

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

Address: 408 W 14th St New York, NY 10014

Prepared By

Dongguan New Testing Centre Co., Ltd.

Address: 3F No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

Prepare by:

Alan Wang

Engineer: Alan Wang

Date: 2024-07-30

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2024-07-30

Revised Date: N/A

Laboratory: Dongguan New Testing Centre Co., Ltd

Address: 3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan,
Guangdong, China

Tel: 86-769-22212079

Website: <http://www.ntc-cert.com>

Page 1 of 15

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		4358
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	144.8
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		30.1
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	15.24
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.983
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3465±245	3435
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		84.1
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		99
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		0.255
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		30.1
(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	2024-07-27	LF34LW @3500K	ES#3	240726003-S1
2	Goniophotometer Test	2024-07-27	LF34LW @3500K	ES#3	240726003-S1
3	THD and PF Test	2024-07-27	LF34LW @3500K	ES#3	240726003-S1

Remark (If any):

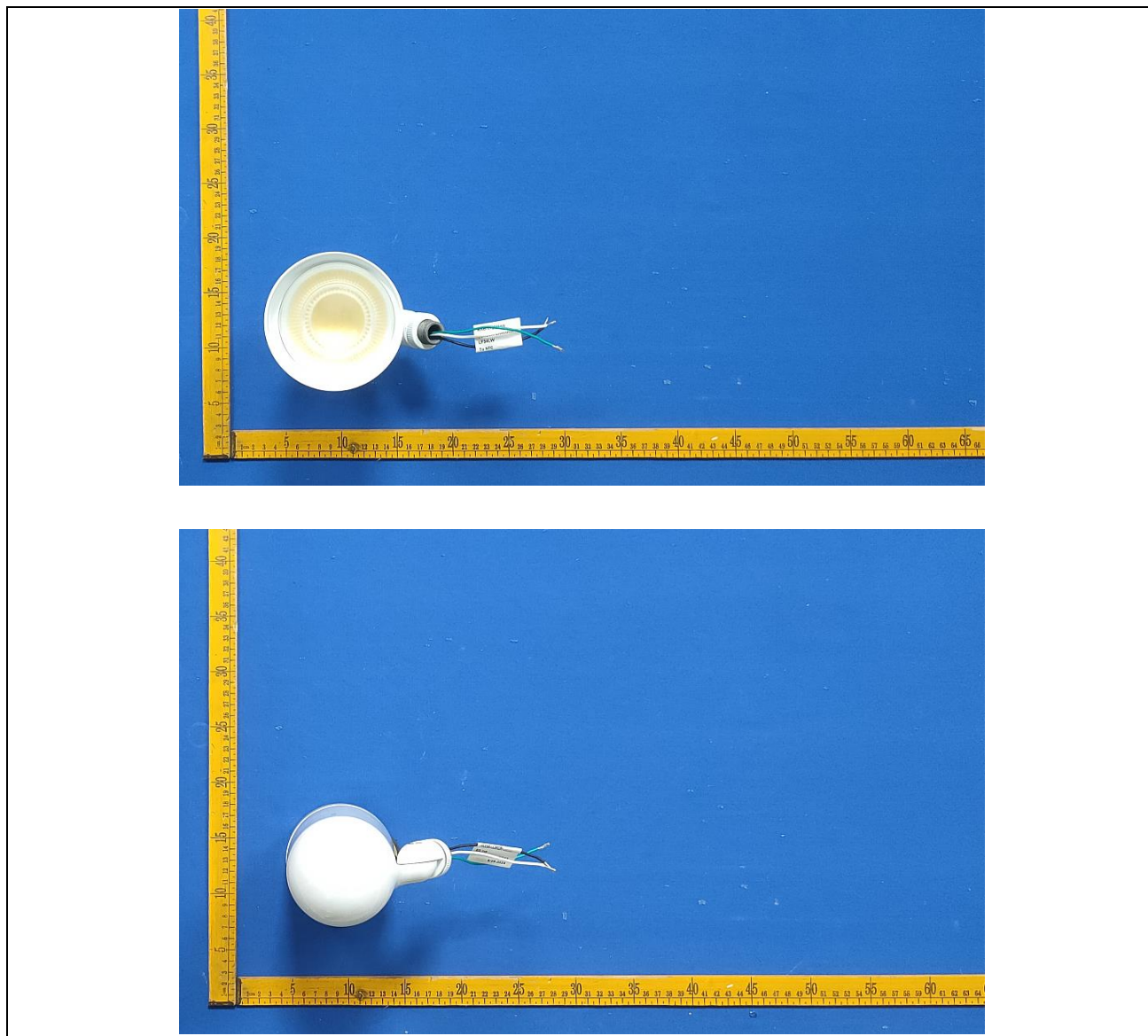
1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. This report must not be used by the client to claim product certification, approval, or endorsement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

3.0 Product Description

Luminaire Description: Model No. LF34LW @3500K, 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.	LF34LW @3500K	Sample ID	240726003-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

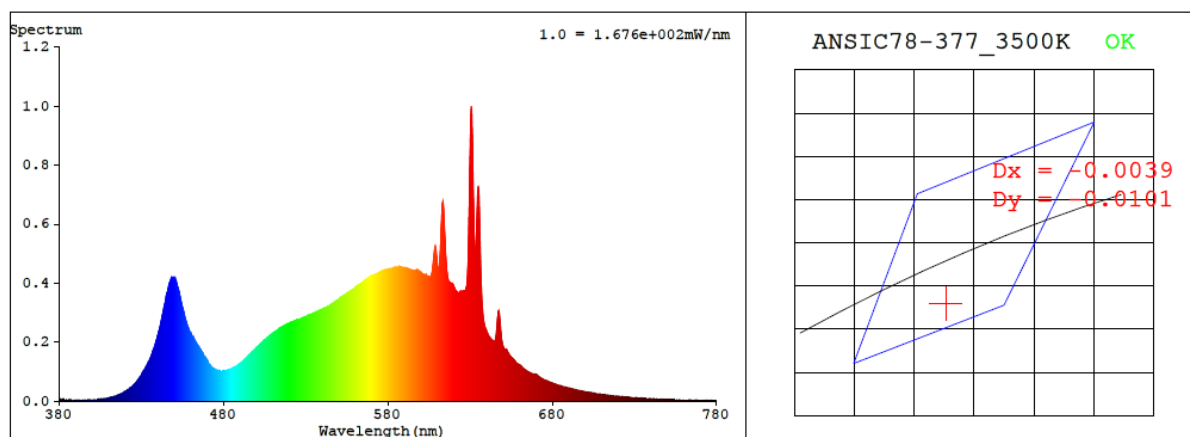
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.255	30.1	0.983

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3435	84.1	21	-0.0036	84	99	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4051$ $y = 0.3824$ / $u' = 0.2390$ $v' = 0.5077$ ($duv = -3.64e-03$)

CCT= 3435K Prcp WL: $L_d = 582.8\text{nm}$ Purity=36.3%

Peak WL: $L_p = 631\text{nm}$ FWHM: $\approx 7.7\text{nm}$ Ratio: R=21.0% G=76.0% B=3.0%

Render Index: $R_a = 84.1$ AvgR = 78.7 TM30: $R_f = 83$ $R_g = 99$

EEL: 0.09478 A++ Highest

R1 =83 R2 =90 R3 =95 R4 =83 R5 =83 R6 =87 R7 =85

R8 =67 R9 =21 R10=76 R11=82 R12=69 R13=84 R14=97 R15=79

4.1 Integrating Sphere Test

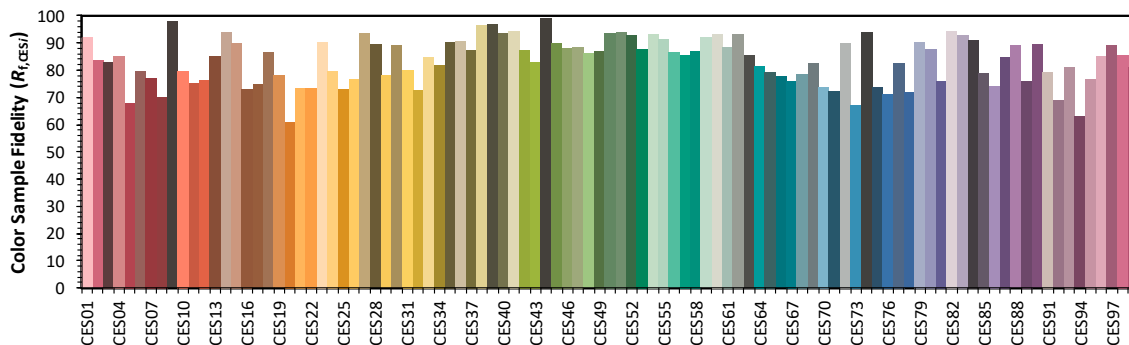
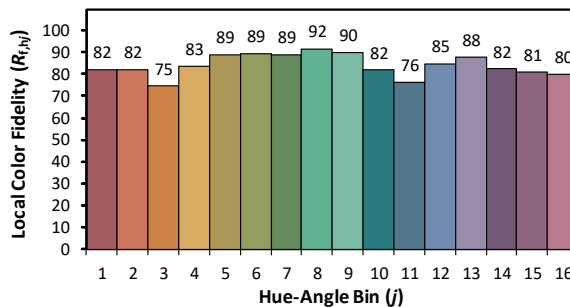
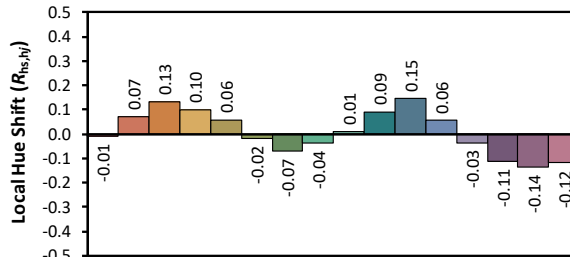
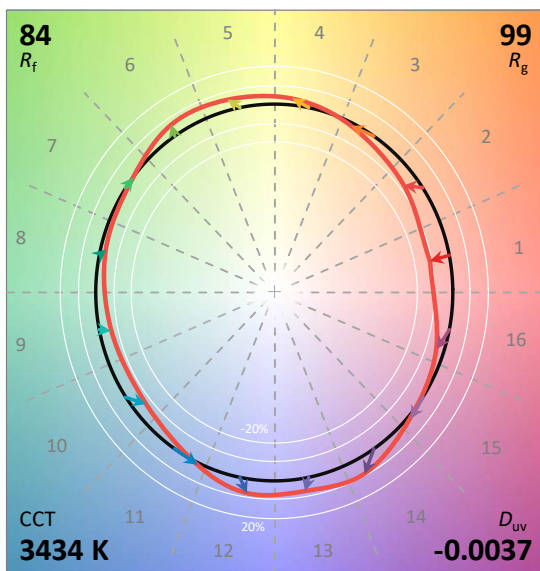
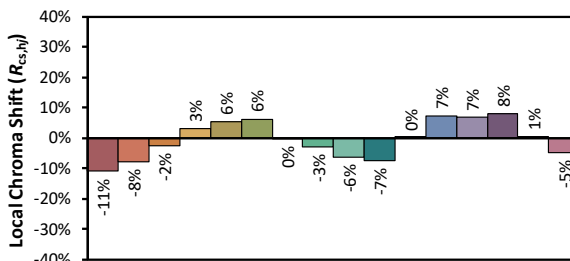
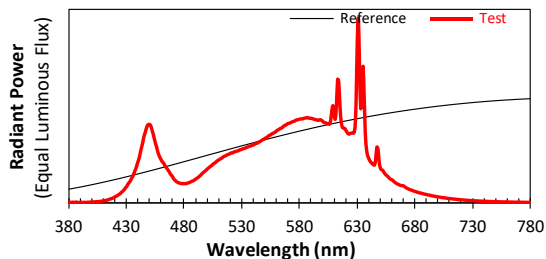
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/7/30

Model: LF34LW @3500K



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

x 0.4051
 y 0.3823
 u' 0.2391
 v' 0.5077

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	4.10E-06	447	3.96E-04	514	2.47E-04	581	4.49E-04	648	2.87E-04	715	1.96E-05
381	1.30E-06	448	4.13E-04	515	2.50E-04	582	4.49E-04	649	2.21E-04	716	1.86E-05
382	2.90E-06	449	4.19E-04	516	2.52E-04	583	4.50E-04	650	1.87E-04	717	1.82E-05
383	3.30E-06	450	4.19E-04	517	2.56E-04	584	4.52E-04	651	1.77E-04	718	1.74E-05
384	3.40E-06	451	4.10E-04	518	2.59E-04	585	4.54E-04	652	1.75E-04	719	1.72E-05
385	1.70E-06	452	3.89E-04	519	2.61E-04	586	4.54E-04	653	1.65E-04	720	1.65E-05
386	3.80E-06	453	3.68E-04	520	2.65E-04	587	4.56E-04	654	1.55E-04	721	1.58E-05
387	3.90E-06	454	3.43E-04	521	2.67E-04	588	4.53E-04	655	1.49E-04	722	1.53E-05
388	0.00E+00	455	3.18E-04	522	2.67E-04	589	4.52E-04	656	1.44E-04	723	1.47E-05
389	2.40E-06	456	2.99E-04	523	2.72E-04	590	4.52E-04	657	1.37E-04	724	1.42E-05
390	2.80E-06	457	2.72E-04	524	2.73E-04	591	4.51E-04	658	1.31E-04	725	1.37E-05
391	2.80E-06	458	2.55E-04	525	2.76E-04	592	4.48E-04	659	1.26E-04	726	1.35E-05
392	2.70E-06	459	2.41E-04	526	2.77E-04	593	4.46E-04	660	1.24E-04	727	1.29E-05
393	2.40E-06	460	2.29E-04	527	2.79E-04	594	4.44E-04	661	1.19E-04	728	1.25E-05
394	2.50E-06	461	2.19E-04	528	2.83E-04	595	4.44E-04	662	1.13E-04	729	1.22E-05
395	2.20E-06	462	2.13E-04	529	2.84E-04	596	4.41E-04	663	1.08E-04	730	1.18E-05
396	3.20E-06	463	2.01E-04	530	2.86E-04	597	4.43E-04	664	1.04E-04	731	1.14E-05
397	3.30E-06	464	1.92E-04	531	2.90E-04	598	4.45E-04	665	1.00E-04	732	1.09E-05
398	3.90E-06	465	1.83E-04	532	2.91E-04	599	4.41E-04	666	9.76E-05	733	1.08E-05
399	4.30E-06	466	1.74E-04	533	2.94E-04	600	4.36E-04	667	9.49E-05	734	1.03E-05
400	4.30E-06	467	1.65E-04	534	2.96E-04	601	4.30E-04	668	9.27E-05	735	9.90E-06
401	4.70E-06	468	1.54E-04	535	2.99E-04	602	4.28E-04	669	9.18E-05	736	9.60E-06
402	5.50E-06	469	1.47E-04	536	3.02E-04	603	4.27E-04	670	9.11E-05	737	9.30E-06
403	5.20E-06	470	1.37E-04	537	3.03E-04	604	4.24E-04	671	8.72E-05	738	9.10E-06
404	6.80E-06	471	1.27E-04	538	3.05E-04	605	4.22E-04	672	8.20E-05	739	8.90E-06
405	6.40E-06	472	1.21E-04	539	3.09E-04	606	4.21E-04	673	7.88E-05	740	8.60E-06
406	7.30E-06	473	1.15E-04	540	3.09E-04	607	4.43E-04	674	7.55E-05	741	8.40E-06
407	7.90E-06	474	1.11E-04	541	3.14E-04	608	4.94E-04	675	7.21E-05	742	7.90E-06
408	8.80E-06	475	1.07E-04	542	3.17E-04	609	5.19E-04	676	7.02E-05	743	7.90E-06
409	9.60E-06	476	1.06E-04	543	3.19E-04	610	4.71E-04	677	6.80E-05	744	7.40E-06
410	1.05E-05	477	1.04E-04	544	3.22E-04	611	4.49E-04	678	6.58E-05	745	7.30E-06
411	1.23E-05	478	1.03E-04	545	3.26E-04	612	5.29E-04	679	6.31E-05	746	7.30E-06
412	1.35E-05	479	1.02E-04	546	3.29E-04	613	6.59E-04	680	6.15E-05	747	6.90E-06
413	1.47E-05	480	1.03E-04	547	3.33E-04	614	6.43E-04	681	5.94E-05	748	6.80E-06
414	1.67E-05	481	1.03E-04	548	3.37E-04	615	5.19E-04	682	5.70E-05	749	6.40E-06
415	1.89E-05	482	1.03E-04	549	3.40E-04	616	4.38E-04	683	5.51E-05	750	6.30E-06
416	2.13E-05	483	1.06E-04	550	3.44E-04	617	4.05E-04	684	5.36E-05	751	6.00E-06
417	2.32E-05	484	1.08E-04	551	3.48E-04	618	4.00E-04	685	5.24E-05	752	5.80E-06
418	2.54E-05	485	1.10E-04	552	3.51E-04	619	3.98E-04	686	5.05E-05	753	5.60E-06
419	2.84E-05	486	1.14E-04	553	3.58E-04	620	3.90E-04	687	4.89E-05	754	5.70E-06
420	3.26E-05	487	1.16E-04	554	3.61E-04	621	3.79E-04	688	4.72E-05	755	5.30E-06
421	3.56E-05	488	1.19E-04	555	3.64E-04	622	3.70E-04	689	4.56E-05	756	5.10E-06
422	3.91E-05	489	1.23E-04	556	3.69E-04	623	3.68E-04	690	4.48E-05	757	5.10E-06
423	4.38E-05	490	1.28E-04	557	3.72E-04	624	3.71E-04	691	4.29E-05	758	5.10E-06
424	4.71E-05	491	1.32E-04	558	3.75E-04	625	3.73E-04	692	4.18E-05	759	4.80E-06
425	5.34E-05	492	1.36E-04	559	3.78E-04	626	3.73E-04	693	4.05E-05	760	4.50E-06
426	5.88E-05	493	1.41E-04	560	3.84E-04	627	3.73E-04	694	3.90E-05	761	4.40E-06
427	6.47E-05	494	1.47E-04	561	3.89E-04	628	3.97E-04	695	3.75E-05	762	4.30E-06
428	7.12E-05	495	1.53E-04	562	3.92E-04	629	5.38E-04	696	3.66E-05	763	4.10E-06
429	8.03E-05	496	1.59E-04	563	3.97E-04	630	8.60E-04	697	3.53E-05	764	4.20E-06
430	8.71E-05	497	1.65E-04	564	3.99E-04	631	9.84E-04	698	3.41E-05	765	3.90E-06
431	9.84E-05	498	1.70E-04	565	4.03E-04	632	7.20E-04	699	3.32E-05	766	3.70E-06
432	1.08E-04	499	1.75E-04	566	4.09E-04	633	5.06E-04	700	3.19E-05	767	3.70E-06
433	1.15E-04	500	1.82E-04	567	4.13E-04	634	5.98E-04	701	3.11E-05	768	3.70E-06
434	1.27E-04	501	1.86E-04	568	4.16E-04	635	7.30E-04	702	3.01E-05	769	3.50E-06
435	1.38E-04	502	1.92E-04	569	4.20E-04	636	5.71E-04	703	2.88E-05	770	3.50E-06
436	1.52E-04	503	1.96E-04	570	4.24E-04	637	3.70E-04	704	2.77E-05	771	3.30E-06
437	1.68E-04	504	2.01E-04	571	4.26E-04	638	2.88E-04	705	2.73E-05	772	3.30E-06
438	1.84E-04	505	2.08E-04	572	4.28E-04	639	2.54E-04	706	2.65E-05	773	3.00E-06
439	2.04E-04	506	2.11E-04	573	4.31E-04	640	2.37E-04	707	2.53E-05	774	3.20E-06
440	2.23E-04	507	2.15E-04	574	4.34E-04	641	2.24E-04	708	2.46E-05	775	3.00E-06
441	2.43E-04	508	2.22E-04	575	4.36E-04	642	2.16E-04	709	2.36E-05	776	3.00E-06
442	2.72E-04	509	2.26E-04	576	4.38E-04	643	2.09E-04	710	2.28E-05	777	2.80E-06
443	2.98E-04	510	2.30E-04	577	4.42E-04	644	2.04E-04	711	2.22E-05	778	2.60E-06
444	3.24E-04	511	2.34E-04	578	4.44E-04	645	2.03E-04	712	2.17E-05	779	2.60E-06
445	3.54E-04	512	2.37E-04	579	4.45E-04	646	2.33E-04	713	2.06E-05	780	2.60E-06
446	3.74E-04	513	2.42E-04	580	4.47E-04	647	2.98E-04	714	2.03E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	LF34LW @3500K	Sample ID	240726003-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	24.8	Humidity (%RH)	45.1

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

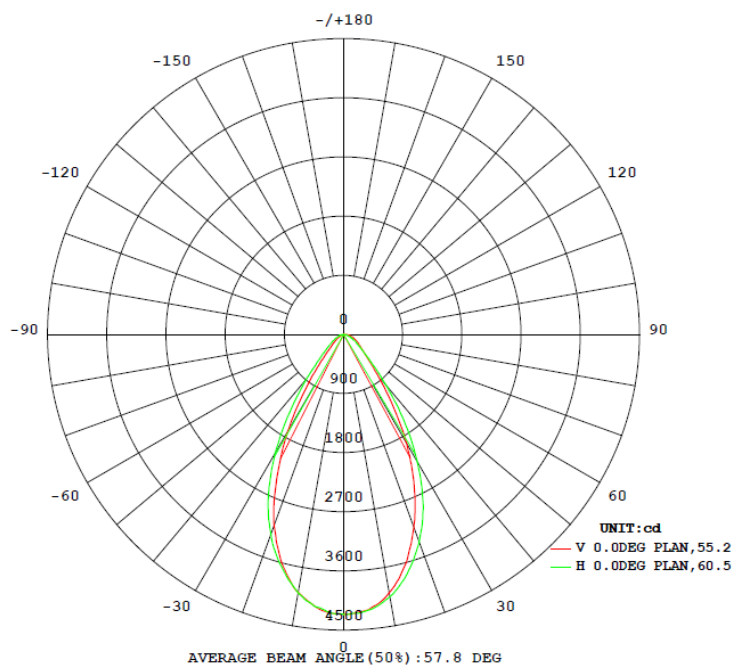
Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.0	60	0.255	30.1	0.983
NON-WORST CASE	N/A	N/A	N/A	N/A	N/A

Test Result

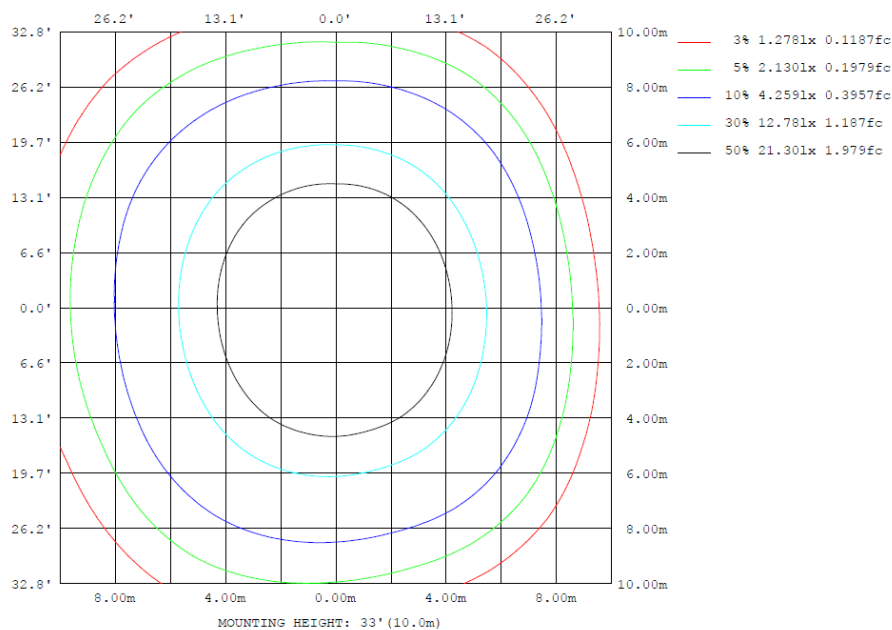
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement	NEMA Type
	C0-180	C90-270	C0-180	C90-270		(0°-90°)	
4358	90.3	95.7	55.3	60.5	144.8	100.0%	5H x 5V

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	3984	4022	4055	4034	3993	4005	3990	3980	0- 10	394.8	394.8	9.06, 9.06
20	3095	3300	3363	3278	3125	3264	3234	3194	10- 20	1025	1420	32.6, 32.6
30	1691	2097	2241	2165	1915	2157	2077	1931	20- 30	1213	2634	60.4, 60.4
40	528.3	915.5	996.6	1025	801.9	1006	867.4	788.5	30- 40	874.9	3509	80.5, 80.5
50	197.3	313.4	368.1	438.4	385.0	444.5	331.9	273.7	40- 50	419.5	3928	90.1, 90.1
60	83.60	124.1	188.5	248.8	248.3	247.2	172.9	110.4	50- 60	223.1	4151	95.3, 95.3
70	9.635	32.98	90.32	145.1	156.6	138.1	79.01	26.54	60- 70	126.5	4278	98.2, 98.2
80	0.0473	0.0741	27.39	66.11	78.49	60.27	21.92	0.0463	70- 80	57.66	4335	99.5, 99.5
90	0	0	0	0	0	0	0	0	80- 90	22.36	4358	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0000	4358	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4358	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4358	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4358	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4358	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4358	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4358	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4358	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4358	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

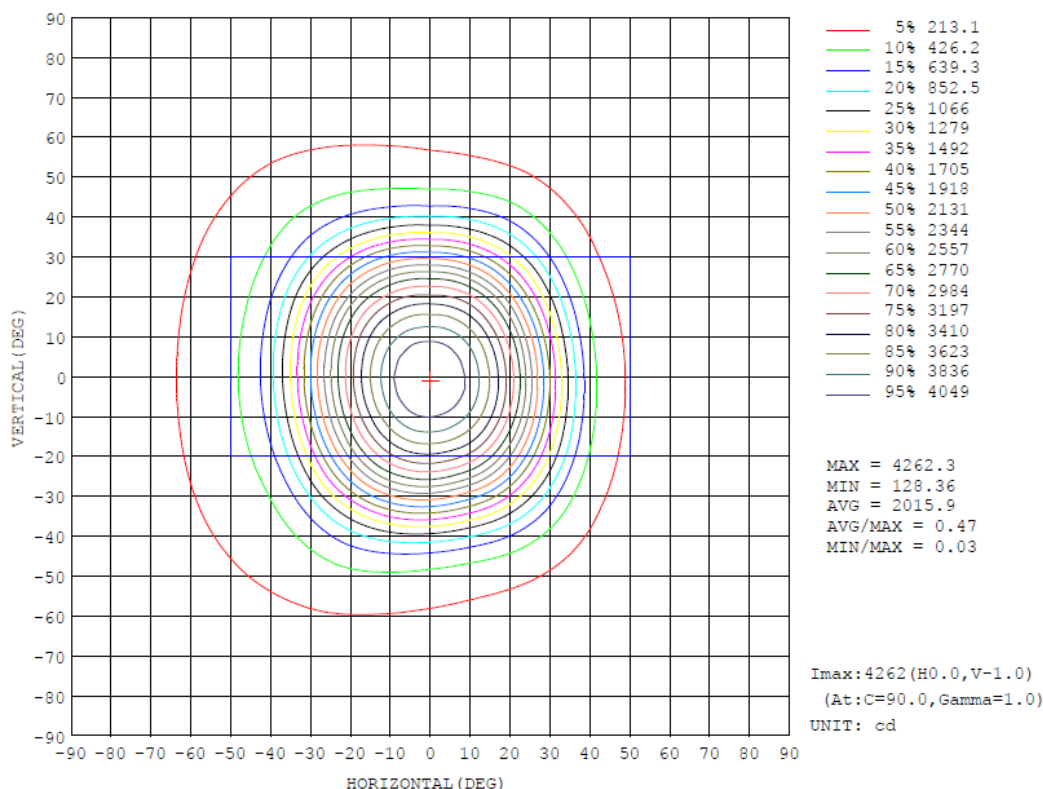
Zonal (lm)		Total (lm)		Percent
0-10	394.82	0-10	394.82	9.06%
10-20	1025.34	0-20	1420.16	32.59%
20-30	1213.49	0-30	2633.65	60.44%
30-40	874.90	0-40	3508.55	80.51%
40-50	419.53	0-50	3928.08	90.14%
50-60	223.11	0-60	4151.19	95.26%
60-70	126.48	0-70	4277.67	98.16%
70-80	57.66	0-80	4335.33	99.49%
80-90	22.36	0-90	4357.69	100.00%
90-100	0.00	0-100	4357.69	100.00%
100-110	0.00	0-110	4357.69	100.00%
110-120	0.00	0-120	4357.69	100.00%
120-130	0.00	0-130	4357.69	100.00%
130-140	0.00	0-140	4357.69	100.00%
140-150	0.00	0-150	4357.69	100.00%
150-160	0.00	0-160	4357.69	100.00%
160-170	0.00	0-170	4357.69	100.00%
170-180	0.00	0-180	4357.69	100.00%

4.2 Goniophotometer Test

Area Flux Diagram

		AREA FLUX DIAGRAM																UNIT: lm			Φ t	Φ a
VERTICAL (DEG)	90	0.09	0.31	0.52	0.68	0.77	0.80	0.74	0.60	0.40	0.20	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	0.00
	80	0.12	0.39	0.69	1.05	1.40	1.68	1.83	1.80	1.58	1.22	0.80	0.40	0.13	0.02	0.00	0.00	0.00	0.00	0.00	13.1	0.00
	70	0.13	0.45	0.97	1.69	2.53	3.31	3.87	4.09	3.95	3.47	2.71	1.79	0.92	0.29	0.03	0.00	0.00	0.00	0.00	30.2	0.00
	60	0.13	0.55	1.33	2.48	3.89	5.45	6.79	7.54	7.59	7.12	6.05	4.33	2.46	1.10	0.25	0.01	0.00	0.00	0.00	57.1	0.00
	50	0.14	0.66	1.71	3.25	5.39	8.40	11.9	14.9	16.4	16.1	13.4	8.92	4.71	2.18	0.73	0.07	0.00	0.00	0.00	109	54.4
	40	0.15	0.76	2.03	3.98	7.05	13.0	23.4	35.7	43.0	42.2	32.9	18.9	8.00	3.38	1.28	0.20	0.00	0.00	0.00	236	209
	30	0.16	0.85	2.30	4.62	8.86	20.4	43.1	67.1	80.4	79.5	63.1	36.0	13.4	4.56	1.77	0.36	0.00	0.00	0.00	427	404
	20	0.16	0.91	2.50	5.09	10.7	28.2	60.3	91.8	109	108	89.1	53.3	20.0	5.75	2.16	0.49	0.01	0.00	0.00	588	567
	10	0.16	0.94	2.60	5.38	11.8	32.4	68.9	104	124	123	103	64.3	25.0	6.66	2.38	0.56	0.02	0.00	0.00	675	656
	0	0.16	0.94	2.60	5.38	11.6	31.9	68.3	104	125	124	104	65.6	26.0	6.87	2.41	0.57	0.02	0.00	0.00	679	660
	-10	0.16	0.91	2.51	5.10	10.3	26.8	59.4	92.1	111	111	92.1	57.0	22.4	6.24	2.22	0.50	0.01	0.00	0.00	600	580
	-20	0.16	0.86	2.32	4.62	8.49	19.3	43.4	69.6	84.5	83.1	67.4	40.4	15.7	5.08	1.86	0.38	0.01	0.00	0.00	447	425
	-30	0.15	0.77	2.06	4.00	6.83	12.6	24.8	39.6	48.2	46.2	36.2	21.5	9.33	3.76	1.36	0.22	0.00	0.00	0.00	258	230
	-40	0.14	0.67	1.74	3.29	5.37	8.39	13.0	17.4	19.2	17.6	14.1	9.54	5.29	2.41	0.81	0.09	0.00	0.00	0.00	119	70.4
	-50	0.13	0.56	1.38	2.55	3.98	5.65	7.39	8.42	8.39	7.54	6.27	4.61	2.72	1.24	0.31	0.02	0.00	0.00	0.00	61.2	0.00
	-60	0.13	0.47	1.01	1.78	2.67	3.54	4.24	4.52	4.37	3.83	2.99	2.03	1.09	0.38	0.05	0.00	0.00	0.00	0.00	33.1	0.00
	-70	0.12	0.40	0.73	1.12	1.52	1.86	2.06	2.06	1.86	1.47	0.98	0.53	0.20	0.03	0.00	0.00	0.00	0.00	0.00	14.9	0.00
	-80	0.09	0.32	0.53	0.71	0.84	0.89	0.86	0.73	0.54	0.32	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.99	0.00
	-90	0.09	0.31	0.52	0.68	0.77	0.80	0.74	0.60	0.40	0.20	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	0.00
		-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90		
		Φ t	2.47	11.7	29.5	56.8	104	225	444	666	789	777	635	389	157	50.0	17.6	3.47	0.07	0.00	4358	---
		Φ a	0.00	0.00	0.00	0.00	42.7	182	407	631	755	745	606	360	123	4.06	0.00	0.00	0.00	0.00	---	3856

Isocandela



4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

H (DEG)	-90	-85	-80	-75	-70	-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0
V (DEG)	-180	-170	-160	-150	-140	-130	-120	-110	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	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	44.6	45.9	47.0	48.0	48.6	49.3	50.1	50.7	50.9	50.6	49.9	48.5	46.3	43.5	40.3	36.4	32.1	27.4
-70	0.00	46.2	49.4	53.1	58.8	65.7	73.1	80.6	87.8	94.5	100	105	108	110	109	107	103	97.2	90.3
-60	0.00	47.6	53.3	63.2	76.3	91.1	107	124	139	154	168	181	194	204	208	208	205	198	188
-50	0.00	49.2	58.7	75.6	96.5	120	144	167	190	216	242	274	310	348	377	392	395	387	368
-40	0.00	50.5	64.8	88.1	117	147	177	207	241	280	330	401	501	630	766	883	968	1009	997
-30	0.00	51.7	70.5	99.5	134	169	205	245	290	346	435	601	865	1216	1574	1888	2108	2230	2241
-20	0.00	52.7	74.9	108	146	186	229	277	335	422	588	899	1369	1898	2394	2833	3143	3317	3363
-10	0.00	53.3	77.6	114	154	196	243	297	369	492	734	1161	1762	2358	2928	3404	3776	3992	4055
0	0.00	53.5	78.5	116	157	200	248	304	385	525	802	1283	1915	2541	3125	3625	3993	4209	4259
10	0.00	53.2	77.4	114	154	196	243	296	371	503	764	1210	1799	2399	2958	3419	3746	3940	3990
20	0.00	52.5	74.4	108	145	184	228	275	337	437	627	961	1419	1916	2386	2788	3060	3217	3234
30	0.00	51.5	69.8	98.4	132	167	203	245	293	360	464	633	876	1175	1489	1771	1962	2066	2077
40	0.00	50.3	63.9	86.7	115	144	174	205	241	284	340	410	493	583	674	759	820	864	867
50	0.00	48.9	57.8	74.0	94.1	117	140	163	187	214	241	270	296	318	334	343	344	342	332
60	0.00	47.4	52.5	61.5	74.0	87.9	103	119	134	148	161	173	181	187	189	189	186	181	173
70	0.00	46.0	48.8	51.8	56.6	62.7	69.5	76.0	82.3	88.0	93.0	96.6	98.4	99.1	98.0	95.4	91.4	85.9	79.0
80	0.00	44.4	45.5	46.2	46.8	47.1	47.2	47.2	47.0	46.4	45.7	44.4	42.5	40.1	37.2	33.9	30.3	26.2	21.9
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	22.7	18.1	13.7	9.49	5.52	2.04	0.31	0.01	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.00	
-70	81.8	72.2	61.9	51.4	40.4	29.3	18.9	11.0	5.22	1.56	0.08	0.05	0.05	0.06	0.06	0.06	0.06	0.00	
-60	177	164	148	131	111	90.9	71.6	52.5	33.8	17.0	6.83	1.22	0.00	0.05	0.05	0.06	0.07	0.00	
-50	347	322	298	269	234	194	154	113	80.5	53.9	28.9	10.3	1.75	0.04	0.05	0.06	0.06	0.00	
-40	943	859	761	634	497	374	273	197	140	94.0	60.3	29.7	8.51	0.39	0.04	0.05	0.06	0.00	
-30	2153	2002	1782	1463	1094	747	465	292	198	138	89.3	51.9	18.6	2.82	0.04	0.05	0.06	0.00	
-20	3284	3120	2799	2337	1799	1244	740	410	249	171	114	69.2	30.8	6.22	0.00	0.05	0.06	0.00	
-10	3984	3785	3438	2922	2271	1596	952	506	285	192	131	80.2	38.9	8.74	0.03	0.05	0.06	0.00	
0	4197	3984	3614	3095	2406	1691	1003	528	293	197	136	83.6	41.5	9.64	0.05	0.05	0.06	0.00	
10	3925	3723	3355	2844	2175	1502	885	467	270	187	129	79.0	38.1	8.37	0.03	0.05	0.06	0.00	
20	3198	3022	2670	2187	1638	1087	633	357	227	163	110	67.1	29.3	5.35	0.02	0.05	0.06	0.00	
30	2025	1875	1630	1304	957	631	392	251	180	128	85.5	49.0	16.7	2.21	0.04	0.05	0.06	0.00	
40	858	798	701	586	452	331	239	175	126	88.4	56.1	26.3	6.63	0.19	0.04	0.05	0.06	0.00	
50	330	315	293	262	223	179	137	101	73.8	48.5	24.4	7.76	1.07	0.04	0.05	0.06	0.06	0.00	
60	165	153	139	121	101	82.0	63.6	45.5	27.7	12.9	4.43	0.40	0.02	0.05	0.05	0.06	0.07	0.00	
70	71.4	62.9	53.6	43.5	33.0	22.7	14.0	7.63	3.28	0.44	0.01	0.05	0.05	0.05	0.06	0.06	0.07	0.00	
80	17.9	13.9	9.93	5.91	2.41	0.19	0.00	0.00	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	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	
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.	LF34LW @3500K	Sample ID	240726003-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	0.255	30.1	0.983	15.24

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*****