

Photometric Test Report

Relevant Standards

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

Prepared For RAB Lighting Inc.

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Project Number

DLF2408121

Report Number

DLF2408121-2a

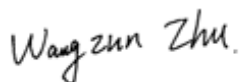
Test Date

2024/9/3

Issue Date

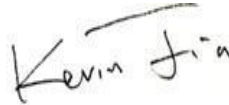
2024/9/6

Prepared By



Wangzun Zhu

Approved By



Kevin Jia

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1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Architectural Flood and Spot Luminaires				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1000		2072
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	105.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		19.7
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	13.37%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.979
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4009
		4 step	3985±154	
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	-		13
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		96
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	85%		100.00%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.168
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		19.7

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/9/3	L2X @ 4000K	N/A	B1
2	Goniophotometer Test	2024/9/3	L2X @ 4000K	N/A	B1
3	THD and PF Test	2024/9/3	L2X @ 4000K	N/A	B1

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: L2X @ 4000K

Electrical Specification: 120V/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	L2X @ 4000K	Sample ID.	B1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.4	Humidity (%RH)	54.0

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
120.09	60	0.168	19.8	0.979

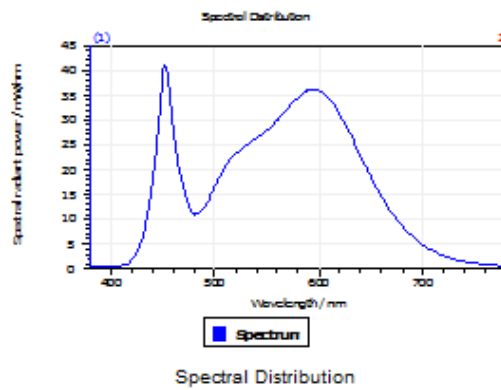
Test Result

CCT (K)	CRI	R9	Duv
4009	84	13	-0.0025

Rf	Rg	IES Rcs,h1
84	96	-12%

4.1 Integrating Sphere Test

RESULTS

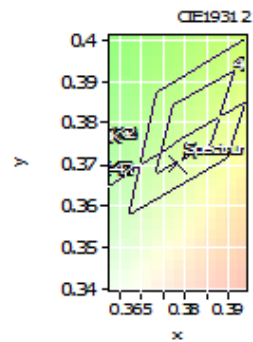


Spectral values

DominantWavelength 580.54 nm
Purity 0.247
PeakWavelength 452.29 nm
Radiant Power 6.339 W
Width50%:

Color Coordinates

Correlated Color Temperat 4009 K
x: 0.3784 u: 0.2264 u': 0.2264
y: 0.3703 v: 0.3323 v': 0.4984
CRI01 83.0 CRI09 12.9
CRI02 91.0 CRI10 78.0
CRI03 95.3 CRI11 81.6
CRI04 82.4 CRI12 64.9
CRI05 83.0 CRI13 85.2
CRI06 86.8 CRI14 97.8
CRI07 85.4 CRI15 77.3
CRI08 65.4 CRI16 74.7
ResultsCRI 84.0



PlanckDistance 2.5E-003

4.1 Integrating Sphere Test

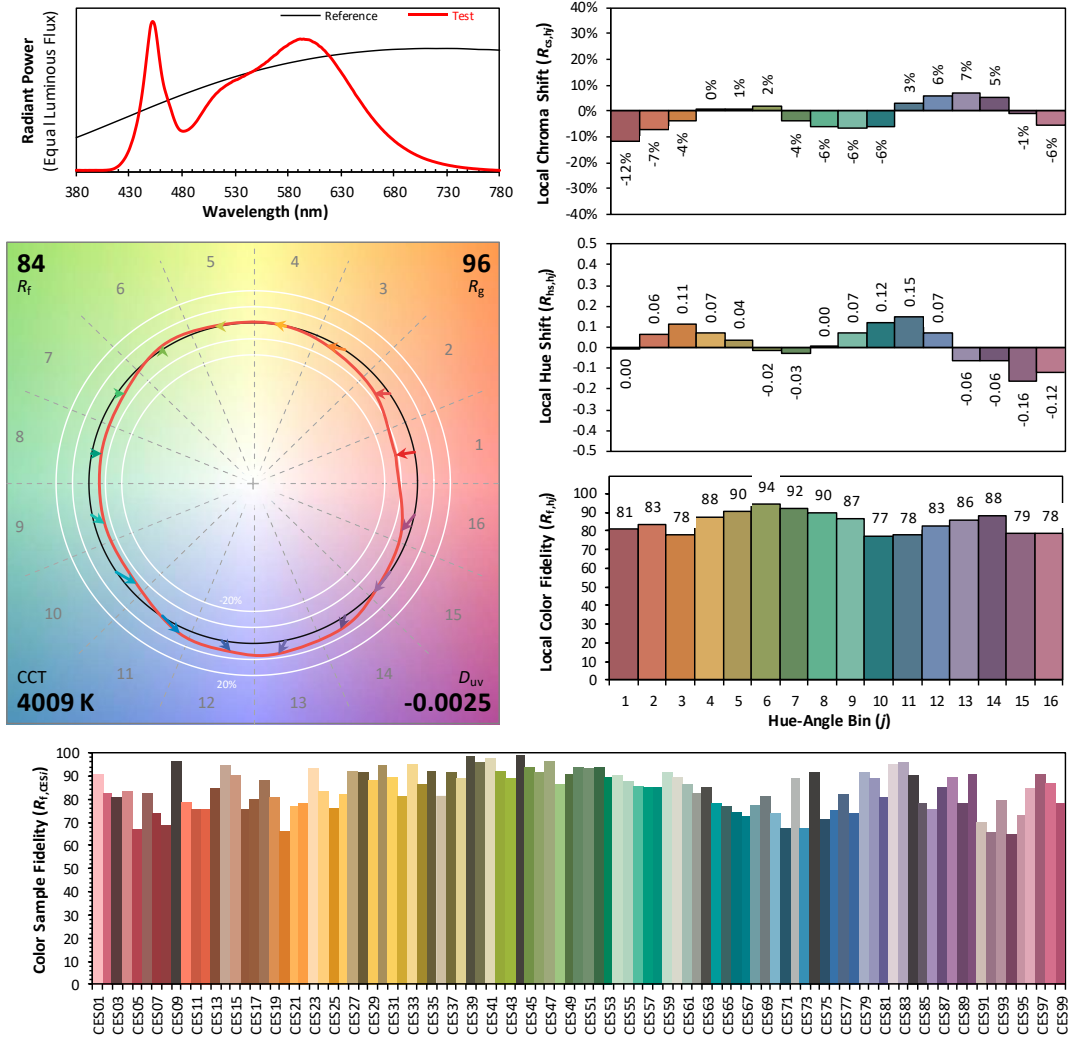
IES TM-30-18 Color Rendition Report

Source: DLF2408121-2a

Manufacturer: RAB Lighting Inc.

Date: 2024/9/3

Model: L2X @ 4000K



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

x 0.3784
 y 0.3703
 u' 0.2264
 v' 0.4984

CIE 13.3-1995
(CRI)
 R_a 85
 R_g 18

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength							
WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)
380	4.77E-04	485	1.14E-02	590	3.60E-02	695	5.59E-03
385	4.62E-04	490	1.25E-02	595	3.61E-02	700	4.81E-03
390	4.61E-04	495	1.44E-02	600	3.59E-02	705	4.13E-03
395	4.73E-04	500	1.66E-02	605	3.52E-02	710	3.55E-03
400	4.73E-04	505	1.87E-02	610	3.41E-02	715	3.07E-03
405	4.71E-04	510	2.06E-02	615	3.29E-02	720	2.64E-03
410	5.60E-04	515	2.21E-02	620	3.12E-02	725	2.27E-03
415	8.54E-04	520	2.32E-02	625	2.93E-02	730	1.95E-03
420	1.69E-03	525	2.41E-02	630	2.72E-02	735	1.68E-03
425	3.35E-03	530	2.49E-02	635	2.50E-02	740	1.43E-03
430	6.11E-03	535	2.56E-02	640	2.28E-02	745	1.24E-03
435	1.06E-02	540	2.63E-02	645	2.06E-02	750	1.07E-03
440	1.73E-02	545	2.71E-02	650	1.85E-02	755	9.23E-04
445	2.75E-02	550	2.79E-02	655	1.64E-02	760	8.08E-04
450	3.94E-02	555	2.89E-02	660	1.46E-02	765	7.01E-04
455	3.85E-02	560	2.99E-02	665	1.28E-02	770	6.03E-04
460	2.78E-02	565	3.11E-02	670	1.13E-02	775	5.23E-04
465	2.11E-02	570	3.22E-02	675	9.85E-03	780	4.57E-04
470	1.65E-02	575	3.36E-02	680	8.59E-03		
475	1.26E-02	580	3.45E-02	685	7.46E-03		
480	1.11E-02	585	3.54E-02	690	6.47E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	L2X @ 4000K	Sample ID.	B1
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	120.07	60	0.168	19.7	0.979

Test Result

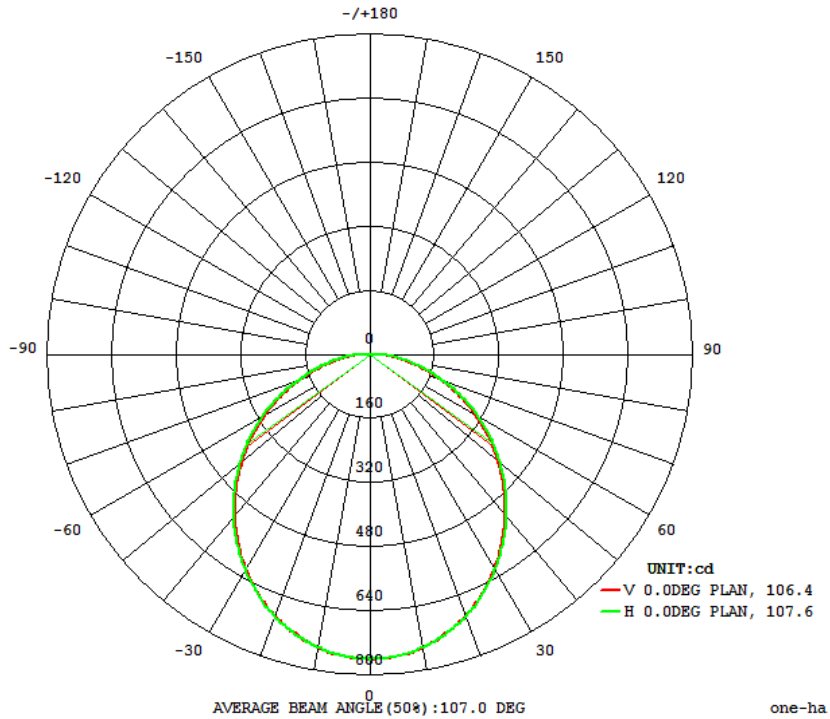
Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	Horizontal	Vertical	Horizontal	Vertical	
2072	164.5	161.9	107.6	106.4	105.2

Zonal Lumen Requirement (0°-90°)

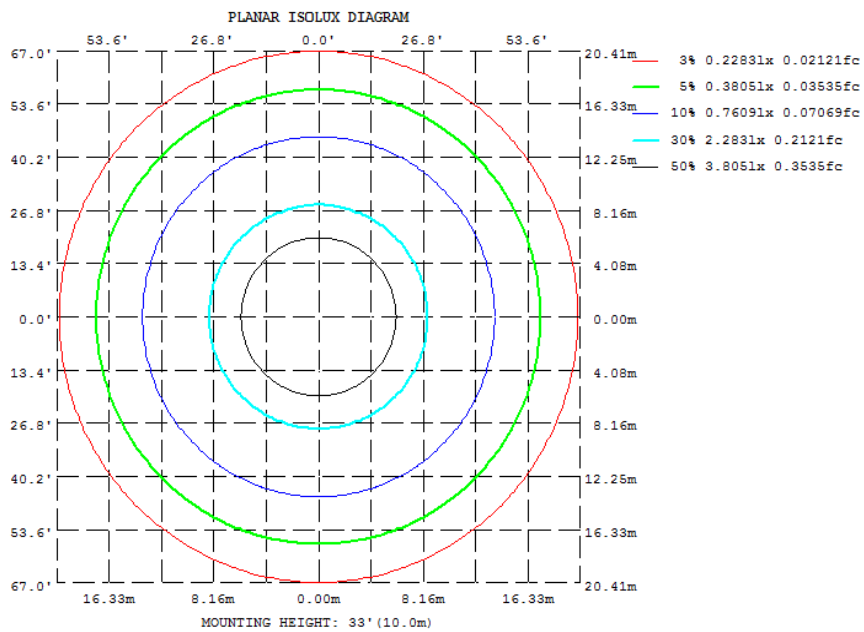
100.00%

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	744.4	742.2	741.5	742.2	744.4	742.2	741.5	742.2
20	694.0	693.4	693.5	693.4	694.0	693.4	693.5	693.4
30	617.9	619.1	619.2	619.1	617.9	619.1	619.2	619.1
40	521.4	523.9	527.8	523.9	521.4	523.9	527.8	523.9
50	416.5	418.2	422.2	418.2	416.5	418.2	422.2	418.2
60	302.5	306.5	310.0	306.5	302.5	306.5	310.0	306.5
70	189.2	192.7	196.9	192.7	189.2	192.7	196.9	192.7
80	84.77	89.72	94.96	89.72	84.77	89.72	94.96	89.72
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	71.56	0 - 10	71.56	3.45%
10-20	203.11	0 - 20	274.67	13.26%
20-30	302.82	0 - 30	577.49	27.87%
30-40	357.88	0 - 40	935.36	45.14%
40-50	363.78	0 - 50	1299.14	62.70%
50-60	323.92	0 - 60	1623.07	78.33%
60-70	246.42	0 - 70	1869.49	90.23%
70-80	146.85	0 - 80	2016.34	97.31%
80-90	55.64	0 - 90	2071.98	100.00%
90-100	0.00	0 - 100	2071.98	100.00%
100-110	0.00	0 - 110	2071.98	100.00%
110-120	0.00	0 - 120	2071.98	100.00%
120-130	0.00	0 - 130	2071.98	100.00%
130-140	0.00	0 - 140	2071.98	100.00%
140-150	0.00	0 - 150	2071.98	100.00%
150-160	0.00	0 - 160	2071.98	100.00%
160-170	0.00	0 - 170	2071.98	100.00%
170-180	0.00	0 - 180	2071.98	100.00%

4.2 Goniophotometer Test

Axial Candela

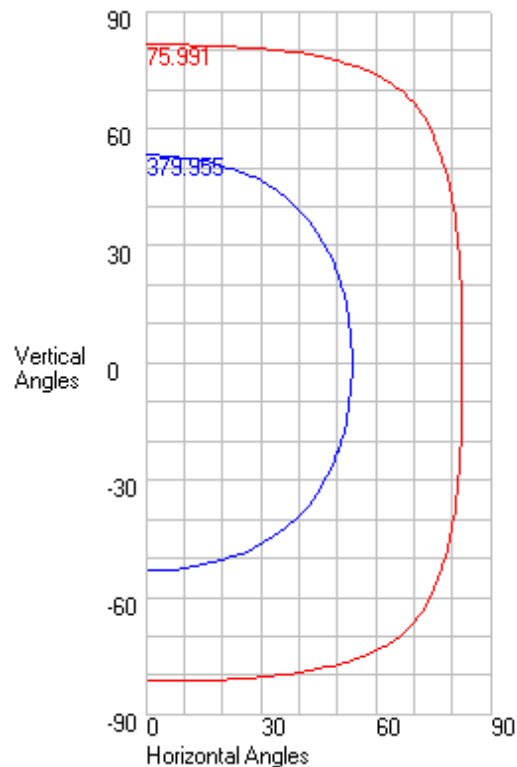
DEG.	HOR.	DEG.	VERT.
90	0.3	90	0.23
85	55.54	85	45.34
75	143.19	75	134.29
65	253.39	65	246.1
55	366.59	55	360.24
47.5	448.08	47.5	443.13
42.5	502.1	42.5	496.22
37.5	552.3	37.5	547.8
33	594.56	33	591.28
29	628.89	29	625.05
25.5	657.02	25.5	653.81
22.5	678.72	22.5	677.14
19.5	697.27	19.5	697.1
17	713.1	17	712.56
15	721.4	15	720.58
13	731.84	13	732.35
11	739.15	11	739.01
9	746.33	9	746.85
7	752.25	7	752.58
5	755.69	5	756.15
3	758.11	3	758
1	759.91	1	759.63
0	759.9	0	759.9
-1	759.91	-1	759.63
-3	758.11	-3	758
-5	755.69	-5	756.15
-7	752.25	-7	752.58
-9	746.33	-9	746.85
-11	739.15	-11	739.01
-13	731.84	-13	732.35
-15	721.4	-15	720.58
-17	713.1	-17	712.56
-19.5	697.27	-19.5	697.1
-22.5	678.72	-22.5	677.14
-25.5	657.02	-25.5	653.81
-29	628.89	-29	625.05
-33	594.56	-33	591.28
-37.5	552.3	-37.5	547.8
-42.5	502.1	-42.5	496.22
-47.5	448.08	-47.5	443.13
-55	366.59	-55	360.24
-65	253.39	-65	246.1
-75	143.19	-75	134.29
-85	55.54	-85	45.34
-90	0.3	-90	0.23

4.2 Goniophotometer Test

Characteristics

NEMA Type	7 H x 7 V
Maximum Candela	759.91
Maximum Candela Angle	-1 H 0 V
Horizontal Beam Angle (50%)	107.5
Vertical Beam Angle (50%)	106.4
Horizontal Field Angle (10%)	165.3
Vertical Field Angle (10%)	163.1
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1431
Beam Efficiency	N.A.
Field Lumens	2038
Field Efficiency	N.A.
Spill Lumens	34
Luminaire Lumens	2072
Total Efficiency	N.A.
Total Luminaire Watts	19.7
Ballast Factor	1

ISOCANDELA CURVES



Axial Candela

	0	1	3	5	7	9	11	13	15	17	19.5	22.5	25.5	29	33	37.5	42.5	47.5	55	65	75	85	90
90	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.22	0.21	0.21	0.2	0.19	0.16	0.13	0.08	0.03	0
85	45.34	45.38	45.46	45.54	45.63	45.71	45.79	45.07	44.89	44.84	44.72	44.49	44.17	43.69	43.12	42.62	41.51	40.4	38.46	35.45	31.97	13.24	0.03
75	134.29	134.3 *	134.33	134.36	133.2 *	132.46	131.53	130.42	129.17	127.86	125.95	123.33	120.4 *	116.56	111.82	105.81	98.38 *	90.95 *	79.03 *	62.84	47.02	32.09	0.08
65	246.1 *	246.11	246.12	244.95	243.84	242.38	240.56	238.42	236.01	233.27	229.38	224.28	217.93	209.94	199.97	187.56	172.36	156.23	130.39	95.83 *	64.17	36.8	0.13
55	360.24	360.23	360.21	358.47	356.81	354.6 *	351.85	348.88	344.97	340.83	334.99	327.02	318.33	306.61	291.36	272.76	250.16	225.31	186.18	131.82	81.9 *	41.37	0.17
47.5	443.13	443.03	442.32	440.92	438.79	435.89	432.2 *	428.15	423.7 *	418.72	411.5 *	401.34	390.18	375.76	356.98	333.68	305.68	275.35	226.5 *	158.74	95.03 *	44.53	0.21
42.5	496.22	496.07	495.2 *	493.54	491.09	487.95	484.21	480.61	474.43	468.56	459.93	448.99	435.81	419.36	398.69	372.47	341.33	306.47	251.87	175.84	103.49	46.45	0.22
37.5	547.8 *	547.57	546.47	544.43	541.93	537.82	533.96	528.63	522.31	515.79	506.34	493.62	479.53	461.65	437.33	408.64	373.48	335.69	275.62	191.78	111.48	48.41	0.24
33	591.28	591.11	589.54	587.11	583.78	580.42	575.18	569.54	562.83	556.07	545.89	531.58	516.36	495.52	469.71	438.26	400.05	359.49	294.78	204.82	118.16	49.76	0.26
29	625.05	625.07	623.96	621.7 *	617.96	613.82	609.09	603.59	596.69	588.07	577.45	562.84	546.16	524.45	496.14	463.25	422.32	379.05	310.68	215.37	123.55	51.03	0.27
25.5	653.81	653.66	652.61	650.68	646.79	641.8 *	636.78	630.41	622.78	614.55	603.1 *	587.65	569.03	546.41	517.7 *	481.77	439.46	394.07	323 *	223.46	127.81	52.02	0.27
22.5	677.14	676.76	675.07	672.32	668.7 *	663.99	657.73	651.51	643.89	635.08	623.3 *	606.19	587.9 *	564.99	533.38	496.53	453.7 *	405.96	332.28	229.82	131.06	52.78	0.28
19.5	697.1 *	696.66	694.74	691.44	688.24	683.25	676.54	670.06	662.38	652.96	640.75	623.72	604.13	578.98	548.03	510.32	464.55	416.46	340.82	235.4 *	133.97	53.45	0.29
17	712.56	712.16	709.68	706.42	702.85	698.49	692.25	684.38	676 *	667.08	653.66	636.12	616.52	590.8 *	559.11	520.27	473.53	424.09	346.74	239.62	136.14	53.94	0.29
15	720.58	720.93	720.39	718.09	713.43	707.78	701.86	694.85	686.35	676.6 *	663.24	645.48	624.88	599.22	566.9 *	526.89	479.56	429.42	350.84	242.59	137.67	54.28	0.29
13	732.35	732.11	729.88	726.83	723.37	717.76	711.3 *	702.91	695.19	685.26	671.65	653.61	632.8 *	606.65	573.41	533.12	485.34	434.15	354.78	245.21	139.02	54.59	0.3
11	739.01	738.96	737.52	735.39	729.91	725.69	718.86	711.76	702.51	693.24	679.18	660.65	640.09	613.21	579.3 *	538.61	489.42	438.24	357.97	247.47	140.18	55.49	0.3
9	746.85	746.61	744.64	741.39	737.21	731.59	725.45	717.99	709.26	699.18	685.4 *	666.63	646.29	618.55	584.82	543.21	493.63	441.57	360.82	249.38	141.15	55.5	0.3
7	752.58	752.06	749.97	746.37	742.54	736.76	730.66	723.08	714.7 *	704.01	690.32	671.81	650.15	622.38	588.15	547.43	497.03	444.19	363.1 *	250.92	141.94	55.51	0.3
5	756.15	756.47	753.54	750.91	746.17	740.73	735.02	726.82	718.69	707.96	693.23	675.46	653.13	625.32	591.25	549.54	499.44	446.17	364.8 *	252.1 *	143.13	55.52	0.3
3	758 *	757.94	756.45	753.35	749.21	744.38	738.6 *	729.85	720.73	711.34	695.64	677.44	655.61	627.48	593.37	551.29	501.09	447.46	366.55	253.32	143.15	55.53	0.3
1	759.63	759.43	757.51	755.99	751.47	746.34	739.5 *	731.68	721.61	713.09	697.06	678.56	656.84	628.85	594.57	552.18	501.95	448.05	366.58	253.37	143.18	55.54	0.3
0	759.9 *	759.91	758.11	755.69	752.25	746.33	739.15	731.84	721.4 *	713.1 *	697.27	678.72	657.02	628.89	594.56	552.3 *	502.1 *	448.08	366.59	253.39	143.19	55.54	0.3
-1	759.63	759.43	757.51	754.99	751.47	746.34	739.5 *	731.68	721.61	713.09	697.06	678.56	656.84	628.85	594.57	552.18	501.95	448.05	366.58	253.37	143.18	55.54	0.3
-3	758 *	757.94	756.45	753.35	749.21	744.38	738.59	729.85	720.73	711.34	695.64	677.44	655.61	627.48	593.37	551.29	501.09	447.46	366.55	253.32	143.15	55.53	0.3
-5	756.15	756.47	753.54	750.91	746.17	740.73	735.02	726.82	718.69	707.96	693.23	675.46	653.13	625.32	591.25	549.54	499.44	446.17	364.8 *	252.1 *	143.13	55.52	0.3
-7	752.58	752.06	749.97	746.37	742.54	736.76	730.66	723.08	714.7 *	704.01	690.32	671.81	650.15	622.38	588.15	547.43	497.03	444.19	363.1 *	250.92	141.94	55.51	0.3
-9	746.85	746.61	744.64	741.39	737.21	731.59	725.45	717.99	709.26	699.18	685.4 *	666.63	646.29	618.55	584.82	543.21	493.63	441.57	360.82	249.38	141.15	55.5	0.3
-11	739.01	738.96	737.52	735.39	729.91	725.69	718.86	711.76	702.51	693.24	679.18	660.65	640.09	613.21	579.3 *	538.61	489.42	438.24	357.97	247.47	140.18	55.49	0.3
-13	732.35	732.11	729.88	726.83	723.37	717.76	711.3 *	702.91	695.19	685.26	671.65	653.61	632.8 *	606.65	573.41	533.12	485.34	434.15	354.78	245.21	139.02	54.59	0.3
-15	720.58	720.93	720.39	718.09	713.43	707.78	701.86	694.85	686.35	676.6 *	663.24	645.48	624.88	599.22	566.9 *	526.89	479.56	429.42	350.84	242.59	137.67	54.28	0.29
-17	712.56	712.16	709.68	706.42	702.85	698.49	692.25	684.38	676 *	667.08	653.66	636.12	616.52	590.8 *	559.11	520.27	473.53	424.09	346.74	239.62	136.14	53.94	0.29
-19.5	697.1 *	696.66	694.74	691.44	688.24	683.25	676.54	670.06	662.38	652.96	640.75	623.72	604.13	578.98	548.03	510.32	464.55	416.46	340.82	235.4 *	133.97	53.45	0.29
-22.5	677.14	676.76	675.07	672.32	668.7 *	663.99	657.73	651.51	643.89	635.08	623.3 *	606.19	587.9 *	564.99	533.38	496.53	453.7 *	405.96	332.28	229.82	131.06	52.78	0.28
-25.5	653.81	653.66	652.61	650.68	646.79	641.8 *	636.78	630.41	622.78	614.55	603.1 *	587.65	569.03	546.41	517.7 *	481.77	439.46	394.07	323 *	223.46	127.81	52.02	0.27
-29	625.05	625.07	623.96	621.7 *	617.96	613.82	609.09	603.59	596.69	588.07	577.45	562.84	546.16	524.45	496.14	463.25	422.32	379.05	310.68	215.37	123.55	51.03	0.27
-33	591.28	591.11	589.54	587.11	583.78	580.42	575.18	569.54	562.83	556.07	545.89	531.58	516.36	495.52	469.71	438.26	400.05	359.49	294.78	204.82	118.16	49.76	0.26
-37.5	547.8 *	547.57	546.47	544.43	541.93	537.82	533.96	528.63	522.31	515.79	506.34	493.62	479.53	461.65	437.33	408.64	373.48	335.69	275.62	191.78	111.48	48.41	0.24
-42.5	496.22	496.07	495.2 *	493.54	491.09	487.95	484.21	480.61	474.43	468.56	459.93	448.99	435.81	419.36	398.69	372.47	341.33	306.47	251.87	175.84	103.49	46.45	0.22
-47.5	443.13	443.03	442.32	440.92	438.79	435.89	432.2 *	428.15	423.7 *	418.72	411.5 *	401.34	390.18	375.76	356.98	333.68	305.68	275.35	226.5 *	158.74	95.03 *	44.53	0.21
-55	360.24	360.23	360.21	358.47	356.81	354.6 *	351.85	348.88	344.97	340.83	334.99	327.02	318.33	306.61	291.36	272.76	250.16	225.31	186.18	131.82	81.9 *	41.37	0.17
-65	246.1 *	246.11	246.12	244.95	243.84	242.38	240.56	238.42	236.01	233.27	229.38	224.28	217.93	209.94	199.97	187.56	172.36	156.23	130.39	95.83 *	64.17	36.8	0.13
-75	134.29	134.3 *	134.33	134.36	133.2 *	132.46	131.53	130.42	129.17	127.86	125.95	123.33	120.4 *	116.56	111.82	105.81	98.38 *	90.95 *	79.03 *	62.84	47.02	32.09	0.08
-85	45.34	45.38	45.46	45.54	45.63	45.71	45.79	45.07	44.88	44.84	44.72	44.49	44.17	43.69	43.12	42.62	41.51	40.4	38.46	35.45	31.97	13.24	0.03
-90	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.22	0.21	0.21	0.2	0.19	0.16	0.13	0.08	0.03	0



LUMEN TABULATION

	0	1	3	5	7	9	11	13	15	17	20	23	26	29	33	38	43	48	55	65	75	85	90	Total
90	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
85	0.27 *	0.55 *	0.55 *	0.54 *	0.54 *	0.53 *	0.53 *	0.52 *	0.51 *	0.62 *	0.72 *	0.69 *	0.77 *	0.82 *	0.9	0.8	0.7	0.9	0.8	0.5	0.2	0	0	
75	0.58 *	1.16 *	1.15 *	1.15 *	1.13 *	1.12 *	1.10 *	1.08 *	1.06 *	1.30 *	1.50 *	1.43 *	1.58 *	1.67 *	1.69 *	1.64 *	1.39 *	1.63 *	1.40 *	0.7	0.2	0	0	
65	0.92 *	1.85 *	1.84 *	1.82 *	1.81 *	1.78 *	1.76 *	1.73 *	1.69 *	2.06 *	2.38 *	2.27 *	2.49 *	2.63 *	2.66 *	2.57 *	2.16 *	2.49 *	2.07 *	0.97 *	0.3	0	0	
55	0.92 *	1.83 *	1.83 *	1.81 *	1.79 *	1.77 *	1.74 *	1.71 *	1.68 *	2.04 *	2.36 *	2.25 *	2.47 *	2.61 *	2.63 *	2.54 *	2.13 *	2.45 *	2.01 *	0.91 *	0.3	0	0	
47.5	0.72 *	1.43 *	1.42 *	1.41 *	1.40 *	1.38 *	1.36 *	1.34 *	1.31 *	1.59 *	1.84 *	1.75 *	1.92 *	2.02 *	2.04 *	1.97 *	1.65 *	1.89 *	1.55 *	0.69 *	0.2	0	0	
42.5	0.79 *	1.59 *	1.58 *	1.57 *	1.55 *	1.53 *	1.51 *	1.48 *	1.45 *	1.76 *	2.04 *	1.94 *	2.13 *	2.24 *	2.26 *	2.18 *	1.83 *	2.09 *	1.70 *	0.76 *	0.20 *	0	0	
37.5	0.78 *	1.56 *	1.55 *	1.54 *	1.52 *	1.50 *	1.48 *	1.45 *	1.42 *	1.73 *	1.99 *	1.90 *	2.08 *	2.19 *	2.21 *	2.13 *	1.78 *	2.03 *	1.65 *	0.73 *	0.19 *	0	0	
33	0.74 *	1.48 *	1.47 *	1.46 *	1.45 *	1.43 *	1.40 *	1.38 *	1.35 *	1.64 *	1.89 *	1.80 *	1.97 *	2.07 *	2.09 *	2.01 *	1.68 *	1.92 *	1.56 *	0.69 *	0.18 *	0	0	
29	0.68 *	1.36 *	1.36 *	1.35 *	1.33 *	1.31 *	1.29 *	1.27 *	1.24 *	1.51 *	1.74 *	1.65 *	1.81 *	1.90 *	1.92 *	1.84 *	1.54 *	1.76 *	1.43 *	0.63 *	0.16 *	0	0	
25.5	0.61 *	1.21 *	1.21 *	1.20 *	1.19 *	1.17 *	1.15 *	1.13 *	1.11 *	1.34 *	1.55 *	1.47 *	1.61 *	1.69 *	1.70 *	1.64 *	1.37 *	1.56 *	1.26 *	0.56 *	0.14 *	0	0	
22.5	0.63 *	1.25 *	1.25 *	1.24 *	1.22 *	1.21 *	1.19 *	1.17 *	1.14 *	1.38 *	1.60 *	1.52 *	1.66 *	1.74 *	1.75 *	1.68 *	1.41 *	1.60 *	1.30 *	0.57 *	0.15 *	0	0	
19.5	0.54 *	1.07 *	1.06 *	1.06 *	1.05 *	1.03 *	1.01 *	0.99 *	0.97 *	1.18 *	1.36 *	1.29 *	1.42 *	1.49 *	1.50 *	1.44 *	1.20 *	1.36 *	1.11 *	0.48 *	0.12 *	0	0	
17	0.44 *	0.87 *	0.87 *	0.86 *	0.85 *	0.84 *	0.83 *	0.81 *	0.79 *	0.96 *	1.11 *	1.05 *	1.15 *	1.21 *	1.22 *	1.17 *	0.97 *	1.11 *	0.90 *	0.39 *	0.10 *	0	0	
15	0.44 *	0.88 *	0.88 *	0.87 *	0.86 *	0.85 *	0.84 *	0.82 *	0.80 *	0.98 *	1.12 *	1.07 *	1.17 *	1.22 *	1.23 *	1.18 *	0.98 *	1.12 *	0.91 *	0.40 *	0.10 *	0	0	
13	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.85 *	0.83 *	0.81 *	0.99 *	1.14 *	1.08 *	1.18 *	1.24 *	1.24 *	1.19 *	0.99 *	1.13 *	0.92 *	0.40 *	0.10 *	0	0	
11	0.45 *	0.90 *	0.90 *	0.89 *	0.88 *	0.87 *	0.86 *	0.84 *	0.82 *	1.00 *	1.15 *	1.09 *	1.19 *	1.25 *	1.26 *	1.20 *	1.00 *	1.14 *	0.92 *	0.40 *	0.10 *	0	0	
9	0.46 *	0.91 *	0.91 *	0.90 *	0.89 *	0.88 *	0.86 *	0.85 *	0.83 *	1.00 *	1.16 *	1.10 *	1.20 *	1.26 *	1.27 *	1.21 *	1.01 *	1.15 *	0.93 *	0.41 *	0.10 *	0	0	
7	0.46 *	0.92 *	0.91 *	0.90 *	0.89 *	0.88 *	0.87 *	0.85 *	0.83 *	1.01 *	1.16 *	1.11 *	1.21 *	1.27 *	1.27 *	1.22 *	1.02 *	1.16 *	0.94 *	0.41 *	0.10 *	0	0	
5	0.46 *	0.92 *	0.92 *	0.91 *	0.90 *	0.89 *	0.87 *	0.86 *	0.84 *	1.02 *	1.17 *	1.11 *	1.21 *	1.27 *	1.28 *	1.23 *	1.02 *	1.16 *	0.94 *	0.41 *	0.10 *	0	0	
3	0.46 *	0.92 *	0.92 *	0.91 *	0.90 *	0.89 *	0.88 *	0.86 *	0.84 *	1.02 *	1.17 *	1.11 *	1.22 *	1.28 *	1.28 *	1.23 *	1.02 *	1.16 *	0.94 *	0.41 *	0.10 *	0	0	
1	0.23 *	0.46 *	0.46 *	0.46 *	0.45 *	0.45 *	0.44 *	0.43 *	0.42 *	0.51 *	0.59 *	0.56 *	0.61 *	0.64 *	0.64 *	0.61 *	0.51 *	0.58 *	0.47 *	0.21 *	0.05 *	0	0	
0	0.23 *	0.46 *	0.46 *	0.46 *	0.45 *	0.45 *	0.44 *	0.43 *	0.42 *	0.51 *	0.59 *	0.56 *	0.61 *	0.64 *	0.64 *	0.61 *	0.51 *	0.58 *	0.47 *	0.21 *	0.05 *	0	0	

-1	0.46 *	0.92 *	0.92 *	0.91 *	0.90 *	0.89 *	0.88 *	0.86 *	0.84 *	1.02 *	1.17 *	1.11 *	1.22 *	1.28 *	1.28 *	1.23 *	1.02 *	1.16 *	0.94 *	0.41 *	0.10 *	0	0
-3	0.46 *	0.92 *	0.92 *	0.91 *	0.90 *	0.89 *	0.87 *	0.86 *	0.84 *	1.02 *	1.17 *	1.11 *	1.21 *	1.27 *	1.28 *	1.23 *	1.02 *	1.16 *	0.94 *	0.41 *	0.10 *	0	0
-5	0.46 *	0.92 *	0.91 *	0.90 *	0.89 *	0.88 *	0.87 *	0.85 *	0.83 *	1.01 *	1.16 *	1.11 *	1.21 *	1.27 *	1.27 *	1.22 *	1.02 *	1.16 *	0.94 *	0.41 *	0.10 *	0	0
-7	0.46 *	0.91 *	0.91 *	0.90 *	0.89 *	0.88 *	0.86 *	0.85 *	0.83 *	1.00 *	1.16 *	1.10 *	1.20 *	1.26 *	1.27 *	1.21 *	1.01 *	1.15 *	0.93 *	0.41 *	0.10 *	0	0
-9	0.45 *	0.90 *	0.90 *	0.89 *	0.88 *	0.87 *	0.86 *	0.84 *	0.82 *	1.00 *	1.15 *	1.09 *	1.19 *	1.25 *	1.26 *	1.20 *	1.00 *	1.14 *	0.92 *	0.40 *	0.10 *	0	0
-11	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.85 *	0.83 *	0.81 *	0.99 *	1.14 *	1.08 *	1.18 *	1.24 *	1.24 *	1.19 *	0.99 *	1.13 *	0.92 *	0.40 *	0.10 *	0	0
-13	0.44 *	0.88 *	0.88 *	0.87 *	0.86 *	0.85 *	0.84 *	0.82 *	0.80 *	0.98 *	1.12 *	1.07 *	1.17 *	1.22 *	1.23 *	1.18 *	0.98 *	1.12 *	0.91 *	0.40 *	0.10 *	0	0
-15	0.44 *	0.87 *	0.87 *	0.86 *	0.85 *	0.84 *	0.83 *	0.81 *	0.79 *	0.96 *	1.11 *	1.05 *	1.15 *	1.21 *	1.22 *	1.17 *	0.97 *	1.11 *	0.90 *	0.39 *	0.10 *	0	0
-17	0.54 *	1.07 *	1.06 *	1.06 *	1.05 *	1.03 *	1.01 *	0.99 *	0.97 *	1.18 *	1.36 *	1.29 *	1.42 *	1.49 *	1.50 *	1.44 *	1.20 *	1.36 *	1.11 *	0.48 *	0.12 *	0	0
-20	0.63 *	1.25 *	1.25 *	1.24 *	1.22 *	1.21 *	1.19 *	1.17 *	1.14 *	1.38 *	1.60 *	1.52 *	1.66 *	1.74 *	1.75 *	1.68 *	1.41 *	1.60 *	1.30 *	0.57 *	0.15 *	0	0
-23	0.61 *	1.21 *	1.21 *	1.20 *	1.19 *	1.17 *	1.15 *	1.13 *	1.11 *	1.34 *	1.55 *	1.47 *	1.61 *	1.69 *	1.70 *	1.64 *	1.37 *	1.56 *	1.26 *	0.56 *	0.14 *	0	0
-26	0.68 *	1.36 *	1.36 *	1.35 *	1.33 *	1.31 *	1.29 *	1.27 *	1.24 *	1.51 *	1.74 *	1.65 *	1.81 *	1.90 *	1.92 *	1.84 *	1.54 *	1.76 *	1.43 *	0.63 *	0.16 *	0	0
-29	0.74 *	1.48 *	1.47 *	1.46 *	1.45 *	1.43 *	1.40 *	1.38 *	1.35 *	1.64 *	1.89 *	1.80 *	1.97 *	2.07 *	2.09 *	2.01 *	1.68 *	1.92 *	1.56 *	0.69 *	0.18 *	0	0
-33	0.78 *	1.56 *	1.55 *	1.54 *	1.52 *	1.50 *	1.48 *	1.45 *	1.42 *	1.73 *	1.99 *	1.90 *	2.08 *	2.19 *	2.21 *	2.13 *	1.78 *	2.03 *	1.65 *	0.73 *	0.19 *	0	0
-38	0.79 *	1.59 *	1.58 *	1.57 *	1.55 *	1.53 *	1.51 *	1.48 *	1.45 *	1.76 *	2.04 *	1.94 *	2.13 *	2.24 *	2.26 *	2.18 *	1.83 *	2.09 *	1.70 *	0.76 *	0.20 *	0	0
-43	0.72 *	1.43 *	1.42 *	1.41 *	1.40 *	1.38 *	1.36 *	1.34 *	1.31 *	1.59 *	1.84 *	1.75 *	1.92 *	2.02 *	2.04 *	1.97 *	1.65 *	1.89 *	1.55 *	0.69 *	0.2	0	0
-48	0.92 *	1.83 *	1.83 *	1.81 *	1.79 *	1.77 *	1.74 *	1.71 *	1.68 *	2.04 *	2.36 *	2.25 *	2.47 *	2.61 *	2.63 *	2.54 *	2.13 *	2.45 *	2.01 *	0.91 *	0.3	0	0
-55	0.92 *	1.85 *	1.84 *	1.82 *	1.81 *	1.78 *	1.76 *	1.73 *	1.69 *	2.06 *	2.38 *	2.27 *	2.49 *	2.63 *	2.66 *	2.57 *	2.16 *	2.49 *	2.07 *	0.97 *	0.3	0	0
-65	0.58 *	1.16 *	1.15 *	1.15 *	1.13 *	1.12 *	1.10 *	1.08 *	1.06 *	1.30 *	1.50 *	1.43 *	1.58 *	1.67 *	1.69 *	1.64 *	1.39 *	1.63 *	1.40 *	0.7	0.2	0	0
-75	0.27 *	0.55 *	0.55 *	0.54 *	0.54 *	0.53 *	0.53 *	0.52 *	0.51 *	0.62 *	0.72 *	0.69 *	0.77 *	0.82 *	0.9	0.8	0.7	0.9	0.8	0.5	0.2	0	0
-85	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
-90	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
Total	24.1	48.2	48	47.6	47.1	46.5	45.8	44.9	44	53.4	61.7	58.7	64.3	67.7	68.3	65.7	55	63.1	51.7	23.4	6.4	0.3	1035.8

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	L2X @ 4000K	Sample ID.	B1
Temperature (°C)	25.4	Humidity (%RH)	54.0

Test Method

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

The total harmonic distortion shall be measured to the 40th order.

The ambient temperature condition was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.09	60	0.168	19.8	0.979	13.37%

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*****