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

DLF2408110-7a

Test Date

2024/8/26

Issue Date

2024/9/3

Prepared By	**Approved By**
Wangzun Zhu	Kevin Jia

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		195
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	46.5
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		96
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	22.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		4.19
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	20.42%
		20.00%	277V	10.00%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.978
		0.9	277V	0.897
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3045±175	3020
		4 step	3045±100	
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	-		10
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		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%		22.58%
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		0.017
(Goniophotometer - Section 4.2)		Non-Worst Case		0.034
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		4.19
(Goniophotometer - Section 4.2)		Non-Worst Case		4.03

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/26	SA-DASHR	ES1-02	G1
2	Goniophotometer Test	2024/8/26	SA-DASHR	ES1-02	G1
3	THD and PF Test	2024/8/26	SA-DASHR	ES1-02	G1

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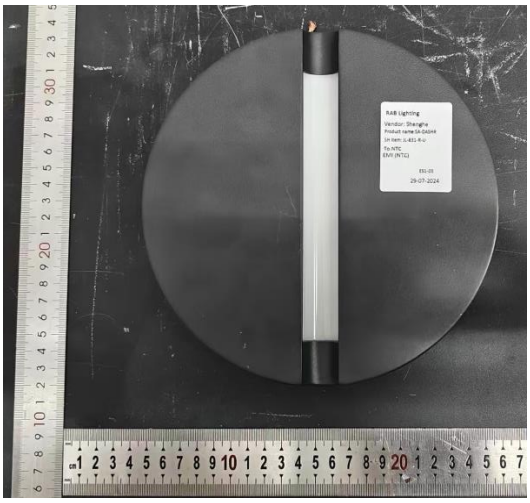
2、The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing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

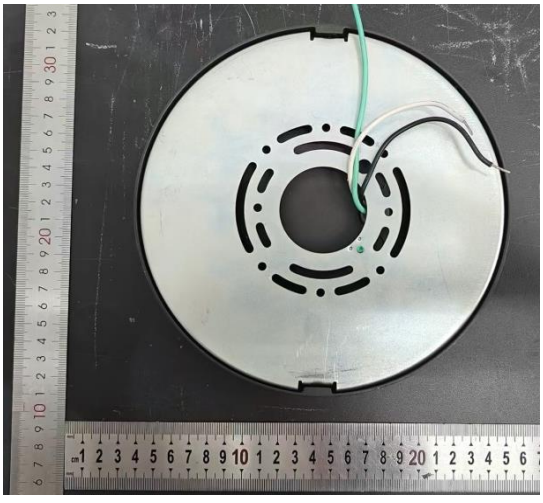
3.0 Production Description

Luminaire Description: SA-DASHR

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-DASHR	Sample ID.	G1
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 25º C ± 1º 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
120.02	60	0.035	4.06	0.978
277.08	60	0.017	4.22	0.897

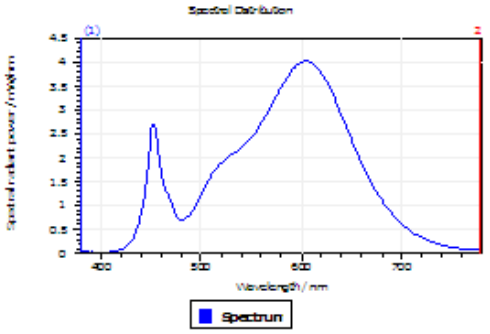
Test Result

CCT (K)	CRI	R9	Duv
3020	83	10	-0.0021

Rf	Rg	IES Rcs,h1
84	97	-11%

4.1 Integrating Sphere Test

Results



Spectral Distribution

Spectral values

DominantWavelength	583.54 nm
Purity	0.490
PeakWavelength	604.29 nm
Radiant Power	0.605 W
Width50%:	

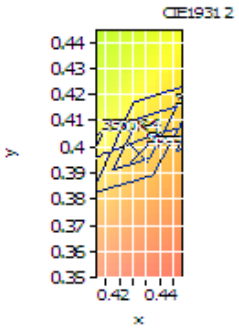
Color Coordinates

Correlated Color Temperat 3020 K

x:	0.4324	u:	0.2506	u':	0.2506
y:	0.3972	v:	0.3453	v':	0.5180

CRI01	82.0	CRI09	10.0
CRI02	91.9	CRI10	81.3
CRI03	95.7	CRI11	80.6
CRI04	80.9	CRI12	71.3
CRI05	82.3	CRI13	84.6
CRI06	90.2	CRI14	98.5
CRI07	81.9	CRI15	74.8
CRI08	69.4	CRI16	72.1

ResultsCRI 83.0

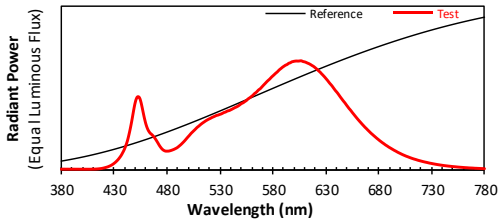


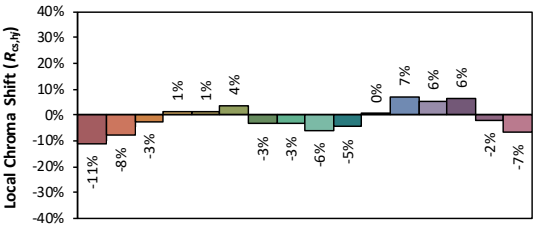
PlanckDistance 2.1E-003

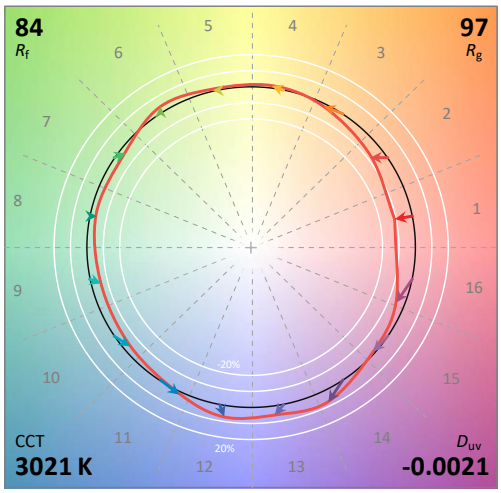
4.1 Integrating Sphere Test

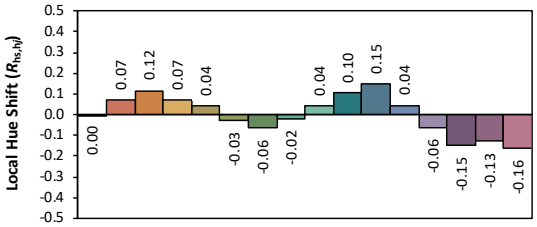
IES TM-30-18 Color Rendition Report

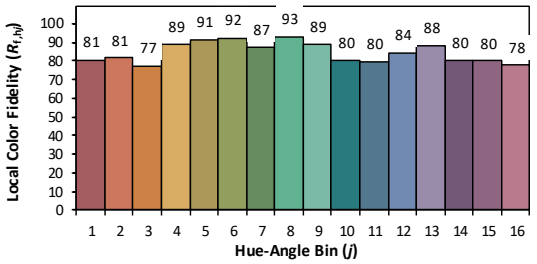
Source: DLF2408110-7a
Manufacturer: RAB Lighting Inc.
Date: 2024/8/26
Model: SA-DASHR

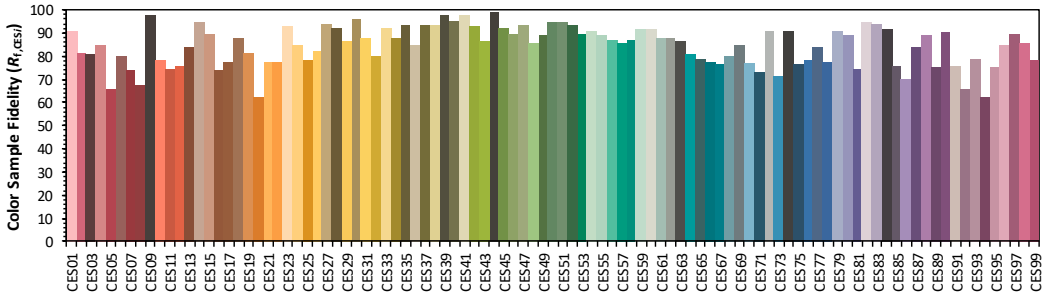












Notes: This is a recommended method for displaying IES TM-30-18 information.

x	0.4324
y	0.3972
u'	0.2506
v'	0.5180

CIE 13.3-1995 (CRI)

R_a	84
R_9	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	3.36E-05	485	7.41E-04	590	3.82E-03	695	7.22E-04
385	3.41E-05	490	8.40E-04	595	3.94E-03	700	6.20E-04
390	3.32E-05	495	1.01E-03	600	4.01E-03	705	5.29E-04
395	3.28E-05	500	1.23E-03	605	4.02E-03	710	4.54E-04
400	3.23E-05	505	1.44E-03	610	3.99E-03	715	3.90E-04
405	3.24E-05	510	1.62E-03	615	3.90E-03	720	3.33E-04
410	3.47E-05	515	1.77E-03	620	3.77E-03	725	2.86E-04
415	4.53E-05	520	1.89E-03	625	3.60E-03	730	2.44E-04
420	7.55E-05	525	1.98E-03	630	3.38E-03	735	2.07E-04
425	1.36E-04	530	2.06E-03	635	3.15E-03	740	1.77E-04
430	2.50E-04	535	2.14E-03	640	2.89E-03	745	1.51E-04
435	4.51E-04	540	2.22E-03	645	2.63E-03	750	1.30E-04
440	7.98E-04	545	2.32E-03	650	2.38E-03	755	1.11E-04
445	1.49E-03	550	2.44E-03	655	2.13E-03	760	9.60E-05
450	2.51E-03	555	2.57E-03	660	1.89E-03	765	8.16E-05
455	2.55E-03	560	2.72E-03	665	1.67E-03	770	7.08E-05
460	1.70E-03	565	2.89E-03	670	1.47E-03	775	6.10E-05
465	1.33E-03	570	3.08E-03	675	1.28E-03	780	5.17E-05
470	1.09E-03	575	3.29E-03	680	1.12E-03		
475	7.89E-04	580	3.47E-03	685	9.70E-04		
480	6.99E-04	585	3.65E-03	690	8.37E-04		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SA-DASHR	Sample ID.	G1
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^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.02	60	0.017	4.19	0.897
NON-WORST CASE	120.03	60	0.034	4.03	0.978

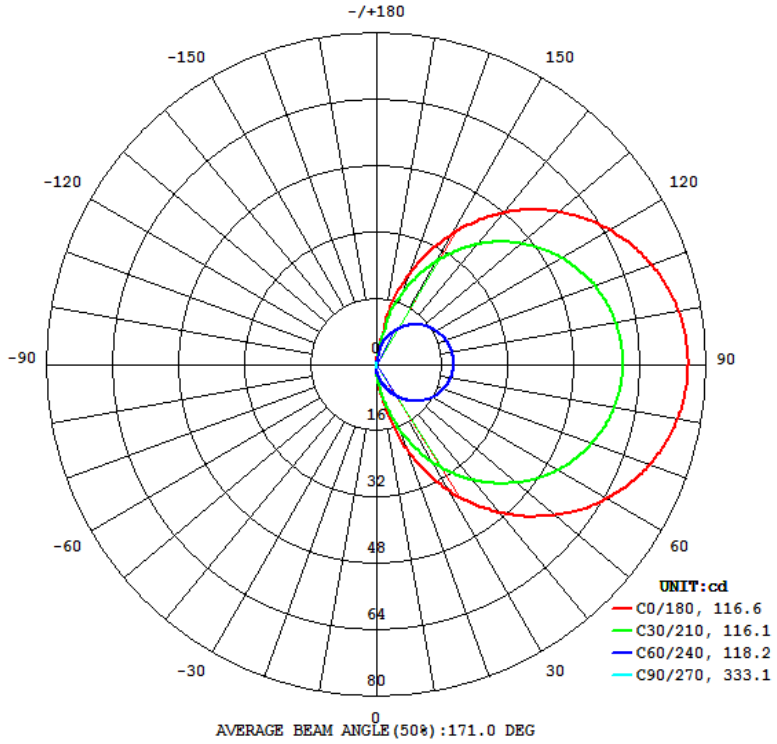
Test Result

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	195	158.6	335.4	116.6	333.1	46.5
0°-90° zones	96	79.8	79.8	57.4	46.5	22.9

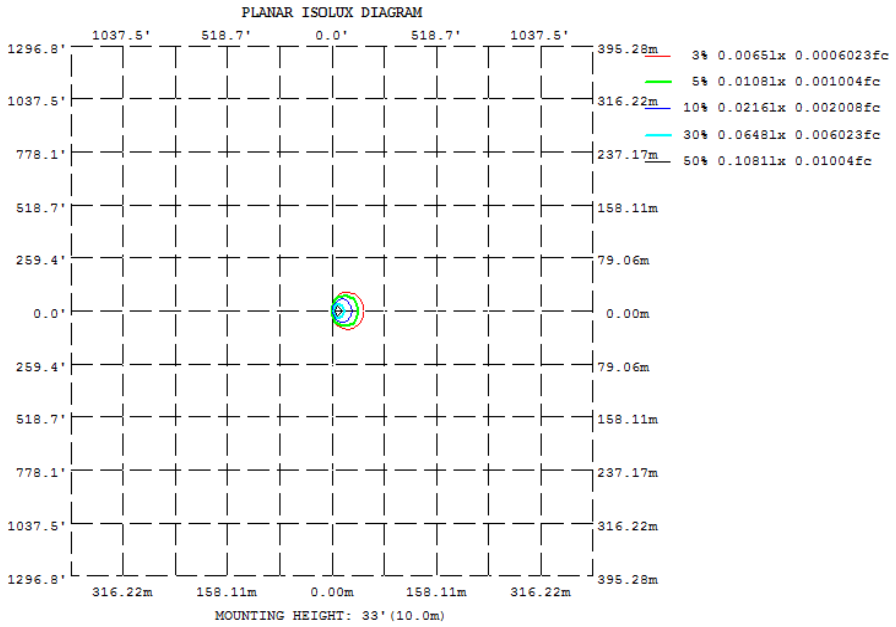
Zonal Lumen Requirement (80°-90°)	BUG rating
22.58%	B0-U3-G1

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

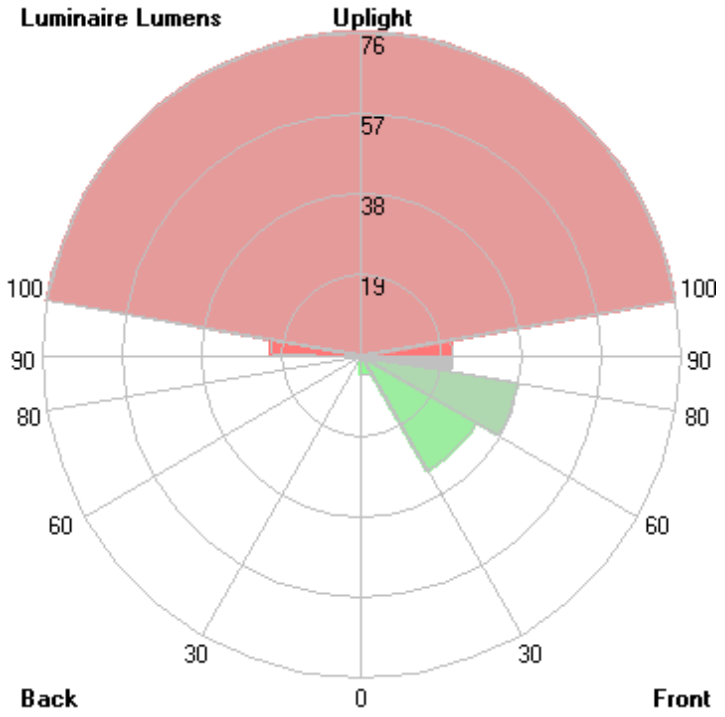
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	7.445	4.097	0.6977	0.0920	0.0575	0.1021	0.7843	4.406
20	21.55	10.95	0.4601	0.0790	0.0801	0.0976	0.5427	11.93
30	34.92	17.87	0.1872	0.0741	0.0698	0.0716	0.2164	19.55
40	46.62	24.12	0.0801	0.0725	0.0629	0.0652	0.0747	26.48
50	56.52	29.54	0.0697	0.0781	0.0686	0.0656	0.0625	32.42
60	64.50	33.89	0.0625	0.0805	0.0741	0.0663	0.0545	37.25
70	70.47	37.16	0.0508	0.0676	0.0712	0.0636	0.0469	40.79
80	74.28	39.28	0.0436	0.0623	0.0525	0.0569	0.0400	43.08
90	75.66	40.12	0.0351	0.0587	0.0525	0.0527	0.0314	43.96
100	74.60	39.74	0.0272	0.0550	0.0614	0.0503	0.0231	43.44
110	71.11	38.08	0.0198	0.0448	0.0650	0.0460	0.0165	41.58
120	65.39	35.21	0.0180	0.0380	0.0601	0.0427	0.0174	38.36
130	57.59	31.25	0.0198	0.0343	0.0540	0.0447	0.0238	33.95
140	47.93	26.15	0.0245	0.0296	0.0443	0.0445	0.0336	28.25
150	36.56	20.09	0.1709	0.0245	0.0242	0.0309	0.1593	20.70
160	23.52	13.20	0.5128	0.0194	0.0104	0.0195	0.3458	11.29
170	3.999	0.0957	0.0229	0.0154	0.0080	0.0142	0.0307	0.0389
180	0.0071	0.0147	0.0169	0.0122	0.0073	0.0118	0.0167	0.0142
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	0.12	0 - 10	0.12	0.06%
10-20	1.17	0 - 20	1.29	0.66%
20-30	3.49	0 - 30	4.78	2.46%
30-40	6.75	0 - 40	11.53	5.93%
40-50	10.55	0 - 50	22.08	11.35%
50-60	14.37	0 - 60	36.45	18.73%
60-70	17.77	0 - 70	54.22	27.87%
70-80	20.32	0 - 80	74.54	38.31%
80-90	21.74	0 - 90	96.28	49.48%
90-100	21.82	0 - 100	118.10	60.70%
100-110	20.55	0 - 110	138.65	71.26%
110-120	18.12	0 - 120	156.77	80.57%
120-130	14.81	0 - 130	171.58	88.18%
130-140	11.02	0 - 140	182.60	93.85%
140-150	7.17	0 - 150	189.77	97.53%
150-160	3.73	0 - 160	193.50	99.45%
160-170	1.06	0 - 170	194.56	99.99%
170-180	0.01	0 - 180	194.57	100.00%

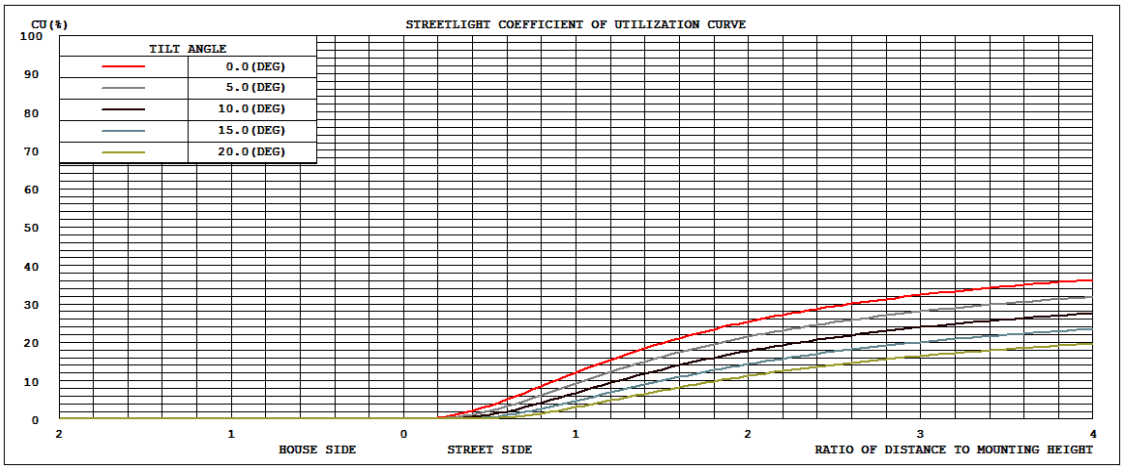
4.2 Goniophotometer Test

LCS/BUG

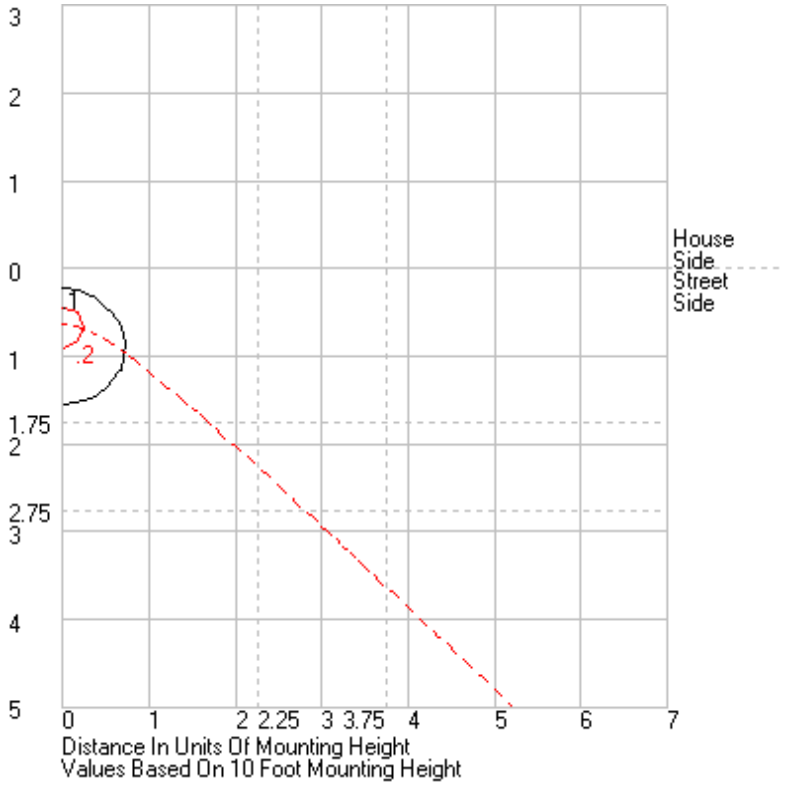


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	4.7	N.A.	2.4
FM - Front-Medium (30-60)	31.6	N.A.	16.2
FH - Front-High (60-80)	38.0	N.A.	19.5
FVH - Front-Very High (80-90)	21.7	N.A.	11.2
BL - Back-Low (0-30)	0.1	N.A.	0.0
BM - Back-Medium (30-60)	0.1	N.A.	0.0
BH - Back-High (60-80)	0.1	N.A.	0.0
BVH - Back-Very High (80-90)	< 0.05	N.A.	0.0
UL - Uplight-Low (90-100)	21.8	N.A.	11.2
UH - Uplight-High (100-180)	76.5	N.A.	39.3
Total	194.6	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	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
1	0.12	0.13	0.13	0.15	0.16	0.16	0.16	0.14	0.12	0.09	0.06	0.04	0.04	0.04	0.06	0.09	0.11	0.13	0.15	0.15	0.15	0.13	0.12	0.11	0.12
2	0.33	0.33	0.33	0.31	0.29	0.25	0.22	0.18	0.15	0.11	0.06	0.04	0.04	0.04	0.06	0.09	0.13	0.17	0.21	0.24	0.27	0.29	0.29	0.3	0.33
3	0.71	0.69	0.65	0.58	0.49	0.39	0.31	0.23	0.17	0.11	0.06	0.04	0.04	0.04	0.06	0.1	0.16	0.22	0.3	0.38	0.48	0.56	0.62	0.65	0.71
4	1.25	1.21	1.11	0.95	0.76	0.57	0.41	0.29	0.19	0.11	0.06	0.04	0.04	0.04	0.06	0.1	0.18	0.28	0.42	0.57	0.77	0.95	1.09	1.17	1.25
5	1.96	1.88	1.67	1.38	1.06	0.76	0.52	0.33	0.2	0.11	0.06	0.04	0.04	0.04	0.06	0.1	0.19	0.33	0.53	0.78	1.09	1.41	1.68	1.84	1.96
6	2.82	2.67	2.35	1.84	1.36	0.94	0.6	0.36	0.2	0.11	0.06	0.04	0.04	0.04	0.06	0.1	0.2	0.37	0.64	0.99	1.44	1.92	2.38	2.65	2.82
7	3.82	3.62	3.1	2.35	1.63	1.07	0.65	0.37	0.2	0.1	0.06	0.04	0.04	0.05	0.06	0.1	0.2	0.39	0.71	1.16	1.76	2.48	3.17	3.6	3.82
8	4.96	4.66	3.94	2.89	1.9	1.16	0.68	0.38	0.19	0.1	0.06	0.04	0.05	0.05	0.06	0.1	0.2	0.4	0.75	1.29	2.07	3.08	4.04	4.65	4.96
9	6.17	5.82	4.84	3.48	2.16	1.23	0.7	0.37	0.19	0.09	0.05	0.04	0.05	0.05	0.06	0.1	0.2	0.41	0.78	1.4	2.39	3.73	4.98	5.82	6.17
10	7.44	7.01	5.8	4.1	2.44	1.3	0.7	0.37	0.18	0.09	0.05	0.04	0.06	0.06	0.07	0.1	0.2	0.41	0.78	1.5	2.72	4.41	5.99	6.98	7.44
11	8.79	8.25	6.8	4.74	2.71	1.36	0.69	0.36	0.17	0.09	0.05	0.04	0.06	0.06	0.07	0.1	0.19	0.4	0.78	1.58	3.06	5.12	6.99	8.25	8.79
12	10.15	9.53	7.83	5.39	3	1.41	0.68	0.35	0.17	0.09	0.05	0.04	0.07	0.07	0.07	0.1	0.19	0.39	0.77	1.66	3.4	5.82	8.08	9.55	10.15
13	11.54	10.83	8.88	6.06	3.29	1.46	0.66	0.34	0.16	0.09	0.05	0.04	0.07	0.07	0.08	0.1	0.18	0.38	0.75	1.73	3.75	6.55	9.18	10.87	11.54
14	12.98	12.19	9.95	6.75	3.58	1.51	0.63	0.32	0.16	0.08	0.05	0.04	0.07	0.07	0.08	0.1	0.18	0.37	0.72	1.8	4.1	7.29	10.31	12.24	12.98
15	14.41	13.56	11.03	7.44	3.87	1.56	0.61	0.31	0.15	0.08	0.05	0.04	0.07	0.08	0.08	0.1	0.17	0.35	0.7	1.87	4.46	8.06	11.44	13.56	14.41
16	15.85	14.92	12.12	8.13	4.17	1.61	0.58	0.3	0.15	0.08	0.05	0.04	0.08	0.08	0.08	0.1	0.17	0.34	0.67	1.94	4.82	8.83	12.6	14.94	15.85
17	17.26	16.21	13.22	8.84	4.47	1.66	0.55	0.28	0.14	0.08	0.05	0.04	0.08	0.08	0.08	0.1	0.16	0.32	0.64	2.02	5.18	9.6	13.74	16.33	17.26
18	18.72	17.56	14.32	9.54	4.76	1.71	0.52	0.27	0.14	0.08	0.05	0.04	0.08	0.08	0.09	0.1	0.16	0.31	0.61	2.09	5.54	10.37	14.89	17.68	18.72
19	20.13	18.85	15.41	10.23	5.06	1.76	0.49	0.25	0.13	0.08	0.06	0.04	0.08	0.08	0.09	0.1	0.15	0.29	0.58	2.16	5.9	11.16	16.05	19.05	20.13
20	21.55	20.22	16.48	10.95	5.36	1.81	0.46	0.24	0.12	0.08	0.06	0.04	0.08	0.08	0.09	0.1	0.14	0.27	0.54	2.24	6.25	11.93	17.18	20.41	21.55
21	22.97	21.52	17.61	11.66	5.65	1.87	0.43	0.22	0.12	0.08	0.06	0.04	0.08	0.08	0.09	0.1	0.13	0.26	0.51	2.32	6.61	12.72	18.3	21.76	22.97
22	24.37	22.81	18.66	12.36	5.95	1.92	0.4	0.21	0.11	0.08	0.06	0.05	0.08	0.08	0.08	0.09	0.13	0.24	0.47	2.39	6.96	13.49	19.45	23.09	24.37
23	25.73	24.16	19.74	13.07	6.25	1.98	0.37	0.19	0.11	0.08	0.06	0.05	0.08	0.08	0.08	0.09	0.12	0.22	0.44	2.47	7.32	14.27	20.6	24.41	25.73
24	27.08	25.46	20.81	13.77	6.55	2.03	0.34	0.18	0.1	0.08	0.06	0.05	0.08	0.08	0.08	0.09	0.11	0.2	0.4	2.56	7.69	15.02	21.7	25.72	27.08
25	28.45	26.73	21.91	14.46	6.85	2.09	0.31	0.17	0.1	0.08	0.06	0.05	0.08	0.08	0.08	0.08	0.1	0.18	0.37	2.64	8.03	15.79	22.8	27.02	28.45
26	29.74	27.96	22.93	15.16	7.14	2.15	0.28	0.15	0.1	0.08	0.06	0.05	0.08	0.07	0.08	0.08	0.1	0.16	0.33	2.72	8.4	16.55	23.93	28.31	29.74
27	31.08	29.19	23.98	15.83	7.44	2.2	0.26	0.14	0.09	0.08	0.06	0.05	0.07	0.07	0.07	0.08	0.09	0.15	0.3	2.8	8.76	17.32	25.02	29.61	31.08
28	32.38	30.43	24.97	16.52	7.73	2.26	0.23	0.13	0.09	0.07	0.06	0.05	0.07	0.07	0.07	0.08	0.09	0.13	0.27	2.89	9.11	18.06	26.11	30.86	32.38
29	33.65	31.62	26.03	17.16	8.03	2.33	0.21	0.12	0.09	0.07	0.06	0.05	0.07	0.07	0.07	0.07	0.08	0.12	0.24	2.98	9.47	18.8	27.2	32.1	33.65
30	34.92	32.84	27	17.87	8.32	2.39	0.19	0.11	0.09	0.07	0.06	0.05	0.07	0.06	0.07	0.07	0.08	0.11	0.22	3.07	9.84	19.55	28.22	33.29	34.92
31	36.19	34	28	18.52	8.62	2.47	0.17	0.1	0.09	0.07	0.06	0.05	0.07	0.06	0.06	0.07	0.08	0.1	0.19	3.16	10.19	20.27	29.27	34.53	36.19
32	37.44	35.21	28.99	19.18	8.91	2.53	0.15	0.1	0.09	0.07	0.06	0.05	0.07	0.06	0.06	0.07	0.08	0.09	0.17	3.25	10.53	20.99	30.33	35.72	37.44
33	38.6	36.36	29.97	19.85	9.21	2.6	0.13	0.09	0.09	0.07	0.06	0.05	0.07	0.06	0.06	0.07	0.08	0.09	0.15	3.35	10.89	21.71	31.34	36.88	38.6
34	39.79	37.46	30.92	20.48	9.49	2.67	0.12	0.09	0.08	0.07	0.06	0.05	0.07	0.06	0.06	0.07	0.08	0.08	0.13	3.45	11.25	22.42	32.32	38.05	39.79
35	41	38.61	31.86	21.12	9.79	2.74	0.11	0.09	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.11	3.54	11.58	23.12	33.29	39.17	41
36	42.15	39.67	32.77	21.77	10.08	2.82	0.1	0.09	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.1	3.65	11.93	23.81	34.31	40.32	42.15
37	43.29	40.78	33.72	22.39	10.37	2.9	0.09	0.09	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.09	3.75	12.29	24.45	35.28	41.47	43.29
38	44.4	41.84	34.58	22.93	10.66	2.98	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.08	3.85	12.62	25.16	36.23	42.53	44.4
39	45.53	42.9	35.48	23.57	10.94	3.06	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.08	3.96	12.96	25.82	37.15	43.61	45.53
40	46.62	43.92	36.35	24.12	11.21	3.14	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.07	4.08	13.31	26.48	38.12	44.69	46.62
41	47.68	44.93	37.24	24.71	11.49	3.23	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.07	4.18	13.62	27.13	39.03	45.73	47.68
42	48.72	45.94	38.08	25.31	11.75	3.31	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.07	4.29	13.93	27.74	39.89	46.74	48.72
43	49.79	46.92	38.93	25.88	12.02	3.39	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.07	4.4	14.25	28.34	40.79	47.76	49.79
44	50.76	47.88	39.72	26.42	12.29	3.47	0.08	0.08	0.08	0.08	0.07	0.08	0.06	0.06	0.06	0.06	0.07	0.07	0.07	4.5	14.57	28.97	41.64	48.8	50.76
45	51.86	48.84	40.51	26.97	12.54	3.54	0.07	0.08	0.08	0.08	0.07	0.08	0.06	0.06	0.06	0.06	0.07	0.07	0.07	4.61	14.88	29.57	42.47	49.78	51.86
46	52.82	49.75	41.32	27.48	12.79	3.62	0.07	0.08	0.08	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.07	0.07	0.07	4.71	15.17	30.16	43.36	50.71	52.82
47	53.76	50.7	42.09	28.04	13.03	3.7	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.07	0.07	0.07	4.81	15.49	30.76	44.15	51.63	53.76
48	54.66	51.58	42.84	28.52	13.27	3.77	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.07	0.07	0.06	4.91	15.77	31.3	44.97	52.55	54.66
49	55.62	52.47	43.6	29.03	13.51	3.85	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.07	0.07	0.07	0.06	5.01	16.05	31.85	45.73	53.47	55.62

50	56.52	53.31	44.31	29.54	13.73	3.92	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.06	0.07	0.07	0.07	0.06	5.11	16.32	32.42	46.5	54.32	56.52
51	57.43	54.14	45.06	30.06	13.97	3.99	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.06	0.07	0.07	0.06	0.06	5.2	16.61	32.91	47.24	55.21	57.43
52	58.3	54.96	45.71	30.49	14.19	4.06	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.06	5.3	16.88	33.47	48.01	56.08	58.3
53	59.14	55.78	46.44	30.92	14.4	4.13	0.07	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.06	5.39	17.13	33.95	48.76	56.88	59.14
54	59.99	56.5	47.13	31.42	14.62	4.2	0.07	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.06	0.06	0.06	5.48	17.39	34.45	49.46	57.71	59.99
55	60.78	57.29	47.75	31.88	14.81	4.26	0.07	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.06	0.06	0.06	5.57	17.64	34.94	50.17	58.51	60.78
56	61.63	58.07	48.39	32.3	15.03	4.33	0.07	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.06	0.06	0.06	5.66	17.89	35.43	50.78	59.29	61.63
57	62.38	58.81	49.05	32.72	15.23	4.39	0.07	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.06	0.06	0.06	5.74	18.12	35.87	51.48	60.01	62.38
58	63.03	59.45	49.61	33.08	15.42	4.45	0.06	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.06	0.06	0.06	5.82	18.36	36.32	52.13	60.78	63.03
59	63.85	60.29	50.24	33.55	15.6	4.51	0.06	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.06	0.06	0.06	5.9	18.58	36.78	52.83	61.53	63.85
60	64.5	60.91	50.74	33.89	15.79	4.57	0.06	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.06	0.06	0.05	5.98	18.81	37.25	53.35	62.14	64.5
61	65.3	61.6	51.35	34.3	15.97	4.62	0.06	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.06	0.06	0.05	6.06	19.03	37.68	53.94	62.79	65.3
62	65.89	62.17	51.98	34.67	16.15	4.68	0.06	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	6.12	19.24	38.02	54.47	63.51	65.89
63	66.54	62.76	52.44	34.99	16.33	4.74	0.06	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	6.21	19.43	38.41	55.07	64.1	66.54
64	67.14	63.4	52.91	35.35	16.49	4.79	0.06	0.07	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	6.27	19.64	38.83	55.6	64.72	67.14
65	67.81	63.9	53.34	35.67	16.65	4.84	0.06	0.07	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	6.34	19.8	39.12	56.12	65.27	67.81
66	68.37	64.44	53.91	35.99	16.82	4.89	0.06	0.06	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	6.41	20	39.52	56.59	65.92	68.37
67	68.94	65.01	54.35	36.31	16.93	4.93	0.05	0.06	0.07	0.07	0.08	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.05	6.47	20.17	39.88	57.08	66.39	68.94
68	69.5	65.54	54.78	36.6	17.11	4.98	0.05	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.05	0.05	6.53	20.35	40.21	57.59	67.03	69.5
69	70.03	66.09	55.17	36.88	17.21	5.03	0.05	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.05	0.05	6.6	20.53	40.52	58.01	67.55	70.03
70	70.47	66.46	55.54	37.16	17.36	5.07	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.05	0.05	6.66	20.68	40.79	58.4	67.95	70.47
71	70.99	66.97	55.97	37.44	17.5	5.12	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.05	0.05	6.7	20.82	41.09	58.83	68.44	70.99
72	71.44	67.39	56.34	37.7	17.6	5.16	0.05	0.06	0.06	0.07	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.05	0.05	6.76	20.96	41.39	59.24	68.9	71.44
73	71.91	67.77	56.76	37.91	17.75	5.19	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	6.81	21.08	41.67	59.58	69.34	71.91
74	72.27	68.18	57	38.2	17.85	5.23	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	6.86	21.25	41.82	59.94	69.72	72.27
75	72.65	68.51	57.35	38.32	17.95	5.27	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	6.91	21.39	42.12	60.23	70.05	72.65
76	73.07	68.92	57.7	38.6	18.06	5.3	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	6.95	21.48	42.35	60.53	70.48	73.07
77	73.32	69.27	57.91	38.76	18.13	5.33	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	7	21.58	42.54	60.87	70.77	73.32
78	73.7	69.5	58.21	38.93	18.23	5.36	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.05	0.04	7.04	21.7	42.76	61.17	71.02	73.7
79	73.99	69.77	58.42	39.11	18.29	5.39	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.05	0.04	7.08	21.78	42.9	61.4	71.33	73.99
80	74.28	70.05	58.67	39.28	18.39	5.42	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.05	0.04	7.11	21.86	43.08	61.64	71.63	74.28
81	74.51	70.29	58.81	39.4	18.46	5.45	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.05	0.04	7.15	21.97	43.23	61.8	71.82	74.51
82	74.73	70.52	59.04	39.55	18.52	5.47	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.05	0.04	7.18	22.03	43.4	62.06	72.13	74.73
83	74.93	70.71	59.22	39.63	18.59	5.49	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.04	0.04	7.2	22.11	43.47	62.2	72.27	74.93
84	75.12	70.95	59.38	39.76	18.63	5.51	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.04	0.04	7.23	22.18	43.61	62.36	72.41	75.12
85	75.22	71.07	59.46	39.82	18.69	5.53	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.04	7.25	22.22	43.69	62.42	72.58	75.22
86	75.4	71.14	59.64	39.91	18.74	5.55	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.28	22.29	43.75	62.64	72.73	75.4
87	75.45	71.26	59.66	40	18.77	5.57	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.3	22.32	43.85	62.77	72.76	75.45
88	75.55	71.31	59.75	40.07	18.8	5.58	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.32	22.34	43.9	62.82	72.93	75.55
89	75.67	71.32	59.78	40.11	18.83	5.59	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.33	22.41	43.97	62.84	72.95	75.67
90	75.66	71.47	59.81	40.12	18.85	5.61	0.04	0.04	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.34	22.42	43.96	62.86	72.97	75.66
91	75.73	71.42	59.88	40.17	18.87	5.62	0.03	0.04	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.35	22.42	43.98	62.87	72.96	75.73
92	75.66	71.4	59.8	40.14	18.89	5.62	0.03	0.04	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05	0.04	0.03	7.36	22.44	44.05	62.89	72.94	75.66
93	75.64	71.34	59.81	40.16	18.89	5.63	0.03	0.04	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.04	0.04	0.03	7.37	22.44	43.98	62.86	72.89	75.64
94	75.5	71.3	59.76	40.12	18.89	5.63	0.03	0.04	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.04	0.04	0.03	7.36	22.4	43.93	62.74	72.87	75.5
95	75.4	71.19	59.66	40.09	18.88	5.63	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.03	7.37	22.38	43.88	62.7	72.76	75.4
96	75.33	71.08	59.56	40	18.88	5.63	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.03	7.37	22.37	43.85	62.57	72.66	75.33
97	75.2	70.93	59.52	39.96	18.87	5.63	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.37	22.35	43.72	62.52	72.54	75.2
98	75.02	70.76	59.37	39.89	18.83	5.63	0.03	0.04	0.05	0.06	0.06	0.07	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.36	22.33	43.7	62.29	72.36	75.02
99	74.7	70.56	59.24	39.82	18.81	5.63	0.03	0.04	0.05	0.06	0.06	0.07	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.35	22.27	43.54	62.13	72.16	74.7
100	74.6	70.36	59.12	39.74	18.75	5.62	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.33	22.21	43.44	62	71.93	74.6
101	74.31	70.12	58.86	39.62	18.73	5.61	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.32	22.15	43.34	61.77	71.65	74.31
102	74.03	69.88	58.71	39.5	18.67	5.6	0.03	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.31	22.09	43.17	61.55	71.52	74.03
103	73.7	69.6	58.45	39.38	18.62	5.59	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.29	22.01	43.02	61.33	71.17	73.7

104	73.43	69.38	58.23	39.19	18.54	5.58	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.27	21.95	42.89	61.06	70.81	73.43
105	73.09	69.06	57.97	39.07	18.47	5.56	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.25	21.86	42.71	60.75	70.52	73.09
106	72.67	68.74	57.63	38.9	18.4	5.55	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.22	21.76	42.48	60.5	70.18	72.67
107	72.31	68.3	57.36	38.7	18.35	5.52	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.03	0.02	7.2	21.67	42.25	60.19	69.77	72.31
108	72	67.84	57.03	38.52	18.24	5.51	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.02	0.02	7.16	21.56	42.07	59.85	69.46	72
109	71.47	67.57	56.74	38.31	18.16	5.49	0.02	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.03	0.02	0.02	7.13	21.44	41.82	59.53	69.06	71.47
110	71.11	67.11	56.41	38.08	18.09	5.46	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.03	0.02	0.02	7.1	21.33	41.58	59.04	68.56	71.11
111	70.53	66.65	55.97	37.84	17.96	5.44	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.03	0.02	0.02	7.06	21.22	41.3	58.74	68.12	70.53
112	70.05	66.25	55.65	37.6	17.86	5.41	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.03	0.02	0.02	7.02	21.07	41.02	58.3	67.64	70.05
113	69.59	65.69	55.24	37.34	17.77	5.38	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.05	0.03	0.02	0.02	6.98	20.97	40.77	57.9	67.15	69.59
114	69.02	65.2	54.75	37.1	17.64	5.36	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.94	20.8	40.45	57.46	66.6	69.02
115	68.51	64.75	54.37	36.8	17.52	5.32	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.89	20.65	40.13	56.99	66.05	68.51
116	67.88	64.18	53.87	36.5	17.4	5.29	0.02	0.02	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.84	20.48	39.81	56.49	65.52	67.88
117	67.27	63.58	53.44	36.19	17.26	5.26	0.02	0.02	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.79	20.33	39.48	56.01	64.96	67.27
118	66.59	63.01	52.92	35.87	17.15	5.22	0.02	0.02	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.74	20.17	39.12	55.44	64.37	66.59
119	65.97	62.3	52.4	35.54	16.99	5.19	0.02	0.02	0.03	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.68	19.98	38.75	54.97	63.7	65.97
120	65.39	61.77	51.89	35.21	16.83	5.15	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.63	19.81	38.36	54.34	63.1	65.39
121	64.66	61.15	51.38	34.89	16.7	5.1	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.57	19.63	38.02	53.78	62.45	64.66
122	64.03	60.5	50.76	34.51	16.52	5.06	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.51	19.42	37.59	53.21	61.72	64.03
123	63.24	59.74	50.21	34.16	16.37	5.02	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.45	19.19	37.16	52.57	61.05	63.24
124	62.48	59.07	49.6	33.77	16.2	4.98	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.03	0.02	0.02	6.39	19.02	36.74	51.94	60.33	62.48
125	61.69	58.36	49	33.38	16.02	4.93	0.02	0.02	0.03	0.04	0.04	0.04	0.06	0.06	0.05	0.04	0.03	0.03	0.02	6.32	18.8	36.32	51.4	59.6	61.69
126	60.9	57.64	48.4	32.97	15.85	4.88	0.02	0.02	0.03	0.04	0.04	0.04	0.06	0.06	0.05	0.04	0.03	0.03	0.02	6.25	18.59	35.85	50.63	58.86	60.9
127	60.08	56.83	47.75	32.53	15.65	4.83	0.02	0.02	0.03	0.04	0.04	0.04	0.06	0.06	0.05	0.04	0.04	0.03	0.02	6.18	18.35	35.42	49.97	58.06	60.08
128	59.26	56.07	47.09	32.12	15.47	4.78	0.02	0.02	0.03	0.04	0.04	0.04	0.06	0.06	0.05	0.04	0.04	0.03	0.02	6.11	18.1	34.92	49.34	57.25	59.26
129	58.5	55.27	46.41	31.69	15.27	4.73	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.02	6.03	17.86	34.43	48.53	56.45	58.5
130	57.59	54.47	45.79	31.25	15.05	4.67	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.02	5.96	17.64	33.95	47.81	55.55	57.59
131	56.73	53.61	45.05	30.75	14.88	4.61	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.02	5.88	17.38	33.42	47.1	54.74	56.73
132	55.8	52.75	44.33	30.29	14.66	4.55	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.03	5.81	17.12	32.9	46.33	53.85	55.8
133	54.9	51.9	43.62	29.8	14.43	4.49	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.03	5.72	16.87	32.38	45.57	52.99	54.9
134	53.98	51.08	42.84	29.32	14.24	4.43	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.03	0.03	5.63	16.6	31.82	44.78	52.04	53.98
135	53.01	50.1	42.11	28.82	14	4.37	0.02	0.02	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.04	0.03	0.03	5.55	16.31	31.28	44.03	51.11	53.01
136	51.99	49.2	41.34	28.35	13.77	4.31	0.02	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.04	0.03	0.03	5.46	16.03	30.7	43.21	50.19	51.99
137	51.07	48.27	40.54	27.8	13.52	4.24	0.02	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.04	0.03	0.03	5.37	15.74	30.13	42.34	49.24	51.07
138	50.03	47.29	39.74	27.28	13.28	4.18	0.02	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.04	0.03	0.03	5.27	15.44	29.49	41.43	48.29	50.03
139	49.03	46.31	38.94	26.72	13.02	4.11	0.02	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.04	0.04	0.04	0.03	5.16	15.12	28.9	40.6	47.23	49.03
140	47.93	45.34	38.08	26.15	12.78	4.03	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.04	0.04	0.03	5.05	14.78	28.25	39.67	46.2	47.93
141	46.81	44.36	37.24	25.61	12.52	3.97	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.04	0.04	0.04	4.94	14.47	27.59	38.77	45.18	46.81
142	45.8	43.33	36.37	25.04	12.26	3.9	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	4.82	14.11	26.94	37.85	44.11	45.8
143	44.71	42.3	35.51	24.44	11.98	3.83	0.04	0.03	0.03	0.03	0.03	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.05	4.68	13.72	26.2	36.89	42.99	44.71
144	43.61	41.27	34.62	23.88	11.72	3.76	0.05	0.03	0.03	0.03	0.03	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.06	4.54	13.33	25.5	35.89	41.92	43.61
145	42.47	40.18	33.68	23.29	11.45	3.7	0.07	0.03	0.03	0.03	0.03	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.07	4.4	12.93	24.76	34.9	40.79	42.47
146	41.33	39.11	32.8	22.61	11.16	3.63	0.08	0.04	0.03	0.03	0.02	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.08	4.26	12.53	24	33.89	39.62	41.33
147	40.14	37.97	31.89	22.03	10.89	3.57	0.1	0.04	0.03	0.03	0.02	0.02	0.03	0.03	0.04	0.03	0.03	0.05	0.1	4.13	12.11	23.25	32.86	38.47	40.14
148	38.97	36.87	30.97	21.38	10.61	3.5	0.12	0.05	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.05	0.12	3.97	11.68	22.42	31.79	37.31	38.97
149	37.8	35.8	30.01	20.75	10.33	3.44	0.15	0.06	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.06	0.14	3.8	11.21	21.58	30.71	36.09	37.8
150	36.56	34.6	29.02	20.09	10.05	3.39	0.17	0.07	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.07	0.16	3.63	10.73	20.7	29.55	34.87	36.56
151	35.33	33.44	28.03	19.45	9.75	3.33	0.2	0.08	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.08	0.18	3.43	10.23	19.81	28.39	33.62	35.33
152	34.1	32.25	27.05	18.78	9.46	3.27	0.23	0.09	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.09	0.2	3.24	9.71	18.91	27.25	32.35	34.1
153	32.81	31.04	26.03	18.1	9.16	3.21	0.26	0.11	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.1	0.23	3.04	9.2	17.98	26.05	31.02	32.81
154	31.56	29.85	25.03	17.44	8.88	3.15	0.29	0.12	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.11	0.25	2.83	8.66	17.01	24.81	29.69	31.56
155	30.23	28.63	24	16.74	8.57	3.1	0.32	0.14	0.05	0.02	0.02	0.01	0.02	0.02	0.02	0.03	0.05	0.12	0.28	2.63	8.14	16.06	23.6	28.35	30.23
156	28.91	27.42	22.95	16.05	8.27	3.03	0.36	0.16	0.05	0.02	0.02	0.01	0.02	0.02	0.02	0.03	0.05	0.13	0.3	2.43	7.6	15.09	22.33	27.02	28.91
157	27.6	26.12	21.91	15.33	7.98	2.98	0.4	0.17	0.06	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.05	0.14	0.33	2.23	7.08	14.15	21.08	25.61	27.6

158	26.24	24.85	20.87	14.63	7.67	2.92	0.43	0.19	0.07	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.03	0.15	0.35	2.04	6.57	13.19	19.81	24.24	26.24
159	24.86	23.58	19.78	13.91	7.35	2.85	0.47	0.21	0.08	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.03	0.16	0.37	1.87	6.08	12.23	18.54	22.82	24.86
160	23.52	22.29	18.71	13.2	7.04	2.79	0.51	0.23	0.08	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.03	0.17	0.35	1.7	5.59	11.29	17.26	21.41	23.52
161	22.13	20.97	17.63	12.33	6.72	2.73	0.55	0.25	0.09	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.12	0.12	1.36	5.12	10.38	16.01	19.99	22.13
162	20.74	19.65	16.54	10.74	6.4	2.66	0.6	0.27	0.1	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.76	4.46	9.5	14.8	18.58	20.74
163	19.33	18.33	15.42	8.51	6.06	2.6	0.64	0.3	0.1	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.46	3.33	8.57	13	17.2	19.33
164	17.91	17.01	14.24	6.25	5.45	2.52	0.69	0.32	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.17	0.3	2.45	7.23	11.21	15.81	17.91
165	16.5	15.65	12.9	4.05	4.31	2.4	0.73	0.3	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.44	0.4	1.78	5.43	8.91	14.07	16.5
166	15.07	14.3	10.41	1.85	2.81	1.9	0.59	0.12	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.47	0.8	1.34	3.77	6.05	11.89	15.07
167	13.52	12.25	7.39	0.39	1.63	1.08	0.22	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.28	0.77	0.95	2.17	3.29	9.7	13.52
168	10.33	8.74	4.66	0.13	0.57	0.55	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.06	0.34	0.48	0.76	0.91	6.25	10.33
169	6.54	5.4	1.94	0.12	0.05	0.18	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.1	0.39	0.06	0.05	3	6.54
170	4	2.34	0.11	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.09	0.04	0.02	0.44	4
171	1.48	0.33	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.03	0.02	0.02	1.48
172	1.96	0.58	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	1.96
173	2.02	0.7	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.01	2.02
174	0.91	0.4	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.01	0.91
175	0.04	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.01	0.04
176	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
177	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01
178	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01
179	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01
180	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	SA-DASHR	Sample ID.	G1
Temperature (°C)	25.1	Humidity (%RH)	57.0

Test Method
The samples were tested according to the ANSI C82.77:2014. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.02	60	0.035	4.06	0.978	20.42%
277.08	60	0.017	4.22	0.897	10.00%

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**********