

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

DLF2408121-5a

Test Date

2024/9/3

Issue Date

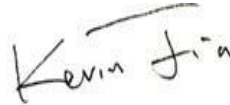
2024/9/6

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		1019
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	51.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		19.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	13.35%
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	5029±355	5063
		4 step	5029±220	
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		0.169
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		19.8

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/9/3	L2X @ 5000K	N/A	E1
2	Goniophotometer Test	2024/9/3	L2X @ 5000K	N/A	E1
3	THD and PF Test	2024/9/3	L2X @ 5000K	N/A	E1

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 @ 5000K

Electrical Specification: 120V/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	L2X @ 5000K	Sample ID.	E1
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
120.08	60	0.168	19.8	0.979

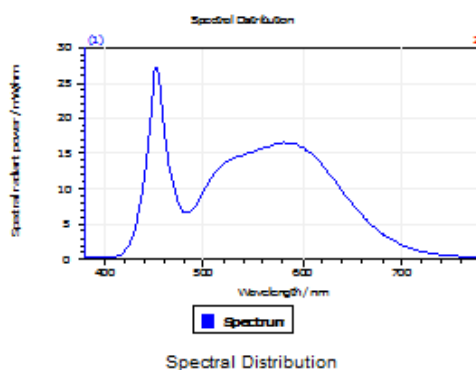
Test Result

CCT (K)	CRI	R9	Duv
5063	84	13	0.00098

Rf	Rg	IES Rcs,h1
84	96	-12%

4.1 Integrating Sphere Test

Results

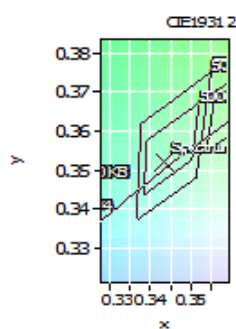


Spectral values

DominantWavelength 570.81 nm
Purity 0.088
PeakWavelength 452.57 nm
Radiant Power 3.282 W
Width50%:

Color Coordinates

Correlated Color Temperat 5063 K
x: 0.3435 u: 0.2101 u': 0.2101
y: 0.3523 v: 0.3232 v': 0.4848
CRI01 82.7 CRI09 13.3
CRI02 88.9 CRI10 72.5
CRI03 92.2 CRI11 83.0
CRI04 83.8 CRI12 61.4
CRI05 82.9 CRI13 84.4
CRI06 83.5 CRI14 95.8
CRI07 87.6 CRI15 77.9
CRI08 69.4 CRI16 76.1
ResultsCRI 83.9



PlankDistance 9.8E-004

4.1 Integrating Sphere Test

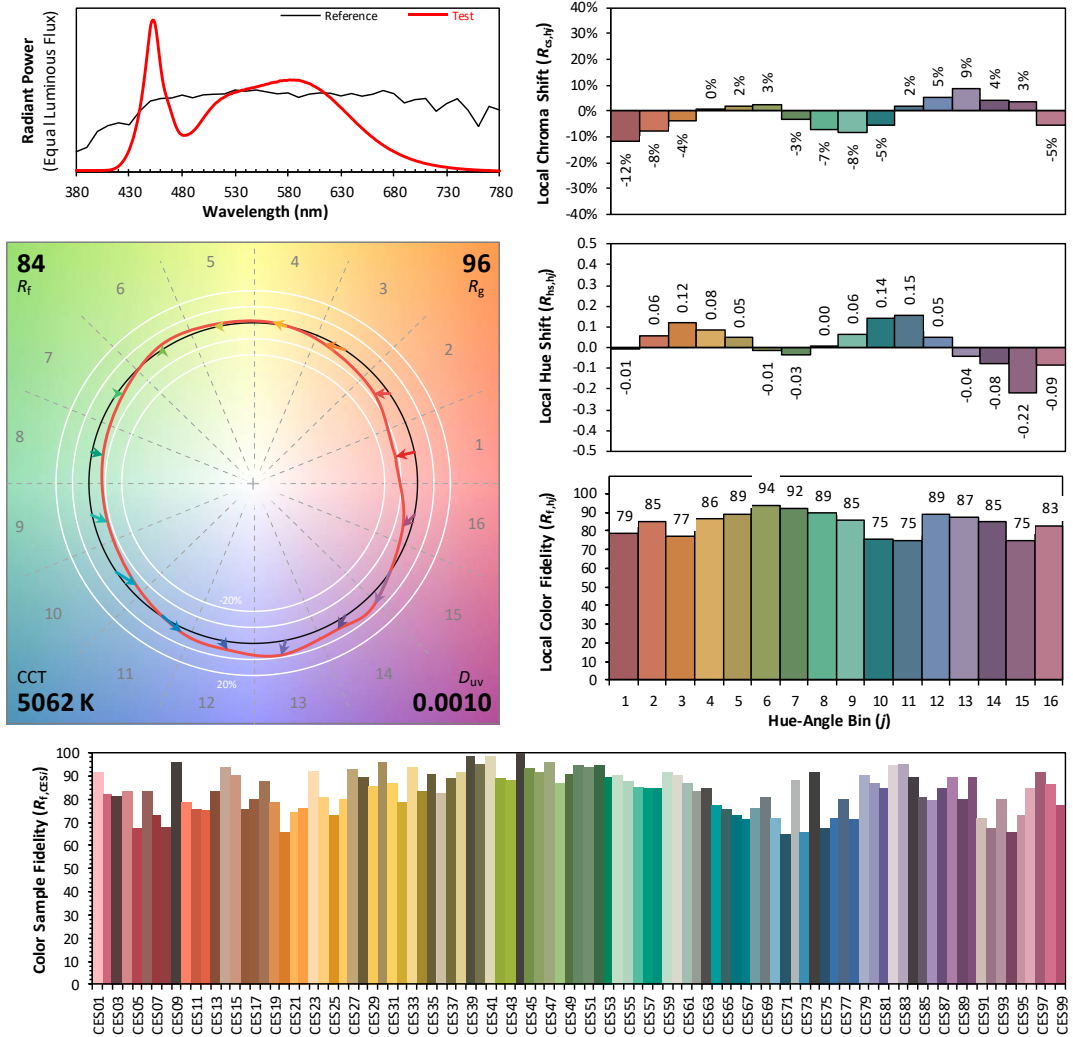
IES TM-30-18 Color Rendition Report

Source: DLF2408121-5a

Manufacturer: RAB Lighting Inc.

Date: 2024/9/3

Model: L2X @ 5000K



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

x 0.3435
 y 0.3523
 u' 0.2101
 v' 0.4848

CIE 13.3-1995
(CRI)
 R_a 84
 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	2.82E-04	485	6.67E-03	590	1.64E-02	695	2.40E-03
385	2.72E-04	490	7.27E-03	595	1.62E-02	700	2.07E-03
390	2.80E-04	495	8.28E-03	600	1.59E-02	705	1.79E-03
395	2.85E-04	500	9.63E-03	605	1.54E-02	710	1.53E-03
400	2.83E-04	505	1.09E-02	610	1.48E-02	715	1.33E-03
405	2.93E-04	510	1.20E-02	615	1.41E-02	720	1.15E-03
410	3.34E-04	515	1.28E-02	620	1.33E-02	725	9.83E-04
415	5.30E-04	520	1.34E-02	625	1.24E-02	730	8.54E-04
420	1.07E-03	525	1.40E-02	630	1.15E-02	735	7.28E-04
425	2.15E-03	530	1.43E-02	635	1.06E-02	740	6.32E-04
430	3.98E-03	535	1.46E-02	640	9.67E-03	745	5.45E-04
435	6.92E-03	540	1.48E-02	645	8.72E-03	750	4.73E-04
440	1.13E-02	545	1.50E-02	650	7.84E-03	755	4.06E-04
445	1.79E-02	550	1.53E-02	655	6.99E-03	760	3.56E-04
450	2.59E-02	555	1.55E-02	660	6.21E-03	765	3.07E-04
455	2.59E-02	560	1.58E-02	665	5.48E-03	770	2.68E-04
460	1.85E-02	565	1.60E-02	670	4.81E-03	775	2.32E-04
465	1.36E-02	570	1.62E-02	675	4.21E-03	780	2.04E-04
470	1.05E-02	575	1.64E-02	680	3.67E-03		
475	7.82E-03	580	1.65E-02	685	3.20E-03		
480	6.64E-03	585	1.65E-02	690	2.77E-03		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	L2X @ 5000K	Sample ID.	E1
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	120.01	60	0.169	19.8	0.979

Test Result

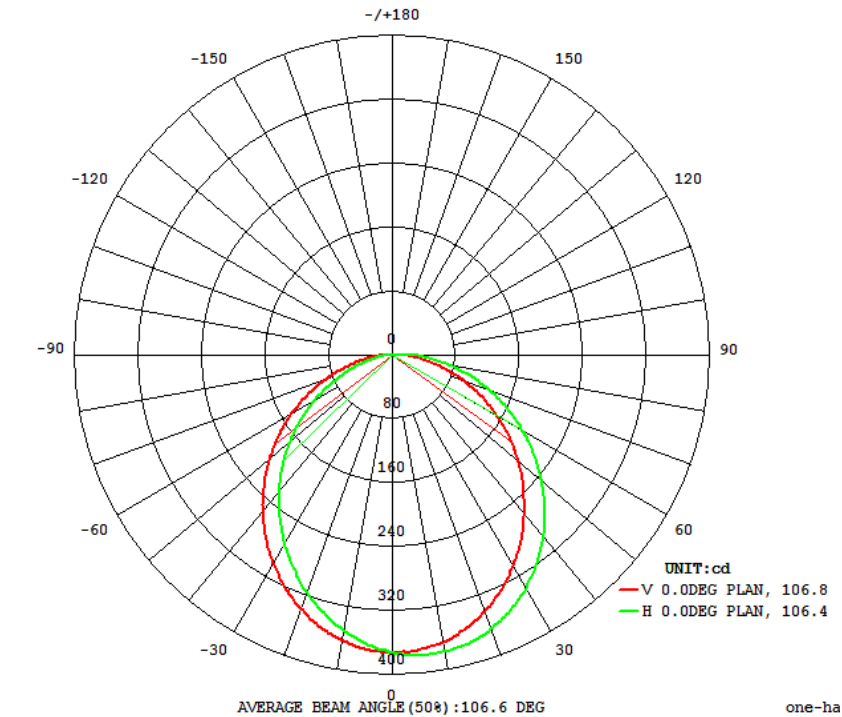
Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	Horizontal	Vertical	Horizontal	Vertical	
1019	161.9	162.0	106.4	106.8	51.5

Zonal Lumen Requirement (0°-90°)

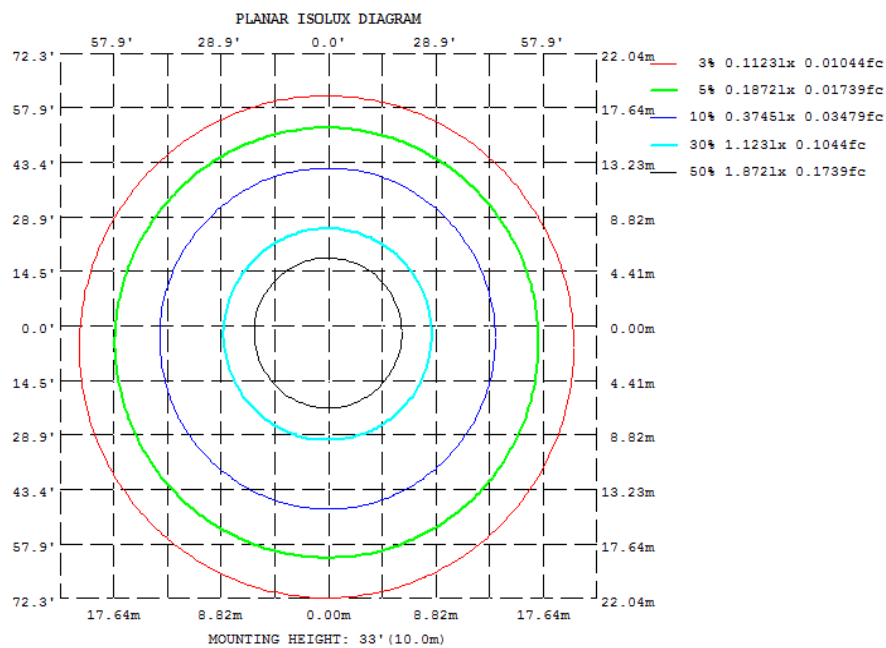
100.00%

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	363.4	373.1	377.3	374.4	365.4	355.9	350.9	354.5
20	338.5	356.7	364.5	359.0	341.9	323.3	316.3	322.2
30	300.6	325.1	337.5	328.5	305.3	281.9	272.2	279.1
40	253.9	282.0	296.4	286.3	259.8	233.4	221.9	230.0
50	201.6	230.8	246.0	235.6	208.0	180.8	168.7	177.2
60	146.7	175.0	190.3	180.5	153.5	126.3	114.6	122.5
70	90.14	117.4	132.0	122.5	97.21	72.63	62.07	68.43
80	38.86	60.12	72.32	64.85	44.59	27.19	20.33	24.01
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	35.08	0 - 10	35.08	3.44%
10-20	99.60	0 - 20	134.69	13.22%
20-30	148.62	0 - 30	283.30	27.80%
30-40	175.78	0 - 40	459.09	45.06%
40-50	179.06	0 - 50	638.15	62.63%
50-60	159.73	0 - 60	797.87	78.30%
60-70	121.64	0 - 70	919.52	90.24%
70-80	72.42	0 - 80	991.93	97.35%
80-90	27.02	0 - 90	1018.95	100.00%
90-100	0.00	0 - 100	1018.95	100.00%
100-110	0.00	0 - 110	1018.95	100.00%
110-120	0.00	0 - 120	1018.95	100.00%
120-130	0.00	0 - 130	1018.95	100.00%
130-140	0.00	0 - 140	1018.95	100.00%
140-150	0.00	0 - 150	1018.95	100.00%
150-160	0.00	0 - 160	1018.95	100.00%
160-170	0.00	0 - 170	1018.95	100.00%
170-180	0.00	0 - 180	1018.95	100.00%

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	0.093	0.091	0.087	0.084	0.08	0.076	0.072	0.068	0.064	0.061	0.057	0.052	0.048	0.042	0.037	0.032	0.027	0.022	0.016	0.009	0.004	0.001	0
85	19.74	19.481	18.963	18.445	17.927	17.409	16.891	16.034	15.414	14.852	14.131	13.242	12.327	11.231	10.146	9.06	7.769	6.669	5.204	3.52	1.973	0.574	0.001
75	63.01 *	62.503	61.488	60.474	58.894	57.514	56.047	54.493	52.887	51.301	49.21 *	46.581	43.84 *	40.491	36.89	32.685	28.026	23.688	17.799	11.091	5.863	1.787	0.003
65	118.53	117.861	116.522	114.575	112.661	110.566	108.294	105.851	103.372	100.869	97.548	93.311	88.542	82.885	76.241	68.207	59.097	50.198	37.01	21.948	10.572	3.108	0.005
55	174.25	173.525	172.076	169.809	167.566	165.051	162.26	159.352	155.991	152.555	148.013	142.016	135.361	127.731	118.412	106.991	94.175	80.903	60.405	35.476	16.214	4.331	0.007
47.5	215.285	214.415	212.425	210.108	207.468	204.441	200.995	197.32	193.491	189.477	184.061	177.033	169.384	160.458	148.961	135.227	119.79	103.319	78.47 *	46.418	20.592	5.163	0.008
42.5	241.545	240.581	238.371	235.793	232.861	229.521	225.87	222.402	217.692	213.02	206.58	199.048	190.912	180.522	167.386	153.307	136.037	117.514	89.942	53.595	23.564	5.667	0.009
37.5	265.965	264.972	262.649	259.844	256.803	253.08	249.359	244.946	240.242	235.392	228.697	219.897	210.958	199.388	185.764	169.648	150.768	130.582	100.409	60.298	26.495	6.184	0.009
33	287.77	286.72	284.027	280.95	277.492	274.014	269.251	264.473	259.352	253.886	246.697	237.391	227.707	214.711	200.509	183.157	162.71	141.614	109.196	66.071	29.026	6.524	0.01
29	304.42	303.352	300.671	297.568	293.991	290.079	285.583	280.545	275.258	269.384	261.671	252.28	241.223	228.778	212.512	194.2 *	172.492	150.747	116.219	70.733	31.076	6.843	0.01
25.5	318.61	317.413	314.581	311.189	307.41	303.39	298.527	293.091	287.769	281.732	273.533	263.106	251.961	238.447	222.2 *	202.693	180.438	157.535	121.531	74.477	32.714	7.091	0.011
22.5	330.065	328.774	325.767	322.382	318.388	314.042	308.718	303.103	297.684	291.11	282.836	271.828	260.463	246.929	229.473	209.661	186.964	162.801	125.75	77.506	33.957	7.28	0.011
19.5	339.935	338.506	335.352	331.847	327.831	323.076	317.301	312.361	306.655	299.835	291.216	280.032	268.31	252.918	235.809	215.685	191.57	167.477	129.703	79.936	35.09	7.447	0.011
17	347.54	346.296	342.883	338.801	334.528	329.772	324.665	319.308	313.03	306.51	297.404	286.159	273.502	258.339	241.109	220.134	195.766	170.814	132.452	81.775	35.952	7.568	0.011
15	352.25	351.005	347.896	344.527	340.374	335.441	329.839	323.968	318.091	311.039	301.802	290.023	277.592	262.679	244.523	223.225	198.535	173.251	134.296	83.092	36.559	7.654	0.011
13	357.76	356.13	352.122	348.706	344.843	339.92	334.408	328.131	321.867	315.028	305.754	293.786	281.49	266.141	247.369	225.92	201.444	175.428	136.027	84.279	37.091	7.729	0.012
11	361.5 *	360.256	356.655	353.195	348.255	343.664	337.797	332.162	325.312	318.442	308.876	297.211	284.673	268.727	250.108	228.311	203.221	177.357	137.556	85.299	37.547	7.956	0.012
9	364.39	362.921	359.725	355.941	352.099	345.999	341.328	335.255	328.67	320.948	312.143	300.04	287.091	271.35	252.89	230.456	205.031	178.999	138.936	86.15 *	37.927	7.957	0.012
7	367.98	366.73	363.201	358.958	354.819	349.444	343.52	337.567	331.113	324.037	314.667	302.103	289.32	273.448	254.383	232.505	206.467	180.325	140.038	86.829	38.23 *	7.958	0.012
5	369.8 *	368.547	364.996	361.177	356.782	351.578	345.7 *	339.936	333.097	325.787	316.434	303.716	291.119	274.804	255.726	233.458	207.58	181.296	140.858	87.336	38.699	7.958	0.012
3	371.76	369.241	367.138	362.58	357.726	353.079	347.21	341.211	334.269	326.751	317.646	305.056	292.257	275.759	256.576	234.195	208.308	181.919	141.713	87.866	38.691	7.959	0.012
1	372.73	370.889	367.356	364.023	358.568	353.556	348.217	341.781	334.706	327.517	318.154	305.729	292.777	276.328	256.987	234.474	208.633	182.2 *	141.684	87.849	38.684	7.96	0.012
0	372.509	370.71	368.01	364.82	358.59	353.25	347.94	341.49	334.44	327.53	318.15	305.765	292.775	276.33	256.91	234.45	208.64	182.215	141.67	87.84 *	38.68 *	7.96	0.012
-1	372.77	370.387	367.653	363.015	358.655	353.59	348.084	341.876	334.862	327.663	318.232	305.9 *	292.838	276.56	257.087	234.556	208.716	182.283	141.769	87.896	38.708	7.964	0.012
-3	372.35	370.671	367.142	362.805	358.311	352.773	347.179	341.34	334.47	327.125	317.733	305.602	292.404	276.391	256.877	234.458	208.566	182.166	141.968	88.007	38.763	7.972	0.012
-5	370.88	368.819	365.563	362.436	357.522	351.405	346.238	339.809	332.897	326.248	316.217	304.73	291.242	275.667	256.236	233.955	208.036	181.704	141.291	87.573	38.818	7.98	0.012
-7	368.53	366.9 *	364.007	360.181	356.022	350.451	344.9 *	338.373	331.436	325.076	314.823	303.159	289.839	274.27	255.112	233.299	207.155	180.892	140.656	87.164	38.397	7.988	0.012
-9	366.59	365.236	361.721	357.763	353.382	347.813	342.28	336.058	329.674	322.84	313.035	301.236	288.301	272.225	253.847	231.461	205.84	179.733	139.75	86.585	38.142	7.996	0.012
-11	363.89	362.242	358.5 *	355.256	350.426	345.275	339.821	333.441	327.093	320.04	310.207	298.918	286.026	269.927	250.877	229.516	204.064	178.276	138.58	85.838	37.81 *	8.003	0.012
-13	359.29	358.122	354.983	351.135	346.799	342.001	336.043	329.949	323.316	316.931	307.506	295.25	283.111	267.452	248.46	227.14	202.272	176.545	137.274	84.926	37.401	7.784	0.012
-15	355.55	354.277	350.772	346.723	342.375	337.171	331.788	325.669	320.55	312.846	303.984	291.706	279.528	264.544	246.074	224.41	199.721	174.528	135.576	83.851	36.916	7.717	0.011
-17	349.87	348.542	345.387	341.865	337.431	332.56	327.502	321.864	315.221	308.641	299.576	288.16	275.774	260.883	242.576	221.595	197.288	172.206	133.713	82.614	36.357	7.639	0.011
-19.5	343.26	341.938	338.912	335.225	330.615	325.943	320.601	315.127	309.318	302.38	293.724	282.521	270.504	255.779	238.117	217.058	193.494	169.036	130.99	80.825	35.552	7.527	0.011
-22.5	333.885	332.585	329.551	326.046	321.686	317.093	312.216	306.09	300.241	293.924	285.598	274.633	263.377	249.666	231.475	211.588	188.63	164.598	127.21	78.423	34.479	7.372	0.011
-25.5	322.92	321.651	318.734	315.364	311.346	306.781	301.808	296.248	290.48	284.546	276.34	266.232	255.081	241.177	224.424	205.102	182.598	159.509	123.24	75.576	33.28	7.193	0.011
-29	308.57	307.582	305.044	301.898	297.941	293.686	289.242	283.926	278.43	272.705	265.31	255.753	244.038	231.804	215.401	197.094	175.124	152.871	118.013	71.982	31.684	6.956	0.01
-33	292.49	291.433	288.775	285.645	281.94	278.1 *	273.644	268.834	263.401	257.52	250.687	241.023	230.806	218.538	203.804	186.011	165.372	144.265	111.255	67.411	29.701	6.649	0.01
-37.5	271.535	270.47	267.992	265.111	262.159	258.246	254.179	249.69	244.649	239.771	233.039	224.369	214.628	203.517	189.075	172.673	153.653	133.258	102.797	61.868	27.241	6.322	0.009
-42.5	247.11	246.079	243.721	241.005	237.975	234.631	231.014	227.46	222.622	217.891	211.754	203.859	194.975	184.542	171.516	156.744	139.298	120.332	92.346	55.227	24.337	5.816	0.009
-47.5	221.62	220.669	218.523	216.051	213.254	210.094	206.576	202.91	199.012	194.717	189.114	181.856	174.156	164.802	153.199	139.168	123.16	106.685	81.068	48.177	21.351	5.319	0.008
-55	181.21	180.638	178.684	176.179	173.721	171.019	168.083	165.08	161.673	158.188	153.517	147.389	140.572	132.436	122.86	111.493	97.37 *	84.333	63.281	37.344	17.009	4.499	0.007
-65	125.06	124.331	122.874	120.875	118.913	116.799	114.539	112.142	109.683	107.023	103.438	98.947	93.955	88.031	81.11 *	72.72 *	63.073	53.776	39.828	23.577	11.385	3.303	0.005
-75	69.81 *	69.234	68.081	66.929	65.179	63.65 *	62.038	60.346	58.609	56.886	54.622	51.766	48.766	45.091	41.205	36.662	31.465	26.634	19.969	12.497	6.51	1.96	0.003
-85	24.06	23.746	23.118	22.491	21.863	21.235	20.608	19.596	18.868	18.216</													

4.2 Goniophotometer Test

Axial Candela

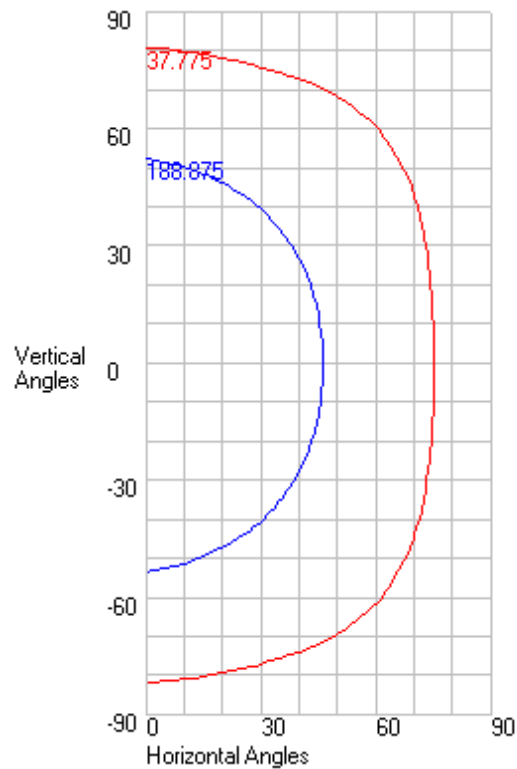
DEG.	HOR.	DEG.	VERT.
90	0.012	90	0.093
85	7.96	85	19.74
75	38.68	75	63.01
65	87.84	65	118.53
55	141.67	55	174.25
47.5	182.215	47.5	215.285
42.5	208.64	42.5	241.545
37.5	234.45	37.5	265.965
33	256.91	33	287.77
29	276.33	29	304.42
25.5	292.775	25.5	318.61
22.5	305.765	22.5	330.065
19.5	318.15	19.5	339.935
17	327.53	17	347.54
15	334.44	15	352.25
13	341.49	13	357.76
11	347.94	11	361.5
9	353.25	9	364.39
7	358.59	7	367.98
5	363.82	5	369.8
3	368.01	3	371.76
1	370.71	1	372.73
0	372.509	0	372.509
-1	373.81	-1	372.77
-3	375.9	-3	372.35
-5	377.5	-5	370.88
-7	377.75	-7	368.53
-9	377.49	-9	366.59
-11	376.05	-11	363.89
-13	375.15	-13	359.29
-15	373.79	-15	355.55
-17	370.88	-17	349.87
-19.5	365.62	-19.5	343.26
-22.5	359.075	-22.5	333.885
-25.5	351.335	-25.5	322.92
-29	340.8	-29	308.57
-33	326.29	-33	292.49
-37.5	307.755	-37.5	271.535
-42.5	284.63	-42.5	247.11
-47.5	259.455	-47.5	221.62
-55	219.11	-55	181.21
-65	161.5	-65	125.06
-75	101.85	-75	69.81
-85	45.46	-85	24.06
-90	0.276	-90	0.125

4.2 Goniophotometer Test

Characteristics

NEMA Type	7 H x 7 V
Maximum Candela	377.75
Maximum Candela Angle	-7 H 0 V
Horizontal Beam Angle (50%)	106.5
Vertical Beam Angle (50%)	107.4
Horizontal Field Angle (10%)	161.1
Vertical Field Angle (10%)	164
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	700
Beam Efficiency	N.A.
Field Lumens	1003
Field Efficiency	N.A.
Spill Lumens	15
Luminaire Lumens	1019
Total Efficiency	N.A.
Total Luminaire Watts	19.76
Ballast Factor	1

ISOCANDELA CURVES





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	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
85	0.13 *	0.25 *	0.25 *	0.25 *	0.25 *	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.2	0.1	0	0	
75	0.28 *	0.55 *	0.55 *	0.55 *	0.54 *	0.54 *	0.53 *	0.52 *	0.51 *	0.62 *	0.72 *	0.68 *	0.75 *	0.80 *	0.81 *	0.79 *	0.66 *	0.8	0.7	0.3	0.1	0	0	
65	0.45 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.85 *	0.83 *	0.82 *	1.00 *	1.15 *	1.10 *	1.21 *	1.27 *	1.29 *	1.24 *	1.05 *	1.20 *	1.00 *	0.5	0.1	0	0	
55	0.44 *	0.89 *	0.89 *	0.88 *	0.87 *	0.86 *	0.85 *	0.83 *	0.82 *	0.99 *	1.15 *	1.09 *	1.20 *	1.27 *	1.28 *	1.24 *	1.04 *	1.19 *	0.97 *	0.4	0.1	0	0	
47.5	0.35 *	0.69 *	0.69 *	0.69 *	0.68 *	0.67 *	0.66 *	0.65 *	0.64 *	0.77 *	0.89 *	0.85 *	0.94 *	0.99 *	1.00 *	0.96 *	0.81 *	0.92 *	0.75 *	0.3	0.1	0	0	
42.5	0.39 *	0.77 *	0.77 *	0.76 *	0.76 *	0.75 *	0.74 *	0.72 *	0.71 *	0.86 *	0.99 *	0.95 *	1.04 *	1.09 *	1.10 *	1.06 *	0.89 *	1.02 *	0.83 *	0.37 *	0.1	0	0	
37.5	0.38 *	0.76 *	0.75 *	0.75 *	0.74 *	0.73 *	0.72 *	0.71 *	0.69 *	0.84 *	0.97 *	0.93 *	1.02 *	1.07 *	1.08 *	1.04 *	0.87 *	0.99 *	0.81 *	0.36 *	0.1	0	0	
33	0.36 *	0.72 *	0.72 *	0.71 *	0.71 *	0.70 *	0.69 *	0.67 *	0.66 *	0.80 *	0.92 *	0.88 *	0.96 *	1.01 *	1.02 *	0.98 *	0.82 *	0.94 *	0.76 *	0.34 *	0.1	0	0	
29	0.33 *	0.66 *	0.66 *	0.66 *	0.65 *	0.64 *	0.63 *	0.62 *	0.61 *	0.74 *	0.85 *	0.81 *	0.89 *	0.93 *	0.94 *	0.90 *	0.75 *	0.86 *	0.70 *	0.31 *	0.1	0	0	
25.5	0.30 *	0.59 *	0.59 *	0.59 *	0.58 *	0.57 *	0.56 *	0.55 *	0.54 *	0.66 *	0.76 *	0.72 *	0.79 *	0.83 *	0.83 *	0.80 *	0.67 *	0.76 *	0.62 *	0.27 *	0.1	0	0	
22.5	0.31 *	0.61 *	0.61 *	0.60 *	0.60 *	0.59 *	0.58 *	0.57 *	0.56 *	0.68 *	0.78 *	0.74 *	0.81 *	0.85 *	0.86 *	0.82 *	0.69 *	0.79 *	0.64 *	0.28 *	0.1	0	0	
19.5	0.26 *	0.52 *	0.52 *	0.52 *	0.51 *	0.50 *	0.50 *	0.49 *	0.48 *	0.58 *	0.67 *	0.63 *	0.69 *	0.73 *	0.73 *	0.70 *	0.59 *	0.67 *	0.54 *	0.24 *	0.1	0	0	
17	0.21 *	0.43 *	0.42 *	0.42 *	0.42 *	0.41 *	0.40 *	0.40 *	0.39 *	0.47 *	0.54 *	0.52 *	0.56 *	0.59 *	0.59 *	0.57 *	0.48 *	0.54 *	0.44 *	0.19 *	0.1	0	0	
15	0.22 *	0.43 *	0.43 *	0.43 *	0.42 *	0.42 *	0.41 *	0.40 *	0.39 *	0.48 *	0.55 *	0.52 *	0.57 *	0.60 *	0.60 *	0.58 *	0.48 *	0.55 *	0.45 *	0.19 *	0.1	0	0	
13	0.22 *	0.44 *	0.44 *	0.43 *	0.43 *	0.42 *	0.41 *	0.41 *	0.40 *	0.48 *	0.56 *	0.53 *	0.58 *	0.61 *	0.61 *	0.59 *	0.49 *	0.56 *	0.45 *	0.20 *	0.1	0	0	
11	0.22 *	0.44 *	0.44 *	0.44 *	0.43 *	0.43 *	0.42 *	0.41 *	0.40 *	0.49 *	0.56 *	0.53 *	0.58 *	0.61 *	0.62 *	0.59 *	0.49 *	0.56 *	0.45 *	0.20 *	0.1	0	0	
9	0.22 *	0.45 *	0.44 *	0.44 *	0.44 *	0.43 *	0.42 *	0.41 *	0.41 *	0.49 *	0.57 *	0.54 *	0.59 *	0.62 *	0.62 *	0.60 *	0.50 *	0.56 *	0.46 *	0.20 *	0.1	0	0	
7	0.22 *	0.45 *	0.45 *	0.44 *	0.44 *	0.43 *	0.43 *	0.42 *	0.41 *	0.50 *	0.57 *	0.54 *	0.59 *	0.62 *	0.62 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0	
5	0.23 *	0.45 *	0.45 *	0.45 *	0.44 *	0.43 *	0.43 *	0.42 *	0.41 *	0.50 *	0.57 *	0.54 *	0.59 *	0.62 *	0.63 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0	
3	0.23 *	0.45 *	0.45 *	0.45 *	0.44 *	0.44 *	0.43 *	0.42 *	0.41 *	0.50 *	0.57 *	0.55 *	0.60 *	0.63 *	0.63 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0	
1	0.11 *	0.23 *	0.23 *	0.22 *	0.22 *	0.22 *	0.21 *	0.21 *	0.21 *	0.25 *	0.29 *	0.27 *	0.30 *	0.31 *	0.31 *	0.30 *	0.25 *	0.29 *	0.23 *	0.10 *	0	0	0	
0	0.11 *	0.23 *	0.23 *	0.22 *	0.22 *	0.22 *	0.21 *	0.21 *	0.21 *	0.25 *	0.29 *	0.27 *	0.30 *	0.31 *	0.31 *	0.30 *	0.25 *	0.29 *	0.23 *	0.10 *	0	0	0	

-1	0.23 *	0.45 *	0.45 *	0.45 *	0.44 *	0.44 *	0.43 *	0.42 *	0.41 *	0.50 *	0.57 *	0.55 *	0.60 *	0.63 *	0.63 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0
-3	0.23 *	0.45 *	0.45 *	0.45 *	0.44 *	0.44 *	0.43 *	0.42 *	0.41 *	0.50 *	0.57 *	0.54 *	0.60 *	0.63 *	0.63 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0
-5	0.23 *	0.45 *	0.45 *	0.44 *	0.44 *	0.43 *	0.43 *	0.42 *	0.41 *	0.50 *	0.57 *	0.54 *	0.59 *	0.62 *	0.63 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0
-7	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 *	0.60 *	0.50 *	0.57 *	0.46 *	0.20 *	0.1	0	0
-9	0.22 *	0.44 *	0.44 *	0.44 *	0.43 *	0.43 *	0.42 *	0.41 *	0.40 *	0.49 *	0.56 *	0.54 *	0.59 *	0.61 *	0.62 *	0.59 *	0.49 *	0.56 *	0.46 *	0.20 *	0.1	0	0
-11	0.22 *	0.44 *	0.44 *	0.43 *	0.43 *	0.42 *	0.42 *	0.41 *	0.40 *	0.49 *	0.56 *	0.53 *	0.58 *	0.61 *	0.61 *	0.59 *	0.49 *	0.56 *	0.45 *	0.20 *	0.1	0	0
-13	0.22 *	0.43 *	0.43 *	0.43 *	0.42 *	0.42 *	0.41 *	0.40 *	0.40 *	0.48 *	0.55 *	0.53 *	0.57 *	0.60 *	0.61 *	0.58 *	0.49 *	0.55 *	0.45 *	0.20 *	0.1	0	0
-15	0.21 *	0.43 *	0.43 *	0.42 *	0.42 *	0.41 *	0.41 *	0.40 *	0.39 *	0.47 *	0.55 *	0.52 *	0.57 *	0.60 *	0.60 *	0.58 *	0.48 *	0.55 *	0.44 *	0.19 *	0.1	0	0
-17	0.26 *	0.53 *	0.52 *	0.52 *	0.51 *	0.51 *	0.50 *	0.49 *	0.48 *	0.58 *	0.67 *	0.64 *	0.70 *	0.73 *	0.74 *	0.71 *	0.59 *	0.67 *	0.55 *	0.24 *	0.1	0	0
-20	0.31 *	0.62 *	0.61 *	0.61 *	0.60 *	0.60 *	0.59 *	0.57 *	0.56 *	0.68 *	0.79 *	0.75 *	0.82 *	0.86 *	0.87 *	0.83 *	0.69 *	0.79 *	0.64 *	0.28 *	0.1	0	0
-23	0.30 *	0.60 *	0.60 *	0.59 *	0.59 *	0.58 *	0.57 *	0.56 *	0.55 *	0.66 *	0.76 *	0.73 *	0.80 *	0.84 *	0.84 *	0.81 *	0.68 *	0.77 *	0.63 *	0.27 *	0.1	0	0
-26	0.34 *	0.67 *	0.67 *	0.66 *	0.66 *	0.65 *	0.64 *	0.63 *	0.61 *	0.75 *	0.86 *	0.82 *	0.90 *	0.94 *	0.95 *	0.91 *	0.76 *	0.87 *	0.71 *	0.31 *	0.1	0	0
-29	0.37 *	0.73 *	0.73 *	0.72 *	0.72 *	0.71 *	0.70 *	0.68 *	0.67 *	0.81 *	0.94 *	0.89 *	0.98 *	1.03 *	1.04 *	1.00 *	0.83 *	0.95 *	0.77 *	0.34 *	0.1	0	0
-33	0.39 *	0.77 *	0.77 *	0.76 *	0.76 *	0.75 *	0.73 *	0.72 *	0.71 *	0.86 *	0.99 *	0.94 *	1.03 *	1.09 *	1.10 *	1.06 *	0.88 *	1.01 *	0.82 *	0.36 *	0.1	0	0
-38	0.39 *	0.79 *	0.79 *	0.78 *	0.77 *	0.76 *	0.75 *	0.74 *	0.72 *	0.88 *	1.01 *	0.97 *	1.06 *	1.11 *	1.12 *	1.09 *	0.91 *	1.04 *	0.85 *	0.38 *	0.1	0	0
-43	0.36 *	0.71 *	0.71 *	0.70 *	0.70 *	0.69 *	0.68 *	0.67 *	0.65 *	0.79 *	0.92 *	0.87 *	0.96 *	1.01 *	1.02 *	0.98 *	0.83 *	0.94 *	0.77 *	0.3	0.1	0	0
-48	0.46 *	0.92 *	0.92 *	0.91 *	0.90 *	0.89 *	0.87 *	0.86 *	0.84 *	1.02 *	1.18 *	1.13 *	1.24 *	1.31 *	1.32 *	1.27 *	1.07 *	1.23 *	1.00 *	0.5	0.1	0	0
-55	0.47 *	0.93 *	0.93 *	0.92 *	0.91 *	0.90 *	0.89 *	0.87 *	0.85 *	1.04 *	1.20 *	1.15 *	1.26 *	1.33 *	1.34 *	1.30 *	1.09 *	1.26 *	1.04 *	0.5	0.2	0	0
-65	0.30 *	0.59 *	0.59 *	0.59 *	0.58 *	0.57 *	0.56 *	0.56 *	0.54 *	0.66 *	0.77 *	0.73 *	0.81 *	0.85 *	0.86 *	0.84 *	0.71 *	0.8	0.7	0.4	0.1	0	0
-75	0.14 *	0.29 *	0.29 *	0.28 *	0.28 *	0.28 *	0.27 *	0.27 *	0.26 *	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.2	0.1	0	0
-85	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
-90	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
Total	11.9	23.7	23.6	23.4	23.2	22.9	22.5	22.1	21.6	26.3	30.3	28.9	31.6	33.3	33.6	32.4	27.1	31.1	25.4	11.5	3.1	0.1	509.37

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	L2X @ 5000K	Sample ID.	E1
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
120.08	60	0.168	19.8	0.979	13.35%

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*****