6.84	6.89	6.1	4.73	3.5	2.59	2.59	2.59	3.5	4.73	6.1	6.89	6.84	13.1	26.64	38.28	45.4	48.04	48.21
140	47.22	46.92	44.12	37.04	25.64	12.55	6.64	6.67	5.93	4.64	3.45	2.57	2.59	2.57	3.45	4.64	5.93	6.67	6.64	12.55	25.64	37.04	44.12	46.92	47.22
141	46.22	45.8	42.85	35.78	24.65	12.01	6.44	6.44	5.75	4.53	3.39	2.53	2.56	2.53	3.39	4.53	5.75	6.44	6.44	12.01	24.65	35.78	42.85	45.8	46.22
142	45.22	44.67	41.59	34.53	23.66	11.47	6.25	6.23	5.57	4.43	3.33	2.5	2.54	2.5	3.33	4.43	5.57	6.23	6.25	11.47	23.66	34.53	41.59	44.67	45.22
143	44.19	43.55	40.31	33.32	22.69	10.94	6.06	6.02	5.4	4.33	3.26	2.46	2.52	2.46	3.26	4.33	5.4	6.02	6.06	10.94	22.69	33.32	40.31	43.55	44.19
144	43.11	42.39	39.05	32.09	21.72	10.43	5.86	5.81	5.21	4.2	3.18	2.41	2.46	2.41	3.18	4.2	5.21	5.81	5.86	10.43	21.72	32.09	39.05	42.39	43.11
145	42.07	41.22	37.78	30.87	20.76	9.92	5.67	5.6	5.03	4.08	3.1	2.36	2.42	2.36	3.1	4.08	5.03	5.6	5.67	9.92	20.76	30.87	37.78	41.22	42.07
146	40.93	40.04	36.52	29.65	19.82	9.42	5.48	5.39	4.85	3.96	3.01	2.3	2.36	2.3	3.01	3.96	4.85	5.39	5.48	9.42	19.82	29.65	36.52	40.04	40.93
147	39.79	38.83	35.22	28.45	18.89	8.94	5.29	5.19	4.67	3.83	2.92	2.25	2.31	2.25	2.92	3.83	4.67	5.19	5.29	8.94	18.89	28.45	35.22	38.83	39.79
148	38.61	37.58	33.93	27.24	17.95	8.44	5.1	4.98	4.48	3.69	2.82	2.18	2.24	2.18	2.82	3.69	4.48	4.98	5.1	8.44	17.95	27.24	33.93	37.58	38.61
149	37.37	36.3	32.61	26.01	17.02	7.94	4.91	4.79	4.31	3.55	2.73	2.13	2.18	2.13	2.73	3.55	4.31	4.79	4.91	7.94	17.02	26.01	32.61	36.3	37.37
150	36.12	34.99	31.29	24.79	16.08	7.45	4.74	4.6	4.14	3.43	2.65	2.08	2.15	2.08	2.65	3.43	4.14	4.6	4.74	7.45	16.08	24.79	31.29	34.99	36.12
151	34.82	33.64	29.92	23.55	15.15	6.97	4.57	4.42	3.98	3.31	2.57	2.04	2.13	2.04	2.57	3.31	3.98	4.42	4.57	6.97	15.15	23.55	29.92	33.64	34.82
152	33.47	32.27	28.56	22.31	14.2	6.5	4.4	4.25	3.82	3.19</															

158	24.68	23.34	20	14.77	8.86	4.19	3.47	3.3	2.95	2.49	2.01	1.71	1.76	1.71	2.01	2.49	2.95	3.3	3.47	4.19	8.86	14.77	20	23.34	24.68
159	23.11	21.77	18.53	13.48	8.07	3.89	3.32	3.14	2.81	2.37	1.94	1.67	1.71	1.67	1.94	2.37	2.81	3.14	3.32	3.89	8.07	13.48	18.53	21.77	23.11
160	21.49	20.19	17.09	12.26	7.27	3.64	3.17	2.99	2.68	2.27	1.87	1.64	1.68	1.64	1.87	2.27	2.68	2.99	3.17	3.64	7.27	12.26	17.09	20.19	21.49
161	19.92	18.6	15.52	11.1	6.42	3.41	3.02	2.85	2.55	2.18	1.81	1.61	1.64	1.61	1.81	2.18	2.55	2.85	3.02	3.41	6.42	11.1	15.52	18.6	19.92
162	18.3	17.02	13.96	9.98	5.68	3.19	2.88	2.72	2.43	2.09	1.75	1.58	1.61	1.58	1.75	2.09	2.43	2.72	2.88	3.19	5.68	9.98	13.96	17.02	18.3
163	16.71	15.47	12.48	8.92	4.99	2.99	2.74	2.59	2.32	2	1.7	1.56	1.58	1.56	1.7	2	2.32	2.59	2.74	2.99	4.99	8.92	12.48	15.47	16.71
164	15.14	13.94	11.15	7.93	4.36	2.8	2.61	2.46	2.22	1.93	1.66	1.54	1.56	1.54	1.66	1.93	2.22	2.46	2.61	2.8	4.36	7.93	11.15	13.94	15.14
165	13.54	12.41	9.78	6.99	3.68	2.62	2.47	2.34	2.12	1.86	1.61	1.53	1.54	1.53	1.61	1.86	2.12	2.34	2.47	2.62	3.68	6.99	9.78	12.41	13.54
166	12	10.83	8.53	5.96	3.14	2.46	2.35	2.23	2.03	1.8	1.58	1.51	1.52	1.51	1.58	1.8	2.03	2.23	2.35	2.46	3.14	5.96	8.53	10.83	12
167	10.52	9.1	7.39	4.95	2.74	2.3	2.23	2.13	1.95	1.74	1.55	1.51	1.52	1.51	1.55	1.74	1.95	2.13	2.23	2.3	2.74	4.95	7.39	9.1	10.52
168	9.05	7.54	6.36	4.07	2.43	2.16	2.12	2.03	1.88	1.68	1.53	1.5	1.51	1.5	1.53	1.68	1.88	2.03	2.12	2.16	2.43	4.07	6.36	7.54	9.05
169	7.69	6.37	5.24	3.18	2.2	2.04	2.02	1.94	1.81	1.64	1.52	1.51	1.51	1.51	1.52	1.64	1.81	1.94	2.02	2.04	2.2	3.18	5.24	6.37	7.69
170	6.33	5.31	3.98	2.44	2.01	1.93	1.93	1.86	1.75	1.6	1.51	1.51	1.51	1.51	1.51	1.6	1.75	1.86	1.93	1.93	2.01	2.44	3.98	5.31	6.33
171	4.94	4.03	2.81	2	1.87	1.83	1.84	1.79	1.7	1.57	1.49	1.51	1.51	1.51	1.49	1.57	1.7	1.79	1.84	1.83	1.87	2	2.81	4.03	4.94
172	3.27	2.56	1.95	1.77	1.73	1.74	1.76	1.72	1.63	1.55	1.49	1.51	1.51	1.51	1.49	1.55	1.63	1.72	1.76	1.74	1.73	1.77	1.95	2.56	3.27
173	1.85	1.68	1.6	1.62	1.63	1.66	1.68	1.66	1.58	1.53	1.48	1.51	1.5	1.51	1.48	1.53	1.58	1.66	1.68	1.66	1.63	1.62	1.6	1.68	1.85
174	1.39	1.43	1.48	1.51	1.55	1.59	1.62	1.6	1.55	1.5	1.47	1.5	1.48	1.5	1.47	1.5	1.55	1.6	1.62	1.59	1.55	1.51	1.48	1.43	1.39
175	1.32	1.35	1.4	1.44	1.49	1.54	1.56	1.54	1.52	1.48	1.45	1.49	1.46	1.49	1.45	1.48	1.52	1.54	1.56	1.54	1.49	1.44	1.4	1.35	1.32
176	1.25	1.31	1.35	1.39	1.45	1.49	1.52	1.5	1.49	1.46	1.44	1.47	1.43	1.47	1.44	1.46	1.49	1.5	1.52	1.49	1.45	1.39	1.35	1.31	1.25
177	1.21	1.3	1.33	1.38	1.43	1.46	1.47	1.47	1.46	1.43	1.42	1.44	1.4	1.44	1.42	1.43	1.46	1.47	1.47	1.46	1.43	1.38	1.33	1.3	1.21
178	1.24	1.32	1.34	1.38	1.42	1.45	1.46	1.45	1.44	1.41	1.39	1.42	1.37	1.42	1.39	1.41	1.44	1.45	1.46	1.45	1.42	1.38	1.34	1.32	1.24
179	1.27	1.34	1.36	1.4	1.43	1.45	1.46	1.45	1.43	1.4	1.38	1.39	1.33	1.39	1.38	1.4	1.43	1.45	1.46	1.45	1.43	1.4	1.36	1.34	1.27
180	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

Model No.	WPT @ 40W/3000K	Sample ID.	G1
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
120.02	60	0.324	38.7	0.995	10.22%
277.04	60	0.142	38.6	0.981	9.39%

## 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\*\*\*\*\*