

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

DLF2409113-3a

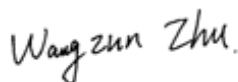
Test Date

2024/8/31

Issue Date

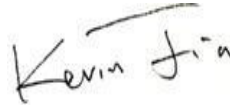
2024/9/2

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		2247
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	144.0
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		2123
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	136.1
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		15.6
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	14.06%
		20.00%	277V	15.51%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.987
		0.9	277V	0.925
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	5054
		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	-		9
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%		4.26%
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		0.061
(Goniophotometer - Section 4.2)		Non-Worst Case		0.119
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		15.6
(Goniophotometer - Section 4.2)		Non-Worst Case		14.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/31	WPT @ 15W/5000K	N/A	C1
2	Goniophotometer Test	2024/8/31	WPT @ 15W/5000K	N/A	C1
3	THD and PF Test	2024/8/31	WPT @ 15W/5000K	N/A	C1

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.

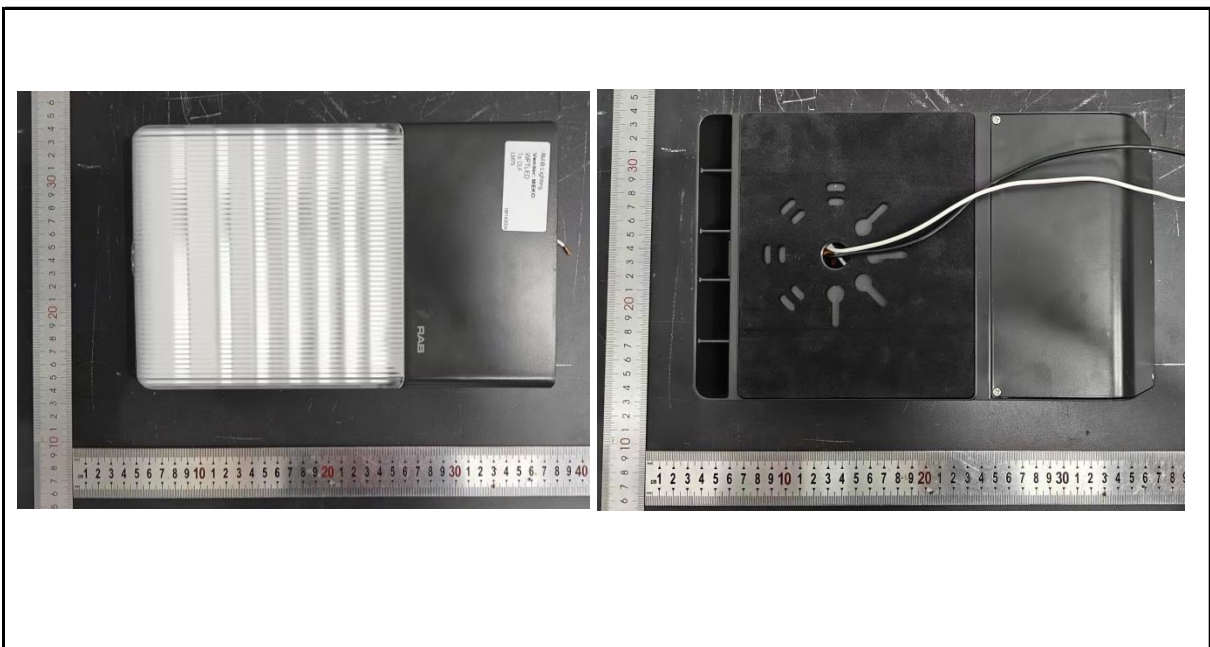
2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing 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/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 @ 15W/5000K	Sample ID.	C1
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

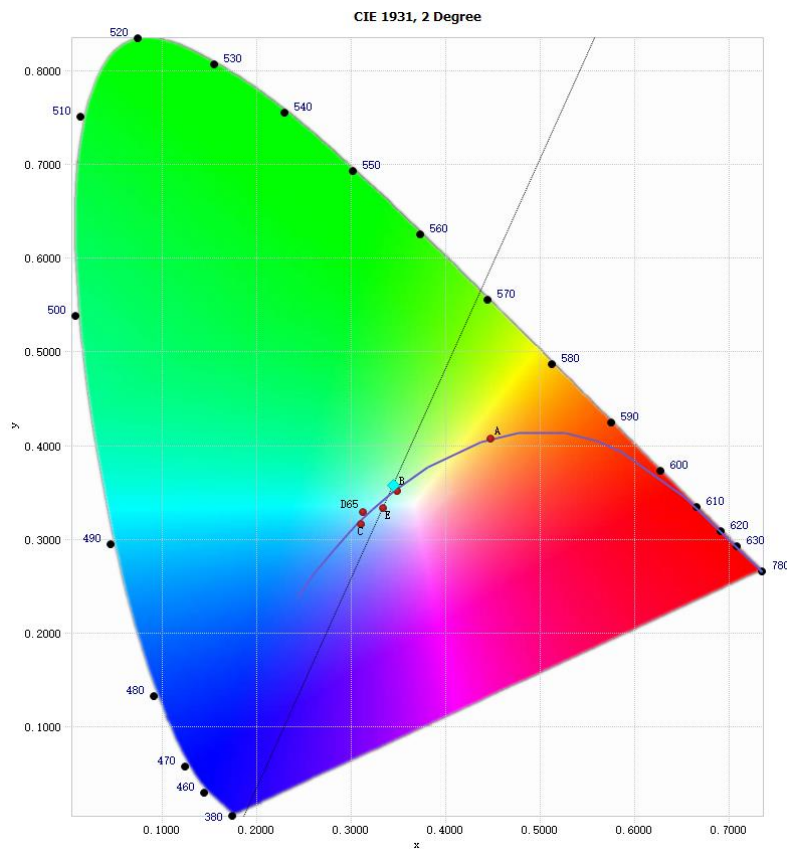
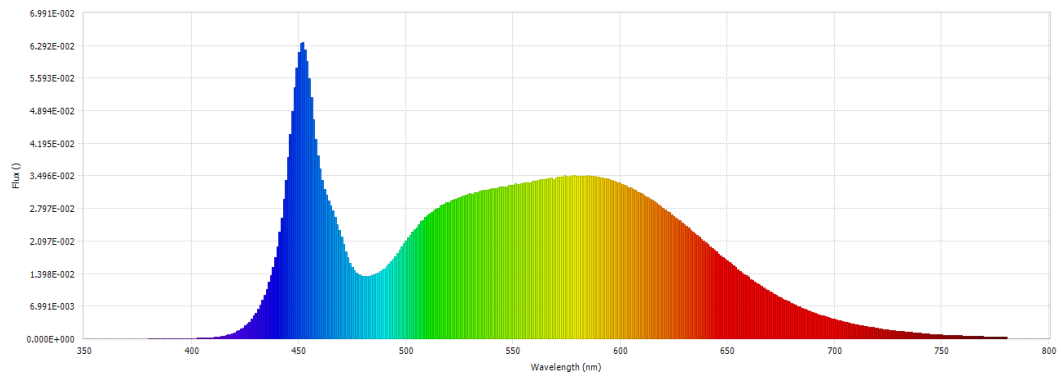
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.05	60	0.119	14.1	0.987
277.04	60	0.061	15.6	0.925

Test Result

CCT (K)	CRI	R9	Duv
5054	83	9	0.0033

Rf	Rg	IES Rcs,h1
83	96	-12%

4.1 Integrating Sphere Test



4.1 Integrating Sphere Test

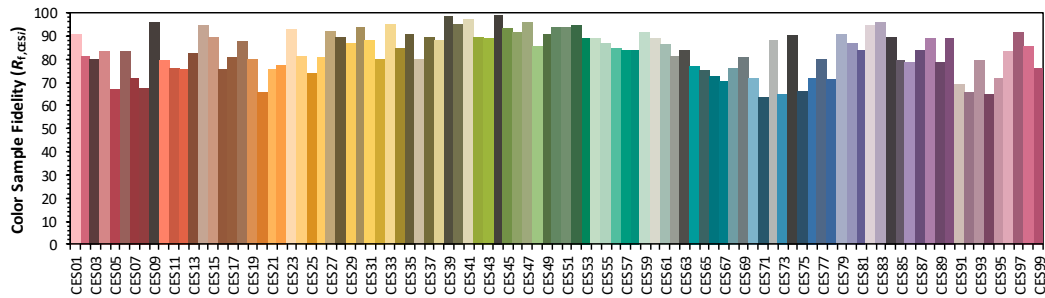
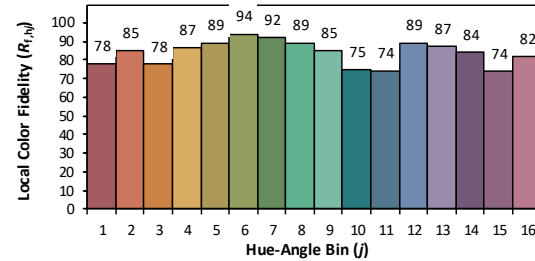
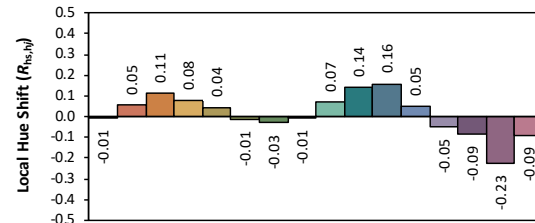
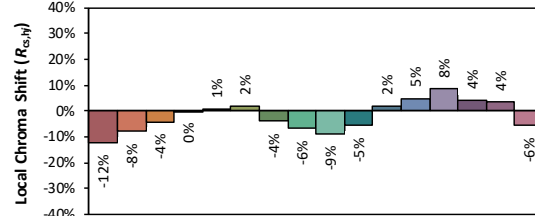
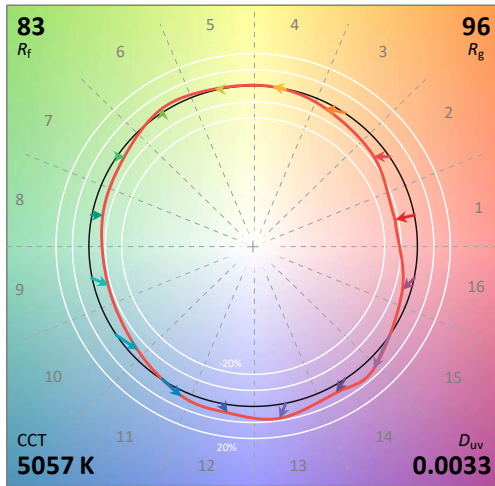
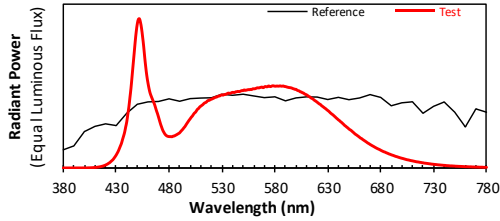
IES TM-30-18 Color Rendition Report

Source: DLF2409113-3a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/31

Model: WPT @ 15W/5000K



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

x 0.3441
 y 0.3574
 u' 0.2085
 v' 0.4873

CIE 13.3-1995
(CRI)

R_a 84
 R_g 15

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	4.97E-05	485	1.37E-02	590	3.47E-02	695	4.88E-03
385	5.35E-05	490	1.50E-02	595	3.42E-02	700	4.18E-03
390	5.36E-05	495	1.77E-02	600	3.35E-02	705	3.55E-03
395	5.75E-05	500	2.10E-02	605	3.24E-02	710	3.08E-03
400	7.93E-05	505	2.38E-02	610	3.12E-02	715	2.62E-03
405	1.18E-04	510	2.64E-02	615	2.97E-02	720	2.25E-03
410	2.53E-04	515	2.80E-02	620	2.80E-02	725	1.90E-03
415	5.79E-04	520	2.93E-02	625	2.63E-02	730	1.60E-03
420	1.30E-03	525	3.03E-02	630	2.45E-02	735	1.36E-03
425	2.78E-03	530	3.12E-02	635	2.26E-02	740	1.16E-03
430	5.53E-03	535	3.17E-02	640	2.05E-02	745	9.60E-04
435	1.05E-02	540	3.22E-02	645	1.86E-02	750	8.35E-04
440	1.97E-02	545	3.27E-02	650	1.66E-02	755	7.17E-04
445	3.89E-02	550	3.30E-02	655	1.48E-02	760	5.71E-04
450	6.15E-02	555	3.34E-02	660	1.31E-02	765	5.47E-04
455	5.58E-02	560	3.38E-02	665	1.16E-02	770	4.34E-04
460	3.64E-02	565	3.41E-02	670	1.01E-02	775	3.70E-04
465	2.85E-02	570	3.45E-02	675	8.75E-03	780	3.13E-04
470	2.18E-02	575	3.48E-02	680	7.61E-03		
475	1.53E-02	580	3.49E-02	685	6.57E-03		
480	1.34E-02	585	3.50E-02	690	5.65E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	WPT @ 15W/5000K	Sample ID.	C1
Opreate 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 paramters 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	277.05	60	0.061	15.6	0.925
NON-WORST CASE	120.01	60	0.119	14.1	0.987

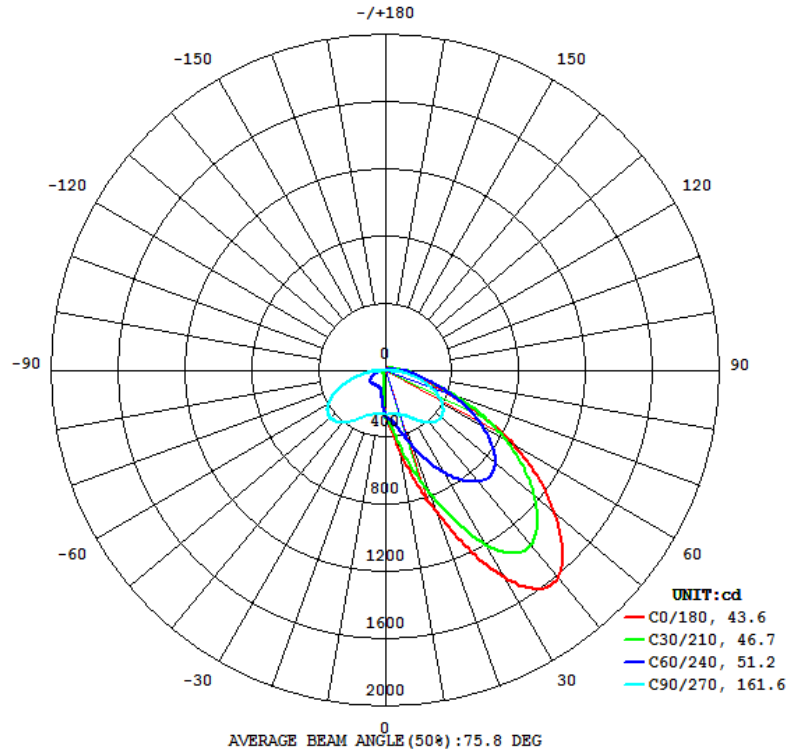
Test Result

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	2247	87.6	183.3	43.6	161.6	144.0
0° - 90° zones	2123	87.6	179.3	43.6	161.6	136.1

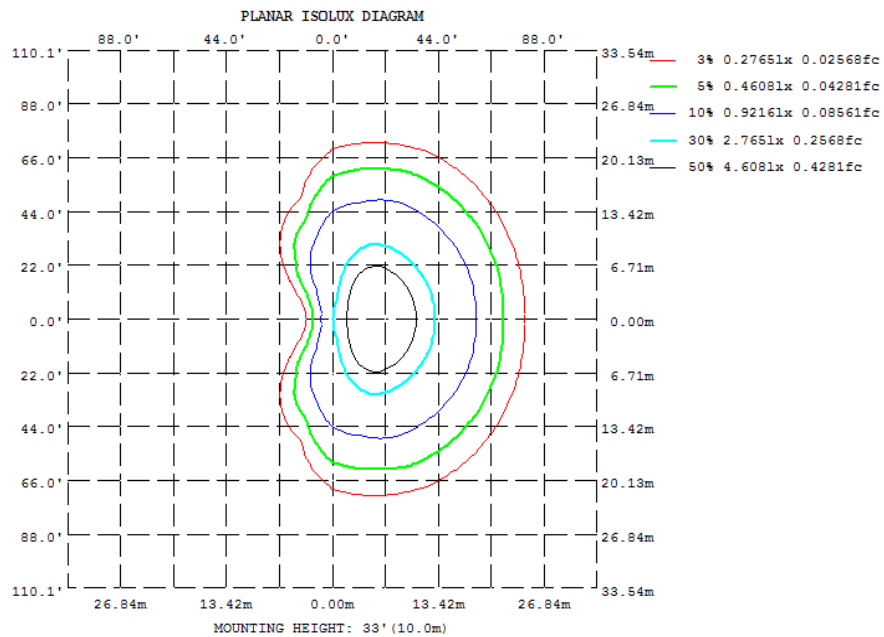
Zonal Lumen Requirement (80° - 90°)	BUG rating
4.26%	B0-U3-G1

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

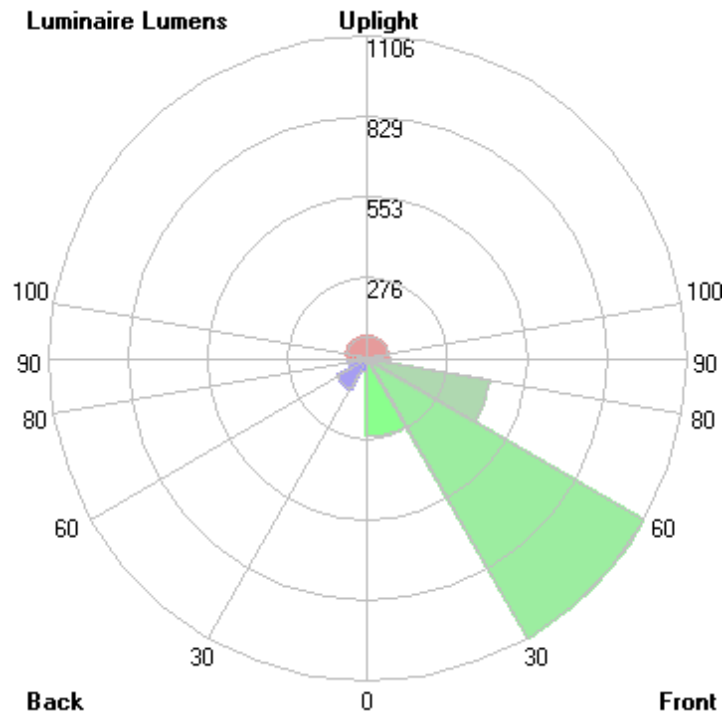
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	468.7	370.8	267.3	107.3	77.34	107.3	267.3	370.8
20	903.4	648.7	285.4	66.86	28.57	66.86	285.4	648.7
30	1419	969.1	335.2	58.34	14.36	58.34	335.2	969.1
40	1609	1152	410.6	59.21	7.916	59.21	410.6	1152
50	1324	1026	437.8	57.94	2.889	57.94	437.8	1026
60	886.0	764.1	397.5	46.69	0.1840	46.69	397.5	764.1
70	392.2	444.7	289.8	31.10	0.0816	31.10	289.8	444.7
80	191.9	215.2	145.6	18.65	0.0870	18.65	145.6	215.2
90	114.4	121.7	36.16	10.09	0.1382	10.09	36.16	121.7
100	73.75	72.86	11.28	6.012	0.4082	6.012	11.28	72.86
110	50.65	47.33	7.262	4.077	0.6864	4.077	7.262	47.33
120	34.44	32.35	5.430	3.103	0.8874	3.103	5.430	32.35
130	26.59	23.57	4.131	2.562	1.061	2.562	4.131	23.57
140	21.71	17.33	3.058	2.150	1.160	2.150	3.058	17.33
150	16.81	11.78	2.194	1.594	1.002	1.594	2.194	11.78
160	10.28	5.429	1.472	1.057	0.7884	1.057	1.472	5.429
170	1.859	1.217	0.8844	0.7468	0.6974	0.7468	0.8844	1.217
180	0.6117	0.6467	0.6579	0.6245	0.6106	0.6245	0.6579	0.6467
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	23.83	0 - 10	23.83	1.06%
10-20	87.01	0 - 20	110.84	4.93%
20-30	203.95	0 - 30	314.79	14.01%
30-40	356.16	0 - 40	670.95	29.86%
40-50	443.94	0 - 50	1114.89	49.63%
50-60	425.17	0 - 60	1540.06	68.55%
60-70	317.38	0 - 70	1857.44	82.68%
70-80	175.29	0 - 80	2032.73	90.48%
80-90	90.54	0 - 90	2123.27	94.51%
90-100	48.73	0 - 100	2172.00	96.68%
100-110	29.32	0 - 110	2201.32	97.98%
110-120	18.26	0 - 120	2219.58	98.80%
120-130	11.77	0 - 130	2231.35	99.32%
130-140	7.68	0 - 140	2239.03	99.66%
140-150	4.65	0 - 150	2243.68	99.87%
150-160	2.24	0 - 160	2245.92	99.97%
160-170	0.61	0 - 170	2246.53	100.00%
170-180	0.08	0 - 180	2246.61	100.00%

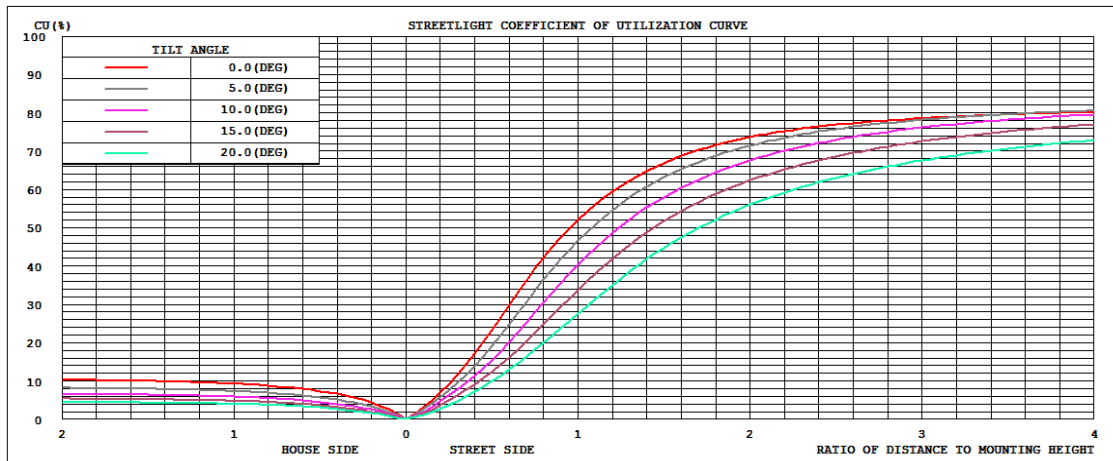
4.2 Goniophotometer Test

LCS/BUG

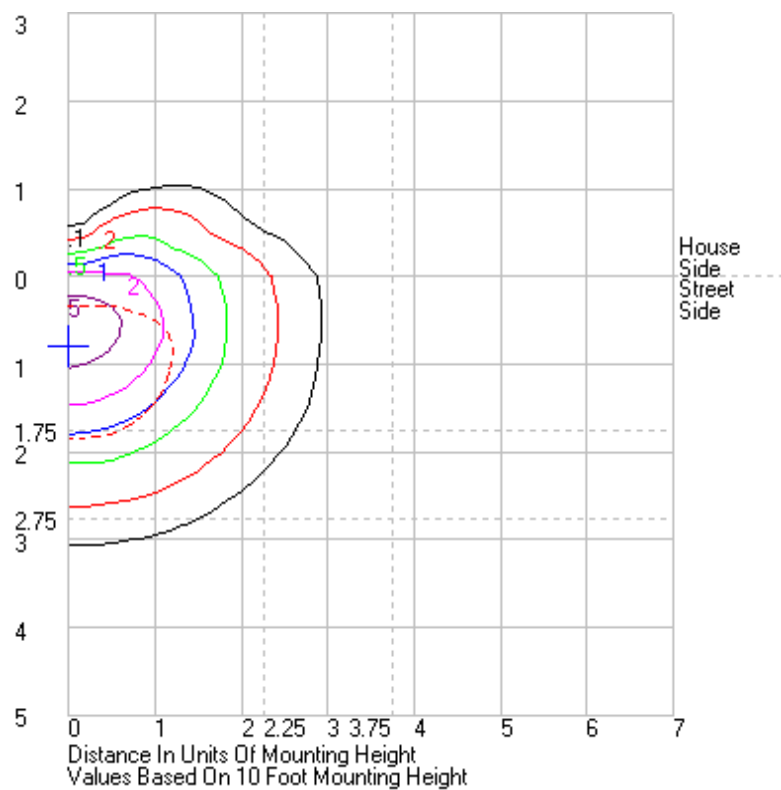


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	267.0	N.A.	11.9
FM - Front-Medium (30-60)	1105.8	N.A.	49.2
FH - Front-High (60-80)	428.4	N.A.	19.1
FVH - Front-Very High (80-90)	77.5	N.A.	3.5
BL - Back-Low (0-30)	47.8	N.A.	2.1
BM - Back-Medium (30-60)	119.5	N.A.	5.3
BH - Back-High (60-80)	64.3	N.A.	2.9
BVH - Back-Very High (80-90)	13.0	N.A.	0.6
UL - Uplight-Low (90-100)	48.7	N.A.	2.2
UH - Uplight-High (100-180)	74.6	N.A.	3.3
Total	2246.6	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	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6
1	282.62	281	279.82	277.61	274.92	271.55	268.04	264.51	261.16	258.02	255.73	254.36	255.49	254.36	255.73	258.02	261.16	264.51	268.04	271.55	274.92	277.61	279.82	281	282.62
2	293.7	291.95	289.6	285.77	280.67	274.39	267.46	260.17	252.69	245.2	238.83	234.29	235.28	234.29	238.83	245.2	252.69	260.17	267.46	274.39	280.67	285.77	289.6	291.95	293.7
3	303.43	301.36	298.11	292.95	285.92	276.97	266.64	255.42	242.76	228.54	215.89	207.24	207.2	207.24	215.89	228.54	242.76	255.42	266.64	276.97	285.92	292.95	298.11	301.36	303.43
4	314.15	311.09	306.32	299.26	290.65	279.55	265.98	250.35	230.86	208.15	187.86	175.31	175.49	175.31	187.86	208.15	230.86	250.35	265.98	279.55	290.65	299.26	306.32	311.09	314.15
5	328.07	323.57	315.87	305.76	295.18	282.27	265.73	245.42	217.56	185.16	160.53	146.45	144.83	146.45	160.53	185.16	217.56	245.42	265.73	282.27	295.18	305.76	315.87	323.57	328.07
6	346.81	340.26	328.4	313.57	299.37	284.75	265.54	240.66	203.85	163.14	135.94	122.26	120.25	122.26	135.94	163.14	203.85	240.66	265.54	284.75	299.37	313.57	328.4	340.26	346.81
7	371.07	362.14	345.14	323.63	303.76	286.98	265.6	235.95	189.46	143.54	117.58	107.93	106.31	107.93	117.58	143.54	189.46	235.95	265.6	286.98	303.76	323.63	345.14	362.14	371.07
8	399.93	388.35	365.93	336.31	309.04	289.31	266.03	231.64	175.45	126.58	105.93	97.58	95.98	97.58	105.93	126.58	175.45	231.64	266.03	289.31	309.04	336.31	365.93	388.35	399.93
9	432.9	418.92	390.69	352.04	315.71	291.26	266.54	227.64	162.3	115.46	97.04	88.28	86.38	88.28	97.04	115.46	162.3	227.64	266.54	291.26	315.71	352.04	390.69	418.92	432.9
10	468.68	452.82	418.67	370.78	323.89	293.23	267.33	224.06	150.67	107.3	89.21	79.5	77.34	79.5	89.21	107.3	150.67	224.06	267.33	293.23	323.89	370.78	418.67	452.82	468.68
11	507.02	489.04	449.29	392.23	333.61	295.26	268.38	220.85	141.55	101.24	81.97	71.21	68.88	71.21	81.97	101.24	141.55	220.85	268.38	295.26	333.61	392.23	449.29	489.04	507.02
12	546.64	526.81	482.14	415.9	344.96	297.31	269.55	218	133.5	96.12	75.17	63.91	61.31	63.91	75.17	96.12	133.5	218	269.55	297.31	344.96	415.9	482.14	526.81	546.64
13	587.17	565.7	516.58	441.53	358.27	299.7	270.88	215.67	127.78	91.42	68.78	57.49	54.78	57.49	68.78	91.42	127.78	215.67	270.88	299.7	358.27	441.53	516.58	565.7	587.17
14	628.35	604.63	552.24	468.83	373.21	302.78	272.46	213.41	123.39	86.97	63.52	51.45	49.13	51.45	63.52	86.97	123.39	213.41	272.46	302.78	373.21	468.83	552.24	604.63	628.35
15	671.02	644.11	588.49	497.33	389.4	306.39	274.14	211.59	120.22	82.81	58.38	46.6	44.5	46.6	58.38	82.81	120.22	211.59	274.14	306.39	389.4	497.33	588.49	644.11	671.02
16	714.98	686.05	626.94	526.12	407.15	310.94	276.01	209.98	117.87	78.82	53.77	42.42	40.36	42.42	53.77	78.82	117.87	209.98	276.01	310.94	407.15	526.12	626.94	686.05	714.98
17	760.75	729.1	660.48	555.95	426.01	316.1	277.93	208.74	116.07	75.22	50.11	38.8	36.83	38.8	50.11	75.22	116.07	208.74	277.93	316.1	426.01	555.95	660.48	729.1	760.75
18	806.73	773.26	698.82	586.39	445.58	321.88	280.16	207.92	114.58	72.02	46.97	35.72	33.74	35.72	46.97	72.02	114.58	207.92	280.16	321.88	445.58	586.39	698.82	773.26	806.73
19	854.8	818.36	737.8	617.27	465.86	328.64	282.64	207.73	113.32	69.25	44.27	32.99	30.97	32.99	44.27	69.25	113.32	207.73	282.64	328.64	465.86	617.27	737.8	818.36	854.8
20	903.42	865.49	777.96	648.7	486.75	336.13	285.42	207.83	112.26	66.86	41.95	30.58	28.57	30.58	41.95	66.86	112.26	207.83	285.42	336.13	486.75	648.7	777.96	865.49	903.42
21	954.04	912.92	819.05	680.12	507.9	344.19	288.38	208.41	111.34	64.87	39.96	28.45	26.4	28.45	39.96	64.87	111.34	208.41	288.38	344.19	507.9	680.12	819.05	912.92	954.04
22	1005.24	961.58	860.5	712.05	529.46	352.85	291.67	209.33	110.53	63.39	38.23	26.56	24.46	26.56	38.23	63.39	110.53	209.33	291.67	352.85	529.46	712.05	860.5	961.58	1005.24
23	1058.19	1011.27	902.96	743.91	551.15	362.33	295.38	210.47	109.87	62.1	36.75	24.87	22.71	24.87	36.75	62.1	109.87	210.47	295.38	362.33	551.15	743.91	902.96	1011.27	1058.19
24	1111.35	1061.47	944.66	776.57	572.77	371.98	299.45	212.03	109.35	61.05	35.49	23.38	21.15	23.38	35.49	61.05	109.35	212.03	299.45	371.98	572.77	776.57	944.66	1061.47	1111.35
25	1166.82	1112.44	987.64	809.38	594.71	382.26	304.09	213.71	108.97	60.23	34.38	22.02	19.73	22.02	34.38	60.23	108.97	213.71	304.09	382.26	594.71	809.38	987.64	1112.44	1166.82
26	1221.17	1163.91	1030.76	842.4	617.08	393	309.21	215.78	108.74	59.63	33.42	20.8	18.45	20.8	33.42	59.63	108.74	215.78	309.21	393	617.08	842.4	1030.76	1163.91	1221.17
27	1275.85	1214.83	1073.05	874.68	639.22	404.01	314.91	218.03	108.69	59.16	32.59	19.71	17.3	19.71	32.59	59.16	108.69	218.03	314.91	404.01	639.22	874.68	1073.05	1214.83	1275.85
28	1323.49	1265.24	1114.92	906.39	660.78	415.27	321.3	220.38	108.82	58.81	31.88	18.72	16.23	18.72	31.88	58.81	108.82	220.38	321.3	415.27	660.78	906.39	1114.92	1265.24	1323.49
29	1371.06	1311.88	1155.19	937.99	682.92	426.61	328.1	222.93	109.09	58.54	31.25	17.85	15.25	17.85	31.25	58.54	109.09	222.93	328.1	426.61	682.92	937.99	1155.19	1311.88	1371.06
30	1418.8	1354.7	1193.56	969.1	704.39	438.23	335.15	225.52	109.47	58.34	30.69	17.03	14.36	17.03	30.69	58.34	109.47	225.52	335.15	438.23	704.39	969.1	1193.56	1354.7	1418.8
31	1463.99	1395.76	1228.72	998.77	725.29	449.81	342.74	227.81	109.95	58.22	30.2	16.29	13.58	16.29	30.2	58.22	109.95	227.81	342.74	449.81	725.29	998.77	1228.72	1395.76	1463.99
32	1504.28	1433.45	1261.32	1026.33	745.53	461.39	350.51	230.1	110.46	58.13	29.75	15.61	12.8	15.61	29.75	58.13	110.46	230.1	350.51	461.39	745.53	1026.33	1261.32	1433.45	1504.28
33	1539.59	1466.86	1290.3	1052.31	765.22	473	358.59	232.23	110.94	58.09	29.33	14.98	12.06	14.98	29.33	58.09	110.94	232.23	358.59	473	765.22	1052.31	1290.3	1466.86	1539.59
34	1567.31	1493.26	1314.78	1075.4	783.83	484.21	366.62	234.05	111.35	58.13	28.94	14.38	11.38	14.38	28.94	58.13	111.35	234.05	366.62	484.21	783.83	1075.4	1314.78	1493.26	1567.31
35	1589.13	1513.56	1330.33	1096.42	801.1	495.5	374.6	235.63	111.78	58.2	28.57	13.82	10.75	13.82	28.57	58.2	111.78	235.63	374.6	495.5	801.1	1096.42	1330.33	1513.56	1589.13
36	1604.56	1528.49	1343.3	1114.84	817.31	506.43	382.45	236.87	112.19	58.36	28.22	13.3	10.14	13.3	28.22	58.36	112.19	236.87	382.45	506.43	817.31	1114.84	1343.3	1528.49	1604.56
37	1614.03	1537.96	1352.72	1129.59	832.1	516.86	390.05	237.81	112.55	58.56	27.87	12.8	9.55	12.8	27.87	58.56	112.55	237.81	390.05	516.86	832.1	1129.59	1352.72	1537.96	1614.03
38	1617.7	1542.19	1357.29	1141.01	845.03	526.81	397.25	238.46	112.96	58.79	27.51	12.31	8.99	12.31	27.51	58.79	112.96	238.46	397.25	526.81	845.03	1141.01	1357.29	1542.19	1617.7
39	1616.26	1541.68	1357.85	1148.27	856.34	536.45	404.07	238.52	113.42	59.01	27.14	11.83	8.44	11.83	27.14	59.01	113.42	238.52	404.07	536.45	856.34	1148.27	1357.85	1541.68	1616.26
40	1609.04	1536.34	1354.54	1151.58	866.28	545.3	410.62	238.13	113.94	59.21	26.75	11.36	7.92	11.36	26.75	59.21	113.94	238.13	410.62	545.3	866.28	1151.58	1354.54	1536.34	1609.04
41	1597.31	1526.67	1348.17	1151.44	874.25	553.56	416.23	237.17	114.52	59.37	26.36	10.91	7.39	10.91	26.36	59.37	114.52	237.17	416.23	553.56	874.25	1151.44	1348.17	1526.67	1597.31
42	1579.61	1512.24	1337.47	1147.84	880.85	560.76	421.06	235.59	115.2	59.															

50	1323.81	1292.83	1167.1	1025.5	861.22	580.58	437.85	207.44	118.39	57.94	21.12	6.6	2.89	6.6	21.12	57.94	118.39	207.44	437.85	580.58	861.22	1025.5	1167.1	1292.83	1323.81
51	1285.09	1259.45	1138.35	1001.93	849.84	577.85	436.63	203.09	118.13	57.32	20.44	6.24	2.5	6.24	20.44	57.32	118.13	203.09	436.63	577.85	849.84	1001.93	1138.35	1259.45	1285.09
52	1246.03	1223.7	1109.4	977.12	835.65	573.92	435.19	198.59	117.61	56.53	19.76	5.84	2.15	5.84	19.76	56.53	117.61	198.59	435.19	573.92	835.65	977.12	1109.4	1223.7	1246.03
53	1205.76	1186.92	1079.56	952.52	820.06	569.21	433.24	194.2	116.92	55.68	19.08	5.48	1.89	5.48	19.08	55.68	116.92	194.2	433.24	569.21	820.06	952.52	1079.56	1186.92	1205.76
54	1164.15	1148.94	1049.43	927.2	802.53	563.36	430.53	189.8	116	54.65	18.43	5.21	1.68	5.21	18.43	54.65	116	189.8	430.53	563.36	802.53	927.2	1049.43	1148.94	1164.15
55	1121.09	1108.73	1017.62	901.53	783.2	556.57	427.02	185.34	114.95	53.53	17.77	4.97	1.48	4.97	17.77	53.53	114.95	185.34	427.02	556.57	783.2	901.53	1017.62	1108.73	1121.09
56	1074.89	1067.01	984.15	875.42	763.16	549.25	422.55	180.88	113.86	52.3	17.17	4.73	1.31	4.73	17.17	52.3	113.86	180.88	422.55	549.25	763.16	875.42	984.15	1067.01	1074.89
57	1028.18	1023.82	949.57	848.78	741.97	541.39	417.24	176.35	112.51	51	16.59	4.54	1.17	4.54	16.59	51	112.51	176.35	417.24	541.39	741.97	848.78	949.57	1023.82	1028.18
58	980.95	979.59	913.53	821.2	720.33	532.59	411.38	171.86	111.02	49.64	16.01	4.36	1.05	4.36	16.01	49.64	111.02	171.86	411.38	532.59	720.33	821.2	913.53	979.59	980.95
59	933.01	934.73	876.46	793.2	698.12	522.99	404.92	167.46	109.19	48.19	15.46	4.22	0.93	4.22	15.46	48.19	109.19	167.46	404.92	522.99	698.12	793.2	876.46	934.73	933.01
60	886.03	890.79	839	764.1	674.71	512.77	397.47	163.12	107.24	46.69	14.94	3.9	0.18	3.9	14.94	46.69	107.24	163.12	397.47	512.77	674.71	764.1	839	890.79	886.03
61	838.17	845.61	801.43	734.29	651.17	501.44	389.11	158.68	105.1	45.17	14.44	3.24	0.08	3.24	14.44	45.17	105.1	158.68	389.11	501.44	651.17	734.29	801.43	845.61	838.17
62	790.39	800.39	763.55	704.03	627.1	488.81	380.26	154.65	102.82	43.61	13.88	3.15	0.08	3.15	13.88	43.61	102.82	154.65	380.26	488.81	627.1	704.03	763.55	800.39	790.39
63	741.26	754.56	725.18	673	602.36	475.34	371.1	150.39	100.04	42.05	12.91	3.07	0.08	3.07	12.91	42.05	100.04	150.39	371.1	475.34	602.36	673	725.18	754.56	741.26
64	689.97	706.42	685.72	642.3	577.57	460.79	361.46	146.04	96.82	40.49	12.46	2.99	0.08	2.99	12.46	40.49	96.82	146.04	361.46	460.79	577.57	642.3	685.72	706.42	689.97
65	637.2	657.11	645.09	610.57	552.53	444.78	350.93	141.58	93.29	38.95	12.03	2.91	0.08	2.91	12.03	38.95	93.29	141.58	350.93	444.78	552.53	610.57	645.09	657.11	637.2
66	585.29	606.79	603.79	578.14	526.99	427.45	339.84	137.01	89.53	37.15	11.59	2.84	0.09	2.84	11.59	37.15	89.53	137.01	339.84	427.45	526.99	578.14	603.79	606.79	585.29
67	533.37	556.16	562.11	545.79	501.65	409.46	328.09	132.72	85.77	35.42	11.19	2.76	0.08	2.76	11.19	35.42	85.77	132.72	328.09	409.46	501.65	545.79	562.11	556.16	533.37
68	482.22	505.86	518.39	511.97	475.18	390.46	315.72	128.42	81.96	33.95	10.79	2.69	0.08	2.69	10.79	33.95	81.96	128.42	315.72	390.46	475.18	511.97	518.39	505.86	482.22
69	434.2	458.93	476.45	478.41	448.8	371.26	303.18	124.03	78.27	32.53	10.4	2.61	0.08	2.61	10.4	32.53	78.27	124.03	303.18	371.26	448.8	478.41	476.45	458.93	434.2
70	392.17	415.48	436.12	444.67	422.16	351.63	289.83	119.32	74.52	31.1	10.02	2.54	0.08	2.54	10.02	31.1	74.52	119.32	289.83	351.63	422.16	444.67	436.12	415.48	392.17
71	355.21	377.24	399.3	412.02	395.17	331.94	275.72	114.96	70.68	29.73	9.63	2.46	0.08	2.46	9.63	29.73	70.68	114.96	275.72	331.94	395.17	412.02	399.3	377.24	355.21
72	324.54	344.52	366.13	381.02	368.63	311.39	261.9	110.6	66.85	28.4	9.27	2.38	0.08	2.38	9.27	28.4	66.85	110.6	261.9	311.39	368.63	381.02	366.13	344.52	324.54
73	298.73	316.25	336.9	352.14	342.89	291.39	247.63	105.99	63.63	27.07	8.9	2.31	0.08	2.31	8.9	27.07	63.63	105.99	247.63	291.39	342.89	352.14	336.9	316.25	298.73
74	277.09	292.33	311.5	325.81	318.29	271.55	233.1	101.26	60.52	25.78	8.55	2.23	0.08	2.23	8.55	25.78	60.52	101.26	233.1	271.55	318.29	325.81	311.5	292.33	277.09
75	258.15	271.54	289.18	302.03	295.31	252.34	218.3	96.12	57.48	24.51	8.2	2.16	0.08	2.16	8.2	24.51	57.48	96.12	218.3	252.34	295.31	302.03	289.18	271.54	258.15
76	242.02	253.71	269.66	280.61	274.24	233.55	203.84	90.68	54.62	23.28	7.86	2.09	0.08	2.09	7.86	23.28	54.62	90.68	203.84	233.55	274.24	280.61	269.66	253.71	242.02
77	227.71	237.76	252.32	261.68	254.83	215.4	189.04	84.82	51.84	22.08	7.53	2.02	0.08	2.02	7.53	22.08	51.84	84.82	189.04	215.4	254.83	261.68	252.32	237.76	227.71
78	214.72	223.57	236.91	244.54	237.2	197.99	174.42	78.72	49.19	20.9	7.22	1.95	0.08	1.95	7.22	20.9	49.19	78.72	174.42	197.99	237.2	244.54	236.91	223.57	214.72
79	202.92	210.76	222.98	229.34	221.02	181.34	160.25	72.78	46.6	19.76	6.91	1.88	0.08	1.88	6.91	19.76	46.6	72.78	160.25	181.34	221.02	229.34	222.98	210.76	202.92
80	191.9	198.87	210.15	215.22	205.82	165.54	145.62	67.2	44.04	18.65	6.6	1.81	0.09	1.81	6.6	18.65	44.04	67.2	145.62	165.54	205.82	215.22	210.15	198.87	191.9
81	181.7	187.93	198.38	202.52	191.83	150.81	131.36	62.24	41.61	17.57	6.31	1.75	0.09	1.75	6.31	17.57	41.61	62.24	131.36	150.81	191.83	202.52	198.38	187.93	181.7
82	172.23	177.8	187.59	191	179.05	136.98	117.56	57.52	39.15	16.53	6.02	1.69	0.09	1.69	6.02	16.53	39.15	57.52	117.56	136.98	179.05	191	187.59	177.8	172.23
83	163.3	168.43	177.5	180.26	167.6	124.43	104.54	53.2	36.81	15.54	5.75	1.63	0.09	1.63	5.75	15.54	36.81	53.2	104.54	124.43	167.6	180.26	177.5	168.43	163.3
84	155.01	159.6	168.09	170.23	157.08	113.15	92.35	49.42	34.58	14.61	5.48	1.57	0.1	1.57	5.48	14.61	34.58	49.42	92.35	113.15	157.08	170.23	168.09	159.6	155.01
85	147.04	151.39	159.14	160.87	147.58	102.83	81.26	46.01	32.32	13.73	5.23	1.52	0.1	1.52	5.23	13.73	32.32	46.01	81.26	102.83	147.58	160.87	159.14	151.39	147.04
86	139.77	143.53	150.96	152.05	138.64	93.77	70.73	42.89	30.3	12.92	4.99	1.47	0.11	1.47	4.99	12.92	30.3	42.89	70.73	93.77	138.64	152.05	150.96	143.53	139.77
87	132.75	136.04	143.01	143.65	130.29	85.74	61.26	39.94	28.36	12.13	4.75	1.42	0.11	1.42	4.75	12.13	28.36	39.94	61.26	85.74	130.29	143.65	143.01	136.04	132.75
88	126.16	129.21	135.54	135.81	122.68	78.86	51.75	37.14	26.52	11.39	4.54	1.37	0.12	1.37	4.54	11.39	26.52	37.14	51.75	78.86	122.68	135.81	135.54	129.21	126.16
89	120.09	122.86	128.64	128.55	115.62	72.94	43.23	34.5	24.84	10.71	4.33	1.33	0.13	1.33	4.33	10.71	24.84	34.5	43.23	72.94	115.62	128.55	128.64	120.09	
90	114.37	116.85	122.24	121.66	108.93	68.15	36.16	31.97	23.26	10.09	4.13	1.29	0.14	1.29	4.13	10.09	23.26	31.97	36.16	68.15	108.93	121.66	122.24	116.85	114.37
91	108.98	111.29	116.15	115.16	102.74	63.54	30.12	29.64	21.82	9.52	3.95	1.25	0.15	1.25	3.95	9.52	29.64	30.12	63.54	102.74	115.16	116.15	111.29	108.98	
92	103.97	106.04	110.49	109.15	96.92	59.39	25.25	27.44	20.47	8.98	3.77	1.22	0.16	1.22	3.77	8.98	20.47	25.25	59.39	96.92	109.15	110.49	106.04	103.97	
93	99.34	101.16	105.21	103.43	91.44	55.73	21.47	25.46	19.23	8.49	3.61	1.19	0.17	1.19	3.61	8.49	19.23	25.46	21.47	55.73	91.44	103.43	105.21	101.16	99.34
94	94.95	96.57	100.25	98.14	86.28	52.38	18.68	23.61	18.08	8.03	3.46	1.16	0.19	1.16	3.46	8.03	18.08	23.61	18.68	52.38	98.14	100.25	96.57	94.95	
95	90.81	92.32	95.62</																						

104	63.96	63.87	64.94	60.97	51.06	29.63	9.16	12.46	10.31	5.07	2.49	1.08	0.52	1.08	2.49	5.07	10.31	12.46	9.16	29.63	51.06	60.97	64.94	63.87	63.96
105	61.29	61.62	62.48	58.4	48.67	28.13	8.77	11.8	9.81	4.87	2.42	1.08	0.55	1.08	2.42	4.87	9.81	11.8	8.77	28.13	48.67	58.4	62.48	61.62	61.29
106	58.86	59.39	60.04	55.95	46.38	26.69	8.41	11.19	9.32	4.69	2.36	1.08	0.58	1.08	2.36	4.69	9.32	11.19	8.41	26.69	46.38	55.95	60.04	59.39	58.86
107	56.71	57.22	57.76	53.68	44.17	25.34	8.09	10.62	8.87	4.52	2.31	1.08	0.6	1.08	2.31	4.52	8.87	10.62	8.09	25.34	44.17	53.68	57.76	57.22	56.71
108	54.64	55.09	55.6	51.47	42.04	24.09	7.79	10.1	8.46	4.36	2.26	1.08	0.63	1.08	2.26	4.36	8.46	10.1	7.79	24.09	42.04	51.47	55.6	55.09	54.64
109	52.63	53.05	53.5	49.35	40.06	22.9	7.52	9.61	8.07	4.22	2.22	1.08	0.66	1.08	2.22	4.22	8.07	9.61	7.52	22.9	40.06	49.35	53.5	53.05	52.63
110	50.65	51.07	51.45	47.33	38.17	21.79	7.26	9.15	7.71	4.08	2.17	1.09	0.69	1.09	2.17	4.08	7.71	9.15	7.26	21.79	38.17	47.33	51.45	51.07	50.65
111	48.68	49.13	49.48	45.38	36.39	20.75	7.03	8.73	7.38	3.95	2.13	1.09	0.71	1.09	2.13	3.95	7.38	8.73	7.03	20.75	36.39	45.38	49.48	49.13	48.68
112	46.76	47.21	47.56	43.53	34.76	19.77	6.82	8.34	7.07	3.83	2.1	1.1	0.74	1.1	2.1	3.83	7.07	8.34	6.82	19.77	34.76	43.53	47.56	47.21	46.76
113	44.84	45.34	45.73	41.79	33.22	18.86	6.62	7.97	6.77	3.72	2.06	1.1	0.76	1.1	2.06	3.72	6.77	7.97	6.62	18.86	33.22	41.79	45.73	45.34	44.84
114	42.97	43.54	44	40.16	31.78	17.98	6.42	7.63	6.49	3.61	2.03	1.1	0.77	1.1	2.03	3.61	6.49	7.63	6.42	17.98	31.78	40.16	44	43.54	42.97
115	41.26	41.86	42.34	38.65	30.45	17.17	6.24	7.31	6.22	3.51	2	1.1	0.78	1.1	2	3.51	6.22	7.31	6.24	17.17	30.45	38.65	42.34	41.86	41.26
116	39.64	40.29	40.81	37.22	29.17	16.4	6.06	7.01	5.97	3.41	1.97	1.1	0.8	1.1	1.97	3.41	5.97	7.01	6.06	16.4	29.17	37.22	40.81	40.29	39.64
117	38.13	38.84	39.39	35.89	28	15.68	5.9	6.74	5.74	3.33	1.94	1.11	0.82	1.11	1.94	3.33	5.74	6.74	5.9	15.68	28	35.89	39.39	38.84	38.13
118	36.77	37.51	38.06	34.65	26.9	15.02	5.74	6.48	5.51	3.25	1.92	1.12	0.84	1.12	1.92	3.25	5.51	6.48	5.74	15.02	26.9	34.65	38.06	37.51	36.77
119	35.56	36.3	36.83	33.46	25.86	14.39	5.58	6.23	5.31	3.17	1.9	1.12	0.86	1.12	1.9	3.17	5.31	6.23	5.58	14.39	25.86	33.46	36.83	36.3	35.56
120	34.44	35.17	35.66	32.35	24.88	13.79	5.43	5.99	5.11	3.1	1.88	1.13	0.89	1.13	1.88	3.1	5.11	5.99	5.43	13.79	24.88	32.35	35.66	35.17	34.44
121	33.41	34.14	34.57	31.27	23.95	13.23	5.29	5.77	4.93	3.04	1.87	1.14	0.91	1.14	1.87	3.04	4.93	5.77	5.29	13.23	23.95	31.27	34.57	34.14	33.41
122	32.44	33.17	33.53	30.26	23.07	12.71	5.15	5.57	4.76	2.98	1.85	1.15	0.94	1.15	1.85	2.98	4.76	5.57	5.15	12.71	23.07	30.26	33.53	33.17	32.44
123	31.53	32.25	32.55	29.29	22.24	12.21	5.01	5.37	4.6	2.92	1.84	1.16	0.96	1.16	1.84	2.92	4.6	5.37	5.01	12.21	22.24	29.29	32.55	32.25	31.53
124	30.7	31.38	31.62	28.37	21.45	11.72	4.88	5.18	4.44	2.86	1.83	1.17	0.98	1.17	1.83	2.86	4.44	5.18	4.88	11.72	21.45	28.37	31.62	31.38	30.7
125	29.91	30.57	30.72	27.48	20.7	11.26	4.75	5	4.3	2.81	1.81	1.17	1	1.17	1.81	2.81	4.3	5	4.75	11.26	20.7	27.48	30.72	30.57	29.91
126	29.17	29.8	29.86	26.64	19.99	10.82	4.62	4.84	4.16	2.75	1.8	1.18	1.02	1.18	1.8	2.75	4.16	4.84	4.62	10.82	19.99	26.64	29.86	29.8	29.17
127	28.46	29.07	29.04	25.82	19.29	10.4	4.5	4.67	4.03	2.7	1.79	1.18	1.03	1.18	1.79	2.7	4.03	4.67	4.5	10.4	19.29	25.82	29.04	29.07	28.46
128	27.81	28.37	28.25	25.05	18.63	9.99	4.37	4.52	3.9	2.65	1.77	1.18	1.04	1.18	1.77	2.65	3.9	4.52	4.37	9.99	18.63	25.05	28.25	28.37	27.81
129	27.18	27.69	27.48	24.3	18	9.61	4.25	4.37	3.78	2.6	1.76	1.18	1.05	1.18	1.76	2.6	3.78	4.37	4.25	9.61	18	24.3	27.48	27.69	27.18
130	26.59	27.05	26.74	23.57	17.39	9.24	4.13	4.22	3.66	2.56	1.74	1.19	1.06	1.19	1.74	2.56	3.66	4.22	4.13	9.24	17.39	23.57	26.74	27.05	26.59
131	26.02	26.43	26.04	22.88	16.8	8.89	4.01	4.09	3.56	2.52	1.73	1.19	1.07	1.19	1.73	2.52	3.56	4.09	4.01	8.89	16.8	22.88	26.04	26.43	26.02
132	25.48	25.83	25.34	22.2	16.24	8.55	3.89	3.95	3.46	2.48	1.72	1.19	1.09	1.19	1.72	2.48	3.46	3.95	3.89	8.55	16.24	22.2	25.34	25.83	25.48
133	24.95	25.26	24.68	21.54	15.69	8.22	3.78	3.83	3.36	2.44	1.7	1.19	1.1	1.19	1.7	2.44	3.36	3.83	3.78	8.22	15.69	21.54	24.68	25.26	24.95
134	24.46	24.7	24.03	20.9	15.16	7.9	3.67	3.7	3.26	2.4	1.69	1.19	1.11	1.19	1.69	2.4	3.26	3.7	3.67	7.9	15.16	20.9	24.03	24.7	24.46
135	23.98	24.17	23.39	20.27	14.65	7.61	3.56	3.59	3.17	2.36	1.67	1.19	1.12	1.19	1.67	2.36	3.17	3.59	3.56	7.61	14.65	20.27	23.39	24.17	23.98
136	23.5	23.65	22.78	19.66	14.15	7.32	3.45	3.47	3.08	2.32	1.66	1.19	1.13	1.19	1.66	2.32	3.08	3.47	3.45	7.32	14.15	19.66	22.78	23.65	23.5
137	23.05	23.13	22.18	19.07	13.66	7.04	3.35	3.36	3	2.28	1.64	1.19	1.15	1.19	1.64	2.28	3	3.36	3.35	7.04	13.66	19.07	22.18	23.13	23.05
138	22.6	22.62	21.58	18.48	13.18	6.76	3.25	3.25	2.91	2.24	1.62	1.18	1.15	1.18	1.62	2.24	2.91	3.25	3.25	6.76	13.18	18.48	21.58	22.62	22.6
139	22.16	22.11	21	17.9	12.71	6.48	3.15	3.15	2.83	2.2	1.61	1.18	1.16	1.18	1.61	2.2	2.83	3.15	3.15	6.48	12.71	17.9	21	22.11	22.16
140	21.71	21.62	20.43	17.33	12.24	6.22	3.06	3.04	2.74	2.15	1.58	1.17	1.16	1.17	1.58	2.15	2.74	3.04	3.06	6.22	12.24	17.33	20.43	21.62	21.71
141	21.28	21.13	19.87	16.77	11.79	5.96	2.97	2.94	2.65	2.1	1.56	1.15	1.15	1.15	1.56	2.1	2.65	2.94	2.97	5.96	11.79	16.77	19.87	21.13	21.28
142	20.82	20.62	19.3	16.2	11.34	5.69	2.88	2.84	2.57	2.05	1.53	1.14	1.15	1.14	1.53	2.05	2.57	2.84	2.88	5.69	11.34	16.2	19.3	20.62	20.82
143	20.36	20.12	18.74	15.65	10.88	5.42	2.79	2.75	2.49	2	1.5	1.13	1.14	1.13	1.5	2	2.49	2.75	2.79	5.42	10.88	15.65	18.74	20.12	20.36
144	19.91	19.61	18.18	15.1	10.44	5.15	2.7	2.65	2.41	1.95	1.47	1.11	1.12	1.11	1.47	1.95	2.41	2.65	2.7	5.15	10.44	15.1	18.18	19.61	19.91
145	19.43	19.1	17.61	14.55	9.99	4.89	2.62	2.56	2.32	1.89	1.43	1.09	1.11	1.09	1.43	1.89	2.32	2.56	2.62	4.89	9.99	14.55	17.61	19.1	19.43
146	18.94	18.57	17.04	14	9.53	4.64	2.53	2.46	2.24	1.83	1.39	1.07	1.09	1.07	1.39	1.83	2.24	2.46	2.53	4.64	9.53	14	17.04	18.57	18.94
147	18.43	18.04	16.48	13.46	9.08	4.4	2.44	2.37	2.15	1.77	1.35	1.04	1.07	1.04	1.35	1.77	2.15	2.37	2.44	4.4	9.08	13.46	16.48	18.04	18.43
148	17.91	17.49	15.9	12.91	8.63	4.16	2.35	2.28	2.07	1.71	1.31	1.02	1.04	1.02	1.31	1.71	2.07	2.28	2.35	4.16	8.63	12.91	15.9	17.49	17.91
149	17.37	16.92	15.3	12.36	8.18	3.93	2.27	2.2	1.99	1.65	1.27	0.99	1.02	0.99	1.27	1.65	1.99	2.2	2.27	3.93	8.18	12.36	15.3	16.92	17.37
150	16.81	16.34	14.72	11.78	7.74	3.7	2.19	2.11	1.91	1.59	1.23	0.97	1	0.97	1.23	1.59	1.91	2.11	2.19	3.7	7.74	11.78	14.72	16.34	16.81
151	16.23	15.74	14.12	11.17	7.29	3.48	2.12	2.03	1.84	1.54	1.2	0.96	0.99	0.96	1.2	1.54	1.84	2.03	2.12	3.48	7.29	11.17	14.12	15.74	16.23
152	15.64	15.13	13.5	10.56	6.84	3.26	2.04	1.96	1.77	1.48	1.16	0.94	0.98	0.94	1.16	1.48	1.77	1.96	2.04	3.26	6.84	10.56	13.5	15.13	15.64
153	15.01	14.51	12.88	9.97	6.36	3.04	1.97	1.88	1.7	1.43	1.13	0.92	0.96	0.92	1.1										

158	11.69	11.16	9.32	6.95	4.05	2.08	1.61	1.52	1.36	1.16	0.94	0.81	0.83	0.81	0.94	1.16	1.36	1.52	1.61	2.08	4.05	6.95	9.32	11.16	11.69
159	10.99	10.43	8.66	6.21	3.64	1.92	1.54	1.45	1.3	1.1	0.9	0.79	0.81	0.79	0.9	1.1	1.3	1.45	1.54	1.92	3.64	6.21	8.66	10.43	10.99
160	10.28	9.4	7.95	5.43	3.26	1.77	1.47	1.38	1.24	1.06	0.87	0.77	0.79	0.77	0.87	1.06	1.24	1.38	1.47	1.77	3.26	5.43	7.95	9.4	10.28
161	9.54	8.42	7.19	4.7	2.9	1.64	1.4	1.32	1.18	1.01	0.84	0.76	0.77	0.76	0.84	1.01	1.18	1.32	1.4	1.64	2.9	4.7	7.19	8.42	9.54
162	8.81	7.64	6.36	4.03	2.57	1.52	1.34	1.25	1.13	0.97	0.82	0.75	0.75	0.75	0.82	0.97	1.13	1.25	1.34	1.52	2.57	4.03	6.36	7.64	8.81
163	8.09	6.91	5.35	3.46	2.28	1.41	1.27	1.19	1.07	0.93	0.79	0.74	0.74	0.74	0.79	0.93	1.07	1.19	1.27	1.41	2.28	3.46	5.35	6.91	8.09
164	7.3	5.98	4.42	3	2.01	1.32	1.21	1.13	1.02	0.9	0.77	0.73	0.73	0.73	0.77	0.9	1.02	1.13	1.21	1.32	2.01	3	4.42	5.98	7.3
165	6.13	4.83	3.55	2.6	1.78	1.24	1.15	1.08	0.98	0.86	0.75	0.72	0.72	0.72	0.75	0.86	0.98	1.08	1.15	1.24	1.78	2.6	3.55	4.83	6.13
166	4.95	3.82	2.88	2.24	1.57	1.16	1.09	1.03	0.94	0.83	0.74	0.71	0.71	0.71	0.74	0.83	0.94	1.03	1.09	1.16	1.57	2.24	2.88	3.82	4.95
167	3.81	3.01	2.38	1.94	1.4	1.09	1.03	0.98	0.9	0.81	0.72	0.71	0.7	0.71	0.72	0.81	0.9	0.98	1.03	1.09	1.4	1.94	2.38	3.01	3.81
168	2.97	2.4	2	1.67	1.24	1.02	0.98	0.93	0.86	0.78	0.71	0.7	0.7	0.7	0.71	0.78	0.86	0.93	0.98	1.02	1.24	1.67	2	2.4	2.97
169	2.33	1.93	1.71	1.43	1.11	0.95	0.93	0.89	0.83	0.76	0.7	0.7	0.7	0.7	0.7	0.76	0.83	0.89	0.93	0.95	1.11	1.43	1.71	1.93	2.33
170	1.86	1.63	1.43	1.22	1	0.9	0.88	0.85	0.8	0.75	0.7	0.7	0.7	0.7	0.7	0.75	0.8	0.85	0.88	0.9	1	1.22	1.43	1.63	1.86
171	1.6	1.36	1.2	1.05	0.91	0.85	0.84	0.82	0.78	0.73	0.69	0.7	0.7	0.7	0.69	0.73	0.78	0.82	0.84	0.85	0.91	1.05	1.2	1.36	1.6
172	1.35	1.07	1	0.92	0.83	0.8	0.8	0.78	0.75	0.72	0.68	0.7	0.7	0.7	0.68	0.72	0.75	0.78	0.8	0.8	0.83	0.92	1	1.07	1.35
173	1.03	0.86	0.85	0.82	0.77	0.76	0.77	0.76	0.73	0.7	0.68	0.7	0.69	0.7	0.68	0.7	0.73	0.76	0.77	0.76	0.77	0.82	0.85	0.86	1.03
174	0.57	0.75	0.76	0.75	0.72	0.73	0.74	0.73	0.71	0.69	0.67	0.7	0.69	0.7	0.67	0.69	0.71	0.73	0.74	0.73	0.72	0.75	0.76	0.75	0.57
175	0.55	0.68	0.7	0.69	0.69	0.7	0.71	0.71	0.7	0.68	0.67	0.69	0.68	0.69	0.67	0.68	0.7	0.71	0.71	0.7	0.69	0.69	0.7	0.68	0.55
176	0.56	0.62	0.65	0.65	0.67	0.68	0.69	0.69	0.68	0.67	0.66	0.69	0.67	0.69	0.66	0.67	0.68	0.69	0.69	0.68	0.67	0.65	0.65	0.62	0.56
177	0.57	0.61	0.62	0.64	0.65	0.66	0.67	0.67	0.67	0.66	0.65	0.68	0.65	0.68	0.65	0.66	0.67	0.67	0.67	0.66	0.65	0.64	0.62	0.61	0.57
178	0.58	0.62	0.62	0.64	0.65	0.66	0.66	0.66	0.66	0.65	0.64	0.66	0.64	0.66	0.64	0.65	0.66	0.66	0.66	0.66	0.65	0.64	0.62	0.62	0.58
179	0.59	0.62	0.63	0.64	0.65	0.66	0.66	0.66	0.65	0.64	0.63	0.65	0.63	0.65	0.63	0.64	0.65	0.66	0.66	0.66	0.65	0.64	0.63	0.62	0.59
180	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	WPT @ 15W/5000K	Sample ID.	C1
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
120.05	60	0.119	14.1	0.987	14.06%
277.04	60	0.061	15.6	0.925	15.51%

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*****