

Photometric Test Report

Relevant Standards

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

Prepared For RAB Lighting Inc.

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DLF2408121

Report Number

DLF2408121-1a

Test Date

2024/9/3

Issue Date

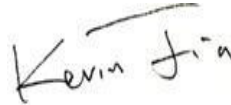
2024/9/6

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		2000
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	102.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		19.6
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	13.33%
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	3045±175	3066
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		81
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		-2
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		96
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-13%
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		0.167
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		19.6

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/9/3	L2X @ 3000K	N/A	A1
2	Goniophotometer Test	2024/9/3	L2X @ 3000K	N/A	A1
3	THD and PF Test	2024/9/3	L2X @ 3000K	N/A	A1

Remark(If any)

1、 This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.

2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

3.0 Production Description

Luminaire Description: L2X @ 3000K

Electrical Specification: 120V/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	L2X @ 3000K	Sample ID.	A1
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
120.06	60	0.168	19.7	0.979

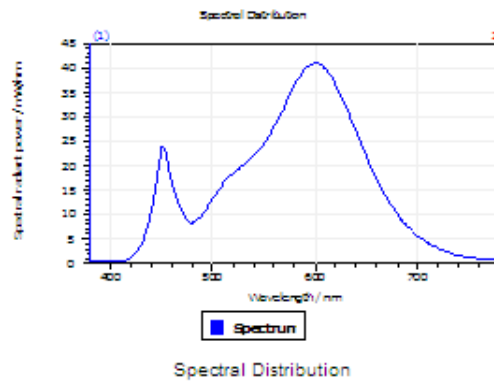
Test Result

CCT (K)	CRI	R9	Duv
3066	81	-2	-0.002

Rf	Rg	IES Rcs,h1
83	96	-13%

4.1 Integrating Sphere Test

Results

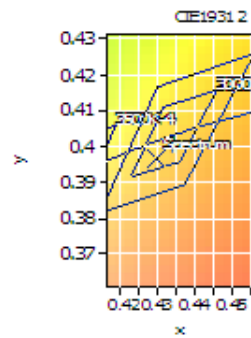


Spectral values

DominantWavelength 583.29 nm
Purity 0.480
PeakWavelength 600.02 nm
Radiant Power 6.034 W
Width50%:

Color Coordinates

Correlated Color Temperat 3066 K
x: 0.4298 u: 0.2490 u': 0.2490
y: 0.3988 v: 0.3449 v': 0.5173
CRI01 79.1 CRI09 -2.3
CRI02 91.1 CRI10 79.9
CRI03 94.1 CRI11 76.4
CRI04 77.4 CRI12 72.1
CRI05 79.5 CRI13 82.1
CRI06 88.9 CRI14 97.4
CRI07 80.0 CRI15 71.2
CRI08 54.4 CRI16 68.4
ResultsCRI 80.6



PlanckDistance 2.0E-003

4.1 Integrating Sphere Test

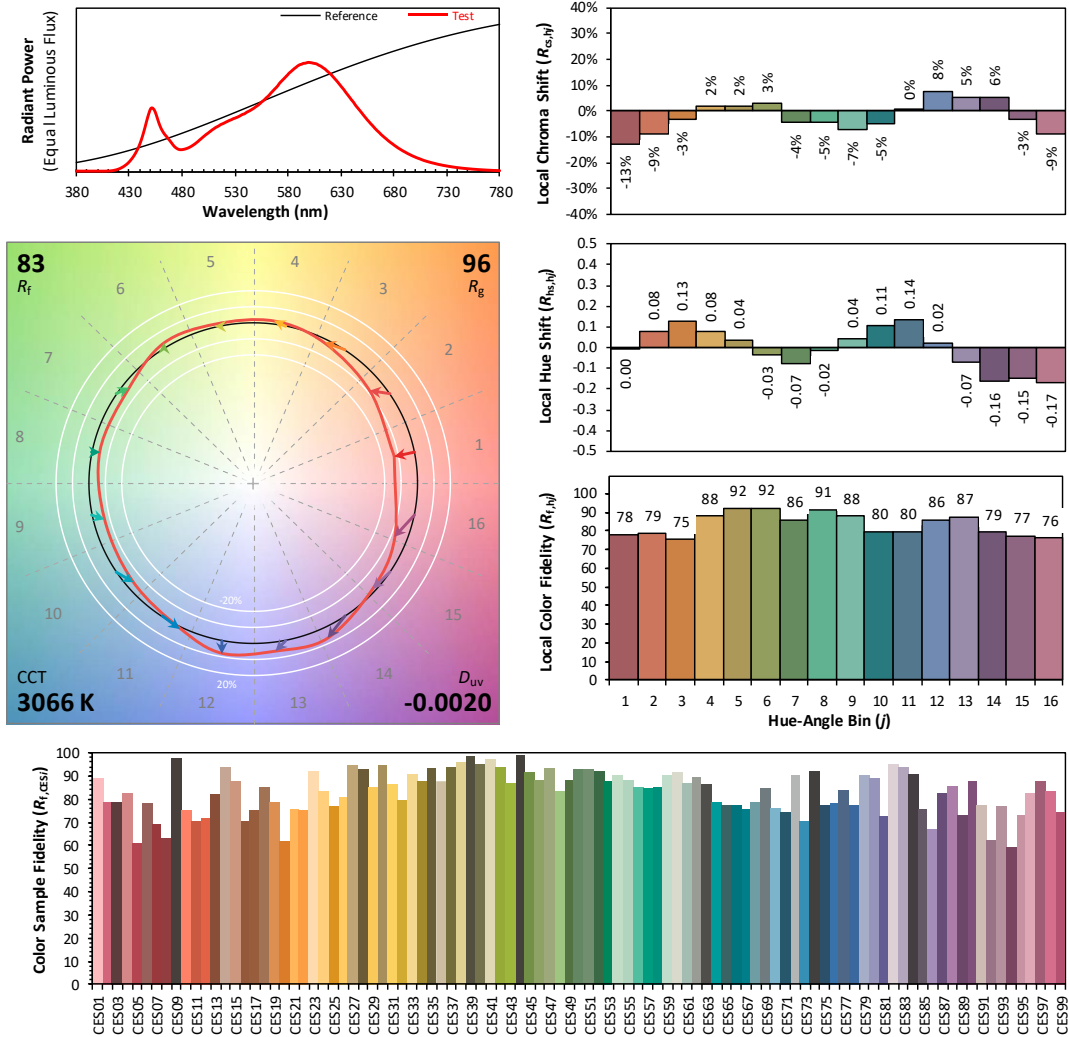
IES TM-30-18 Color Rendition Report

Source: DLF2408121-1a

Manufacturer: RAB Lighting Inc.

Date: 2024/9/3

Model: L2X @ 3000K



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

x 0.4296
 y 0.3966
 u' 0.2490
 v' 0.5173

CIE 13.3-1995
(CRI)
 R_a 82
 R_g 2

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	3.68E-04	485	8.92E-03	590	3.99E-02	695	6.56E-03
385	3.54E-04	490	9.96E-03	595	4.07E-02	700	5.65E-03
390	3.45E-04	495	1.14E-02	600	4.10E-02	705	4.87E-03
395	3.57E-04	500	1.32E-02	605	4.06E-02	710	4.15E-03
400	3.46E-04	505	1.47E-02	610	3.98E-02	715	3.57E-03
405	3.45E-04	510	1.62E-02	615	3.85E-02	720	3.08E-03
410	3.84E-04	515	1.74E-02	620	3.67E-02	725	2.65E-03
415	5.94E-04	520	1.84E-02	625	3.45E-02	730	2.27E-03
420	1.13E-03	525	1.94E-02	630	3.21E-02	735	1.95E-03
425	2.15E-03	530	2.02E-02	635	2.96E-02	740	1.67E-03
430	3.81E-03	535	2.11E-02	640	2.70E-02	745	1.43E-03
435	6.43E-03	540	2.21E-02	645	2.44E-02	750	1.24E-03
440	1.04E-02	545	2.32E-02	650	2.20E-02	755	1.07E-03
445	1.68E-02	550	2.45E-02	655	1.95E-02	760	9.22E-04
450	2.35E-02	555	2.61E-02	660	1.73E-02	765	8.05E-04
455	2.20E-02	560	2.79E-02	665	1.52E-02	770	7.01E-04
460	1.64E-02	565	3.00E-02	670	1.33E-02	775	6.05E-04
465	1.34E-02	570	3.21E-02	675	1.16E-02	780	5.28E-04
470	1.09E-02	575	3.44E-02	680	1.02E-02		
475	8.83E-03	580	3.65E-02	685	8.78E-03		
480	8.39E-03	585	3.83E-02	690	7.62E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	L2X @ 3000K	Sample ID.	A1
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	120.08	60	0.167	19.6	0.979

Test Result

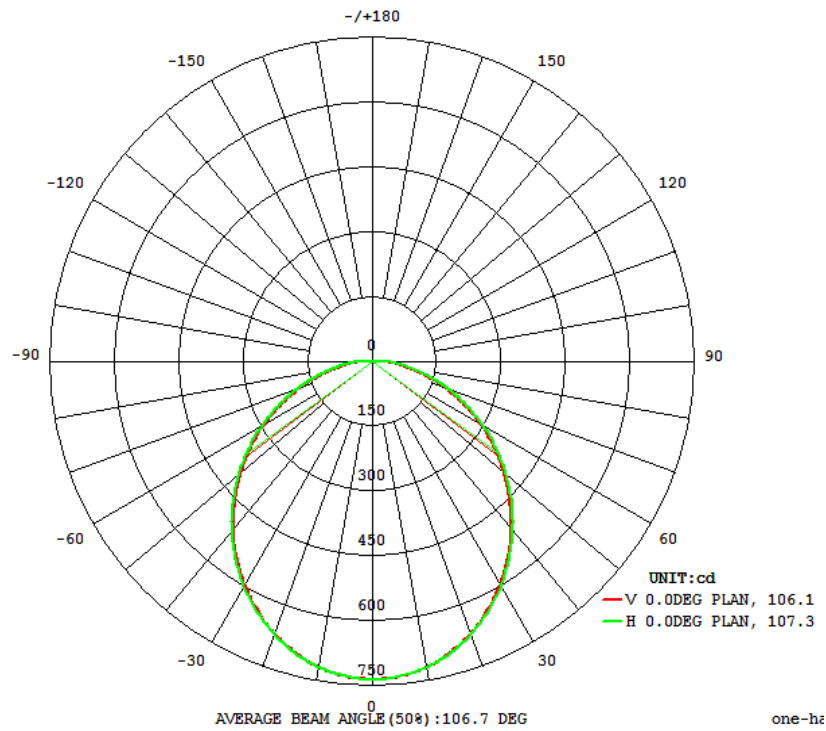
Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	Horizontal	Vertical	Horizontal	Vertical	
2000	164.4	161.8	107.3	106.1	102.0

Zonal Lumen Requirement (0°-90°)

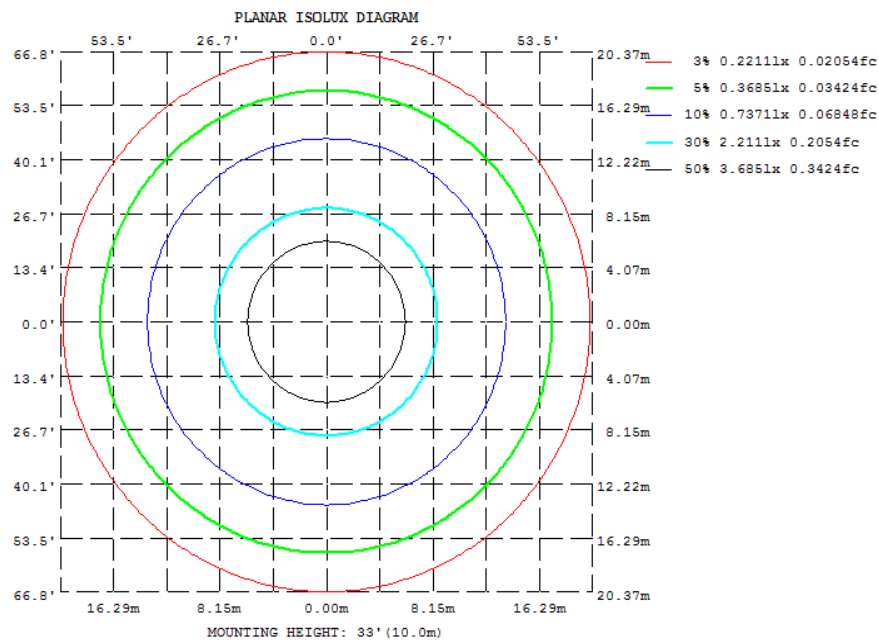
100.00%

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	719.4	718.0	719.4	718.0	719.4	718.0	719.4	718.0
20	669.9	670.3	671.3	670.3	669.9	670.3	671.3	670.3
30	596.6	598.3	600.0	598.3	596.6	598.3	600.0	598.3
40	503.2	506.1	509.4	506.1	503.2	506.1	509.4	506.1
50	400.1	403.8	407.2	403.8	400.1	403.8	407.2	403.8
60	291.8	295.8	299.5	295.8	291.8	295.8	299.5	295.8
70	181.8	185.8	189.5	185.8	181.8	185.8	189.5	185.8
80	81.37	86.34	91.55	86.34	81.37	86.34	91.55	86.34
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	69.21	0 - 10	69.21	3.46%
10-20	196.46	0 - 20	265.67	13.28%
20-30	292.78	0 - 30	558.45	27.92%
30-40	345.68	0 - 40	904.13	45.20%
40-50	351.21	0 - 50	1255.34	62.76%
50-60	312.44	0 - 60	1567.77	78.38%
60-70	237.41	0 - 70	1805.18	90.25%
70-80	141.36	0 - 80	1946.54	97.32%
80-90	53.67	0 - 90	2000.21	100.00%
90-100	0.00	0 - 100	2000.21	100.00%
100-110	0.00	0 - 110	2000.21	100.00%
110-120	0.00	0 - 120	2000.21	100.00%
120-130	0.00	0 - 130	2000.21	100.00%
130-140	0.00	0 - 140	2000.21	100.00%
140-150	0.00	0 - 150	2000.21	100.00%
150-160	0.00	0 - 160	2000.21	100.00%
160-170	0.00	0 - 170	2000.21	100.00%
170-180	0.00	0 - 180	2000.21	100.00%

4.2 Goniophotometer Test

Axial Candela

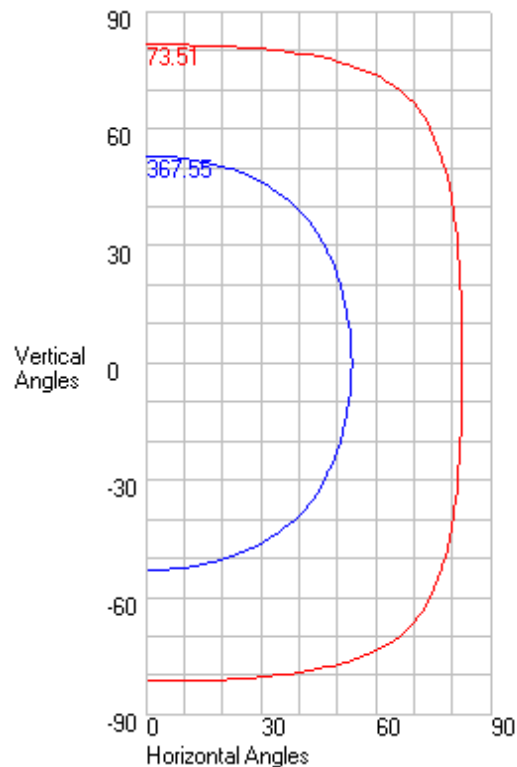
DEG.	HOR.	DEG.	VERT.
90	0.294	90	0.224
85	53.47	85	43.82
75	138.07	75	128.74
65	244.63	65	237.01
55	353.97	55	346.71
47.5	433.8	47.5	427.51
42.5	485.305	42.5	478.72
37.5	533.485	37.5	527.725
33	573.6	33	569.53
29	607.67	29	603.57
25.5	634.46	25.5	631.05
22.5	655.52	22.5	653.17
19.5	674.61	19.5	672.995
17	687.66	17	686.93
15	698.99	15	697.85
13	706.98	13	706.87
11	715.01	11	713.6
9	720.82	9	720.6
7	726.04	7	726.71
5	730.54	5	730.82
3	733.11	3	733
1	734.86	1	735.1
0	734.935	0	734.935
-1	734.86	-1	735.1
-3	733.11	-3	733
-5	730.54	-5	730.82
-7	726.04	-7	726.71
-9	720.82	-9	720.6
-11	715.01	-11	713.6
-13	706.98	-13	706.87
-15	698.99	-15	697.85
-17	687.66	-17	686.93
-19.5	674.61	-19.5	672.995
-22.5	655.52	-22.5	653.17
-25.5	634.46	-25.5	631.05
-29	607.67	-29	603.57
-33	573.6	-33	569.53
-37.5	533.485	-37.5	527.725
-42.5	485.305	-42.5	478.72
-47.5	433.8	-47.5	427.51
-55	353.97	-55	346.71
-65	244.63	-65	237.01
-75	138.07	-75	128.74
-85	53.47	-85	43.82
-90	0.294	-90	0.224

4.2 Goniophotometer Test

Characteristics

NEMA Type	7 H x 7 V
Maximum Candela	735.1
Maximum Candela Angle	0 H -1 V
Horizontal Beam Angle (50%)	107.4
Vertical Beam Angle (50%)	106.1
Horizontal Field Angle (10%)	165.3
Vertical Field Angle (10%)	163
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1383
Beam Efficiency	N.A.
Field Lumens	1968
Field Efficiency	N.A.
Spill Lumens	32
Luminaire Lumens	2000
Total Efficiency	N.A.
Total Luminaire Watts	19.62
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	0
90	0.224	0.224	0.225	0.225	0.225	0.225	0.224	0.223	0.222	0.221	0.221	0.219	0.216	0.213	0.208	0.201	0.192	0.18	0.158	0.121	0.076	0.026		0
85	43.82	43.864	43.953	44.041	44.129	44.217	44.306	43.609	43.441	43.366	43.223	42.979	42.657	42.186	41.649	41.136	40.042	38.995	37.165	34.259	30.876	12.781	0.026	
75	128.74	128.79	128.889	128.988	127.934	127.278	126.433	125.4 *	124.217	122.971	121.166	118.692	115.882	112.148	107.533	101.786	94.921	87.585	76.126	60.561	45.337	30.985	0.076	
65	237.01	236.995	236.966	235.78	234.657	233.186	231.376	229.238	226.916	224.338	220.655	215.737	209.728	202.164	192.639	180.684	166.093	150.513	125.71	92.4 *	61.868	35.545	0.124	
55	346.71	346.745	346.815	345.244	343.712	341.623	338.97	336.053	332.363	328.45	322.873	315.32	306.563	295.496	280.908	262.876	240.966	217.089	179.299	127.038	78.917	39.882	0.169	
47.5	427.51	427.423	426.733	425.359	423.313	420.587	417.233	413.374	408.956	404.032	397.051	387.28	376.43	362.381	344.427	322.151	294.972	265.424	218.311	153.124	91.662	42.978	0.199	
42.5	478.72	478.653	477.952	476.505	474.327	471.182	467.302	463.792	457.977	452.141	444.286	434.025	421.008	404.704	384.944	359.215	329.384	295.627	242.901	169.284	99.807	44.891	0.217	
37.5	527.725	527.644	526.828	525.152	523.143	519.297	515.256	510.302	504.642	498.315	489.022	476.825	463.21	445.503	422.238	394.265	360.172	323.449	265.526	184.649	107.43	46.852	0.233	
33	569.53	569.563	568.596	566.752	563.862	560.698	555.611	550.37	544.587	537.054	526.712	513.44	498.283	478.174	453.779	422.984	386.543	347.217	284.508	197.467	113.831	48.114	0.246	
29	603.57	603.779	603.121	601.463	598.558	594.197	588.932	582.904	576.14	568.719	557.849	545.096	526.875	506.671	479.078	447.2 *	407.094	365.841	299.944	207.481	118.993	49.298	0.257	
25.5	631.05	631.053	630.346	628.737	625.712	621.413	615.726	609.668	602.545	594.125	582.748	567.069	550 *	527.914	499.838	465.546	424.105	380.685	311.747	215.484	123.059	50.22	0.265	
22.5	653.17	653.071	652.015	649.848	646.226	641.924	636.71	630.069	622.655	614.016	602.333	585.95	567.448	545.392	515.056	479.776	437.835	392.004	320.67	221.895	126.159	50.923	0.271	
19.5	672.995	672.88	671.921	669.953	665.688	660.794	655.15	648.454	640.58	631.937	619.54	602.895	583.918	559.47	529.974	492.974	448.6 *	402.142	328.636	227.22	128.971	51.543	0.277	
17	686.93	687.021	685.853	683.452	679.673	675.076	669.924	662.168	654.457	644.591	632.427	615.08	595.764	570.404	539.795	502.602	456.895	409.623	334.555	231.304	131.104	51.996	0.281	
15	697.85	697.881	696.291	693.708	690.362	685.785	678.854	671.935	664.13	654.705	641.46	623.605	604.544	578.923	547.392	509.201	462.82	414.687	338.752	234.2 *	132.611	52.315	0.284	
13	706.87	706.968	705.647	703.29	700.099	694.014	688.486	680.372	672.163	662.795	649.578	631.934	612.093	586.162	553.921	515.079	468.847	419.263	342.661	236.727	133.939	52.596	0.286	
11	713.6 *	714.063	713.297	710.672	707.04	702.397	695.356	688.895	680.09	670.313	656.56	638.791	618.345	592.097	559.674	520.212	472.917	423.41	345.656	238.91	135.086	53.435	0.288	
9	720.6 *	720.863	719.235	716.955	713.477	709.018	702.236	694.705	687.546	676.281	662.611	644.41	623.575	597.249	565.254	524.399	477.108	426.939	348.373	240.746	136.048	53.441	0.29	
7	726.71	726.726	725.115	722.915	718.43	713.291	707.323	700.116	691.49	681.834	667.592	648.95	628.038	601.582	568.403	528.361	480.475	429.692	350.559	242.231	136.826	53.448	0.292	
5	730.82	730.224	729.855	726.273	723.026	717.604	710.902	703.189	694.949	685.243	671.192	652.541	631.181	604.805	571.131	530.509	482.767	431.657	352.209	243.362	138.008	53.454	0.293	
3	733 *	732.776	731.264	729.996	725.043	720.17	713.941	705.78	697.315	687.046	673.359	654.477	633.387	606.793	572.836	532.324	484.332	432.991	353.931	244.54	138.033	53.46	0.293	
1	735.1 *	734.301	732.971	730.751	726.45	721.168	715.225	707.041	698.925	687.858	674.487	655.45	634.396	607.763	573.683	533.307	485.165	433.69	353.957	244.6 *	138.058	53.47	0.294	
0	734.935	734.86	733.11	730.54	726.04	720.82	715.01	706.98	698.99	687.66	674.61	655.52	634.46	607.67	573.6 *	533.485	485.305	433.8 *	353.97	244.63	138.07	53.47	0.294	
-1	735.1 *	734.301	732.971	730.751	726.45	721.168	715.225	707.041	698.925	687.858	674.487	655.45	634.396	607.763	573.683	533.307	485.165	433.69	353.957	244.6 *	138.058	53.467	0.294	
-3	733 *	732.776	731.263	729.996	725.043	720.17	713.936	705.78	697.315	687.046	673.359	654.477	633.387	606.793	572.836	532.324	484.332	432.991	353.931	244.54	138.033	53.46	0.293	
-5	730.82	730.224	729.855	726.273	723.026	717.604	710.902	703.189	694.949	685.243	671.192	652.541	631.181	604.805	571.131	530.509	482.767	431.657	352.209	243.362	138.008	53.454	0.293	
-7	726.71	726.726	725.115	722.915	718.43	713.291	707.323	700.116	691.49	681.834	667.592	648.95	628.038	601.582	568.403	528.361	480.475	429.692	350.559	242.231	136.826	53.448	0.292	
-9	720.6 *	720.863	719.235	716.955	713.477	709.018	702.236	694.705	687.546	676.281	662.611	644.41	623.575	597.249	565.254	524.399	477.108	426.939	348.373	240.746	136.048	53.441	0.29	
-11	713.6 *	714.063	713.297	710.672	707.04	702.397	695.356	688.895	680.09	670.313	656.56	638.791	618.345	592.097	559.674	520.212	472.917	423.41	345.656	238.91	135.086	53.435	0.288	
-13	706.87	706.968	705.647	703.29	700.099	694.014	688.486	680.372	672.163	662.795	649.578	631.934	612.093	586.162	553.921	515.079	468.847	419.263	342.661	236.727	133.939	52.596	0.286	
-15	697.85	697.881	696.291	693.708	690.362	685.785	678.854	671.935	664.13	654.705	641.46	623.605	604.544	578.923	547.392	509.201	462.82	414.687	338.752	234.2 *	132.611	52.315	0.284	
-17	686.93	687.021	685.853	683.452	679.673	675.076	669.924	662.168	654.457	644.591	632.427	615.08	595.764	570.404	539.795	502.602	456.895	409.623	334.555	231.304	131.104	51.996	0.281	
-19.5	672.995	672.88	671.921	669.953	665.688	660.794	655.15	648.454	640.58	631.937	619.54	602.895	583.918	559.47	529.974	492.974	448.6 *	402.142	328.636	227.22	128.971	51.543	0.277	
-22.5	653.17	653.071	652.015	649.848	646.226	641.924	636.71	630.069	622.655	614.016	602.333	585.95	567.448	545.392	515.056	479.776	437.835	392.004	320.67	221.895	126.159	50.923	0.271	
-25.5	631.05	631.053	630.346	628.737	625.712	621.413	615.726	609.668	602.545	594.125	582.748	567.069	550 *	527.914	499.838	465.546	424.105	380.685	311.747	215.484	123.059	50.22	0.265	
-29	603.57	603.779	603.121	601.463	598.558	594.197	588.932	582.904	576.14	568.719	557.849	545.096	526.875	506.671	479.078	447.2 *	407.094	365.841	299.944	207.481	118.993	49.298	0.257	
-33	569.53	569.563	568.596	566.752	563.862	560.698	555.611	550.37	544.587	537.054	526.712	513.44	498.283	478.174	453.779	422.984	386.543	347.217	284.508	197.467	113.831	48.114	0.246	
-37.5	527.725	527.644	526.828	525.152	523.143	519.297	515.256	510.302	504.642	498.315	489.022	476.825	463.21	445.503	422.238	394.265	360.172	323.449	265.526	184.649	107.43	46.852	0.233	
-42.5	478.72	478.653	477.952	476.505	474.327	471.182	467.302	463.792	457.977	452.141	444.286	434.025	421.008	404.704	384.944	359.215	329.384	295.627	242.901	169.284	99.807	44.891	0.217	
-47.5	427.51	427.423	426.733	425.359	423.313	420.587	417.233	413.374	408.956	404.032	397.051	387.28	376.43	362.381	344.427	322.151	294.972	265.424	218.311	153.124	91.662	42.978	0.199	
-55	346.71	346.745	346.815	345.244	343.712	341.623	338.97	336.053	332.363	328.45	322.873	315.32	306.563	295.496	280.909	262.876	240.966	217.089	179.299	127.038	78.917	39.882	0.169	
-65	237.01	236.995	236.966	235.78	234.657	233.186	231.376	229.238	226.916	224.338	220.655	215.737	209.728	202.164	192.639	180.684	166.093	150.513	125.71	92.4 *	61.868	35.545	0.124	
-75	128.74	128.79	128.889	128.988	127.934																			



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	0.26 *	0.53 *	0.53 *	0.52 *	0.52 *	0.51 *	0.51 *	0.50 *	0.49 *	0.60 *	0.70 *	0.67 *	0.74 *	0.79 *	0.8	0.8	0.7	0.9	0.8	0.4	0.2	0	0	
75	0.56 *	1.11 *	1.11 *	1.10 *	1.09 *	1.08 *	1.06 *	1.04 *	1.02 *	1.25 *	1.44 *	1.38 *	1.52 *	1.60 *	1.63 *	1.58 *	1.34 *	1.57 *	1.35 *	0.7	0.2	0	0	
65	0.89 *	1.78 *	1.77 *	1.76 *	1.74 *	1.72 *	1.69 *	1.66 *	1.63 *	1.98 *	2.29 *	2.19 *	2.40 *	2.54 *	2.57 *	2.48 *	2.09 *	2.40 *	1.99 *	0.94 *	0.3	0	0	
55	0.88 *	1.77 *	1.76 *	1.75 *	1.73 *	1.71 *	1.68 *	1.65 *	1.62 *	1.97 *	2.28 *	2.17 *	2.38 *	2.51 *	2.54 *	2.45 *	2.06 *	2.36 *	1.93 *	0.88 *	0.3	0	0	
47.5	0.69 *	1.38 *	1.37 *	1.36 *	1.35 *	1.33 *	1.31 *	1.29 *	1.26 *	1.53 *	1.77 *	1.69 *	1.85 *	1.95 *	1.97 *	1.90 *	1.60 *	1.83 *	1.49 *	0.67 *	0.2	0	0	
42.5	0.77 *	1.53 *	1.52 *	1.51 *	1.50 *	1.48 *	1.46 *	1.43 *	1.40 *	1.70 *	1.97 *	1.87 *	2.05 *	2.16 *	2.18 *	2.10 *	1.76 *	2.01 *	1.64 *	0.73 *	0.20 *	0	0	
37.5	0.75 *	1.50 *	1.50 *	1.49 *	1.47 *	1.45 *	1.43 *	1.40 *	1.37 *	1.67 *	1.93 *	1.83 *	2.01 *	2.11 *	2.13 *	2.05 *	1.72 *	1.96 *	1.60 *	0.71 *	0.19 *	0	0	
33	0.71 *	1.43 *	1.42 *	1.41 *	1.40 *	1.38 *	1.36 *	1.33 *	1.30 *	1.58 *	1.83 *	1.74 *	1.90 *	2.00 *	2.02 *	1.94 *	1.62 *	1.85 *	1.51 *	0.66 *	0.17 *	0	0	
29	0.66 *	1.31 *	1.31 *	1.30 *	1.29 *	1.27 *	1.25 *	1.23 *	1.20 *	1.46 *	1.68 *	1.60 *	1.75 *	1.84 *	1.85 *	1.78 *	1.49 *	1.70 *	1.38 *	0.61 *	0.16 *	0	0	
25.5	0.59 *	1.17 *	1.17 *	1.16 *	1.15 *	1.13 *	1.11 *	1.09 *	1.07 *	1.30 *	1.50 *	1.42 *	1.56 *	1.64 *	1.65 *	1.58 *	1.32 *	1.51 *	1.22 *	0.54 *	0.14 *	0	0	
22.5	0.61 *	1.21 *	1.20 *	1.20 *	1.18 *	1.17 *	1.15 *	1.13 *	1.10 *	1.34 *	1.54 *	1.47 *	1.60 *	1.68 *	1.69 *	1.63 *	1.36 *	1.55 *	1.25 *	0.55 *	0.14 *	0	0	
19.5	0.52 *	1.03 *	1.03 *	1.02 *	1.01 *	1.00 *	0.98 *	0.96 *	0.94 *	1.14 *	1.32 *	1.25 *	1.37 *	1.44 *	1.44 *	1.39 *	1.16 *	1.32 *	1.07 *	0.47 *	0.12 *	0	0	
17	0.42 *	0.84 *	0.84 *	0.83 *	0.82 *	0.81 *	0.80 *	0.78 *	0.77 *	0.93 *	1.07 *	1.02 *	1.11 *	1.17 *	1.17 *	1.13 *	0.94 *	1.07 *	0.87 *	0.38 *	0.10 *	0	0	
15	0.43 *	0.85 *	0.85 *	0.84 *	0.84 *	0.82 *	0.81 *	0.79 *	0.78 *	0.94 *	1.09 *	1.03 *	1.13 *	1.18 *	1.19 *	1.14 *	0.95 *	1.08 *	0.88 *	0.38 *	0.10 *	0	0	
13	0.43 *	0.86 *	0.86 *	0.85 *	0.85 *	0.83 *	0.82 *	0.80 *	0.79 *	0.95 *	1.10 *	1.04 *	1.14 *	1.20 *	1.20 *	1.15 *	0.96 *	1.09 *	0.89 *	0.39 *	0.10 *	0	0	
11	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 *	1.21 *	1.16 *	0.97 *	1.10 *	0.89 *	0.39 *	0.10 *	0	0	
9	0.44 *	0.88 *	0.88 *	0.87 *	0.86 *	0.85 *	0.84 *	0.82 *	0.80 *	0.97 *	1.12 *	1.06 *	1.16 *	1.22 *	1.22 *	1.17 *	0.98 *	1.11 *	0.90 *	0.39 *	0.10 *	0	0	
7	0.44 *	0.89 *	0.88 *	0.88 *	0.87 *	0.85 *	0.84 *	0.82 *	0.81 *	0.98 *	1.13 *	1.07 *	1.17 *	1.22 *	1.23 *	1.18 *	0.98 *	1.12 *	0.90 *	0.40 *	0.10 *	0	0	
5	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.84 *	0.83 *	0.81 *	0.98 *	1.13 *	1.07 *	1.17 *	1.23 *	1.23 *	1.18 *	0.99 *	1.12 *	0.91 *	0.40 *	0.10 *	0	0	
3	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.85 *	0.83 *	0.81 *	0.98 *	1.13 *	1.08 *	1.18 *	1.23 *	1.24 *	1.19 *	0.99 *	1.13 *	0.91 *	0.40 *	0.10 *	0	0	
1	0.22 *	0.45 *	0.44 *	0.44 *	0.44 *	0.43 *	0.42 *	0.42 *	0.41 *	0.49 *	0.57 *	0.54 *	0.59 *	0.62 *	0.62 *	0.59 *	0.49 *	0.56 *	0.46 *	0.20 *	0.05 *	0	0	
0	0.22 *	0.45 *	0.44 *	0.44 *	0.44 *	0.43 *	0.42 *	0.42 *	0.41 *	0.49 *	0.57 *	0.54 *	0.59 *	0.62 *	0.62 *	0.59 *	0.49 *	0.56 *	0.46 *	0.20 *	0.05 *	0	0	

-1	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.85 *	0.83 *	0.81 *	0.98 *	1.13 *	1.08 *	1.18 *	1.23 *	1.24 *	1.19 *	0.99 *	1.13 *	0.91 *	0.40 *	0.10 *	0	0
-3	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.84 *	0.83 *	0.81 *	0.98 *	1.13 *	1.07 *	1.17 *	1.23 *	1.23 *	1.18 *	0.99 *	1.12 *	0.91 *	0.40 *	0.10 *	0	0
-5	0.44 *	0.89 *	0.88 *	0.88 *	0.87 *	0.85 *	0.84 *	0.82 *	0.81 *	0.98 *	1.13 *	1.07 *	1.17 *	1.22 *	1.23 *	1.18 *	0.98 *	1.12 *	0.90 *	0.40 *	0.10 *	0	0
-7	0.44 *	0.88 *	0.88 *	0.87 *	0.86 *	0.85 *	0.84 *	0.82 *	0.80 *	0.97 *	1.12 *	1.06 *	1.16 *	1.22 *	1.22 *	1.17 *	0.98 *	1.11 *	0.90 *	0.39 *	0.10 *	0	0
-9	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 *	1.21 *	1.16 *	0.97 *	1.10 *	0.89 *	0.39 *	0.10 *	0	0
-11	0.43 *	0.86 *	0.86 *	0.85 *	0.85 *	0.83 *	0.82 *	0.80 *	0.79 *	0.95 *	1.10 *	1.04 *	1.14 *	1.20 *	1.20 *	1.15 *	0.96 *	1.09 *	0.89 *	0.39 *	0.10 *	0	0
-13	0.43 *	0.85 *	0.85 *	0.84 *	0.84 *	0.82 *	0.81 *	0.79 *	0.78 *	0.94 *	1.09 *	1.03 *	1.13 *	1.18 *	1.19 *	1.14 *	0.95 *	1.08 *	0.88 *	0.38 *	0.10 *	0	0
-15	0.42 *	0.84 *	0.84 *	0.83 *	0.82 *	0.81 *	0.80 *	0.78 *	0.77 *	0.93 *	1.07 *	1.02 *	1.11 *	1.17 *	1.17 *	1.13 *	0.94 *	1.07 *	0.87 *	0.38 *	0.10 *	0	0
-17	0.52 *	1.03 *	1.03 *	1.02 *	1.01 *	1.00 *	0.98 *	0.96 *	0.94 *	1.14 *	1.32 *	1.25 *	1.37 *	1.44 *	1.44 *	1.39 *	1.16 *	1.32 *	1.07 *	0.47 *	0.12 *	0	0
-20	0.61 *	1.21 *	1.20 *	1.20 *	1.18 *	1.17 *	1.15 *	1.13 *	1.10 *	1.34 *	1.54 *	1.47 *	1.60 *	1.68 *	1.69 *	1.63 *	1.36 *	1.55 *	1.25 *	0.55 *	0.14 *	0	0
-23	0.59 *	1.17 *	1.17 *	1.16 *	1.15 *	1.13 *	1.11 *	1.09 *	1.07 *	1.30 *	1.50 *	1.42 *	1.56 *	1.64 *	1.65 *	1.58 *	1.32 *	1.51 *	1.22 *	0.54 *	0.14 *	0	0
-26	0.66 *	1.31 *	1.31 *	1.30 *	1.29 *	1.27 *	1.25 *	1.23 *	1.20 *	1.46 *	1.68 *	1.60 *	1.75 *	1.84 *	1.85 *	1.78 *	1.49 *	1.70 *	1.38 *	0.61 *	0.16 *	0	0
-29	0.71 *	1.43 *	1.42 *	1.41 *	1.40 *	1.38 *	1.36 *	1.33 *	1.30 *	1.58 *	1.83 *	1.74 *	1.90 *	2.00 *	2.02 *	1.94 *	1.62 *	1.85 *	1.51 *	0.66 *	0.17 *	0	0
-33	0.75 *	1.50 *	1.50 *	1.49 *	1.47 *	1.45 *	1.43 *	1.40 *	1.37 *	1.67 *	1.93 *	1.83 *	2.01 *	2.11 *	2.13 *	2.05 *	1.72 *	1.96 *	1.60 *	0.71 *	0.19 *	0	0
-38	0.77 *	1.53 *	1.52 *	1.51 *	1.50 *	1.48 *	1.46 *	1.43 *	1.40 *	1.70 *	1.97 *	1.87 *	2.05 *	2.16 *	2.18 *	2.10 *	1.76 *	2.01 *	1.64 *	0.73 *	0.20 *	0	0
-43	0.69 *	1.38 *	1.37 *	1.36 *	1.35 *	1.33 *	1.31 *	1.29 *	1.26 *	1.53 *	1.77 *	1.69 *	1.85 *	1.95 *	1.97 *	1.90 *	1.60 *	1.83 *	1.49 *	0.67 *	0.2	0	0
-48	0.88 *	1.77 *	1.76 *	1.75 *	1.73 *	1.71 *	1.68 *	1.65 *	1.62 *	1.97 *	2.28 *	2.17 *	2.38 *	2.51 *	2.54 *	2.45 *	2.06 *	2.36 *	1.93 *	0.88 *	0.3	0	0
-55	0.89 *	1.78 *	1.77 *	1.76 *	1.74 *	1.72 *	1.69 *	1.66 *	1.63 *	1.98 *	2.29 *	2.19 *	2.40 *	2.54 *	2.57 *	2.48 *	2.09 *	2.40 *	1.99 *	0.94 *	0.3	0	0
-65	0.56 *	1.11 *	1.11 *	1.10 *	1.09 *	1.08 *	1.06 *	1.04 *	1.02 *	1.25 *	1.44 *	1.38 *	1.52 *	1.60 *	1.63 *	1.58 *	1.34 *	1.57 *	1.35 *	0.7	0.2	0	0
-75	0.26 *	0.53 *	0.53 *	0.52 *	0.52 *	0.51 *	0.51 *	0.50 *	0.49 *	0.60 *	0.70 *	0.67 *	0.74 *	0.79 *	0.8	0.8	0.7	0.9	0.8	0.4	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	23.3	46.5	46.3	46	45.5	44.9	44.2	43.4	42.5	51.6	59.5	56.7	62.1	65.3	65.9	63.4	53.1	60.9	49.9	22.6	6.2	0.2	999.99

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	L2X @ 3000K	Sample ID.	A1
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
120.06	60	0.168	19.7	0.979	13.33%

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*****