



Photometric Test Report

Relevant Standards

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

Prepared For RAB Lighting Inc.

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Project Number

DLF2408110

Report Number

DLF2408110-3a

Test Date

2024/8/30

Issue Date

2024/9/1

Prepared By

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Approved By

Kevin Jia

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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		532
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	80.2
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		218
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	32.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		6.63
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.76%
		20.00%	277V	10.79%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
		0.9	277V	0.931
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	2725±145	3016
		4 step	2725±83	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		9
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		86
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%		-11%
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%		0.23%
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		0.026
(Goniophotometer - Section 4.2)		Non-Worst Case		0.051
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		6.63
(Goniophotometer - Section 4.2)		Non-Worst Case		6.10

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/30	SA-REWP	ES1-02	C1
2	Goniophotometer Test	2024/8/30	SA-REWP	ES1-02	C1
3	THD and PF Test	2024/8/30	SA-REWP	ES1-02	C1

Remark(If any)

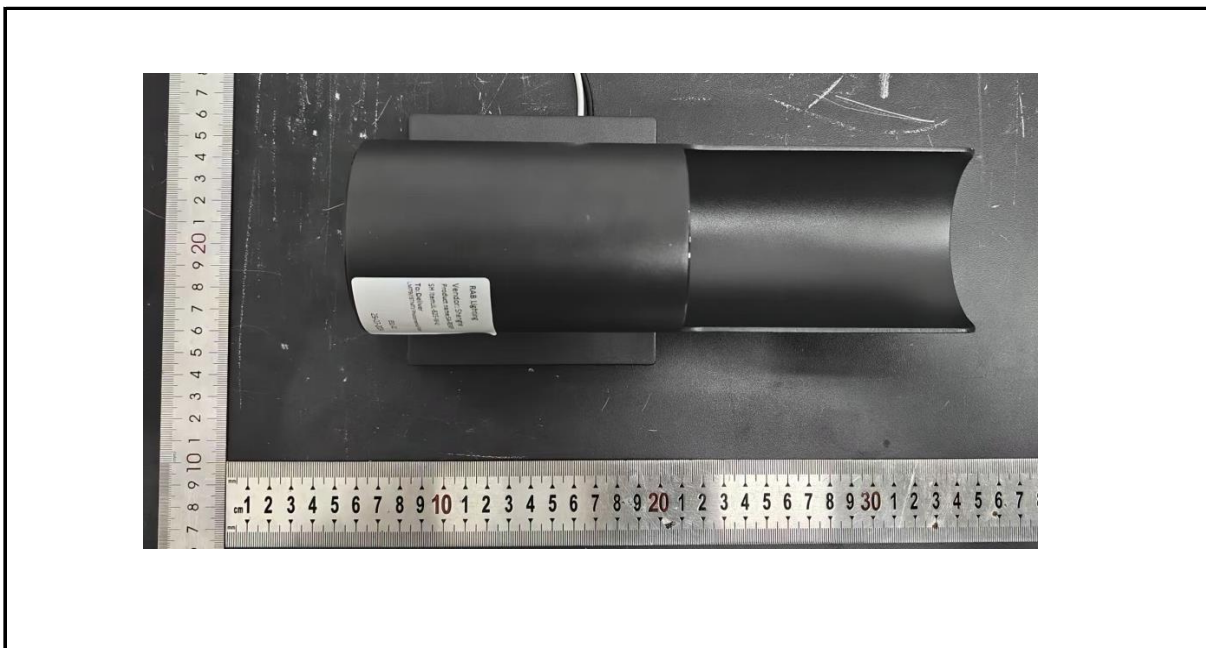
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3.0 Production Description

Luminaire Description: SA-REWP

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.	SA-REWP	Sample ID.	C1
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 ± 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	0.051	6.13	0.997
277.07	60	0.026	6.66	0.931

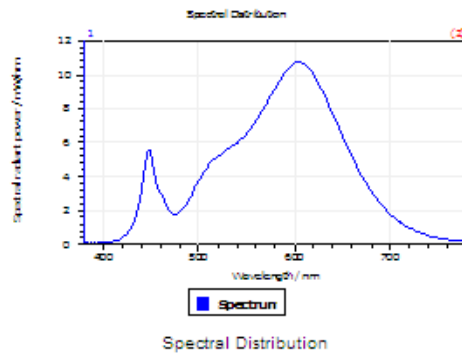
Test Result

CCT (K)	CRI	R9	Duv
3016	84	9	0.001

Rf	Rg	IES Rcs,h1
86	97	-11%

4.1 Integrating Sphere Test

Results



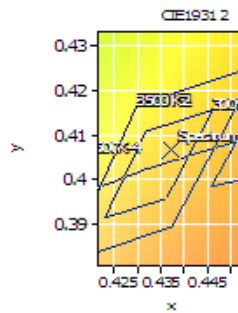
Spectral values

DominantWavelength 582.39 nm
Purity 0.534
PeakWavelength 604.42 nm
Radiant Power 1.616 W
Width50%:

Color Coordinates

Correlated Color Temperat 3016 K
x: 0.4373 u: 0.2498 u': 0.2498
y: 0.4068 v: 0.3483 v': 0.5225

CRI01	81.7	CRI09	9.3
CRI02	90.8	CRI10	79.7
CRI03	97.1	CRI11	83.2
CRI04	82.8	CRI12	74.8
CRI05	82.4	CRI13	83.8
CRI06	89.8	CRI14	98.9
CRI07	83.6	CRI15	73.6
CRI08	60.2	CRI16	71.4
ResultsCRI	83.5		



PlanckDistance 1.0E-003

4.1 Integrating Sphere Test

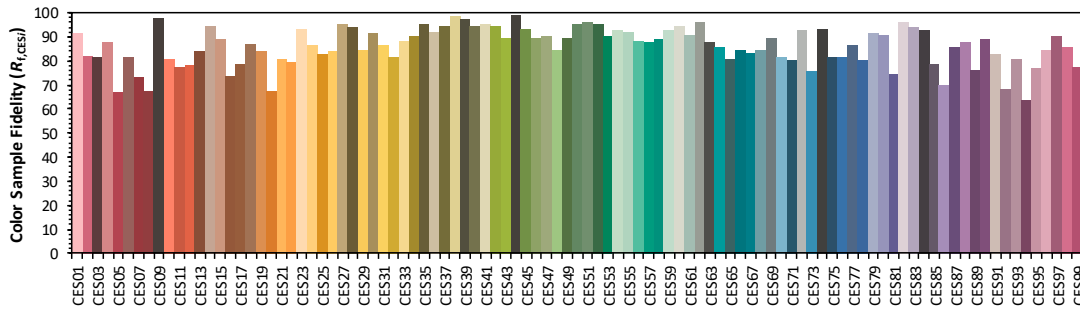
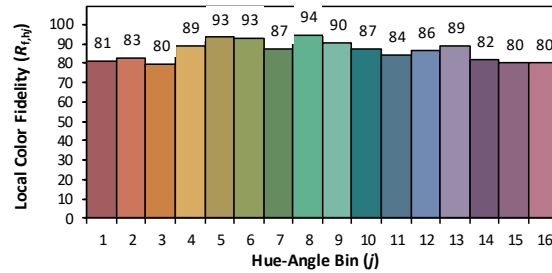
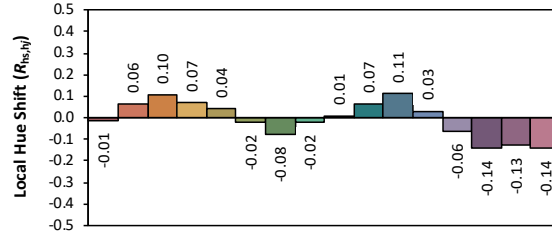
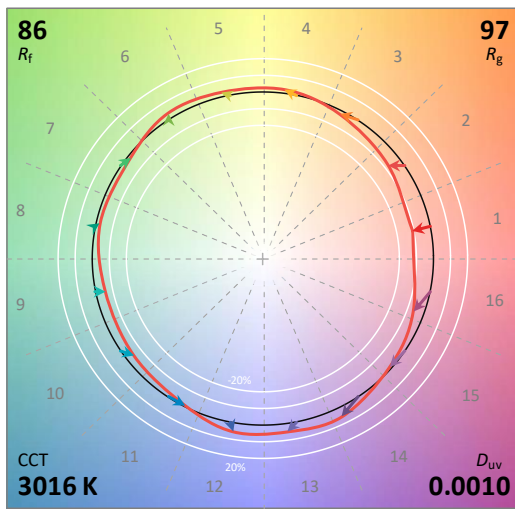
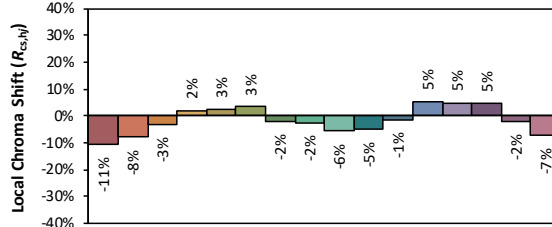
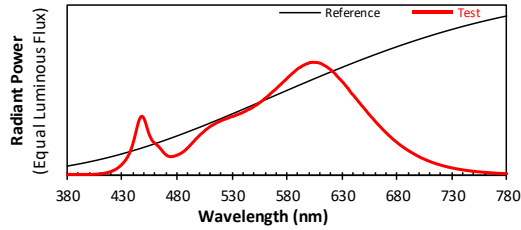
IES TM-30-18 Color Rendition Report

Source: DLF2408110-3a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/30

Model: SA-REWP



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

x 0.4373
 y 0.4068
 u' 0.2496
 v' 0.5225

CIE 13.3-1995 (CRI)	
R_a	84
R_g	14

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength							
WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)
380	9.05E-05	485	2.19E-03	590	1.01E-02	695	2.07E-03
385	8.79E-05	490	2.64E-03	595	1.05E-02	700	1.79E-03
390	8.70E-05	495	3.20E-03	600	1.07E-02	705	1.54E-03
395	9.22E-05	500	3.74E-03	605	1.07E-02	710	1.32E-03
400	9.31E-05	505	4.22E-03	610	1.07E-02	715	1.13E-03
405	1.07E-04	510	4.62E-03	615	1.04E-02	720	9.71E-04
410	1.43E-04	515	4.93E-03	620	1.00E-02	725	8.31E-04
415	2.25E-04	520	5.18E-03	625	9.50E-03	730	7.10E-04
420	3.73E-04	525	5.40E-03	630	8.94E-03	735	6.07E-04
425	6.23E-04	530	5.58E-03	635	8.33E-03	740	5.21E-04
430	1.05E-03	535	5.77E-03	640	7.65E-03	745	4.47E-04
435	1.75E-03	540	5.99E-03	645	7.02E-03	750	3.85E-04
440	3.06E-03	545	6.26E-03	650	6.40E-03	755	3.32E-04
445	5.09E-03	550	6.55E-03	655	5.76E-03	760	2.87E-04
450	5.38E-03	555	6.89E-03	660	5.18E-03	765	2.44E-04
455	3.82E-03	560	7.31E-03	665	4.61E-03	770	2.11E-04
460	3.04E-03	565	7.76E-03	670	4.07E-03	775	1.81E-04
465	2.53E-03	570	8.21E-03	675	3.58E-03	780	1.58E-04
470	1.95E-03	575	8.70E-03	680	3.14E-03		
475	1.78E-03	580	9.20E-03	685	2.74E-03		
480	1.92E-03	585	9.69E-03	690	2.38E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SA-REWP	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° C ± 1° 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	0.026	6.63	0.931
NON-WORST CASE	120.01	60	0.051	6.10	0.997

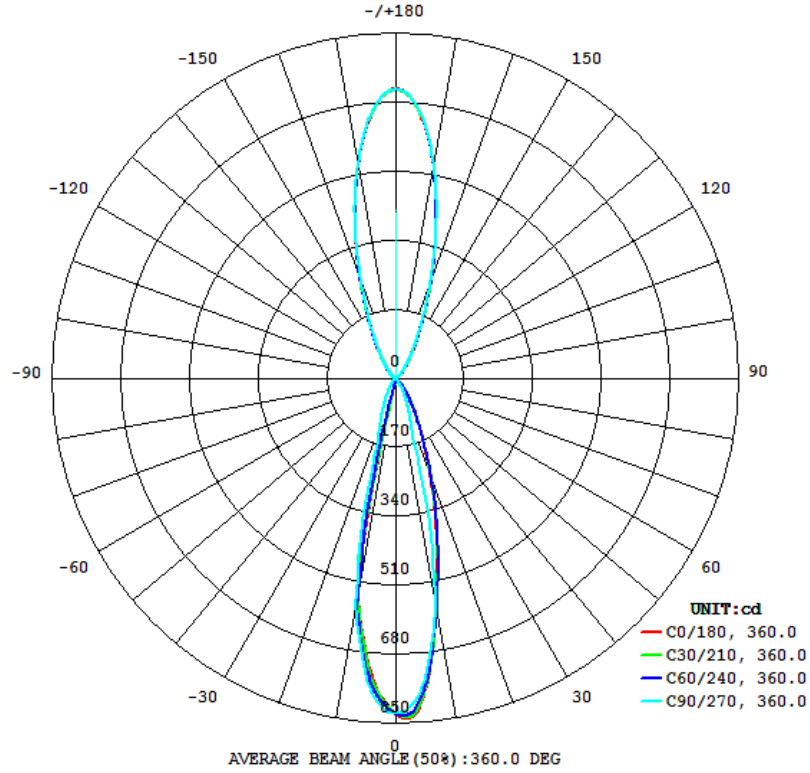
Test Result

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	532	360.0	360.0	360.0	360.0	80.2
0°-90° zones	218	48.6	54.4	29.0	26.6	32.9

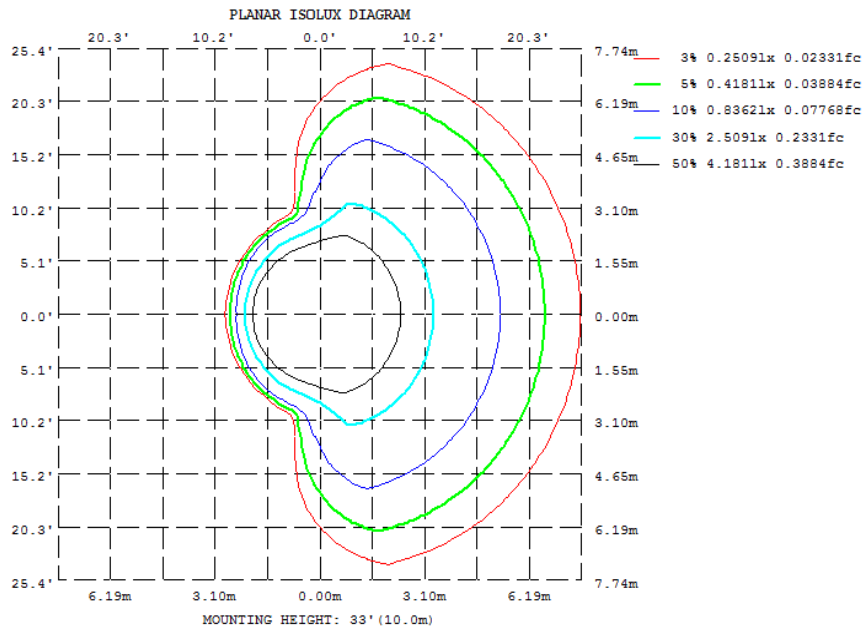
Zonal Lumen Requirement (80°-90°)	BUG rating
0.23%	B0-U3-G0

4.2 Goniophotometer Test

Light Distribution Curve



Isolux Plot



4.2 Goniophotometer Test

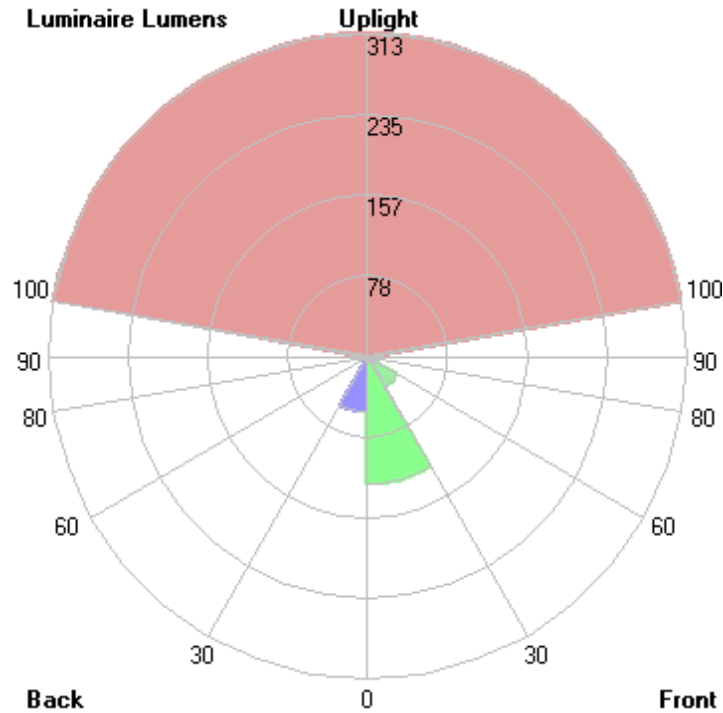
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	584.6	586.3	576.9	554.3	546.1	554.3	576.9	586.3
20	256.8	262.2	112.3	2.494	1.427	2.494	112.3	262.2
30	102.5	101.4	47.85	1.454	1.344	1.454	47.85	101.4
40	40.73	39.96	18.65	0.7399	0.7354	0.7399	18.65	39.96
50	17.07	16.41	7.518	0.4013	0.4408	0.4013	7.518	16.41
60	8.135	7.654	3.226	0.2794	0.3798	0.2794	3.226	7.654
70	3.632	2.828	0.9633	0.2330	0.3305	0.2330	0.9633	2.828
80	1.496	1.096	0.3921	0.1567	0.2513	0.1567	0.3921	1.096
90	0	0	0	0	0	0	0	0
100	0.9091	0.6798	0.5721	0.6798	0.9091	0.6798	0.5721	0.6798
110	1.543	1.463	1.903	1.463	1.543	1.463	1.903	1.463
120	7.232	6.853	6.324	6.853	7.232	6.853	6.324	6.853
130	15.26	14.98	14.52	14.98	15.26	14.98	14.52	14.98
140	37.63	37.29	36.19	37.29	37.63	37.29	36.19	37.29
150	98.82	96.67	94.72	96.67	98.82	96.67	94.72	96.67
160	259.4	261.2	257.3	261.2	259.4	261.2	257.3	261.2
170	541.1	540.3	543.2	540.3	541.1	540.3	543.2	540.3
180	713.7	713.7	713.7	713.7	713.7	713.7	713.7	713.7
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	66.15	0 - 10	66.15	12.43%
10-20	74.31	0 - 20	140.46	26.40%
20-30	37.76	0 - 30	178.22	33.49%
30-40	20.41	0 - 40	198.63	37.33%
40-50	10.23	0 - 50	208.86	39.25%
50-60	5.14	0 - 60	214.00	40.22%
60-70	2.72	0 - 70	216.72	40.73%
70-80	0.91	0 - 80	217.63	40.90%
80-90	0.51	0 - 90	218.14	41.00%
90-100	0.48	0 - 100	218.62	41.09%
100-110	1.06	0 - 110	219.68	41.29%
110-120	4.52	0 - 120	224.20	42.14%
120-130	8.93	0 - 130	233.13	43.81%
130-140	18.67	0 - 140	251.80	47.32%
140-150	38.28	0 - 150	290.08	54.52%
150-160	74.55	0 - 160	364.63	68.53%
160-170	108.02	0 - 170	472.65	88.83%
170-180	59.44	0 - 180	532.09	100.00%

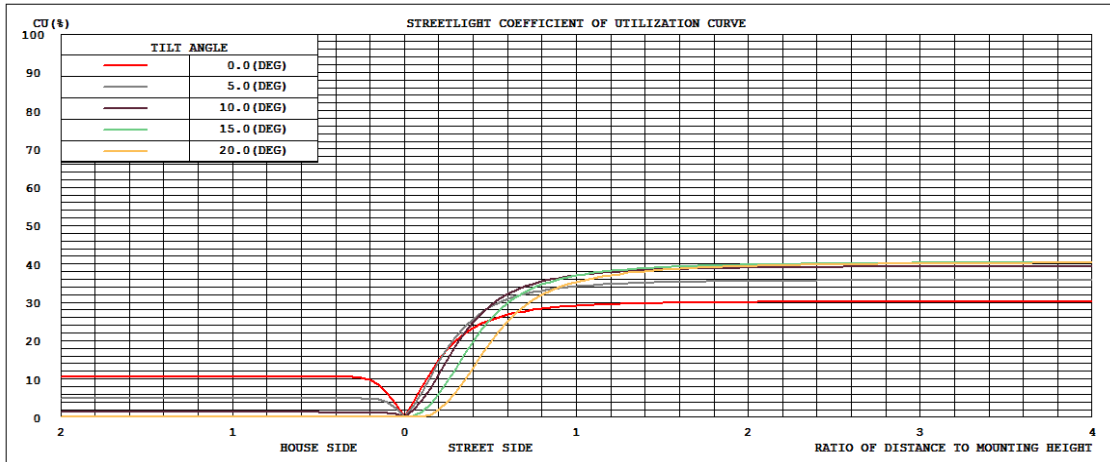
4.2 Goniophotometer Test

LCS/BUG

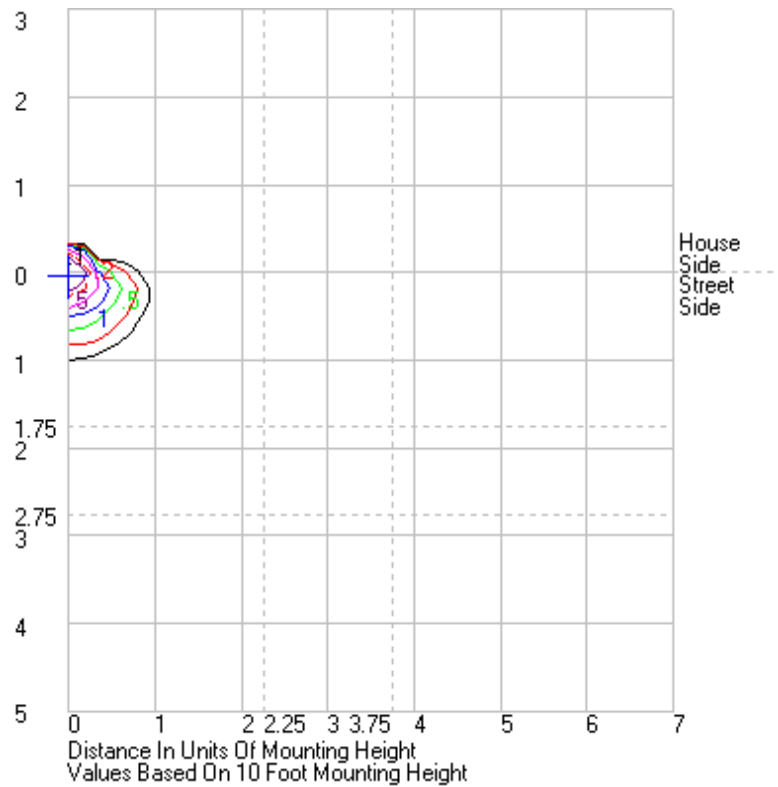


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	123.8	N.A.	23.3
FM - Front-Medium (30-60)	33.7	N.A.	6.3
FH - Front-High (60-80)	3.3	N.A.	0.6
FVH - Front-Very High (80-90)	0.4	N.A.	0.1
BL - Back-Low (0-30)	54.4	N.A.	10.2
BM - Back-Medium (30-60)	2.1	N.A.	0.4
BH - Back-High (60-80)	0.3	N.A.	0.1
BVH - Back-Very High (80-90)	0.1	N.A.	0.0
UL - Uplight-Low (90-100)	0.5	N.A.	0.1
UH - Uplight-High (100-180)	313.5	N.A.	58.9
Total	532.1	N.A.	100.0
BUG Rating	B0-U3-G0		

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	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71	824.71
1	834.72	833.19	832.09	831.17	829.13	826.35	822.86	819.95	817.56	815.77	813.31	813.37	813.07	813.37	815.77	817.56	817.56	819.95	822.86	826.35	829.13	831.17	832.09	833.19	834.72
2	837.85	836.45	835.85	831.47	828.4	822.77	816.9	810.81	806.74	803.6	800.97	799.14	798.6	799.14	800.97	803.6	806.74	810.81	816.9	822.77	828.4	831.47	835.85	836.45	837.85
3	833.29	830.97	829.15	825.63	819.69	811.51	804.62	799.18	792.48	787.03	783.42	780.22	781.16	780.22	783.42	787.03	792.48	799.18	804.62	811.51	819.69	825.63	829.15	830.97	833.29
4	818	815.39	812.64	808.38	802.39	794.68	786.91	779.81	773.84	766.24	760.76	756.8	756.57	756.8	760.76	766.24	773.84	779.81	786.91	794.68	802.39	808.38	812.64	815.39	818
5	790.36	789.6	787.22	782.51	776.99	769.99	763.07	755.45	747.36	739.69	733.74	728	727.47	728	733.74	739.69	747.36	755.45	763.07	769.99	776.99	782.51	787.22	789.6	790.36
6	755.26	754.17	752.15	748.95	745.49	739.6	731.92	724.02	715.04	707.17	699.17	694.31	692.68	694.31	699.17	707.17	715.04	724.02	731.92	739.6	745.49	748.95	752.15	754.17	755.26
7	713.22	715.05	712.55	710.82	708.15	701.96	695.85	687.77	679.1	670.43	662.18	656.85	657.44	656.85	662.18	670.43	679.1	687.77	695.85	701.96	708.15	710.82	712.55	715.05	713.22
8	670.46	671.16	670.38	669.36	667	662.99	656.15	648.96	640.27	632.78	624.34	618.02	619.5	618.02	624.34	632.78	640.27	648.96	656.15	662.99	667	669.36	670.38	671.16	670.46
9	626.14	626.83	627.22	627.27	625.56	622.45	616.18	609.4	602.93	595.14	587.94	581.75	582.94	581.75	587.94	595.14	602.93	609.4	616.18	622.45	625.56	627.22	627.22	626.83	626.14
10	584.65	584.49	585.19	586.32	586.01	582.2	576.86	566.77	559.67	554.28	549.6	545.95	546.1	545.95	549.6	554.28	559.67	566.77	576.86	582.2	586.01	586.32	585.19	584.49	584.65
11	544.43	544.36	545.64	548.13	547.48	543.18	518.98	476.23	463.91	463.04	467.14	476.06	489.92	476.06	467.14	463.04	463.91	476.23	518.98	543.18	547.48	548.13	545.64	544.36	544.43
12	506.37	505.96	508.65	511.39	510.59	506.96	443.13	389.58	377.99	373.7	359.9	336.56	329.9	336.56	359.9	373.7	377.99	389.58	443.13	506.96	510.59	511.39	508.65	505.96	506.37
13	469.41	470.21	472.36	474.87	474.17	470.38	385.01	303.75	276.97	243.33	213.16	197.66	201.97	197.66	213.16	243.33	276.97	303.75	385.01	470.38	474.17	474.87	472.36	470.21	469.41
14	432.94	434.27	436.98	440.36	440.01	435.12	313.25	197.84	179.13	153.59	122.42	92.84	76.214	92.84	122.42	153.59	179.13	197.84	313.25	435.12	440.01	440.36	436.98	434.27	432.94
15	400.4	401.68	404.32	407.16	407.35	401.4	244.91	128.97	105.39	76.537	48.309	38.986	41.029	38.986	48.309	76.537	105.39	128.97	244.91	401.4	407.35	407.16	404.32	401.68	400.4
16	368.65	368.92	373.18	374.87	375.22	369.87	195.3	60.17	31.705	23.476	20.385	17.623	21.194	17.623	20.385	23.476	31.705	60.17	195.3	369.87	375.22	374.87	373.18	368.92	368.65
17	339.16	338.52	341.55	344.4	345.06	339.48	156.26	27.59	19.069	14.992	11.343	7.427	1.96	7.427	11.343	14.992	19.069	27.59	156.26	339.48	345.06	344.4	341.55	338.52	339.16
18	309.45	310.31	312.99	315.52	316.19	311.2	138.81	18.724	11.122	6.629	2.487	1.966	1.466	1.966	2.487	6.629	11.122	18.724	138.81	311.2	316.19	315.52	312.99	310.31	309.45
19	282.69	283.46	285.53	287.79	288.71	282.95	125.32	9.895	3.406	2.661	2.257	1.872	1.448	1.872	2.257	2.661	3.406	9.895	125.32	282.95	288.71	287.79	285.53	283.46	282.69
20	256.84	257.77	259.91	262.18	262.05	257.36	112.32	5.35	3.106	2.494	2.167	1.833	1.427	1.833	2.167	2.494	3.106	5.35	112.32	257.36	262.05	262.18	259.91	257.77	256.84
21	232.72	234.47	236.26	238.28	238.22	233.38	103.33	4.943	2.911	2.362	2.093	1.793	1.418	1.793	2.093	2.362	2.911	4.943	103.33	233.38	238.22	238.28	236.26	234.47	232.72
22	212.03	212.98	214.53	215.83	215.96	211.34	95.053	4.593	2.735	2.241	2.02	1.758	1.406	1.758	2.02	2.241	2.735	4.593	95.053	211.34	215.96	215.83	214.53	212.98	212.03
23	193.07	194.07	194.39	195.75	195.23	191.5	87.061	4.281	2.567	2.127	1.942	1.73	1.402	1.73	1.942	2.127	2.567	4.281	87.061	191.5	195.23	195.75	194.39	194.07	193.07
24	175.5	176.53	177.02	177.34	177.7	173.34	79.951	3.996	2.424	2.015	1.874	1.7	1.398	1.7	1.874	2.015	2.424	3.996	79.951	173.34	177.7	177.34	177.02	176.53	175.5
25	159.99	161.05	161.32	161.35	161.3	157.66	73.31	3.73	2.286	1.915	1.802	1.661	1.396	1.661	1.802	1.915	2.286	3.73	73.31	157.66	161.3	161.35	161.32	161.05	159.99
26	146.41	147.31	147.07	147.45	146.58	143.41	67.248	3.479	2.148	1.815	1.722	1.616	1.4	1.616	1.722	1.815	2.148	3.479	67.248	143.41	146.58	147.45	147.07	146.41	146.41
27	134.49	134.22	134.02	133.92	132.68	129.99	61.939	3.247	2.017	1.717	1.647	1.562	1.393	1.562	1.647	1.717	2.017	3.247	61.939	129.99	132.68	133.92	134.02	134.22	134.49
28	122.51	122.75	122.55	121.68	120.63	117.61	56.849	3.024	1.888	1.623	1.572	1.512	1.386	1.512	1.572	1.623	1.888	3.024	56.849	117.61	120.63	121.68	122.55	122.75	122.51
29	112.52	112.37	111.98	111.12	109.92	107.26	52.145	2.806	1.766	1.533	1.498	1.459	1.372	1.459	1.498	1.533	1.766	2.806	52.145	107.26	109.92	111.12	111.98	112.37	112.52
30	102.48	102.4	102.12	101.45	100.01	97.468	47.851	2.596	1.655	1.454	1.426	1.406	1.344	1.406	1.426	1.454	1.655	2.596	47.851	97.468	100.01	101.45	102.12	102.4	102.48
31	93.374	93.286	92.977	92.537	91.174	88.562	43.625	2.403	1.553	1.379	1.356	1.349	1.293	1.349	1.356	1.379	1.553	2.403	43.625	88.562	91.174	92.537	92.977	93.286	93.374
32	85.01	84.777	84.831	84.279	82.876	80.191	39.774	2.213	1.453	1.307	1.287	1.284	1.234	1.284	1.287	1.307	1.453	2.213	39.774	80.191	82.876	84.279	84.831	84.777	85.01
33	77.019	76.994	77.157	76.416	75.281	72.439	36.217	2.035	1.363	1.235	1.216	1.211	1.171	1.211	1.216	1.235	1.363	2.035	36.217	72.439	75.281	76.416	77.157	76.994	77.019
34	70.192	70.183	70.328	69.746	68.448	66.024	32.884	1.87	1.28	1.165	1.145	1.135	1.105	1.135	1.145	1.165	1.28	1.87	32.884	66.024	68.448	69.746	70.328	70.183	70.192
35	63.855	63.992	64.063	63.779	62.344	59.867	29.971	1.72	1.202	1.096	1.072	1.059	1.044	1.059	1.072	1.096	1.202	1.72	29.971	59.867	62.344	63.779	64.063	63.992	63.855
36	58.609	58.441	58.431	57.983	56.507	54.395	27.26	1.584	1.129	1.027	1.002	0.99	0.981	0.99	1.002	1.027	1.129	1.584	27.26	54.395	56.507	57.983	58.431	58.441	58.609
37	53.377	53.141	53.158	52.754	51.536	49.505	24.709	1.465	1.056	0.958	0.934	0.925	0.924	0.925	0.934	0.958	1.056	1.465	24.709	49.505	51.536	52.754	53.158	53.141	53.377
38	48.481	48.669	48.579	48.107	46.946	45.168	22.535	1.359	0.981	0.887	0.866	0.863	0.865	0.863	0.866	0.887	0.981	1.359	22.535	45.168	46.946	48.107	48.579	48.669	48.481
39	44.315	44.472	44.244	43.852	42.926	41.129	20.482	1.263	0.905	0.812	0.794	0.8	0.799	0.8	0.794	0.812	0.905	1.263	20.482	41.129	42.926	43.852	44.244	44.472	44.315
40	40.734	40.651	40.441	39.96	39.127	37.609	18.647	1.175	0.83	0.74	0.726	0.741	0.735	0.741	0.726	0.74	0.83	1.175	18.647	37.609	39.127	39.96	40.441	40.651	40.734
41	37.271	37.155	36.969	36.533	35.869	34.45	17.029	1.093	0.762	0.677	0.664	0.688	0.673	0.688	0.664	0.677	0.762	1.093	17.029	34.45	35.869	36.533	36.969	37.155	37.271
42	34.219	34.065	33.763	33.436	32.808	31.538	15.484	1.018	0.701	0.621	0.609	0.642	0.617	0.642	0.609	0.621	0.701	1.018	15.484	31.538	32.808	33.436	33.763	34.065	34.219
43	31.46	31.29	3																						



50	17.073	16.983	16.725	16.411	16.149	15.471	7.518	0.668	0.449	0.401	0.392	0.45	0.441	0.45	0.392	0.401	0.449	0.668	7.518	15.471	16.149	16.411	16.725	16.983	17.073
51	15.657	15.567	15.418	15.096	14.81	14.216	6.857	0.642	0.429	0.385	0.376	0.432	0.429	0.432	0.376	0.385	0.429	0.642	6.857	14.216	14.81	15.096	15.418	15.567	15.657
52	14.483	14.369	14.134	13.833	13.613	13.124	6.29	0.618	0.411	0.368	0.36	0.416	0.42	0.416	0.36	0.368	0.411	0.618	6.29	13.124	13.613	13.833	14.134	14.369	14.483
53	13.386	13.297	13.092	12.818	12.629	12.078	5.785	0.596	0.394	0.353	0.344	0.401	0.411	0.401	0.344	0.353	0.394	0.596	5.785	12.078	12.629	12.818	13.092	13.297	13.386
54	12.333	12.292	12.098	11.829	11.661	11.063	5.273	0.574	0.378	0.339	0.33	0.387	0.408	0.387	0.33	0.339	0.378	0.574	5.273	11.063	11.661	11.829	12.098	12.292	12.333
55	11.404	11.389	11.218	10.932	10.754	10.145	4.823	0.555	0.364	0.326	0.317	0.374	0.402	0.374	0.317	0.326	0.364	0.555	4.823	10.145	10.754	10.932	11.218	11.389	11.404
56	10.611	10.594	10.4	10.144	9.934	9.347	4.441	0.534	0.351	0.316	0.306	0.362	0.396	0.362	0.306	0.316	0.351	0.534	4.441	9.347	9.934	10.144	10.4	10.594	10.611
57	9.883	9.866	9.647	9.422	9.168	8.625	4.082	0.512	0.339	0.306	0.297	0.35	0.393	0.35	0.297	0.306	0.339	0.512	4.082	8.625	9.168	9.422	9.647	9.866	9.883
58	9.257	9.243	8.99	8.753	8.514	7.964	3.772	0.487	0.33	0.297	0.29	0.339	0.389	0.339	0.29	0.297	0.33	0.487	3.772	7.964	8.514	8.753	8.99	9.243	9.257
59	8.647	8.649	8.378	8.142	7.91	7.377	3.495	0.464	0.321	0.287	0.282	0.329	0.384	0.329	0.282	0.287	0.321	0.464	3.495	7.377	7.91	8.142	8.378	8.649	8.647
60	8.135	8.113	7.841	7.654	7.433	6.86	3.226	0.445	0.312	0.279	0.273	0.32	0.38	0.32	0.273	0.279	0.312	0.445	3.226	6.86	7.433	7.654	7.841	8.113	8.135
61	7.681	7.64	7.366	7.234	6.973	6.378	2.983	0.429	0.303	0.273	0.265	0.31	0.375	0.31	0.265	0.273	0.303	0.429	2.983	6.378	6.973	7.234	7.366	7.64	7.681
62	7.301	7.229	6.944	6.85	6.54	5.921	2.77	0.414	0.295	0.265	0.259	0.302	0.372	0.302	0.259	0.265	0.295	0.414	2.77	5.921	6.54	6.85	6.944	7.229	7.301
63	6.876	6.86	6.546	6.434	6.069	5.453	2.567	0.4	0.287	0.26	0.251	0.294	0.368	0.294	0.251	0.26	0.287	0.4	2.567	5.453	6.069	6.434	6.546	6.86	6.876
64	6.431	6.425	6.087	5.955	5.607	5.031	2.357	0.388	0.279	0.253	0.244	0.286	0.364	0.286	0.244	0.253	0.279	0.388	2.357	5.031	5.607	5.955	6.087	6.425	6.431
65	5.935	5.91	5.629	5.429	5.12	4.583	2.137	0.376	0.272	0.246	0.238	0.276	0.359	0.276	0.238	0.246	0.272	0.376	2.137	4.583	5.12	5.429	5.629	5.91	5.935
66	5.487	5.411	5.144	4.925	4.629	4.142	1.908	0.366	0.264	0.241	0.233	0.268	0.353	0.268	0.233	0.241	0.264	0.366	1.908	4.142	4.629	4.925	5.144	5.411	5.487
67	5.059	4.867	4.628	4.411	4.198	3.696	1.659	0.353	0.256	0.238	0.227	0.261	0.345	0.261	0.227	0.238	0.256	0.353	1.659	3.696	4.198	4.411	4.628	4.867	5.059
68	4.58	4.314	4.063	3.89	3.807	3.352	1.41	0.329	0.249	0.237	0.222	0.252	0.34	0.252	0.222	0.237	0.249	0.329	1.41	3.352	3.807	3.89	4.063	4.314	4.58
69	4.037	3.838	3.61	3.393	3.145	2.713	1.143	0.314	0.241	0.235	0.215	0.243	0.335	0.243	0.215	0.235	0.241	0.314	1.143	2.713	3.145	3.393	3.61	3.838	4.037
70	3.632	3.332	3.042	2.828	2.658	2.115	0.963	0.3	0.234	0.233	0.21	0.234	0.33	0.234	0.21	0.233	0.234	0.3	0.963	2.115	2.658	2.828	3.042	3.332	3.632
71	2.529	2.391	2.142	2.015	1.768	1.685	0.784	0.286	0.222	0.231	0.205	0.226	0.323	0.226	0.205	0.231	0.222	0.286	0.784	1.685	1.768	2.015	2.142	2.391	2.529
72	2.135	2.096	1.967	1.783	1.545	1.3	0.655	0.275	0.209	0.231	0.199	0.22	0.315	0.22	0.199	0.231	0.209	0.275	0.655	1.3	1.545	1.783	1.967	2.096	2.135
73	2.018	1.975	1.848	1.668	1.42	1.18	0.601	0.266	0.2	0.23	0.193	0.214	0.306	0.214	0.193	0.23	0.2	0.266	0.601	1.18	1.42	1.668	1.848	1.975	2.018
74	1.909	1.872	1.738	1.571	1.309	1.076	0.557	0.258	0.191	0.229	0.187	0.208	0.297	0.208	0.187	0.229	0.191	0.258	0.557	1.076	1.309	1.571	1.738	1.872	1.909
75	1.817	1.777	1.637	1.485	1.212	0.994	0.52	0.251	0.182	0.225	0.181	0.202	0.29	0.202	0.181	0.225	0.182	0.251	0.52	0.994	1.212	1.485	1.637	1.777	1.817
76	1.737	1.695	1.55	1.407	1.132	0.922	0.488	0.244	0.177	0.22	0.177	0.196	0.281	0.196	0.177	0.22	0.177	0.244	0.488	0.922	1.132	1.407	1.55	1.695	1.737
77	1.676	1.624	1.473	1.33	1.062	0.858	0.462	0.239	0.172	0.214	0.173	0.188	0.274	0.188	0.173	0.214	0.172	0.239	0.462	0.858	1.062	1.33	1.473	1.624	1.676
78	1.624	1.564	1.405	1.246	1.002	0.804	0.44	0.233	0.168	0.204	0.169	0.182	0.268	0.182	0.169	0.204	0.168	0.233	0.44	0.804	1.002	1.246	1.405	1.564	1.624
79	1.561	1.497	1.343	1.163	0.944	0.752	0.418	0.226	0.165	0.18	0.164	0.176	0.26	0.176	0.164	0.18	0.165	0.226	0.418	0.752	0.944	1.163	1.343	1.497	1.561
80	1.496	1.427	1.278	1.096	0.887	0.699	0.392	0.22	0.162	0.157	0.158	0.17	0.251	0.17	0.158	0.157	0.162	0.22	0.392	0.699	0.887	1.096	1.278	1.427	1.496
81	1.435	1.353	1.214	1.035	0.832	0.645	0.365	0.211	0.16	0.15	0.153	0.165	0.241	0.165	0.153	0.15	0.16	0.211	0.365	0.645	0.832	1.035	1.214	1.353	1.435
82	1.374	1.282	1.153	0.969	0.777	0.592	0.342	0.204	0.157	0.146	0.15	0.159	0.231	0.159	0.15	0.146	0.157	0.204	0.342	0.592	0.777	0.969	1.153	1.282	1.374
83	1.319	1.221	1.091	0.911	0.722	0.542	0.324	0.198	0.152	0.144	0.148	0.152	0.221	0.152	0.148	0.144	0.152	0.198	0.324	0.542	0.722	0.911	1.091	1.221	1.319
84	1.265	1.161	1.034	0.857	0.668	0.498	0.308	0.192	0.148	0.141	0.147	0.147	0.212	0.147	0.141	0.148	0.192	0.308	0.498	0.668	0.857	1.034	1.161	1.265	
85	1.21	1.105	0.981	0.808	0.622	0.457	0.293	0.187	0.145	0.138	0.146	0.142	0.206	0.142	0.146	0.138	0.145	0.187	0.293	0.457	0.622	0.808	0.981	1.105	1.21
86	1.164	1.055	0.934	0.763	0.579	0.424	0.281	0.182	0.14	0.134	0.143	0.139	0.197	0.139	0.143	0.134	0.14	0.182	0.281	0.424	0.579	0.763	0.934	1.055	1.164
87	1.123	1.011	0.89	0.722	0.541	0.395	0.273	0.179	0.138	0.13	0.133	0.134	0.188	0.134	0.133	0.13	0.138	0.179	0.273	0.395	0.541	0.722	0.89	1.011	1.123
88	1.091	0.974	0.852	0.687	0.51	0.378	0.269	0.177	0.134	0.127	0.126	0.13	0.178	0.13	0.126	0.127	0.134	0.177	0.269	0.378	0.51	0.687	0.852	0.974	1.091
89	1.062	0.944	0.816	0.661	0.492	0.365	0.266	0.175	0.132	0.123	0.123	0.125	0.173	0.125	0.123	0.123	0.132	0.175	0.266	0.365	0.492	0.661	0.816	0.944	1.062
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.579	0.499	0.427	0.347	0.264	0.224	0.237	0.224	0.264	0.347	0.427	0.499	0.579	0.499	0.427	0.347	0.264	0.224	0.237	0.224	0.264	0.347	0.427	0.499	0.579
92	0.58	0.499	0.434	0.353	0.267	0.227	0.24	0.227	0.267	0.353	0.434	0.499	0.58	0.499	0.434	0.353	0.267	0.227	0.24	0.227	0.267	0.353	0.434	0.499	0.58
93	0.591	0.509	0.446	0.365	0.279	0.239	0.252	0.239	0.279	0.365	0.446	0.509	0.591	0.509	0.446	0.365	0.279	0.239	0.252	0.239	0.279	0.365	0.446	0.509	0.591
94	0.616	0.526	0.467	0.39	0.306	0.263	0.274	0.263	0.306	0.39	0.467	0.526	0.616	0.526	0.467	0.39	0.306	0.263	0.274	0.263	0.306	0.39	0.467	0.526	0.616
95	0.651	0.548	0.499	0.425	0.342	0.299	0.31	0.299	0.342	0.425	0.499	0.548	0.651	0.548	0.499	0.425	0.342	0.299	0.31	0.299	0.342	0.425	0.499	0.548	0.651
96	0.693	0.577	0.533	0.466	0.384	0.342	0.352	0.342	0.384	0.466	0.533	0.577	0.693	0.577	0.533	0.466	0.384	0.342	0.352	0.342	0.384	0.466	0.533	0.577	0.693
97	0.741	0.613	0.571	0.513	0.433	0.391	0.401	0.391	0.433	0.513															



104	1.116	1.043	0.958	0.952	0.797	0.762	0.776	0.762	0.797	0.952	0.958	1.043	1.116	1.043	0.958	0.952	0.797	0.762	0.776	0.762	0.797	0.952	0.958	1.043	1.116
105	1.158	1.094	1.021	1.006	0.858	0.822	0.838	0.822	0.858	1.006	1.021	1.094	1.158	1.094	1.021	1.006	0.858	0.822	0.838	0.822	0.858	1.006	1.021	1.094	1.158
106	1.214	1.158	1.089	1.066	0.931	0.891	0.908	0.891	0.931	1.066	1.089	1.158	1.214	1.158	1.089	1.066	0.931	0.891	0.908	0.891	0.931	1.066	1.089	1.158	1.214
107	1.282	1.234	1.164	1.134	1.012	0.97	0.99	0.97	1.012	1.134	1.164	1.234	1.282	1.234	1.164	1.134	1.012	0.97	0.99	0.97	1.012	1.134	1.164	1.234	1.282
108	1.354	1.315	1.247	1.213	1.108	1.063	1.087	1.063	1.108	1.213	1.247	1.315	1.354	1.315	1.247	1.213	1.108	1.063	1.087	1.063	1.108	1.213	1.247	1.315	1.354
109	1.439	1.406	1.342	1.309	1.215	1.186	1.239	1.186	1.215	1.309	1.342	1.406	1.439	1.406	1.342	1.309	1.215	1.186	1.239	1.186	1.215	1.309	1.342	1.406	1.439
110	1.543	1.521	1.482	1.463	1.443	1.694	1.903	1.694	1.443	1.463	1.482	1.521	1.543	1.521	1.482	1.463	1.443	1.694	1.903	1.694	1.443	1.463	1.482	1.521	1.543
111	1.969	2.163	2.512	2.599	2.494	2.452	2.549	2.452	2.494	2.599	2.512	2.163	1.969	2.163	2.512	2.599	2.494	2.452	2.549	2.452	2.494	2.599	2.512	2.163	1.969
112	4.029	3.784	3.397	3.268	3.181	3.183	3.088	3.183	3.181	3.268	3.397	3.784	4.029	3.784	3.397	3.268	3.181	3.183	3.088	3.183	3.181	3.268	3.397	3.784	4.029
113	4.072	3.943	3.759	3.713	3.58	3.541	3.454	3.541	3.58	3.713	3.759	3.943	4.072	3.943	3.759	3.713	3.58	3.541	3.454	3.541	3.58	3.713	3.759	3.943	4.072
114	4.592	4.442	4.296	4.16	4.041	3.982	3.908	3.982	4.041	4.16	4.296	4.442	4.592	4.442	4.296	4.16	4.041	3.982	3.908	3.982	4.041	4.16	4.296	4.442	4.592
115	5.087	5.024	4.831	4.689	4.515	4.418	4.365	4.418	4.515	4.689	4.831	5.024	5.087	5.024	4.831	4.689	4.515	4.418	4.365	4.418	4.515	4.689	4.831	5.024	5.087
116	5.626	5.544	5.327	5.168	4.973	4.834	4.774	4.834	4.973	5.168	5.327	5.544	5.626	5.544	5.327	5.168	4.973	4.834	4.774	4.834	4.973	5.168	5.327	5.544	5.626
117	6.122	5.992	5.781	5.608	5.418	5.219	5.163	5.219	5.418	5.608	5.781	5.992	6.122	5.992	5.781	5.608	5.418	5.219	5.163	5.219	5.418	5.608	5.781	5.992	6.122
118	6.57	6.444	6.228	6.04	5.861	5.633	5.554	5.633	5.861	6.04	6.228	6.444	6.57	6.444	6.228	6.04	5.861	5.633	5.554	5.633	5.861	6.04	6.228	6.444	6.57
119	6.913	6.849	6.642	6.462	6.262	6.027	5.932	6.027	6.262	6.462	6.642	6.849	6.913	6.849	6.642	6.462	6.262	6.027	5.932	6.027	6.262	6.462	6.642	6.849	6.913
120	7.232	7.212	7.019	6.853	6.646	6.454	6.324	6.454	6.646	6.853	7.019	7.212	7.232	7.212	7.019	6.853	6.646	6.454	6.324	6.454	6.646	6.853	7.019	7.212	7.232
121	7.654	7.632	7.413	7.244	7.049	6.855	6.733	6.855	7.049	7.244	7.413	7.632	7.654	7.632	7.413	7.244	7.049	6.855	6.733	6.855	7.049	7.244	7.413	7.632	7.654
122	8.16	8.124	7.912	7.724	7.54	7.365	7.226	7.365	7.54	7.724	7.912	8.124	8.16	8.124	7.912	7.724	7.54	7.365	7.226	7.365	7.54	7.724	7.912	8.124	8.16
123	8.731	8.67	8.437	8.27	8.1	7.951	7.843	7.951	8.1	8.27	8.437	8.67	8.731	8.67	8.437	8.27	8.1	7.951	7.843	7.951	8.1	8.27	8.437	8.67	8.731
124	9.339	9.275	9.023	8.872	8.702	8.563	8.469	8.563	8.702	8.872	9.023	9.275	9.339	9.275	9.023	8.872	8.702	8.563	8.469	8.563	8.702	8.872	9.023	9.275	9.339
125	10.038	9.959	9.749	9.574	9.387	9.237	9.157	9.237	9.387	9.574	9.749	9.959	10.038	9.959	9.749	9.574	9.387	9.237	9.157	9.237	9.387	9.574	9.749	9.959	10.038
126	10.808	10.74	10.575	10.426	10.204	10.074	9.989	10.074	10.204	10.426	10.575	10.74	10.808	10.74	10.575	10.426	10.204	10.074	9.989	10.074	10.204	10.426	10.575	10.74	10.808
127	11.693	11.662	11.486	11.356	11.14	11.029	10.932	11.029	11.14	11.356	11.486	11.662	11.693	11.662	11.486	11.356	11.14	11.029	10.932	11.029	11.14	11.356	11.486	11.662	11.693
128	12.715	12.66	12.548	12.417	12.257	12.039	12.012	12.039	12.257	12.417	12.548	12.66	12.715	12.66	12.548	12.417	12.257	12.039	12.012	12.039	12.257	12.417	12.548	12.66	12.715
129	13.986	13.825	13.748	13.648	13.471	13.316	13.142	13.316	13.471	13.648	13.748	13.825	13.986	13.825	13.748	13.648	13.471	13.316	13.142	13.316	13.471	13.648	13.748	13.825	13.986
130	15.264	15.131	15.035	14.983	14.859	14.646	14.524	14.646	14.859	14.983	15.035	15.131	15.264	15.131	15.035	14.983	14.859	14.646	14.524	14.646	14.859	14.983	15.035	15.131	15.264
131	16.655	16.577	16.461	16.413	16.314	16.042	15.882	16.042	16.314	16.413	16.461	16.577	16.655	16.577	16.461	16.413	16.314	16.042	15.882	16.042	16.314	16.413	16.461	16.577	16.655
132	18.221	18.212	18.089	18.054	17.923	17.667	17.441	17.667	17.923	18.054	18.089	18.212	18.221	18.212	18.089	18.054	17.923	17.667	17.441	17.667	17.923	18.054	18.089	18.212	18.221
133	19.973	20.001	19.828	19.776	19.569	19.363	19.097	19.363	19.569	19.776	19.828	20.001	19.973	20.001	19.828	19.776	19.569	19.363	19.097	19.363	19.569	19.776	19.828	20.001	19.973
134	21.98	21.94	21.681	21.568	21.506	21.187	20.954	21.187	21.506	21.568	21.681	21.94	21.98	21.94	21.681	21.568	21.506	21.187	20.954	21.187	21.506	21.568	21.681	21.94	21.98
135	23.951	24.076	23.773	23.668	23.536	23.174	22.926	23.174	23.536	23.668	23.773	24.076	23.951	24.076	23.773	23.668	23.536	23.174	22.926	23.174	23.536	23.668	23.773	24.076	23.951
136	26.19	26.25	26.023	25.962	25.831	25.421	25.151	25.421	25.831	25.962	26.023	26.25	26.19	26.25	26.023	25.962	25.831	25.421	25.151	25.421	25.831	25.962	26.023	26.25	26.19
137	28.675	28.726	28.528	28.367	28.256	27.817	27.478	27.817	28.256	28.367	28.528	28.675	28.726	28.726	28.528	28.367	28.256	27.817	27.478	27.817	28.256	28.367	28.528	28.675	28.726
138	31.223	31.406	31.169	31.04	30.927	30.426	30.129	30.426	30.927	31.04	31.169	31.406	31.223	31.406	31.169	31.04	30.927	30.426	30.129	30.426	30.927	31.04	31.169	31.406	31.223
139	34.257	34.405	34.266	34.009	33.888	33.302	33.302	33.888	34.009	34.266	34.405	34.257	34.405	34.266	34.009	33.888	33.302	33.302	33.888	34.009	34.266	34.405	34.257	34.405	34.257
140	37.628	37.803	37.617	37.29	37.171	36.641	36.186	36.641	37.171	37.29	37.617	37.803	37.628	37.803	37.617	37.29	37.171	36.641	36.186	36.641	37.171	37.29	37.617	37.803	37.628
141	41.327	41.537	41.217	40.88	40.717	40.111	39.84	40.111	40.717	40.88	41.217	41.537	41.327	41.537	41.217	40.88	40.717	40.111	39.84	40.111	40.717	40.88	41.217	41.537	41.327
142	45.504	45.592	45.299	44.924	44.814	44.21	43.767	44.21	44.814	44.924	45.299	45.592	45.504	45.592	45.299	44.924	44.814	44.21	43.767	44.21	44.814	44.924	45.299	45.592	45.504
143	50.051	50.145	49.818	49.382	49.26	48.496	48.165	48.496	49.26	49.382	49.818	50.145	50.051	50.145	49.818	49.382	49.26	48.496	48.165	48.496	49.26	49.382	49.818	50.145	50.051
144	55.38	55.392	54.767	54.49	54.097	53.4	53.052	53.4	54.097	54.49	54.767	55.392	55.38	55.392	54.767	54.49	54.097	53.399	53.052	53.399	54.097	54.49	54.767	55.392	55.38
145	60.876	60.823	60.054	59.612	59.357	58.665	58.238	58.665	59.357	59.612	60.054	60.823	60.876	60.823	60.054	59.612	59.357	58.665	58.238	58.665	59.357	59.612	60.054	60.823	60.876
146	66.884	66.743	65.975	65.584	65.246	64.703	64.205	64.703	65.246	65.584	65.975	66.743	66.884	66.743	65.975	65.584	65.246	64.703	64.205	64.703	65.246	65.584	65.975	66.743	66.884
147	73.682	73.637	72.547	72.051	71.824	71.309	70.661	71.309	71.824	72.051	72.547	73.637	73.682	73.637	72.547	72.051	71.824	71.309	70.661	71.309	71.824	72.051	72.547	73.637	73.682
148	81.436	81.093	79.963	79.368	79.025	78.395	78.012	78.395	79.025	79.368	79.963	81.093	81.436	81.093	79.963	79.368	79.025	78.395	78.012	78.395	79.025	7			



158	215.32	215.53	216.29	216.31	214.84	212.58	211.64	212.58	214.84	216.31	216.29	215.53	215.32	215.53	216.29	216.31	214.84	212.58	211.64	212.58	214.84	216.31	216.29	215.53	215.32	
159	236.49	236.49	237.93	237.92	236.49	234.31	233.6	234.31	236.49	237.92	237.93	236.49	236.49	237.93	237.92	236.49	234.31	233.6	234.31	236.49	237.92	237.93	236.49	236.49	237.93	236.49
160	259.38	259.62	261.03	261.18	260.19	257.71	257.28	257.71	260.19	261.18	261.03	259.62	259.38	261.03	261.18	260.19	257.71	257.28	257.71	260.19	261.18	261.03	259.62	259.38	261.03	259.38
161	284.07	284.11	285.19	285.68	284.57	282.57	282.65	282.57	284.57	285.68	285.19	284.11	284.07	284.11	285.19	285.68	284.57	282.57	282.65	282.57	284.57	285.68	285.19	284.11	284.07	284.11
162	309.9	309.43	310.65	311.29	311.11	309.27	309.43	309.27	311.11	311.29	310.65	309.43	309.9	309.43	310.65	311.29	311.11	309.27	309.43	309.27	311.11	311.29	310.65	309.43	309.9	309.9
163	336.65	337.19	337.37	338.18	337.89	336.96	336.61	336.96	337.89	338.18	337.37	337.19	336.65	337.19	337.37	338.18	337.89	336.96	336.61	336.96	337.89	338.18	337.37	337.19	336.65	336.65
164	364.37	364.8	365.61	365.36	366.24	365.39	365.67	365.39	366.24	365.36	365.61	364.8	364.37	364.8	365.61	365.36	366.24	365.39	365.67	365.39	366.24	365.36	365.61	364.8	364.37	364.37
165	393.73	394.04	394.37	394.51	394.83	394.65	394.78	394.65	394.83	394.51	394.37	394.04	393.73	394.04	394.37	394.51	394.83	394.65	394.78	394.65	394.83	394.51	394.37	394.04	393.73	393.73
166	422.62	423.6	423.47	423.43	423.58	424.01	424.75	424.01	423.58	423.43	423.47	423.6	422.62	423.6	423.47	423.43	423.58	424.01	424.75	424.01	423.58	423.43	423.47	423.6	422.62	422.62
167	452.73	452.94	453.36	452.41	452.81	453.82	455.13	453.82	452.81	452.41	453.36	452.94	452.73	452.94	453.36	452.41	452.81	453.82	455.13	453.82	452.81	452.41	453.36	452.94	452.73	452.73
168	482.4	482.89	482.96	481.52	482.18	483.91	484.86	483.91	482.18	481.52	482.96	482.89	482.4	482.89	482.96	481.52	482.18	483.91	484.86	483.91	482.18	481.52	482.96	482.89	482.4	482.4
169	512.42	512.23	512.66	511.59	511.79	513.12	514.8	513.12	511.79	511.59	512.66	512.23	512.42	512.23	512.66	511.59	511.79	513.12	514.8	513.12	511.79	511.59	512.66	512.23	512.42	512.42
170	541.09	540.14	541.24	540.35	540.63	541.92	543.18	541.92	540.63	540.35	541.24	540.14	541.09	540.14	541.24	540.35	540.63	541.92	543.18	541.92	540.63	540.35	541.24	540.14	541.09	541.09
171	568.73	568.25	569.04	568.38	568.82	569.98	570.38	569.98	568.82	568.38	569.04	568.25	568.73	568.25	569.04	568.38	568.82	569.98	570.38	569.98	568.82	568.38	569.04	568.25	568.73	568.73
172	596.19	594.96	595.91	595.97	596.31	597.02	598.22	597.02	596.31	595.97	595.91	594.96	596.19	594.96	595.91	595.97	596.31	597.02	598.22	597.02	596.31	595.97	595.91	594.96	596.19	596.19
173	620.65	620.01	621.05	621.18	621.75	622.85	623.8	622.85	621.75	621.18	621.05	620.01	620.65	620.01	621.05	621.18	621.75	622.85	623.8	622.85	621.75	621.18	621.05	620.01	620.65	620.65
174	643.25	643.37	643.81	645.19	645.58	646.47	646.38	646.47	645.58	643.81	643.37	643.25	643.25	643.37	643.81	645.19	645.58	646.47	646.38	646.47	645.58	645.19	643.81	643.37	643.25	643.25
175	664.62	663.29	664.33	665.73	666.67	667.51	667.03	667.51	666.67	665.73	664.33	663.29	664.62	663.29	664.33	665.73	666.67	667.51	667.03	667.51	666.67	665.73	664.33	663.29	664.62	664.62
176	681.8	681.07	682.25	682.74	683.88	683.97	684.05	683.97	683.88	682.74	682.25	681.07	681.8	681.07	682.25	682.74	683.88	683.97	684.05	683.97	683.88	682.74	682.25	681.07	681.8	681.8
177	695.8	694.5	695.62	696.09	697.08	697.31	697.48	697.31	697.08	696.09	695.62	694.5	695.8	694.5	695.62	696.09	697.08	697.31	697.48	697.31	697.08	696.09	695.62	694.5	695.8	695.8
178	706.25	705.22	705.24	705.13	705.82	705.39	706.02	705.39	705.82	705.13	705.24	705.22	706.25	705.22	705.24	705.13	705.82	705.39	706.02	705.39	705.82	705.13	705.24	705.22	706.25	706.25
179	712.24	710.74	711.13	710.84	710.65	710.93	710.85	710.93	710.65	710.84	711.13	710.74	712.24	710.74	711.13	710.84	710.65	710.93	710.85	710.93	710.65	710.84	711.13	710.74	712.24	712.24
180	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68	713.68

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	SA-REWP	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° C ± 1° 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	0.051	6.13	0.997	5.76%
277.07	60	0.026	6.66	0.931	10.79%

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*****