

Photometric Test Report

Relevant Standards

- ☒ IES LM-79-2019
- ☒ ANSI C82.77-10:2014

Prepared For

RAB Lighting Inc.

408 W 14th St, New York, NY 10014 United States

Xiao Xiang,15921313292,Gary.Xiao@rablighting.com

Prepared By

Deliver Co., Ltd.

Block 11, 78 Keling Road, SSTP, Suzhou, China

0512-66801950,kevin.jia@szdeliver.com

Project Number

DLF2503101

Report Number

DLF2503101-4a

Test Date

2025/3/5

Issue Date

2025/3/5

Test By

Hengshan Li

Hengshan Li

Prepared By

Wangzun Zhu

Wangzun Zhu

Approved By

Kevin Jia

Kevin Jia

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

This report shall not be reproduced, except in full, without written approval of Deliver Co.,Ltd.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP.

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-79-2019	300		1329
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2019	Standard 105	Premium 120	125.4
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2019	300		826
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2019	Standard 105	Premium 120	77.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		10.6
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77-10:2014	20.00%	120V	4.62%
		20.00%	277V	16.06%
Power Factor (THD & PF - section 4.3)	ANSI C82.77-10:2014	0.9	120V	0.996
		0.9	277V	0.914
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2019	7 step	3045±175	3032
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2019 CIE 13.3-1995	≥70		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2019 CIE 13.3-1995	-		13
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		85
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		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-79-2019	≤10%		18.51%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		0.042
(Goniophotometer - Section 4.2)		Non-Worst Case		0.085
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2019	Worst Case		10.6
(Goniophotometer - Section 4.2)		Non-Worst Case		10.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025/3/5	ET @ 11W/3000K	N/A	DLF2503101-D1
2	Goniophotometer Test	2025/3/5	ET @ 11W/3000K	N/A	DLF2503101-D1
3	THD and PF Test	2025/3/5	ET @ 11W/3000K	N/A	DLF2503101-D1

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: ET @ 11W/3000K

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

Received Date: 2025/3/4

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	ET @ 11W/3000K	Sample ID.	DLF2503101-D1
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-79-2019.

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature and relative humidity condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ and 10% - 65% RH.

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
119.97	60	0.085	10.2	0.996
276.99	60	0.042	10.7	0.914

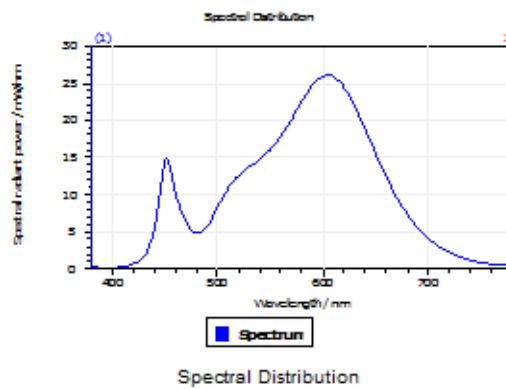
Test Result

CCT (K)	CRI	R9	Duv
3032	84	13	-0.000068

Rf	Rg	IES Rcs,h1
85	96	-11%

4.1 Integrating Sphere Test

Results



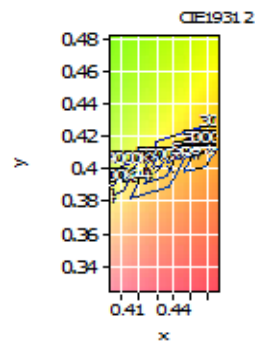
Spectral values

DominantWavelength 582.71 nm
Purity 0.514
PeakWavelength 604.53 nm
Radiant Power 3.934 W
Width50%:

Color Coordinates

Correlated Color Temperat 3032 K
x: 0.4346 u: 0.2495 u': 0.2495
y: 0.4031 v: 0.3471 v': 0.5206

CRI01	82.8	CRI09	13.1
CRI02	91.3	CRI10	79.8
CRI03	97.0	CRI11	82.5
CRI04	82.7	CRI12	69.9
CRI05	82.7	CRI13	84.8
CRI06	89.2	CRI14	98.9
CRI07	84.5	CRI15	75.7
CRI08	62.3	CRI16	73.4
ResultsCRI	84.1		



PlanckDistance 6.8E-005

4.1 Integrating Sphere Test

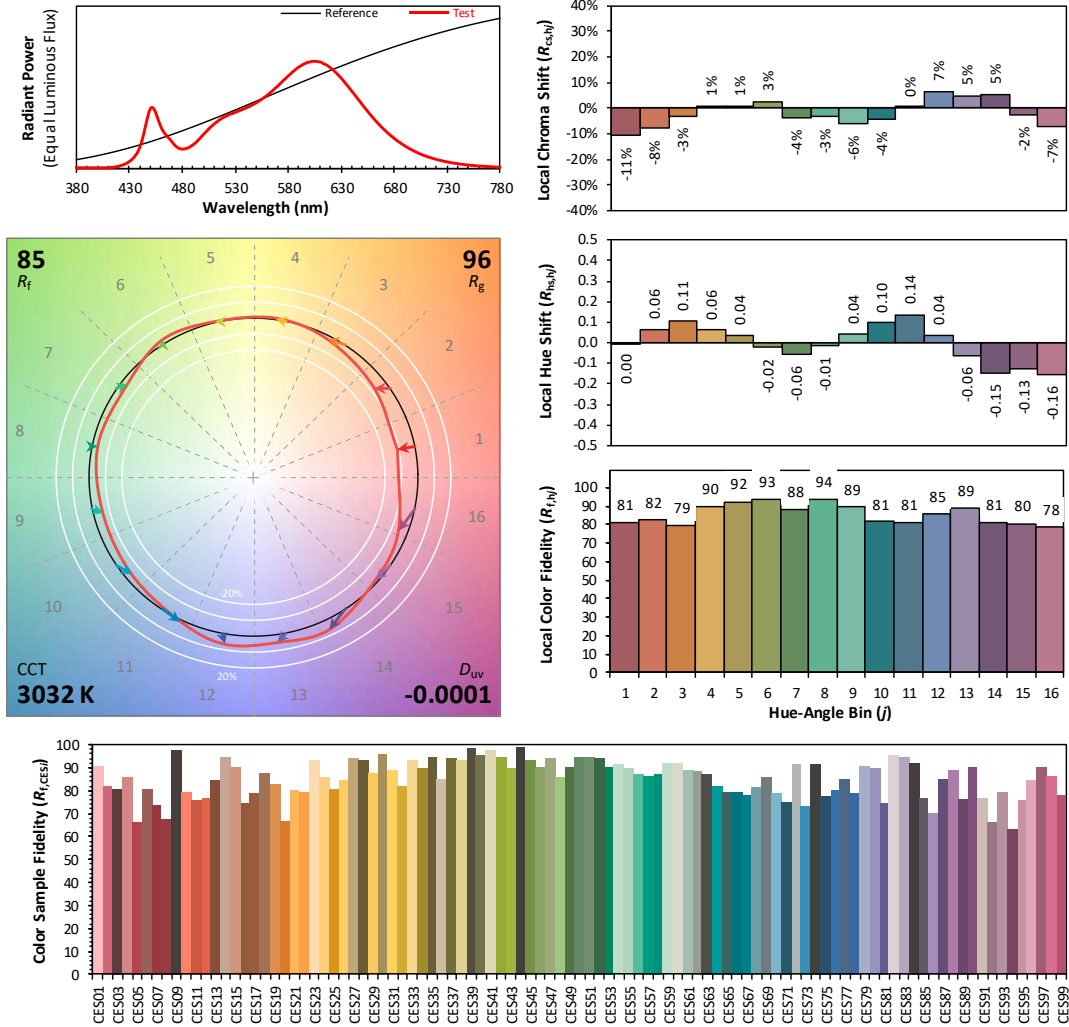
IES TM-30-18 Color Rendition Report

Source: DLF2503101-4a

Manufacturer: RAB Lighting Inc.

Date: 2025/3/5

Model: ET @ 11W/3000K



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

x 0.4346
 y 0.4031
 u' 0.2495
 v' 0.5206

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	2.17E-04	485	5.03E-03	590	2.47E-02	695	4.79E-03
385	2.32E-04	490	5.76E-03	595	2.55E-02	700	4.12E-03
390	2.17E-04	495	6.93E-03	600	2.59E-02	705	3.54E-03
395	2.17E-04	500	8.33E-03	605	2.61E-02	710	3.04E-03
400	2.15E-04	505	9.65E-03	610	2.59E-02	715	2.61E-03
405	2.15E-04	510	1.08E-02	615	2.53E-02	720	2.23E-03
410	2.54E-04	515	1.18E-02	620	2.44E-02	725	1.92E-03
415	3.61E-04	520	1.26E-02	625	2.33E-02	730	1.65E-03
420	6.08E-04	525	1.32E-02	630	2.20E-02	735	1.41E-03
425	1.03E-03	530	1.37E-02	635	2.04E-02	740	1.20E-03
430	1.74E-03	535	1.42E-02	640	1.88E-02	745	1.03E-03
435	2.95E-03	540	1.47E-02	645	1.72E-02	750	8.81E-04
440	5.30E-03	545	1.53E-02	650	1.55E-02	755	7.59E-04
445	1.01E-02	550	1.60E-02	655	1.39E-02	760	6.52E-04
450	1.46E-02	555	1.68E-02	660	1.24E-02	765	5.63E-04
455	1.35E-02	560	1.78E-02	665	1.09E-02	770	4.90E-04
460	1.00E-02	565	1.89E-02	670	9.62E-03	775	4.22E-04
465	8.08E-03	570	2.00E-02	675	8.42E-03	780	3.66E-04
470	6.60E-03	575	2.13E-02	680	7.35E-03		
475	5.22E-03	580	2.25E-02	685	6.41E-03		
480	4.75E-03	585	2.37E-02	690	5.56E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	ET @ 11W/3000K	Sample ID.	DLF2503101-D1
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-79-2019.

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

The ambient temperature shall be maintained at 25° C ± 1.2° C and 10% - 65% RH, 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.

Airflow for the instantaneous tangential velocity of any point on the DUT shall be less than an upper tolerance limit of 0.20 m/s.

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	277.01	60	0.042	10.6	0.914
NON-WORST CASE	120.00	60	0.085	10.1	0.996

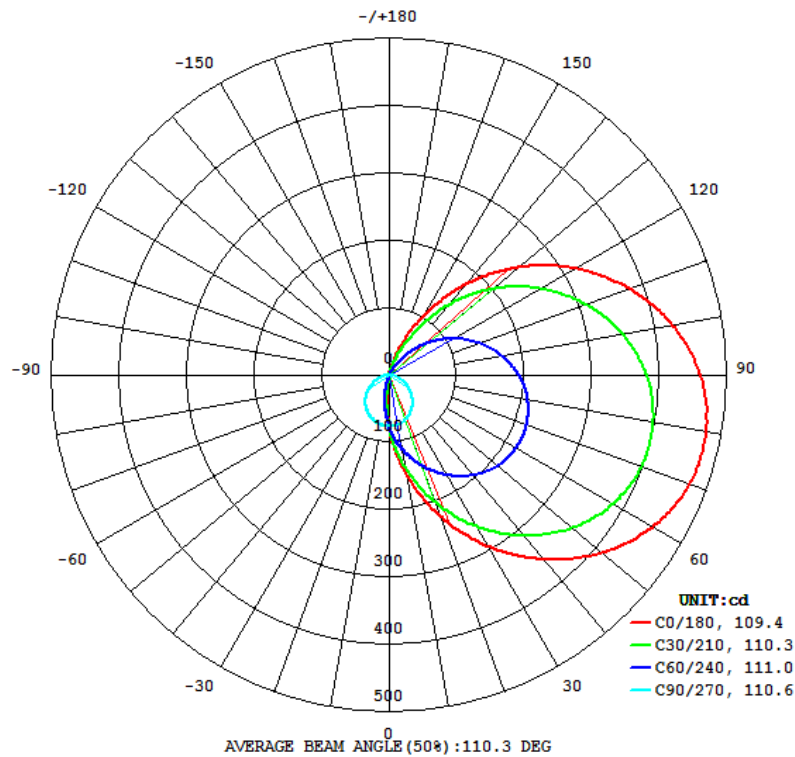
Test Result

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	1329	162.3	161.8	109.4	110.6	125.4
0°-90° zones	826	94.1	161.8	67.5	110.6	77.9

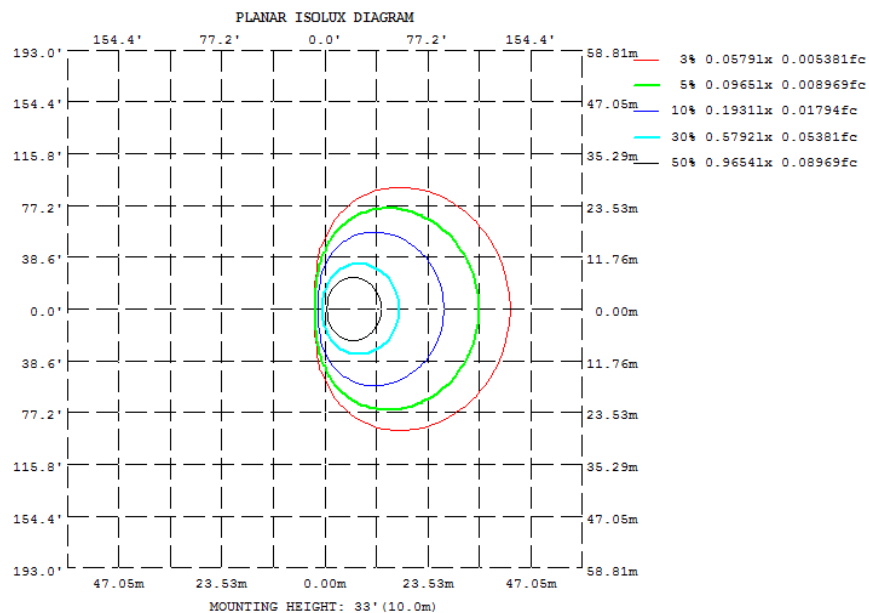
Zonal Lumen Requirement (80°-90°)	BUG rating
18.51%	B0-U3-G2

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

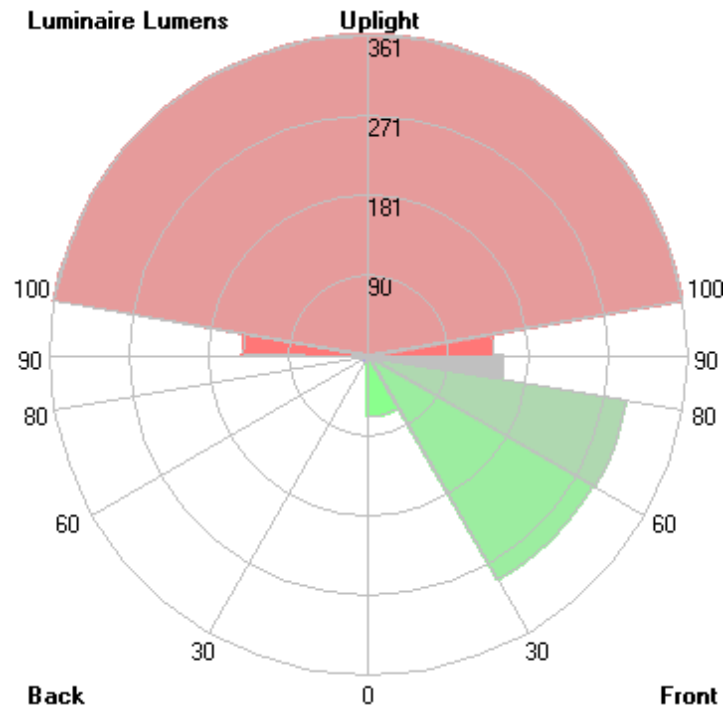
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	148.8	126.8	75.47	29.88	13.03	29.88	75.47	126.8
20	223.2	176.0	71.47	0.2392	0.2808	0.2392	71.47	176.0
30	294.0	220.9	64.65	0.2047	0.2634	0.2047	64.65	220.9
40	357.8	258.9	55.59	0.2104	0.2589	0.2104	55.59	258.9
50	410.7	288.7	44.77	0.2698	0.3105	0.2698	44.77	288.7
60	450.1	307.6	32.74	0.2734	0.3559	0.2734	32.74	307.6
70	473.1	315.5	20.26	0.2656	0.3405	0.2656	20.26	315.5
80	476.8	311.6	8.648	0.2608	0.2787	0.2608	8.648	311.6
90	461.3	296.0	1.349	0.2719	0.2902	0.2719	1.349	296.0
100	427.3	269.9	0.1040	0.3023	0.3567	0.3023	0.1040	269.9
110	378.5	234.5	0.1110	0.3060	0.4063	0.3060	0.1110	234.5
120	318.4	191.8	0.1220	0.2981	0.4150	0.2981	0.1220	191.8
130	250.1	144.2	0.1451	0.2938	0.3960	0.2938	0.1451	144.2
140	177.2	94.25	0.1756	0.2891	0.3711	0.2891	0.1756	94.25
150	103.3	44.96	0.1881	0.2490	0.2925	0.2490	0.1881	44.96
160	36.01	3.086	0.1925	0.1936	0.1796	0.1936	0.1925	3.086
170	0.0735	0.1535	0.1694	0.1327	0.0875	0.1327	0.1694	0.1535
180	0.0933	0.1375	0.1466	0.1286	0.0927	0.1286	0.1466	0.1375
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	7.39	0 - 10	7.39	0.56%
10-20	23.66	0 - 20	31.05	2.34%
20-30	45.87	0 - 30	76.92	5.79%
30-40	72.55	0 - 40	149.47	11.24%
40-50	100.26	0 - 50	249.73	18.79%
50-60	125.47	0 - 60	375.20	28.23%
60-70	144.23	0 - 70	519.43	39.08%
70-80	153.81	0 - 80	673.24	50.65%
80-90	152.88	0 - 90	826.12	62.15%
90-100	141.92	0 - 100	968.04	72.82%
100-110	122.57	0 - 110	1090.61	82.05%
110-120	97.27	0 - 120	1187.88	89.36%
120-130	69.52	0 - 130	1257.40	94.59%
130-140	43.11	0 - 140	1300.51	97.84%
140-150	21.47	0 - 150	1321.98	99.45%
150-160	6.73	0 - 160	1328.71	99.96%
160-170	0.56	0 - 170	1329.27	100.00%
170-180	0.01	0 - 180	1329.28	100.00%

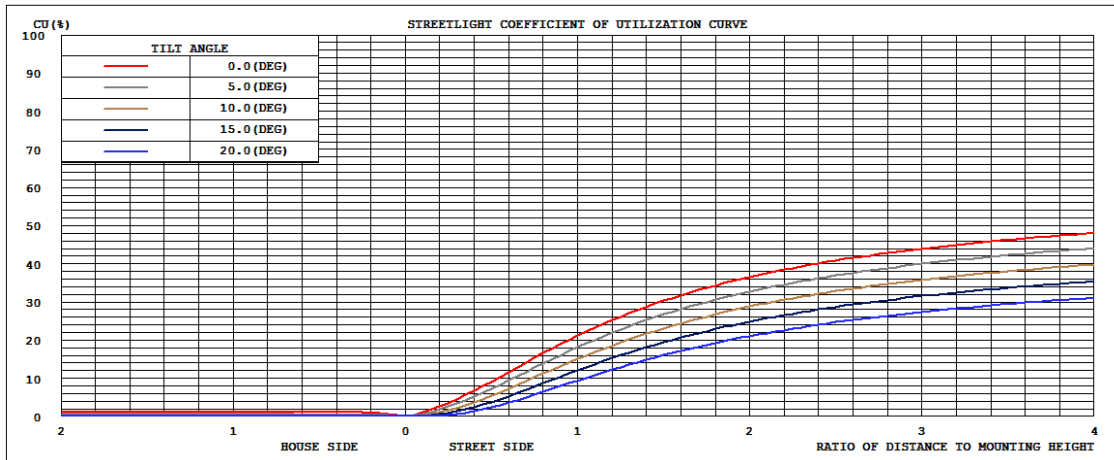
4.2 Goniophotometer Test

LCS/BUG

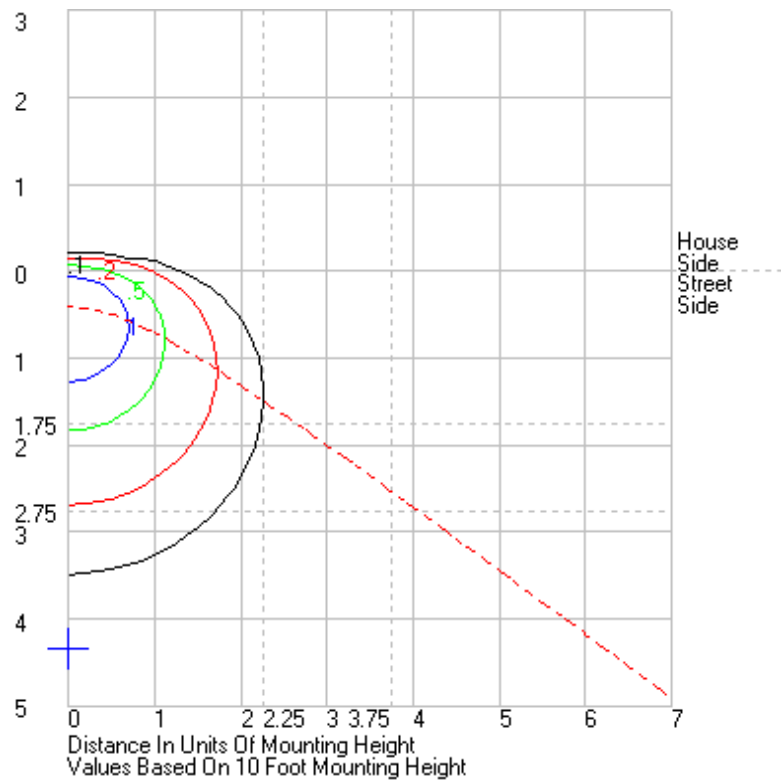


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	69.1	N.A.	5.2
FM - Front-Medium (30-60)	292.8	N.A.	22.0
FH - Front-High (60-80)	296.1	N.A.	22.3
FVH - Front-Very High (80-90)	152.6	N.A.	11.5
BL - Back-Low (0-30)	7.8	N.A.	0.6
BM - Back-Medium (30-60)	5.4	N.A.	0.4
BH - Back-High (60-80)	2.0	N.A.	0.1
BVH - Back-Very High (80-90)	0.3	N.A.	0.0
UL - Uplight-Low (90-100)	141.9	N.A.	10.7
UH - Uplight-High (100-180)	361.2	N.A.	27.2
Total	1329.2	N.A.	100.0
BUG Rating	B0-U3-G2		

Coefficients of Utilization



Isolines



4.2 Goniophotometer Test

	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360
0	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	76.498	
1	82.795	82.949	82.43	81.52	80.199	78.541	76.834	75.027	73.247	71.745	70.418	69.57	68.948	69.57	70.418	71.745	73.247	75.027	76.834	78.541	80.199	81.52	82.43	82.949	82.795
2	89.85	89.796	88.481	86.429	83.624	80.326	76.793	73.18	69.801	66.773	64.605	62.957	62.123	62.957	64.605	66.773	69.801	73.18	76.793	80.326	83.624	86.429	88.481	89.796	89.85
3	96.924	96.667	94.735	91.356	87.072	82.125	76.688	71.34	66.34	61.973	58.621	56.587	55.603	56.587	58.621	61.973	66.34	71.34	76.688	82.125	87.072	91.356	94.735	96.667	96.924
4	104.15	103.65	100.93	96.479	90.553	83.871	76.618	69.494	62.858	57.299	52.924	50.221	49.069	50.221	52.924	57.299	62.858	69.494	76.618	83.871	90.553	96.479	100.93	103.65	104.15
5	111.39	110.6	107.05	101.4	93.998	85.536	76.506	67.643	59.504	52.568	47.333	44.06	42.617	44.06	47.333	52.568	59.504	67.643	76.506	85.536	93.998	101.4	107.05	110.6	111.39
6	118.83	117.75	113.35	106.47	97.597	87.105	76.357	65.793	56.046	47.951	41.791	37.937	36.287	37.937	41.791	47.951	56.046	65.793	76.357	87.105	97.597	106.47	113.35	117.75	118.83
7	126	124.76	119.78	111.65	100.94	88.835	76.225	63.827	52.662	43.294	36.318	31.908	30.135	31.908	36.318	43.294	52.662	63.827	76.225	88.835	100.94	111.65	119.78	124.76	126
8	133.57	131.92	125.96	116.57	104.36	90.5	75.969	61.958	49.346	38.79	30.926	26.057	24.216	26.057	30.926	38.79	49.346	61.958	75.969	90.5	104.36	116.57	125.96	131.92	133.57
9	141.11	138.95	132.13	121.65	107.8	92.144	75.741	60.065	45.966	34.304	25.696	20.408	18.541	20.408	25.696	34.304	45.966	60.065	75.741	92.144	107.8	121.65	132.13	138.95	141.11
10	148.8	146.3	138.52	126.75	111.15	93.675	75.469	58.119	42.611	29.884	20.552	14.977	13.03	14.977	20.552	29.884	42.611	58.119	75.469	93.675	111.15	126.75	138.52	146.3	148.8
11	156.17	153.52	145.14	131.67	114.53	95.182	75.224	56.197	39.291	25.528	15.653	9.736	7.54	9.736	15.653	25.528	39.291	56.197	75.224	95.182	114.53	131.67	145.14	153.52	156.17
12	163.72	160.66	151.59	136.64	117.97	96.699	74.92	54.24	36.085	21.294	10.854	5.472	3.656	5.472	10.854	21.294	36.085	54.24	74.92	96.699	117.97	136.64	151.59	160.66	163.72
13	171.21	167.91	157.73	141.78	121.12	98.093	74.547	52.301	32.783	17.16	6.539	2.45	1.202	2.45	6.539	17.16	32.783	52.301	74.547	98.093	121.12	141.78	157.73	167.91	171.21
14	178.44	175.12	163.97	146.76	124.43	99.567	74.166	50.309	29.528	13.131	3.616	0.46	0.253	0.46	3.616	13.131	29.528	50.309	74.166	99.567	124.43	146.76	163.97	175.12	178.44
15	186.2	182.16	170.43	151.81	127.76	100.99	73.775	48.379	26.383	9.278	1.263	0.18	0.252	0.18	1.263	9.278	26.383	48.379	73.775	100.99	127.76	151.81	170.43	182.16	186.2
16	193.49	189.45	176.77	156.68	130.99	102.37	73.359	46.392	23.224	6.13	0.253	0.182	0.26	0.182	0.253	6.13	23.224	46.392	73.359	102.37	130.99	156.68	176.77	189.45	193.49
17	200.9	196.41	182.98	161.64	134.2	103.75	72.912	44.422	20.123	3.589	0.205	0.186	0.265	0.186	0.205	3.589	20.123	44.422	72.912	103.75	134.2	161.64	182.98	196.41	200.9
18	208.54	203.49	189.09	166.39	137.24	105.02	72.419	42.437	17.022	1.617	0.208	0.189	0.27	0.189	0.208	1.617	17.022	42.437	72.419	105.02	137.24	166.39	189.09	203.49	208.54
19	215.73	210.43	195.36	171.24	140.4	106.23	71.937	40.446	14.028	0.493	0.211	0.192	0.276	0.192	0.211	0.493	14.028	40.446	71.937	106.23	140.4	171.24	195.36	210.43	215.73
20	223.16	217.53	201.39	176.03	143.53	107.48	71.47	38.444	11.081	0.239	0.214	0.195	0.281	0.195	0.214	0.239	11.081	38.444	71.47	107.48	143.53	176.03	201.39	217.53	223.16
21	230.31	224.72	207.22	180.82	146.61	108.65	70.816	36.455	8.396	0.237	0.214	0.197	0.284	0.197	0.214	0.237	8.396	36.455	70.816	108.65	146.61	180.82	207.22	224.72	230.31
22	237.76	231.36	213.57	185.32	149.63	109.83	70.293	34.474	6.199	0.235	0.214	0.198	0.285	0.198	0.214	0.235	6.199	34.474	70.293	109.83	149.63	185.32	213.57	231.36	237.76
23	245.06	238.38	219.33	189.92	152.6	110.95	69.644	32.422	4.186	0.232	0.212	0.198	0.285	0.198	0.212	0.232	4.186	32.422	69.644	110.95	152.6	189.92	219.33	238.38	245.06
24	252.39	245.31	225.38	194.5	155.53	112.13	69.059	30.442	2.62	0.228	0.21	0.197	0.283	0.197	0.21	0.228	2.62	30.442	69.059	112.13	155.53	194.5	225.38	245.31	252.39
25	259.35	251.95	231.22	199.15	158.4	113	68.427	28.447	1.42	0.224	0.207	0.196	0.281	0.196	0.207	0.224	1.42	28.447	68.427	113	158.4	199.15	231.22	251.95	259.35
26	266.15	258.83	237.39	203.53	161.07	114.08	67.674	26.444	0.635	0.219	0.205	0.196	0.278	0.196	0.205	0.219	0.635	26.444	67.674	114.08	161.07	203.53	237.39	258.83	266.15
27	273.69	265.64	242.85	207.85	163.93	115.09	66.907	24.455	0.29	0.215	0.201	0.194	0.275	0.194	0.201	0.215	0.29	24.455	66.907	115.09	163.93	207.85	242.85	265.64	273.69
28	280.2	272.18	248.48	212.42	166.55	115.87	66.217	22.526	0.226	0.211	0.198	0.192	0.27	0.192	0.198	0.211	0.226	22.526	66.217	115.87	166.55	212.42	248.48	272.18	280.2
29	286.96	278.75	254.43	216.39	169.29	116.87	65.445	20.563	0.221	0.207	0.196	0.192	0.266	0.192	0.196	0.207	0.221	20.563	65.445	116.87	169.29	216.39	254.43	278.75	286.96
30	294.01	285.2	259.75	220.91	171.82	117.65	64.652	18.624	0.218	0.205	0.194	0.192	0.263	0.192	0.194	0.205	0.218	18.624	64.652	117.65	171.82	220.91	259.75	285.2	294.01
31	300.75	291.66	265.41	224.87	174.21	118.41	63.857	16.669	0.216	0.204	0.195	0.193	0.262	0.193	0.195	0.204	0.216	16.669	63.857	118.41	174.21	224.87	265.41	291.66	300.75
32	307.18	298.22	271.08	229.03	176.86	119.2	63.048	14.8	0.215	0.203	0.196	0.196	0.261	0.196	0.196	0.203	0.215	14.8	63.048	119.2	176.86	229.03	271.08	298.22	307.18
33	314.01	304.24	276.23	232.92	179.29	119.9	62.169	12.906	0.214	0.203	0.197	0.198	0.259	0.198	0.197	0.203	0.214	12.906	62.169	119.9	179.29	232.92	276.23	304.24	314.01
34	320.44	310.39	281.4	237.03	181.46	120.48	61.296	11.136	0.213	0.204	0.198	0.2	0.258	0.2	0.198	0.204	0.213	11.136	61.296	120.48	181.46	237.03	281.4	310.39	320.44
35	326.78	316.79	286.87	240.78	183.85	121.11	60.448	9.446	0.212	0.204	0.2	0.203	0.256	0.203	0.2	0.204	0.212	9.446	60.448	121.11	183.85	240.78	286.87	316.79	326.78
36	333.49	322.87	291.77	244.61	185.97	121.61	59.442	7.963	0.211	0.204	0.202	0.206	0.255	0.206	0.202	0.204	0.211	7.963	59.442	121.61	185.97	244.61	291.77	322.87	333.49
37	339.46	328.56	296.75	248.28	188.17	122.25	58.558	6.549	0.21	0.204	0.205	0.21	0.255	0.21	0.205	0.204	0.21	6.549	58.558	122.25	188.17	248.28	296.75	328.56	339.46
38	345.9	334.38	301.58	252.05	190.31	122.66	57.534	5.259	0.21	0.206	0.208	0.215	0.256	0.215	0.208	0.206	0.21	5.259	57.534	122.66	190.31	252.05	301.58	334.38	345.9
39	351.6	340.23	306.76	255.51	192.21	123.06	56.599	4.137	0.21	0.208	0.212	0.22	0.257	0.22	0.212	0.208	0.21	4.137	56.599	123.06	192.21	255.51	306.76	340.23	351.6
40	357.78	345.6	311.39	258.93	194.11	123.47	55.586	3.157	0.211	0.21	0.217	0.226	0.259	0.226	0.217	0.21	0.211	3.157	55.586	123.47	194.11	258.93	311.39	345.6	357.78
41	363.68	351.43	316.08	262.24	196	123.74	54.587	2.309	0.212	0.213	0.222	0.233	0.261	0.233	0.222	0.213	0.212	2.309	54.587	123.74	196	262.24	316.08	351.43	363.68
42	369.06	356.55	320.63	265.76	197.77	124.05	53.544	1.612	0.214	0.217	0.228	0.241	0.264	0.241	0.228	0.217	0.214	1.612	53.544	124.05	197.77	265.76	320.63	356.55	369.06

50	410.65	395.88	353.27	288.71	209.46	124.47	44.774	0.216	0.244	0.27	0.298	0.32	0.311	0.32	0.298	0.27	0.244	0.216	44.774	124.47	209.46	288.71	353.27	395.88	410.65
51	415.51	400.42	356.97	291.04	210.57	124.44	43.617	0.217	0.248	0.275	0.305	0.327	0.317	0.327	0.305	0.275	0.248	0.217	43.617	124.44	210.57	291.04	356.97	400.42	415.51
52	419.73	404.46	360.42	293.08	211.62	124.17	42.438	0.217	0.25	0.279	0.31	0.333	0.322	0.333	0.31	0.279	0.25	0.217	42.438	124.17	211.62	293.08	360.42	404.46	419.73
53	424.26	408.54	363.34	295.55	212.76	123.9	41.273	0.216	0.25	0.281	0.314	0.337	0.327	0.337	0.314	0.281	0.25	0.216	41.273	123.9	212.76	295.55	363.34	408.54	424.26
54	428.36	412.81	366.81	297.6	213.61	123.59	40.044	0.215	0.25	0.282	0.317	0.341	0.332	0.341	0.317	0.282	0.25	0.215	40.044	123.59	213.61	297.6	366.81	412.81	428.36
55	432.68	416.26	369.8	299.32	214.31	123.23	38.847	0.214	0.249	0.282	0.318	0.343	0.336	0.343	0.318	0.282	0.249	0.214	38.847	123.23	214.31	299.32	369.8	416.26	432.68
56	436.34	419.86	372.54	301.13	215.18	122.84	37.666	0.211	0.247	0.282	0.318	0.344	0.34	0.344	0.318	0.282	0.247	0.211	37.666	122.84	215.18	301.13	372.54	419.86	436.34
57	439.85	423.31	375.58	303.04	215.78	122.32	36.429	0.209	0.245	0.28	0.317	0.344	0.344	0.344	0.317	0.28	0.245	0.209	36.429	122.32	215.78	303.04	375.58	423.31	439.85
58	443.88	426.88	378.03	304.69	216.56	122.02	35.225	0.205	0.243	0.278	0.316	0.344	0.348	0.344	0.316	0.278	0.243	0.205	35.225	122.02	216.56	304.69	378.03	426.88	443.88
59	447.07	429.58	380.11	306.35	216.97	121.37	33.973	0.203	0.24	0.276	0.315	0.343	0.352	0.343	0.315	0.276	0.24	0.203	33.973	121.37	216.97	306.35	380.11	429.58	447.07
60	450.14	432.67	382.65	307.62	217.27	120.85	32.739	0.2	0.238	0.273	0.313	0.344	0.356	0.344	0.313	0.273	0.238	0.2	32.739	120.85	217.27	307.62	382.65	432.67	450.14
61	453.71	435.55	384.58	308.94	217.64	120.27	31.512	0.197	0.235	0.271	0.312	0.343	0.359	0.343	0.312	0.271	0.235	0.197	31.512	120.27	217.64	308.94	384.58	435.55	453.71
62	456.44	438.26	387	310.11	217.87	119.56	30.273	0.195	0.233	0.269	0.31	0.343	0.362	0.343	0.31	0.269	0.233	0.195	30.273	119.56	217.87	310.11	387	438.26	456.44
63	459.99	440.73	388.61	311.36	218.13	118.84	29.008	0.192	0.23	0.267	0.308	0.343	0.364	0.343	0.308	0.267	0.23	0.192	29.008	118.84	218.13	311.36	388.61	440.73	459.99
64	461.63	443.35	390.2	312.03	218.15	118.07	27.786	0.19	0.229	0.266	0.306	0.341	0.365	0.341	0.306	0.266	0.229	0.19	27.786	118.07	218.15	312.03	390.2	443.35	461.63
65	463.98	445.09	391.99	313.08	218.28	117.38	26.503	0.188	0.227	0.266	0.304	0.34	0.365	0.34	0.304	0.266	0.227	0.188	26.503	117.38	218.28	313.08	391.99	445.09	463.98
66	465.97	447.62	393.35	313.98	218.22	116.52	25.273	0.186	0.226	0.265	0.302	0.337	0.365	0.337	0.302	0.265	0.226	0.186	25.273	116.52	218.22	313.98	393.35	447.62	465.97
67	468.84	449.66	394.95	314.19	218.11	115.73	24.011	0.184	0.225	0.265	0.3	0.333	0.361	0.333	0.3	0.265	0.225	0.184	24.011	115.73	218.11	314.19	394.95	449.66	468.84
68	469.78	451.16	395.71	314.98	217.89	114.8	22.75	0.182	0.223	0.266	0.298	0.328	0.356	0.328	0.298	0.266	0.223	0.182	22.75	114.8	217.89	314.98	395.71	451.16	469.78
69	471.95	452.57	396.56	315.61	217.59	113.85	21.485	0.18	0.223	0.266	0.297	0.323	0.348	0.323	0.297	0.266	0.223	0.18	21.485	113.85	217.59	315.61	396.56	452.57	471.95
70	473.06	453.76	397.62	315.49	217.12	112.84	20.255	0.178	0.222	0.266	0.295	0.319	0.34	0.319	0.295	0.266	0.222	0.178	20.255	112.84	217.12	315.49	397.62	453.76	473.06
71	474.62	454.7	397.97	315.8	216.43	111.87	18.997	0.176	0.221	0.266	0.294	0.314	0.331	0.314	0.294	0.266	0.221	0.176	18.997	111.87	216.43	315.8	397.97	454.7	474.62
72	475.54	455.46	398.89	315.69	215.98	110.73	17.764	0.175	0.22	0.265	0.294	0.311	0.322	0.311	0.294	0.265	0.22	0.175	17.764	110.73	215.98	315.69	398.89	455.46	475.54
73	476.28	456.65	399.2	315.44	215.46	109.66	16.556	0.173	0.219	0.264	0.293	0.308	0.313	0.308	0.293	0.264	0.219	0.173	16.556	109.66	215.46	315.44	399.2	456.65	476.28
74	477.28	457.19	399.73	315.55	214.77	108.47	15.347	0.171	0.219	0.264	0.293	0.306	0.305	0.306	0.293	0.264	0.219	0.171	15.347	108.47	214.77	315.55	399.73	457.19	477.28
75	477.86	457.19	399.27	314.98	213.9	107.3	14.168	0.169	0.218	0.263	0.293	0.306	0.298	0.306	0.293	0.263	0.218	0.169	14.168	107.3	213.9	314.98	399.27	457.19	477.86
76	478	457.75	399.32	314.61	213.12	106.07	13.02	0.168	0.217	0.263	0.294	0.307	0.293	0.307	0.294	0.263	0.217	0.168	13.02	106.07	213.12	314.61	399.32	457.75	478
77	478.13	457.6	399.17	314.06	212.09	104.82	11.893	0.165	0.216	0.263	0.294	0.307	0.289	0.307	0.294	0.263	0.216	0.165	11.893	104.82	212.09	314.06	399.17	457.6	478.13
78	477.64	457.07	398.74	313.41	211	103.53	10.778	0.162	0.214	0.262	0.293	0.307	0.285	0.307	0.293	0.262	0.214	0.162	10.778	103.53	211	313.41	398.74	457.07	477.64
79	477.69	456.94	398.54	312.48	210.09	102.25	9.713	0.16	0.212	0.261	0.294	0.307	0.281	0.307	0.294	0.261	0.212	0.16	9.713	102.25	210.09	312.48	398.54	456.94	477.69
80	476.83	456.17	397.33	311.64	208.97	100.88	8.648	0.157	0.211	0.261	0.294	0.308	0.279	0.308	0.294	0.261	0.211	0.157	8.648	100.88	208.97	311.64	397.33	456.17	476.83
81	476.12	455.61	396.73	310.6	207.52	99.409	7.611	0.155	0.209	0.261	0.294	0.309	0.277	0.309	0.294	0.261	0.209	0.155	7.611	99.409	207.52	310.6	396.73	455.61	476.12
82	475.39	454.43	395.51	309.55	206.29	98.048	6.64	0.152	0.208	0.26	0.296	0.31	0.276	0.31	0.296	0.26	0.208	0.152	6.64	98.048	206.29	309.55	395.51	454.43	475.39
83	474.24	453.1	394.61	307.91	204.79	96.588	5.722	0.151	0.207	0.261	0.297	0.311	0.276	0.311	0.297	0.261	0.207	0.151	5.722	96.588	204.79	307.91	394.61	453.1	474.24
84	473.57	452.01	393.13	306.75	203.22	95.111	4.862	0.149	0.207	0.262	0.298	0.314	0.277	0.314	0.298	0.262	0.207	0.149	4.862	95.111	203.22	306.75	393.13	452.01	473.57
85	471.68	450.48	391.64	305.24	201.92	93.609	4.086	0.149	0.208	0.263	0.3	0.317	0.279	0.317	0.3	0.263	0.208	0.149	4.086	93.609	201.92	305.24	391.64	450.48	471.68
86	469.69	448.86	389.94	303.6	200.3	92.055	3.392	0.148	0.208	0.264	0.303	0.319	0.28	0.319	0.303	0.264	0.208	0.148	3.392	92.055	200.3	303.6	389.94	448.86	469.69
87	467.6	446.6	388.38	301.81	198.64	90.438	2.756	0.149	0.209	0.266	0.304	0.321	0.281	0.321	0.304	0.266	0.209	0.149	2.756	90.438	198.64	301.81	388.38	446.6	467.6
88	465.4	444.92	386.19	300.05	196.79	88.9	2.212	0.149	0.21	0.267	0.307	0.324	0.284	0.324	0.307	0.267	0.21	0.149	2.212	88.9	196.79	300.05	386.19	444.92	465.4
89	463.35	443	384.18	297.85	194.95	87.27	1.745	0.15	0.212	0.27	0.309	0.326	0.288	0.326	0.309	0.27	0.212	0.15	1.745	87.27	194.95	297.85	384.18	443	463.35
90	461.29	439.98	381.87	295.99	193.03	85.583	1.349	0.151	0.213	0.272	0.312	0.329	0.29	0.329	0.312	0.272	0.213	0.151	1.349	85.583	193.03	295.99	381.87	439.98	461.29
91	458.63	437.55	379.49	293.93	191.11	83.951	1.014	0.151	0.215	0.274	0.314	0.332	0.293	0.332	0.314	0.274	0.215	0.151	1.014	83.951	191.11	293.93	379.49	437.55	458.63
92	455.64	435.12	376.83	291.21	189.06	82.29	0.73	0.153	0.216	0.276	0.316	0.334	0.295	0.334	0.316	0.276	0.216	0.153	0.73	82.29	189.06	291.21	376.83	435.12	455.64
93	452.74	431.86	374.13	289.06	186.89	80.603	0.509	0.154	0.218	0.278	0.319	0.337	0.297	0.337	0.319	0.278	0.218	0.154	0.509	80.603	186.89	289.06	374.13	431.86	452.74
94	449.4	429.12	371.52	286.57	184.82	78.85	0.332	0.155	0.22	0.28	0.321	0.34	0.303	0.34	0.321	0.28	0.22	0.155							

104	409.33	390.42	336.7	256.49	159.98	60.724	0.106	0.167	0.24	0.307	0.356	0.385	0.381	0.385	0.356	0.307	0.24	0.167	0.106	60.724	159.98	256.49	336.7	390.42	409.33
105	404.51	385.7	332.6	253.32	157.17	58.834	0.107	0.167	0.241	0.307	0.357	0.386	0.386	0.386	0.357	0.307	0.241	0.167	0.107	58.834	157.17	253.32	332.6	385.7	404.51
106	399.77	380.94	328.41	249.57	154.22	56.902	0.108	0.168	0.24	0.308	0.357	0.387	0.391	0.387	0.357	0.308	0.24	0.168	0.108	56.902	154.22	249.57	328.41	380.94	399.77
107	394.24	376.22	323.84	245.87	151.5	55.032	0.109	0.168	0.239	0.307	0.356	0.382	0.395	0.382	0.356	0.307	0.239	0.168	0.109	55.032	151.5	245.87	323.84	376.22	394.24
108	388.59	371.34	319.65	242.06	148.66	53.084	0.109	0.168	0.238	0.305	0.355	0.382	0.399	0.382	0.355	0.305	0.238	0.168	0.109	53.084	148.66	242.06	319.65	371.34	388.59
109	383.8	366.27	314.96	238.44	145.59	51.184	0.11	0.167	0.237	0.305	0.355	0.384	0.402	0.384	0.355	0.305	0.237	0.167	0.11	51.184	145.59	238.44	314.96	366.27	383.8
110	378.53	361.11	310.43	234.47	142.64	49.256	0.111	0.168	0.239	0.306	0.356	0.385	0.406	0.385	0.356	0.306	0.239	0.168	0.111	49.256	142.64	234.47	310.43	361.11	378.53
111	372.82	355.47	305.69	230.41	139.51	47.292	0.112	0.169	0.24	0.307	0.358	0.385	0.409	0.385	0.358	0.307	0.24	0.169	0.112	47.292	139.51	230.41	305.69	355.47	372.82
112	367.36	349.98	300.67	226.49	136.43	45.407	0.113	0.17	0.241	0.309	0.359	0.388	0.411	0.388	0.359	0.309	0.241	0.17	0.113	45.407	136.43	226.49	300.67	349.98	367.36
113	361.3	344.56	295.8	222.24	133.21	43.409	0.113	0.171	0.24	0.308	0.358	0.386	0.414	0.386	0.358	0.308	0.24	0.171	0.113	43.409	133.21	222.24	295.8	344.56	361.3
114	355.44	338.85	290.61	217.97	130.2	41.455	0.115	0.171	0.24	0.307	0.357	0.385	0.415	0.385	0.357	0.307	0.24	0.171	0.115	41.455	130.2	217.97	290.61	338.85	355.44
115	349.57	333.11	285.62	213.65	126.94	39.526	0.116	0.171	0.239	0.306	0.355	0.382	0.415	0.382	0.355	0.306	0.239	0.171	0.116	39.526	126.94	213.65	285.62	333.11	349.57
116	343.61	327.34	280.43	209.67	123.73	37.544	0.117	0.172	0.238	0.303	0.351	0.377	0.415	0.377	0.351	0.303	0.238	0.172	0.117	37.544	123.73	209.67	280.43	327.34	343.61
117	337.34	321.4	275.08	205.33	120.54	35.609	0.118	0.172	0.237	0.301	0.348	0.374	0.417	0.374	0.348	0.301	0.237	0.172	0.118	35.609	120.54	205.33	275.08	321.4	337.34
118	331.17	315.11	269.91	200.95	117.3	33.673	0.119	0.173	0.237	0.3	0.346	0.372	0.417	0.372	0.346	0.3	0.237	0.173	0.119	33.673	117.3	200.95	269.91	315.11	331.17
119	324.72	309.28	264.48	196.3	113.93	31.722	0.121	0.174	0.237	0.299	0.344	0.369	0.416	0.369	0.344	0.299	0.237	0.174	0.121	31.722	113.93	196.3	264.48	309.28	324.72
120	318.38	302.9	258.84	191.76	110.59	29.777	0.122	0.175	0.237	0.298	0.343	0.367	0.415	0.367	0.343	0.298	0.237	0.175	0.122	29.777	110.59	191.76	258.84	302.9	318.38
121	311.59	296.85	253.23	187.23	107.32	27.835	0.124	0.176	0.238	0.298	0.342	0.366	0.413	0.366	0.342	0.298	0.238	0.176	0.124	27.835	107.32	187.23	253.23	296.85	311.59
122	305.49	290.41	247.69	182.6	103.95	25.923	0.125	0.177	0.238	0.297	0.341	0.364	0.413	0.364	0.341	0.297	0.238	0.177	0.125	25.923	103.95	182.6	247.69	290.41	305.49
123	298.5	284.13	241.93	178.02	100.46	23.987	0.127	0.179	0.239	0.297	0.34	0.363	0.413	0.363	0.34	0.297	0.239	0.179	0.127	23.987	100.46	178.02	241.93	284.13	298.5
124	291.85	277.66	236.36	173.25	97.144	22.083	0.129	0.181	0.24	0.297	0.339	0.362	0.413	0.362	0.339	0.297	0.24	0.181	0.129	22.083	97.144	173.25	236.36	277.66	291.85
125	285.13	271	230.44	168.55	93.729	20.181	0.131	0.182	0.24	0.297	0.338	0.36	0.41	0.36	0.338	0.297	0.24	0.182	0.131	20.181	93.729	168.55	230.44	271	285.13
126	278.19	264.31	224.44	163.76	90.296	18.258	0.134	0.184	0.241	0.296	0.336	0.357	0.408	0.357	0.336	0.296	0.241	0.184	0.134	18.258	90.296	163.76	224.44	264.31	278.19
127	271.3	257.52	218.71	159	86.838	16.422	0.136	0.186	0.242	0.296	0.334	0.354	0.405	0.354	0.334	0.296	0.242	0.186	0.136	16.422	86.838	159	218.71	257.52	271.3
128	264.33	251.01	212.67	153.98	83.364	14.596	0.139	0.188	0.243	0.295	0.332	0.351	0.401	0.351	0.332	0.295	0.243	0.188	0.139	14.596	83.364	153.98	212.67	251.01	264.33
129	257.34	244.07	206.52	149.2	80.021	12.81	0.142	0.191	0.244	0.295	0.331	0.349	0.398	0.349	0.331	0.295	0.244	0.191	0.142	12.81	80.021	149.2	206.52	244.07	257.34
130	250.06	237.42	200.53	144.2	76.581	11.122	0.145	0.193	0.244	0.294	0.328	0.346	0.396	0.346	0.328	0.294	0.244	0.193	0.145	11.122	76.581	144.2	200.53	237.42	250.06
131	243.23	230.48	194.29	139.23	73.134	9.502	0.148	0.196	0.246	0.294	0.326	0.343	0.395	0.343	0.326	0.294	0.246	0.196	0.148	9.502	73.134	139.23	194.29	230.48	243.23
132	236.11	223.37	188.11	134.29	69.721	7.995	0.151	0.198	0.247	0.293	0.323	0.341	0.393	0.341	0.323	0.293	0.247	0.198	0.151	7.995	69.721	134.29	188.11	223.37	236.11
133	228.76	216.73	182.14	129.22	66.31	6.563	0.155	0.201	0.249	0.291	0.32	0.339	0.39	0.339	0.32	0.291	0.249	0.201	0.155	6.563	66.31	129.22	182.14	216.73	228.76
134	221.59	209.57	175.71	124.25	63.084	5.282	0.158	0.204	0.25	0.289	0.319	0.336	0.389	0.336	0.319	0.289	0.25	0.204	0.158	5.282	63.084	124.25	175.71	209.57	221.59
135	214.34	202.58	169.54	119.34	59.603	4.134	0.161	0.207	0.251	0.289	0.319	0.333	0.386	0.333	0.319	0.289	0.251	0.207	0.161	4.134	59.603	119.34	169.54	202.58	214.34
136	207.06	195.48	163.32	114.33	56.15	3.106	0.165	0.21	0.252	0.289	0.321	0.33	0.384	0.33	0.321	0.289	0.252	0.21	0.165	3.106	56.15	114.33	163.32	195.48	207.06
137	199.43	188.33	157.02	109.32	52.778	2.201	0.169	0.212	0.253	0.29	0.319	0.327	0.382	0.327	0.319	0.29	0.253	0.212	0.169	2.201	52.778	109.32	157.02	188.33	199.43
138	191.95	181.13	150.72	104.27	49.453	1.429	0.172	0.214	0.254	0.29	0.317	0.324	0.38	0.324	0.317	0.29	0.254	0.214	0.172	1.429	49.453	104.27	150.72	181.13	191.95
139	184.75	174.1	144.27	99.263	46.037	0.852	0.174	0.215	0.254	0.29	0.315	0.319	0.376	0.319	0.315	0.29	0.254	0.215	0.174	0.852	46.037	99.263	144.27	174.1	184.75
140	177.23	166.84	137.94	94.246	42.721	0.482	0.176	0.216	0.254	0.289	0.311	0.314	0.371	0.314	0.311	0.289	0.254	0.216	0.176	0.482	42.721	94.246	137.94	166.84	177.23
141	170.01	159.72	131.49	89.225	39.345	0.221	0.177	0.217	0.253	0.286	0.306	0.309	0.366	0.309	0.306	0.286	0.253	0.217	0.177	0.221	39.345	89.225	131.49	159.72	170.01
142	162.41	152.71	125.15	84.243	36.035	0.14	0.179	0.217	0.253	0.283	0.301	0.303	0.359	0.303	0.301	0.283	0.253	0.217	0.179	0.14	36.035	84.243	125.15	152.71	162.41
143	154.85	145.48	118.8	79.278	32.704	0.141	0.181	0.219	0.252	0.281	0.296	0.296	0.353	0.296	0.296	0.281	0.252	0.219	0.181	0.141	32.704	79.278	118.8	145.48	154.85
144	147.49	138.17	112.51	74.228	29.393	0.144	0.183	0.218	0.251	0.277	0.291	0.29	0.346	0.291	0.291	0.277	0.251	0.218	0.183	0.144	29.393	74.228	112.51	138.17	147.49
145	140.15	130.94	106.2	69.245	26.041	0.146	0.184	0.218	0.249	0.273	0.284	0.283	0.338	0.283	0.284	0.273	0.249	0.218	0.184	0.146	26.041	69.245	106.2	130.94	140.15
146	132.63	123.84	99.906	64.412	22.748	0.148	0.185	0.217	0.245	0.267	0.277	0.275	0.328	0.275	0.277	0.267	0.245	0.217	0.185	0.148	22.748	64.412	99.906	123.84	132.63
147	125.31	116.84	93.693	59.519	19.56	0.15	0.185	0.216	0.242	0.262	0.27	0.266	0.318	0.266	0.27	0.262	0.242	0.216	0.185	0.15	19.56	59.519	93.693	116.84	125.31
148	117.92	109.66	87.422	54.626	16.347	0.151	0.186	0.215	0.239	0.257	0.263	0.259	0.307	0.259	0.263	0.257	0.239	0.215	0.186	0.151					

158	48.549	42.258	28.056	8.818	0.151	0.178	0.197	0.209	0.214	0.211	0.202	0.187	0.208	0.187	0.202	0.211	0.214	0.209	0.197	0.178	0.151	8.818	28.056	42.258	48.549
159	42.285	36.038	22.702	5.588	0.153	0.178	0.196	0.206	0.208	0.204	0.193	0.177	0.195	0.177	0.193	0.204	0.208	0.206	0.196	0.178	0.153	5.588	22.702	36.038	42.285
160	36.013	29.951	17.533	3.086	0.155	0.178	0.192	0.2	0.2	0.194	0.182	0.167	0.18	0.167	0.182	0.194	0.2	0.2	0.192	0.178	0.155	3.086	17.533	29.951	36.013
161	29.866	24.015	12.44	1.455	0.156	0.177	0.19	0.195	0.193	0.185	0.172	0.157	0.166	0.157	0.172	0.185	0.193	0.195	0.19	0.177	0.156	1.455	12.44	24.015	29.866
162	23.948	18.466	8.196	0.48	0.158	0.178	0.189	0.191	0.187	0.178	0.164	0.149	0.154	0.149	0.164	0.178	0.187	0.191	0.189	0.178	0.158	0.48	8.196	18.466	23.948
163	18.152	13.076	4.6	0.148	0.16	0.178	0.186	0.187	0.181	0.17	0.156	0.14	0.143	0.14	0.156	0.17	0.181	0.187	0.186	0.178	0.16	0.148	4.6	13.076	18.152
164	12.703	8.233	2.194	0.141	0.162	0.177	0.184	0.183	0.176	0.164	0.149	0.134	0.133	0.134	0.149	0.164	0.176	0.183	0.184	0.177	0.162	0.141	2.194	8.233	12.703
165	7.984	4.295	0.624	0.144	0.163	0.177	0.182	0.179	0.17	0.157	0.141	0.126	0.124	0.126	0.141	0.157	0.17	0.179	0.182	0.177	0.163	0.144	0.624	4.295	7.984
166	4.46	1.758	0.136	0.147	0.165	0.176	0.179	0.175	0.165	0.151	0.135	0.12	0.115	0.12	0.135	0.151	0.165	0.175	0.179	0.176	0.165	0.147	0.136	1.758	4.46
167	1.638	0.223	0.129	0.149	0.166	0.176	0.178	0.172	0.161	0.146	0.13	0.115	0.107	0.115	0.13	0.146	0.161	0.172	0.178	0.176	0.166	0.149	0.129	0.223	1.638
168	0.082	0.112	0.132	0.151	0.166	0.175	0.175	0.168	0.157	0.142	0.124	0.11	0.1	0.11	0.124	0.142	0.157	0.168	0.175	0.175	0.166	0.151	0.132	0.112	0.082
169	0.071	0.114	0.135	0.153	0.166	0.173	0.172	0.164	0.152	0.137	0.119	0.106	0.093	0.106	0.119	0.137	0.152	0.164	0.172	0.173	0.166	0.153	0.135	0.114	0.071
170	0.073	0.118	0.137	0.154	0.166	0.171	0.169	0.161	0.148	0.133	0.116	0.103	0.087	0.103	0.116	0.133	0.148	0.161	0.169	0.171	0.166	0.154	0.137	0.118	0.073
171	0.076	0.122	0.14	0.156	0.168	0.173	0.171	0.163	0.15	0.134	0.117	0.103	0.089	0.103	0.117	0.134	0.15	0.163	0.171	0.173	0.168	0.156	0.14	0.122	0.076
172	0.079	0.125	0.143	0.159	0.172	0.177	0.175	0.167	0.154	0.138	0.12	0.105	0.093	0.105	0.12	0.138	0.154	0.167	0.175	0.177	0.172	0.159	0.143	0.125	0.079
173	0.083	0.127	0.145	0.161	0.172	0.178	0.177	0.169	0.156	0.14	0.122	0.107	0.093	0.107	0.122	0.14	0.156	0.169	0.177	0.178	0.172	0.161	0.145	0.127	0.083
174	0.086	0.129	0.146	0.162	0.173	0.179	0.178	0.172	0.159	0.144	0.126	0.111	0.093	0.111	0.126	0.144	0.159	0.172	0.178	0.179	0.173	0.162	0.146	0.129	0.086
175	0.088	0.13	0.146	0.16	0.171	0.177	0.177	0.171	0.16	0.145	0.128	0.115	0.093	0.115	0.128	0.145	0.16	0.171	0.177	0.177	0.171	0.16	0.146	0.13	0.088
176	0.091	0.129	0.144	0.157	0.167	0.172	0.172	0.166	0.156	0.142	0.128	0.115	0.093	0.115	0.128	0.142	0.156	0.166	0.172	0.172	0.167	0.157	0.144	0.129	0.091
177	0.092	0.128	0.14	0.152	0.16	0.164	0.164	0.159	0.15	0.138	0.125	0.114	0.094	0.114	0.125	0.138	0.15	0.159	0.164	0.164	0.16	0.152	0.14	0.128	0.092
178	0.093	0.125	0.136	0.145	0.152	0.157	0.156	0.151	0.144	0.133	0.123	0.114	0.093	0.114	0.123	0.133	0.144	0.151	0.156	0.157	0.152	0.145	0.136	0.125	0.093
179	0.093	0.122	0.131	0.139	0.145	0.149	0.148	0.144	0.138	0.129	0.12	0.114	0.092	0.114	0.12	0.129	0.138	0.144	0.148	0.149	0.145	0.139	0.131	0.122	0.093
180	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	ET @ 11W/3000K	Sample ID.	DLF2503101-D1
Temperature (°C)	25.1	Humidity (%RH)	57.0

Test Method

The samples were tested according to the ANSI C82.77-10:2014.

The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ and 10% - 65% RH. 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
119.97	60	0.085	10.2	0.996	4.62%
276.99	60	0.042	10.7	0.914	16.06%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2024/12/23	2025/12/22
DLF108	Auxiliary Lamp	2024/12/23	2025/12/22
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.473 A, Tungsten, Omni-derectional	2024/12/23	2025/12/22
DLF116	AC Power Source	2024/12/13	2025/12/12
DLF516	Power Meter	2024/12/13	2025/12/12
DLF114	Temperature & Humidity Datalogger	2024/12/19	2025/12/18
DLF101	Goniophotometer	2024/12/23	2025/12/22
DLF521	Measurement Standard Lamp Standard Lamp Type: Tungsten, Omni- derectional	2024/12/23	2025/12/22
DLF512	AC Power Source	2024/12/13	2025/12/12
DLF507	DC Power Source	2024/12/13	2025/12/12
DLF111	Temperature & Humidity Datalogger	2024/12/19	2025/12/18
DLF119	Power Meter	2024/12/13	2025/12/12
DLF530	Hot-wire anemometer	2025/1/23	2026/1/22
DLF129	Clock	2024/6/20	2025/6/19

***** End of Test Report*****