

Photometric Test Report

Relevant Standards

- ☒ ANSI/IES LM-79-2019
- ☒ ANSI C82.77-2017

Prepared For

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1.0 Test Summary

DLC Technical Requirements V5.1

Architectural Flood and Spot Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	1000		1043
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	133.7
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		7.8
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	13.41
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.971
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3985±275	3982
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		83.7
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	N/A		21
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		98
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-11%
Zonal Lumen Requirement (0°-90°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≥85%		100.0%
Input Voltage (V)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Cast		120.0
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A
Input Current (A)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		0.067
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		7.8
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-08-14	LF34SW @4000K	ES#1	240812012-S1
2	Goniophotometer Test	2024-08-14	LF34SW @4000K	ES#1	240812012-S1
3	THD and PF Test	2024-08-14	LF34SW @4000K	ES#1	240812012-S1

Remark (If any):

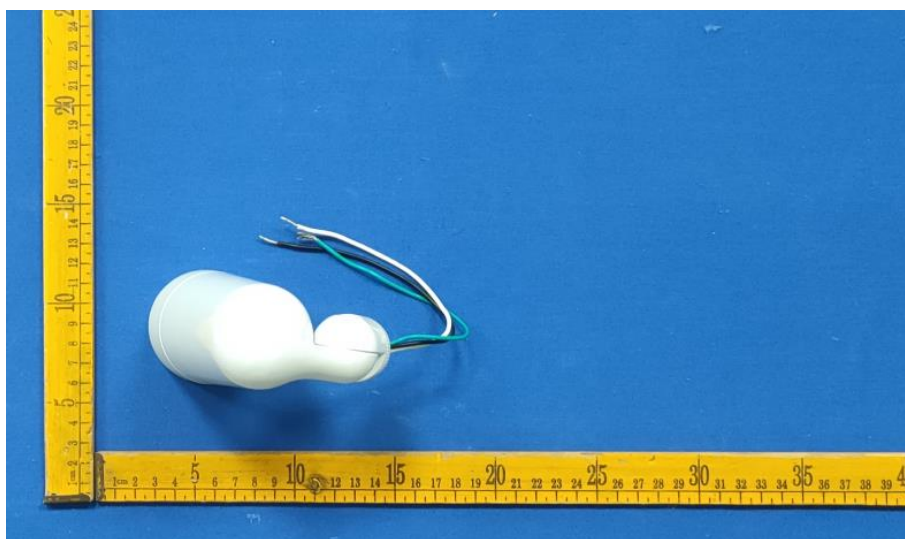
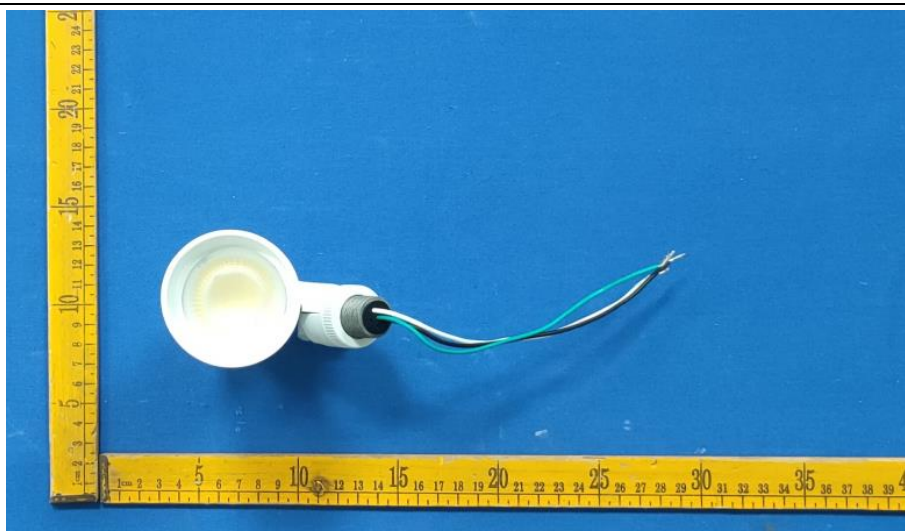
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2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

3.0 Product Description

Luminaire Description: Model No. LF34SW @4000K, color tunable from 2700K, 3000K, 3500K, 4000K and 5000K.

Electrical Specification: 120Vac, 50/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	LF34SW @4000K	Sample ID	240812012-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.</p> <p>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.</p> <p>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 780nm.</p>

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.067	7.8	0.971

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3982	83.7	21	-0.0020	84	98	-11%

4.1 Integrating Sphere Test

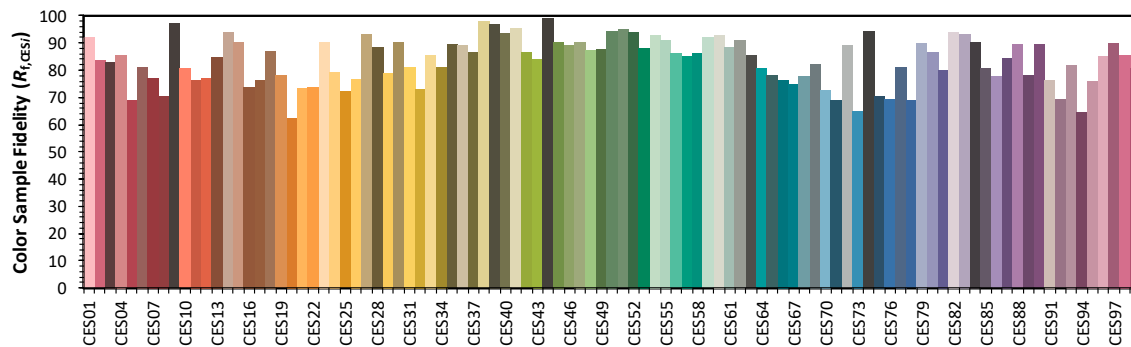
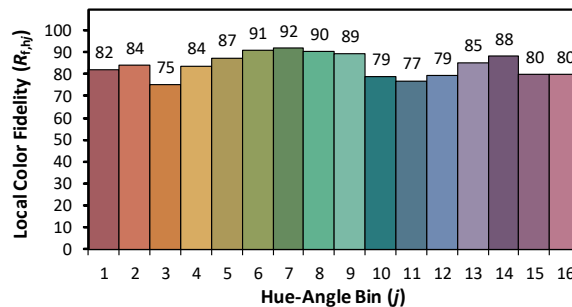
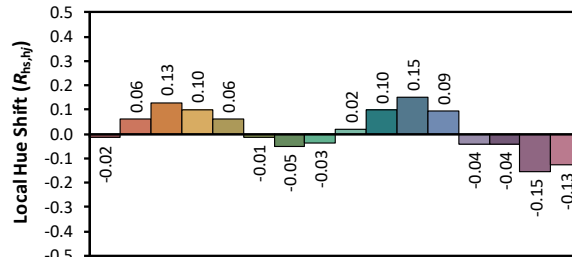
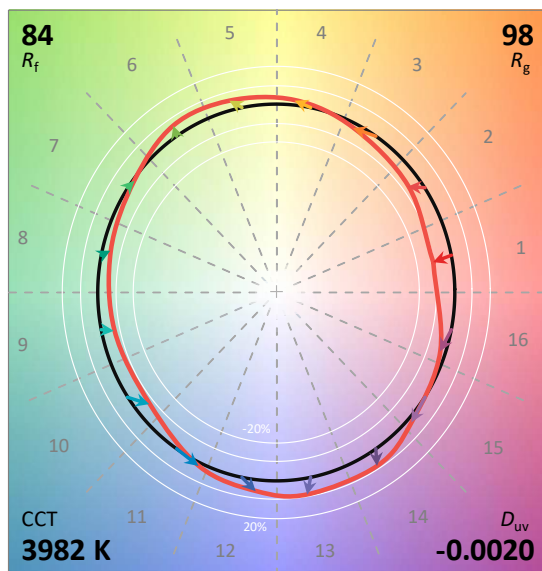
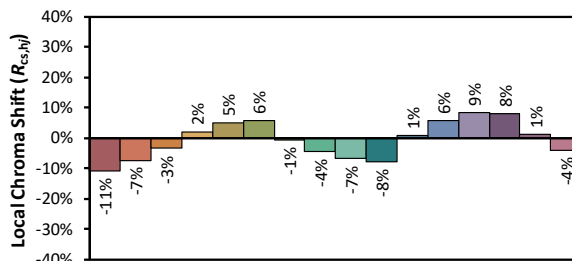
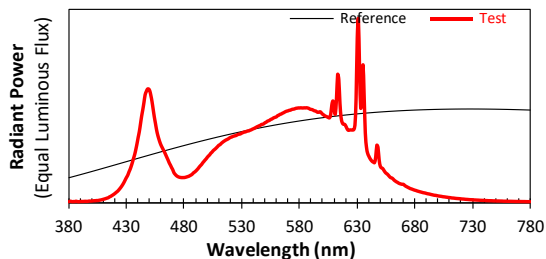
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/8/15

Model: LF34SW @4000K



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

x 0.3798
 y 0.3721
 u' 0.2266
 v' 0.4994

CIE 13.3-1995
(CRI)

R_a 84
 R_g 21

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength											
WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)
380	2.30E-06	447	5.90E-04	514	3.24E-04	581	5.04E-04	648	2.92E-04	715	2.07E-05
381	5.20E-06	448	6.03E-04	515	3.28E-04	582	5.03E-04	649	2.26E-04	716	1.99E-05
382	4.10E-06	449	6.05E-04	516	3.32E-04	583	5.03E-04	650	1.92E-04	717	1.95E-05
383	2.60E-06	450	5.96E-04	517	3.35E-04	584	5.04E-04	651	1.84E-04	718	1.90E-05
384	3.40E-06	451	5.70E-04	518	3.38E-04	585	5.03E-04	652	1.80E-04	719	1.85E-05
385	3.10E-06	452	5.38E-04	519	3.42E-04	586	5.04E-04	653	1.71E-04	720	1.78E-05
386	5.00E-06	453	4.96E-04	520	3.46E-04	587	5.03E-04	654	1.62E-04	721	1.70E-05
387	3.70E-06	454	4.55E-04	521	3.48E-04	588	5.01E-04	655	1.55E-04	722	1.67E-05
388	2.50E-06	455	4.20E-04	522	3.51E-04	589	4.97E-04	656	1.50E-04	723	1.60E-05
389	3.00E-06	456	3.85E-04	523	3.53E-04	590	4.95E-04	657	1.44E-04	724	1.53E-05
390	4.00E-06	457	3.58E-04	524	3.55E-04	591	4.94E-04	658	1.37E-04	725	1.49E-05
391	4.10E-06	458	3.36E-04	525	3.56E-04	592	4.91E-04	659	1.31E-04	726	1.45E-05
392	3.70E-06	459	3.17E-04	526	3.60E-04	593	4.88E-04	660	1.29E-04	727	1.38E-05
393	4.30E-06	460	3.02E-04	527	3.63E-04	594	4.87E-04	661	1.24E-04	728	1.34E-05
394	4.70E-06	461	2.90E-04	528	3.64E-04	595	4.82E-04	662	1.18E-04	729	1.32E-05
395	4.50E-06	462	2.77E-04	529	3.66E-04	596	4.80E-04	663	1.13E-04	730	1.25E-05
396	4.20E-06	463	2.65E-04	530	3.69E-04	597	4.82E-04	664	1.09E-04	731	1.21E-05
397	5.50E-06	464	2.52E-04	531	3.72E-04	598	4.83E-04	665	1.06E-04	732	1.18E-05
398	6.00E-06	465	2.38E-04	532	3.74E-04	599	4.76E-04	666	1.01E-04	733	1.15E-05
399	5.90E-06	466	2.24E-04	533	3.75E-04	600	4.70E-04	667	9.88E-05	734	1.11E-05
400	6.30E-06	467	2.09E-04	534	3.78E-04	601	4.65E-04	668	9.69E-05	735	1.09E-05
401	7.20E-06	468	1.98E-04	535	3.80E-04	602	4.61E-04	669	9.54E-05	736	1.04E-05
402	7.70E-06	469	1.85E-04	536	3.81E-04	603	4.58E-04	670	9.54E-05	737	1.00E-05
403	8.00E-06	470	1.73E-04	537	3.84E-04	604	4.55E-04	671	9.03E-05	738	9.80E-06
404	8.80E-06	471	1.58E-04	538	3.86E-04	605	4.52E-04	672	8.56E-05	739	9.50E-06
405	8.70E-06	472	1.50E-04	539	3.90E-04	606	4.51E-04	673	8.23E-05	740	9.30E-06
406	1.01E-05	473	1.43E-04	540	3.92E-04	607	4.69E-04	674	7.90E-05	741	9.20E-06
407	1.13E-05	474	1.38E-04	541	3.95E-04	608	5.21E-04	675	7.59E-05	742	8.50E-06
408	1.24E-05	475	1.35E-04	542	3.99E-04	609	5.40E-04	676	7.27E-05	743	8.30E-06
409	1.41E-05	476	1.33E-04	543	4.02E-04	610	4.92E-04	677	7.08E-05	744	7.90E-06
410	1.58E-05	477	1.32E-04	544	4.05E-04	611	4.72E-04	678	6.84E-05	745	7.90E-06
411	1.76E-05	478	1.31E-04	545	4.08E-04	612	5.53E-04	679	6.60E-05	746	7.80E-06
412	1.96E-05	479	1.32E-04	546	4.11E-04	613	6.81E-04	680	6.39E-05	747	7.50E-06
413	2.18E-05	480	1.32E-04	547	4.15E-04	614	6.55E-04	681	6.23E-05	748	7.00E-06
414	2.36E-05	481	1.33E-04	548	4.16E-04	615	5.29E-04	682	5.98E-05	749	7.00E-06
415	2.79E-05	482	1.35E-04	549	4.19E-04	616	4.52E-04	683	5.81E-05	750	6.70E-06
416	3.06E-05	483	1.37E-04	550	4.24E-04	617	4.24E-04	684	5.63E-05	751	6.30E-06
417	3.45E-05	484	1.39E-04	551	4.27E-04	618	4.16E-04	685	5.46E-05	752	6.40E-06
418	3.84E-05	485	1.42E-04	552	4.32E-04	619	4.16E-04	686	5.29E-05	753	6.30E-06
419	4.27E-05	486	1.46E-04	553	4.35E-04	620	4.08E-04	687	5.10E-05	754	6.10E-06
420	4.74E-05	487	1.50E-04	554	4.37E-04	621	3.94E-04	688	4.99E-05	755	6.00E-06
421	5.28E-05	488	1.57E-04	555	4.42E-04	622	3.85E-04	689	4.87E-05	756	5.80E-06
422	5.76E-05	489	1.61E-04	556	4.44E-04	623	3.84E-04	690	4.68E-05	757	5.20E-06
423	6.41E-05	490	1.67E-04	557	4.48E-04	624	3.86E-04	691	4.51E-05	758	5.30E-06
424	7.15E-05	491	1.73E-04	558	4.52E-04	625	3.85E-04	692	4.42E-05	759	5.10E-06
425	7.94E-05	492	1.80E-04	559	4.54E-04	626	3.86E-04	693	4.28E-05	760	5.00E-06
426	8.82E-05	493	1.88E-04	560	4.56E-04	627	3.87E-04	694	4.11E-05	761	4.70E-06
427	9.81E-05	494	1.95E-04	561	4.62E-04	628	4.11E-04	695	3.97E-05	762	4.70E-06
428	1.09E-04	495	2.01E-04	562	4.65E-04	629	5.53E-04	696	3.82E-05	763	4.70E-06
429	1.22E-04	496	2.10E-04	563	4.69E-04	630	8.74E-04	697	3.70E-05	764	4.50E-06
430	1.34E-04	497	2.18E-04	564	4.71E-04	631	9.79E-04	698	3.64E-05	765	4.40E-06
431	1.45E-04	498	2.25E-04	565	4.75E-04	632	7.11E-04	699	3.51E-05	766	4.10E-06
432	1.61E-04	499	2.32E-04	566	4.77E-04	633	5.03E-04	700	3.37E-05	767	4.00E-06
433	1.75E-04	500	2.40E-04	567	4.81E-04	634	6.05E-04	701	3.27E-05	768	3.80E-06
434	1.93E-04	501	2.47E-04	568	4.84E-04	635	7.34E-04	702	3.18E-05	769	3.80E-06
435	2.13E-04	502	2.53E-04	569	4.86E-04	636	5.64E-04	703	3.09E-05	770	3.80E-06
436	2.34E-04	503	2.61E-04	570	4.88E-04	637	3.70E-04	704	2.96E-05	771	3.70E-06
437	2.55E-04	504	2.67E-04	571	4.91E-04	638	2.94E-04	705	2.88E-05	772	3.40E-06
438	2.82E-04	505	2.75E-04	572	4.91E-04	639	2.61E-04	706	2.81E-05	773	3.50E-06
439	3.12E-04	506	2.80E-04	573	4.94E-04	640	2.47E-04	707	2.70E-05	774	3.30E-06
440	3.46E-04	507	2.85E-04	574	4.96E-04	641	2.34E-04	708	2.63E-05	775	3.30E-06
441	3.77E-04	508	2.91E-04	575	4.97E-04	642	2.25E-04	709	2.52E-05	776	3.10E-06
442	4.17E-04	509	2.98E-04	576	4.99E-04	643	2.18E-04	710	2.46E-05	777	2.90E-06
443	4.59E-04	510	3.04E-04	577	5.02E-04	644	2.14E-04	711	2.39E-05	778	2.80E-06
444	4.94E-04	511	3.07E-04	578	5.02E-04	645	2.11E-04	712	2.25E-05	779	2.80E-06
445	5.32E-04	512	3.14E-04	579	5.03E-04	646	2.41E-04	713	2.22E-05	780	2.80E-06
446	5.73E-04	513	3.19E-04	580	5.03E-04	647	3.04E-04	714	2.16E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	LF34SW @4000K	Sample ID	240812012-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	44.8

Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^\circ\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>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.</p> <p>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 1.0° vertical intervals and 15° horizontal intervals.</p>

Test Conditions

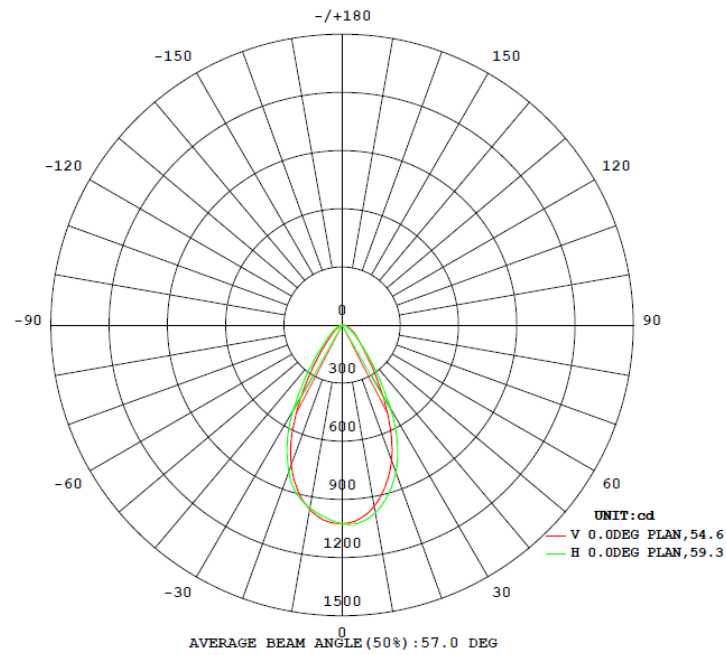
Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.0	60	0.067	7.8	0.971
NON-WORST CASE	N/A	N/A	N/A	N/A	N/A

Test Result

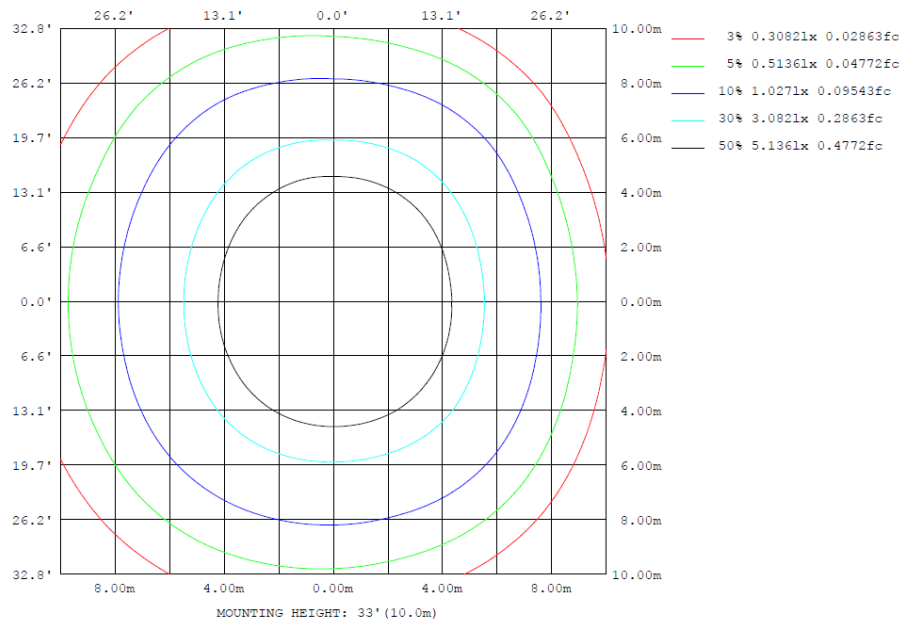
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement	NEMA Type
	C0-180	C90-270	C0-180	C90-270		(0°-90°)	
1043	95.0	97.8	54.8	59.4	133.7	100.0%	5H x 5V

4.2 Goniophotometer Test

Lighting Distribution Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	965.8	986.2	983.4	979.0	949.1	953.8	958.8	960.9	0- 10	95.05	95.05	9.11, 9.11
20	768.9	807.8	808.7	786.5	743.9	785.9	805.0	803.4	10- 20	249.2	344.3	33, 33
30	422.0	509.8	500.5	490.0	416.1	488.8	504.5	499.5	20- 30	292.9	637.2	61.1, 61.1
40	149.6	205.4	207.6	217.3	184.5	220.9	203.1	200.0	30- 40	200.1	837.3	80.3, 80.3
50	58.46	78.49	93.02	108.9	102.4	109.8	88.49	75.35	40- 50	102.3	939.6	90.1, 90.1
60	18.82	27.85	47.30	62.44	63.09	60.57	43.04	25.76	50- 60	56.91	996.5	95.6, 95.6
70	1.507	5.078	18.87	32.37	35.88	30.10	16.51	4.578	60- 70	29.20	1026	98.4, 98.4
80	0.0110	0.0174	5.831	13.62	16.35	12.82	5.095	0.0118	70- 80	12.02	1038	99.5, 99.5
90	0	0	0	0	0	0	0	0	80- 90	5.118	1043	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0000	1043	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	1043	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	1043	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	1043	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	1043	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	1043	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	1043	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	1043	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	1043	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

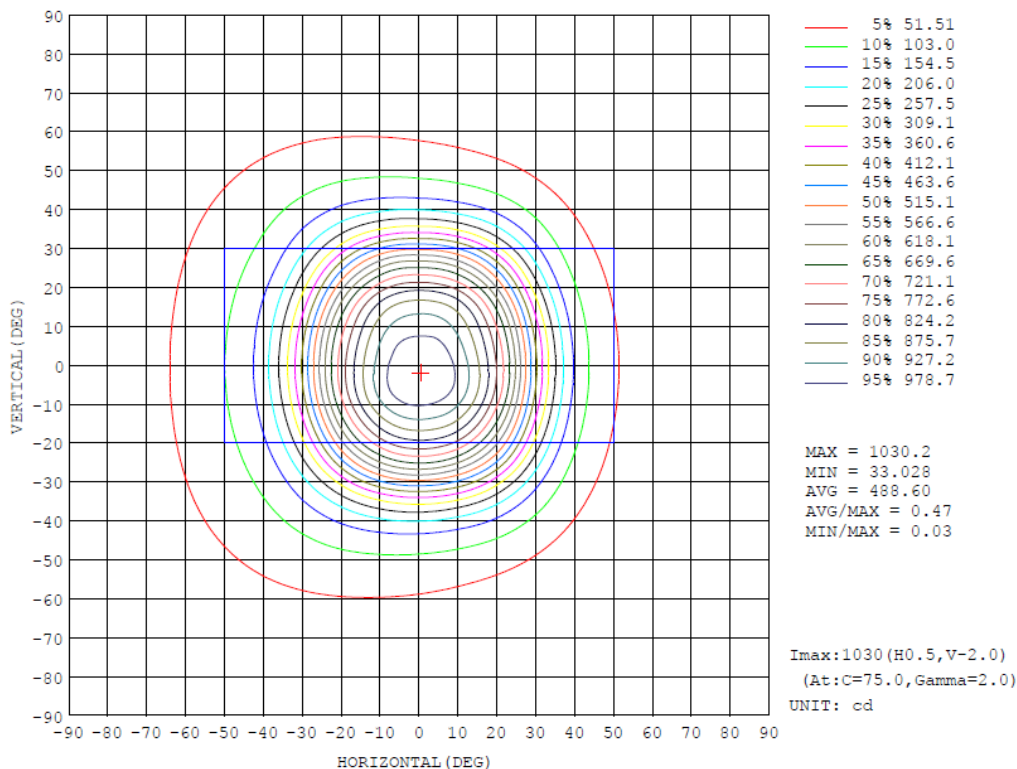
Zonal (lm)		Total (lm)		Percent
0-10	95.06	0-10	95.06	9.12%
10-20	249.26	0-20	344.32	33.02%
20-30	292.98	0-30	637.30	61.11%
30-40	200.02	0-40	837.32	80.29%
40-50	102.25	0-50	939.57	90.10%
50-60	56.90	0-60	996.47	95.56%
60-70	29.20	0-70	1025.67	98.36%
70-80	12.02	0-80	1037.69	99.51%
80-90	5.13	0-90	1042.82	100.00%
90-100	0.00	0-100	1042.82	100.00%
100-110	0.00	0-110	1042.82	100.00%
110-120	0.00	0-120	1042.82	100.00%
120-130	0.00	0-130	1042.82	100.00%
130-140	0.00	0-140	1042.82	100.00%
140-150	0.00	0-150	1042.82	100.00%
150-160	0.00	0-160	1042.82	100.00%
160-170	0.00	0-170	1042.82	100.00%
170-180	0.00	0-180	1042.82	100.00%

4.2 Goniophotometer Test

Area Flux Diagram

		AREA FLUX DIAGRAM																UNIT:lm				Φ t	Φ a
VERTICAL (DEG)	90	0.02	0.08	0.13	0.16	0.19	0.19	0.17	0.14	0.09	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	0.00		
	80	0.03	0.09	0.16	0.23	0.30	0.35	0.38	0.37	0.33	0.25	0.16	0.08	0.03	0.00	0.00	0.00	0.00	0.00	2.78	0.00		
	70	0.03	0.10	0.20	0.35	0.54	0.73	0.88	0.95	0.92	0.79	0.59	0.37	0.17	0.06	0.01	0.00	0.00	0.00	6.69	0.00		
	60	0.03	0.12	0.28	0.55	0.91	1.32	1.71	1.95	1.99	1.83	1.50	1.03	0.55	0.22	0.05	0.00	0.00	0.00	14.0	0.00		
	50	0.03	0.14	0.37	0.77	1.33	2.08	3.01	3.80	4.14	3.95	3.29	2.26	1.23	0.52	0.14	0.01	0.00	0.00	27.1	14.9		
	40	0.03	0.16	0.47	0.99	1.77	3.12	5.41	8.29	10.1	9.98	7.94	4.76	2.24	0.92	0.28	0.03	0.00	0.00	56.5	50.0		
	30	0.04	0.18	0.55	1.18	2.24	4.45	9.38	15.8	19.8	19.7	16.0	9.23	3.65	1.35	0.43	0.06	0.00	0.00	104	98.9		
	20	0.04	0.20	0.60	1.32	2.65	5.95	13.4	21.9	26.6	26.7	22.4	13.7	5.35	1.75	0.56	0.09	0.00	0.00	143	139		
	10	0.04	0.20	0.64	1.41	2.91	6.98	15.8	24.6	29.5	29.7	25.2	16.2	6.54	2.02	0.64	0.11	0.00	0.00	162	158		
	0	0.04	0.20	0.64	1.41	2.91	7.01	15.8	25.0	30.1	30.3	25.7	16.4	6.60	2.03	0.64	0.11	0.00	0.00	165	161		
	-10	0.04	0.20	0.61	1.33	2.67	6.01	13.5	22.0	26.8	26.9	22.6	14.0	5.53	1.79	0.57	0.09	0.00	0.00	145	140		
	-20	0.04	0.18	0.55	1.19	2.26	4.47	9.37	15.7	19.7	19.7	16.0	9.47	3.83	1.41	0.45	0.06	0.00	0.00	104	99.3		
	-30	0.03	0.16	0.48	1.01	1.80	3.10	5.29	8.09	10.0	9.93	7.95	4.86	2.34	0.97	0.29	0.04	0.00	0.00	56.4	50.0		
	-40	0.03	0.14	0.39	0.80	1.37	2.11	2.99	3.81	4.23	4.08	3.38	2.35	1.30	0.55	0.15	0.02	0.00	0.00	27.7	15.8		
	-50	0.03	0.12	0.29	0.58	0.95	1.37	1.77	2.04	2.11	1.95	1.60	1.11	0.60	0.23	0.05	0.00	0.00	0.00	14.8	0.00		
	-60	0.03	0.11	0.21	0.37	0.58	0.79	0.96	1.04	1.02	0.88	0.66	0.41	0.19	0.06	0.01	0.00	0.00	0.00	7.33	0.00		
	-70	0.03	0.10	0.16	0.24	0.32	0.38	0.42	0.42	0.37	0.29	0.19	0.10	0.04	0.01	0.00	0.00	0.00	0.00	3.05	0.00		
	-80	0.02	0.08	0.13	0.17	0.20	0.20	0.19	0.16	0.11	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.00		
	-90																						
		-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90			
Φ t	0.58	2.56	6.86	14.1	25.9	50.6	100	156	188	187	155	96.4	40.2	13.9	4.26	0.63	0.02	0.00	1043	---			
Φ a	0.00	0.00	0.00	0.00	13.0	40.8	91.8	148	180	180	148	89.7	32.6	3.03	0.00	0.00	0.00	0.00	---	927			

Isocandela



4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1													UNIT: cd							
H (DEG)																				
V (DEG)	-90	-85	-80	-75	-70	-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	
-180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-80	0.00	10.9	11.4	11.6	11.7	11.7	11.7	11.6	11.5	11.3	11.1	10.8	10.3	9.79	9.14	8.40	7.60	6.73	5.83	
-70	0.00	11.4	12.1	12.6	13.3	14.1	15.2	16.6	18.0	19.5	20.9	21.9	22.8	23.2	23.1	22.8	21.9	20.6	18.9	
-60	0.00	11.8	12.7	13.9	15.9	18.9	22.7	26.5	30.7	34.9	39.0	42.6	45.7	48.1	49.7	50.4	50.3	49.3	47.3	
-50	0.00	12.1	13.4	15.8	20.2	25.7	32.1	39.2	46.2	53.4	61.0	68.6	75.8	82.6	88.2	92.2	94.4	94.7	93.0	
-40	0.00	12.3	14.2	18.2	24.9	33.0	42.1	51.5	61.6	72.7	86.0	101	120	140	162	181	196	206	208	
-30	0.00	12.3	15.0	20.8	29.3	39.7	50.7	62.6	76.2	92.9	115	146	191	255	326	399	457	491	508	
-20	0.00	12.7	15.7	22.9	32.9	44.7	57.4	71.7	89.3	113	147	204	296	418	552	665	746	794	809	
-10	0.00	12.8	16.2	24.2	35.2	48.0	61.7	78.0	98.9	128	173	259	384	545	702	825	916	968	983	
0	0.00	12.8	16.4	24.5	35.9	49.0	63.1	80.0	102	133	184	279	416	587	744	860	949	1005	1025	
10	0.00	12.8	16.1	24.0	34.9	47.7	61.4	77.5	98.4	127	173	257	380	541	695	811	900	946	959	
20	0.00	12.7	15.6	22.7	32.5	44.2	56.6	71.0	88.4	112	146	201	292	415	549	664	747	793	805	
30	0.00	12.5	14.9	20.4	28.7	38.9	49.7	61.5	75.0	91.7	114	147	193	258	332	408	465	500	504	
40	0.00	12.3	14.2	17.9	24.3	32.0	40.9	50.1	60.0	71.3	84.7	101	122	144	165	184	197	205	203	
50	0.00	12.0	13.4	15.6	19.5	24.8	30.9	37.6	44.4	51.6	59.1	66.7	74.4	81.4	87.0	90.3	91.7	91.2	88.5	
60	0.00	11.7	12.6	13.8	15.5	18.2	21.5	25.1	28.9	32.8	36.6	40.1	43.1	45.5	46.9	47.2	46.6	45.3	43.0	
70	0.00	11.4	12.0	12.5	13.1	13.8	14.6	15.7	17.0	18.1	19.2	20.1	20.7	21.0	20.8	20.3	19.4	18.1	16.5	
80	0.00	10.8	11.2	11.4	11.5	11.4	11.4	11.2	11.1	10.9	10.5	10.1	9.61	9.02	8.35	7.60	6.82	5.98	5.09	
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

H (DEG)		UNIT: cd																	
V (DEG)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
-180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
-80	4.91	3.98	3.04	2.06	1.10	0.32	0.03	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	
-70	16.7	14.3	11.8	9.25	6.89	4.88	3.32	2.18	1.21	0.33	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	
-60	44.2	40.3	35.6	30.3	24.9	19.4	14.0	9.16	5.16	2.69	1.36	0.30	0.00	0.01	0.01	0.01	0.01	0.02	
-50	89.3	83.7	76.9	68.5	58.5	47.3	35.6	25.4	16.9	9.75	4.26	1.70	0.48	0.01	0.01	0.01	0.01	0.00	
-40	202	188	169	146	119	93.0	69.3	50.0	33.7	21.3	11.4	4.35	1.44	0.14	0.01	0.01	0.01	0.00	
-30	488	456	403	329	247	172	116	78.6	53.7	34.6	20.1	9.39	2.76	0.72	0.01	0.01	0.01	0.00	
-20	798	759	681	572	434	292	180	111	71.7	47.0	28.0	14.2	4.55	1.13	0.00	0.01	0.01	0.00	
-10	971	930	850	728	565	389	239	139	85.4	55.5	33.7	17.7	6.23	1.41	0.02	0.01	0.01	0.00	
0	1013	966	884	769	609	422	260	150	91.6	58.5	35.6	18.8	6.82	1.51	0.03	0.01	0.01	0.00	
10	952	910	831	718	558	382	234	136	84.3	54.9	33.3	17.5	6.13	1.38	0.02	0.01	0.01	0.00	
20	794	756	678	563	422	281	172	107	69.7	45.8	27.3	13.9	4.50	1.09	0.01	0.01	0.01	0.00	
30	496	463	406	326	242	166	111	74.9	51.3	33.0	19.5	8.99	2.63	0.66	0.01	0.01	0.01	0.00	
40	198	185	166	143	115	89.4	66.2	47.3	31.6	20.2	10.9	4.18	1.32	0.10	0.01	0.01	0.01	0.00	
50	85.2	80.0	73.5	65.5	55.6	44.3	32.7	23.6	15.7	8.99	4.00	1.53	0.36	0.01	0.01	0.01	0.01	0.00	
60	40	36.5	32.1	27.4	22.5	17.6	12.9	8.37	4.68	2.36	1.18	0.16	0.00	0.00	0.01	0.01	0.01	0.02	
70	14.6	12.6	10.4	8.15	6.05	4.24	2.87	1.86	0.91	0.15	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	
80	4.27	3.34	2.51	1.54	0.66	0.07	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	LF34SW @4000K	Sample ID	240812012-S1
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The samples were tested according to the and Ansi C82.77: 2002 and ANSI C82.77-10:2020</p> <p>The total harmonic distortion shall be measured to the 40th order.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^\circ\text{C}$. 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 was calculated.</p>

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	iTHD(%)
120.0	60	0.067	7.8	0.971	13.41

5.0 Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2023-11-08	2024-11-07
NTC-F01-006	2.0 meter Integrating Sphere	2023-11-08	2024-11-07
NTC-F01-012	Standard Lamp	2023-11-02	2024-11-01
NTC-F01-013	Standard Lamp	2023-11-02	2024-11-01
NTC-F01-031	Digital Power Meter	2023-08-25	2024-08-24
NTC-F01-019	Temperature & Humidity Meter	2023-11-06	2024-11-05

*****End of Report*****