

## Photometric Test Report

### Relevant Standards

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

Prepared For

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Prepared By

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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		4408
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	144.5
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		30.5
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	15.14
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	3985±275	3992
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		84.3
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	N/A		23
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%		-10%
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		0.259
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		30.5
(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 @4000K	ES#3	240726003-S1
2	Goniophotometer Test	2024-07-27	LF34LW @4000K	ES#3	240726003-S1
3	THD and PF Test	2024-07-27	LF34LW @4000K	ES#3	240726003-S1

### Remark (If any):

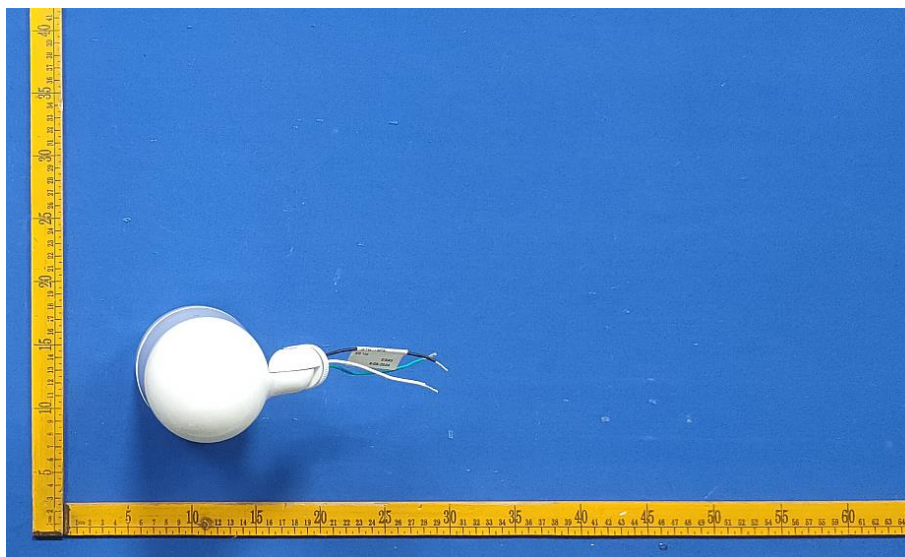
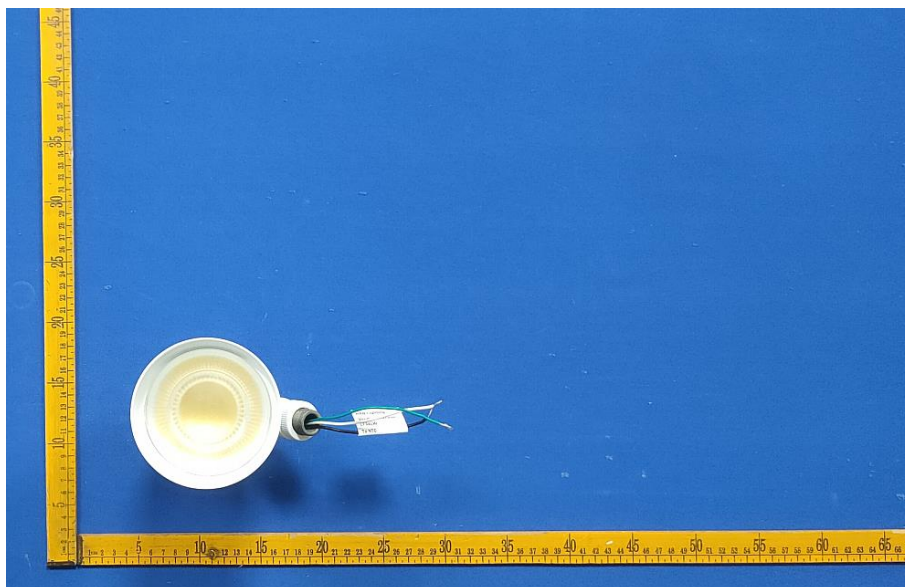
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3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

### 3.0 Product Description

Luminaire Description: Model No. LF34LW @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

<b>Model No.</b>	LF34LW @4000K	<b>Sample ID</b>	240726003-S1
<b>Operate time (Min.)</b>	10	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

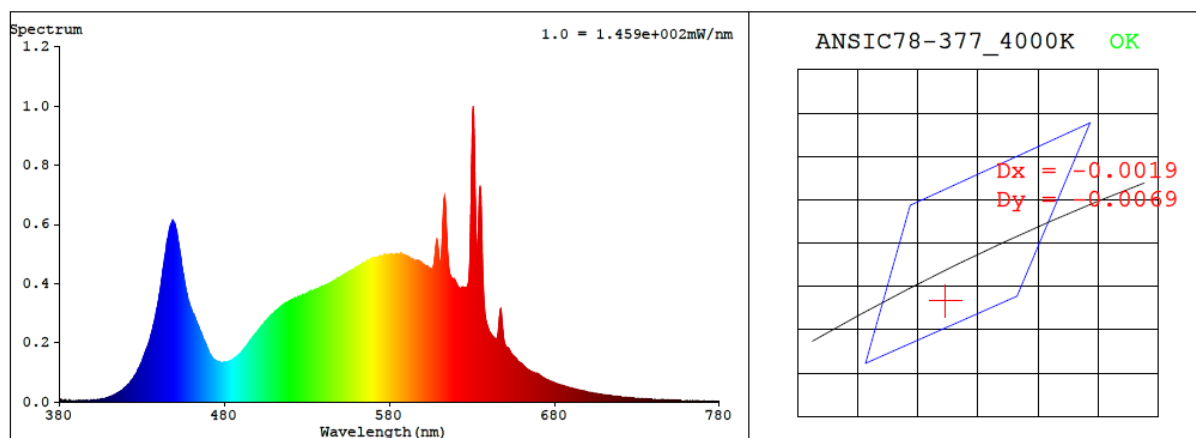
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.259	30.5	0.983

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3992	84.3	23	-0.0027	84	99	-10%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3789$   $y = 0.3701$  /  $u' = 0.2268$   $v' = 0.4984$  ( $duv = -2.72e-03$ )

CCT= 3992K Prcp WL:  $L_d = 580.8\text{nm}$  Purity=24.8%

Peak WL:  $L_p = 631\text{nm}$  FWHM:  $\approx 7.8\text{nm}$  Ratio: R=18.8% G=77.7% B=3.4%

Render Index:  $R_a = 84.3$  AvgR = 78.5 TM30:  $R_f = 83$   $R_g = 98$

EEL: 0.09485 A++ Highest

R1 =84 R2 =89 R3 =92 R4 =84 R5 =83 R6 =84 R7 =87

R8 =71 R9 =23 R10=73 R11=83 R12=65 R13=84 R14=95 R15=80

## 4.1 Integrating Sphere Test

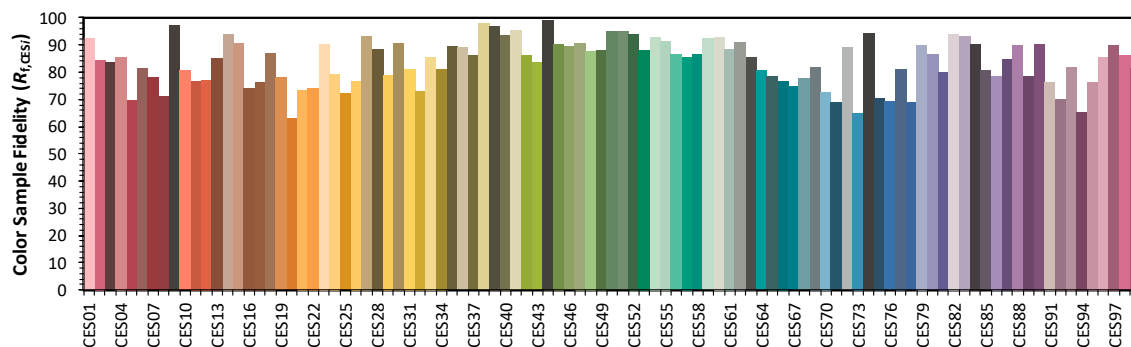
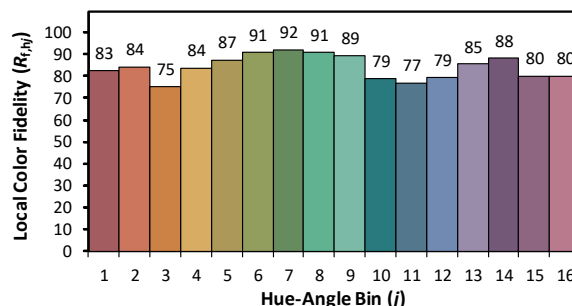
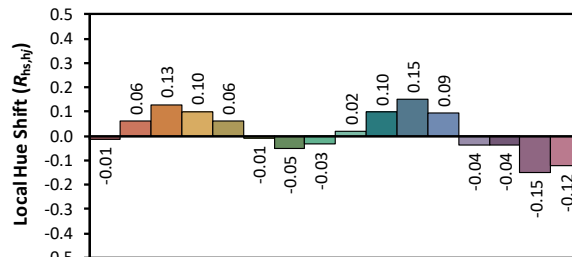
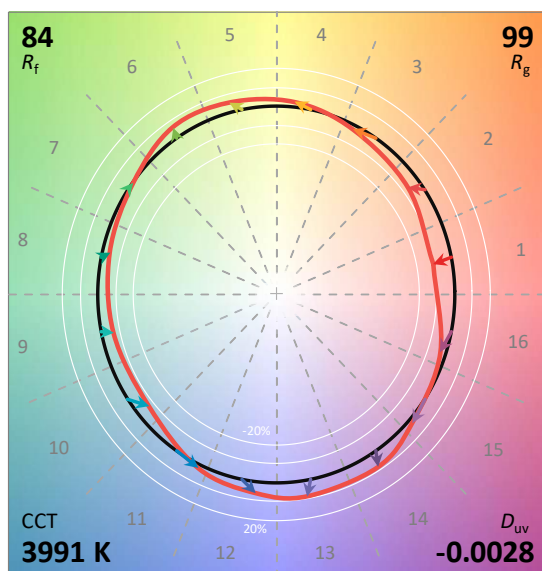
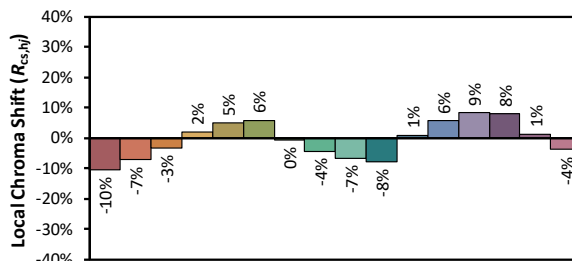
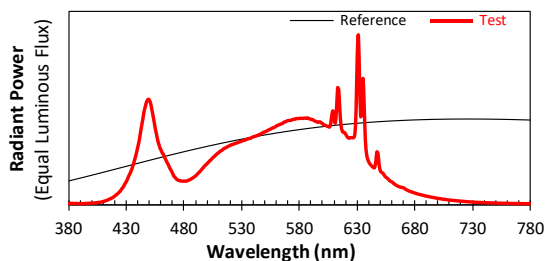
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/7/30

Model: LF34LW @4000K



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

$x$  0.3789  
 $y$  0.3699  
 $u'$  0.2268  
 $v'$  0.4983

CIE 13.3-1995  
(CRI)  
 $R_a$  84  
 $R_g$  23



## 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	3.30E-06	447	5.89E-04	514	3.21E-04	581	4.99E-04	648	2.94E-04	715	2.09E-05
381	7.10E-06	448	6.03E-04	515	3.25E-04	582	4.98E-04	649	2.28E-04	716	2.00E-05
382	3.10E-06	449	6.10E-04	516	3.28E-04	583	4.98E-04	650	1.95E-04	717	1.96E-05
383	4.80E-06	450	6.00E-04	517	3.32E-04	584	5.00E-04	651	1.85E-04	718	1.89E-05
384	4.40E-06	451	5.80E-04	518	3.36E-04	585	5.00E-04	652	1.82E-04	719	1.82E-05
385	3.50E-06	452	5.44E-04	519	3.39E-04	586	4.99E-04	653	1.73E-04	720	1.78E-05
386	4.70E-06	453	5.10E-04	520	3.42E-04	587	5.02E-04	654	1.63E-04	721	1.72E-05
387	4.00E-06	454	4.72E-04	521	3.46E-04	588	4.97E-04	655	1.56E-04	722	1.65E-05
388	3.90E-06	455	4.33E-04	522	3.47E-04	589	4.96E-04	656	1.51E-04	723	1.60E-05
389	3.20E-06	456	4.03E-04	523	3.51E-04	590	4.92E-04	657	1.45E-04	724	1.53E-05
390	3.20E-06	457	3.70E-04	524	3.52E-04	591	4.92E-04	658	1.37E-04	725	1.50E-05
391	2.90E-06	458	3.46E-04	525	3.55E-04	592	4.89E-04	659	1.33E-04	726	1.42E-05
392	4.00E-06	459	3.25E-04	526	3.57E-04	593	4.83E-04	660	1.30E-04	727	1.39E-05
393	3.50E-06	460	3.12E-04	527	3.59E-04	594	4.81E-04	661	1.25E-04	728	1.36E-05
394	4.30E-06	461	2.97E-04	528	3.63E-04	595	4.78E-04	662	1.18E-04	729	1.31E-05
395	4.50E-06	462	2.88E-04	529	3.64E-04	596	4.76E-04	663	1.14E-04	730	1.26E-05
396	4.80E-06	463	2.72E-04	530	3.67E-04	597	4.78E-04	664	1.09E-04	731	1.20E-05
397	5.60E-06	464	2.58E-04	531	3.70E-04	598	4.77E-04	665	1.06E-04	732	1.17E-05
398	5.40E-06	465	2.43E-04	532	3.71E-04	599	4.71E-04	666	1.03E-04	733	1.15E-05
399	6.20E-06	466	2.31E-04	533	3.74E-04	600	4.68E-04	667	1.01E-04	734	1.10E-05
400	6.30E-06	467	2.15E-04	534	3.76E-04	601	4.61E-04	668	9.77E-05	735	1.07E-05
401	7.10E-06	468	2.03E-04	535	3.79E-04	602	4.59E-04	669	9.74E-05	736	1.04E-05
402	7.00E-06	469	1.91E-04	536	3.82E-04	603	4.56E-04	670	9.54E-05	737	1.02E-05
403	8.10E-06	470	1.77E-04	537	3.82E-04	604	4.53E-04	671	9.13E-05	738	9.70E-06
404	8.40E-06	471	1.63E-04	538	3.86E-04	605	4.51E-04	672	8.67E-05	739	9.40E-06
405	1.01E-05	472	1.56E-04	539	3.90E-04	606	4.49E-04	673	8.29E-05	740	9.20E-06
406	1.09E-05	473	1.48E-04	540	3.91E-04	607	4.68E-04	674	7.95E-05	741	9.00E-06
407	1.11E-05	474	1.42E-04	541	3.94E-04	608	5.19E-04	675	7.62E-05	742	8.70E-06
408	1.24E-05	475	1.39E-04	542	3.95E-04	609	5.41E-04	676	7.44E-05	743	8.30E-06
409	1.45E-05	476	1.37E-04	543	3.98E-04	610	4.93E-04	677	7.16E-05	744	8.20E-06
410	1.66E-05	477	1.35E-04	544	4.01E-04	611	4.73E-04	678	6.92E-05	745	7.90E-06
411	1.83E-05	478	1.34E-04	545	4.04E-04	612	5.50E-04	679	6.68E-05	746	7.50E-06
412	2.07E-05	479	1.34E-04	546	4.07E-04	613	6.76E-04	680	6.49E-05	747	7.40E-06
413	2.31E-05	480	1.34E-04	547	4.11E-04	614	6.61E-04	681	6.26E-05	748	7.00E-06
414	2.58E-05	481	1.34E-04	548	4.15E-04	615	5.36E-04	682	6.03E-05	749	7.30E-06
415	2.95E-05	482	1.35E-04	549	4.18E-04	616	4.55E-04	683	5.85E-05	750	6.90E-06
416	3.24E-05	483	1.38E-04	550	4.21E-04	617	4.25E-04	684	5.68E-05	751	6.60E-06
417	3.55E-05	484	1.40E-04	551	4.24E-04	618	4.17E-04	685	5.50E-05	752	6.60E-06
418	3.90E-05	485	1.43E-04	552	4.27E-04	619	4.16E-04	686	5.38E-05	753	6.00E-06
419	4.41E-05	486	1.48E-04	553	4.31E-04	620	4.06E-04	687	5.18E-05	754	6.00E-06
420	4.88E-05	487	1.51E-04	554	4.34E-04	621	3.94E-04	688	5.04E-05	755	5.90E-06
421	5.51E-05	488	1.55E-04	555	4.37E-04	622	3.87E-04	689	4.83E-05	756	5.90E-06
422	5.95E-05	489	1.60E-04	556	4.41E-04	623	3.83E-04	690	4.72E-05	757	5.50E-06
423	6.69E-05	490	1.66E-04	557	4.44E-04	624	3.87E-04	691	4.58E-05	758	5.50E-06
424	7.24E-05	491	1.73E-04	558	4.46E-04	625	3.86E-04	692	4.44E-05	759	5.20E-06
425	8.18E-05	492	1.80E-04	559	4.49E-04	626	3.86E-04	693	4.28E-05	760	5.10E-06
426	9.09E-05	493	1.86E-04	560	4.55E-04	627	3.87E-04	694	4.14E-05	761	5.00E-06
427	9.92E-05	494	1.93E-04	561	4.58E-04	628	4.10E-04	695	4.00E-05	762	4.80E-06
428	1.12E-04	495	2.01E-04	562	4.61E-04	629	5.49E-04	696	3.89E-05	763	4.50E-06
429	1.23E-04	496	2.09E-04	563	4.64E-04	630	8.63E-04	697	3.78E-05	764	4.70E-06
430	1.35E-04	497	2.18E-04	564	4.67E-04	631	9.81E-04	698	3.61E-05	765	4.50E-06
431	1.50E-04	498	2.25E-04	565	4.68E-04	632	7.22E-04	699	3.51E-05	766	4.40E-06
432	1.66E-04	499	2.31E-04	566	4.74E-04	633	5.11E-04	700	3.39E-05	767	4.20E-06
433	1.79E-04	500	2.38E-04	567	4.78E-04	634	6.04E-04	701	3.30E-05	768	3.90E-06
434	1.96E-04	501	2.44E-04	568	4.79E-04	635	7.31E-04	702	3.20E-05	769	3.80E-06
435	2.15E-04	502	2.52E-04	569	4.84E-04	636	5.73E-04	703	3.11E-05	770	3.80E-06
436	2.35E-04	503	2.58E-04	570	4.86E-04	637	3.78E-04	704	2.93E-05	771	3.60E-06
437	2.59E-04	504	2.64E-04	571	4.87E-04	638	2.96E-04	705	2.89E-05	772	3.60E-06
438	2.84E-04	505	2.72E-04	572	4.87E-04	639	2.63E-04	706	2.81E-05	773	3.50E-06
439	3.12E-04	506	2.77E-04	573	4.89E-04	640	2.46E-04	707	2.71E-05	774	3.30E-06
440	3.42E-04	507	2.83E-04	574	4.92E-04	641	2.34E-04	708	2.62E-05	775	3.20E-06
441	3.74E-04	508	2.90E-04	575	4.93E-04	642	2.26E-04	709	2.53E-05	776	3.10E-06
442	4.17E-04	509	2.96E-04	576	4.94E-04	643	2.19E-04	710	2.45E-05	777	3.00E-06
443	4.55E-04	510	3.00E-04	577	4.97E-04	644	2.13E-04	711	2.38E-05	778	3.00E-06
444	4.92E-04	511	3.07E-04	578	4.97E-04	645	2.12E-04	712	2.29E-05	779	3.00E-06
445	5.35E-04	512	3.11E-04	579	4.98E-04	646	2.42E-04	713	2.22E-05	780	3.00E-06
446	5.61E-04	513	3.15E-04	580	4.98E-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

<b>Model No.</b>	LF34LW @4000K	<b>Sample ID</b>	240726003-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.8	<b>Humidity (%RH)</b>	45.1

<b>Test Method</b>
<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 <math>25 \pm 1^\circ\text{C}</math>, 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 <math>\pm 0.2</math> 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 <math>1.0^\circ</math> vertical intervals and <math>15^\circ</math> horizontal intervals.</p>

### Test Conditions

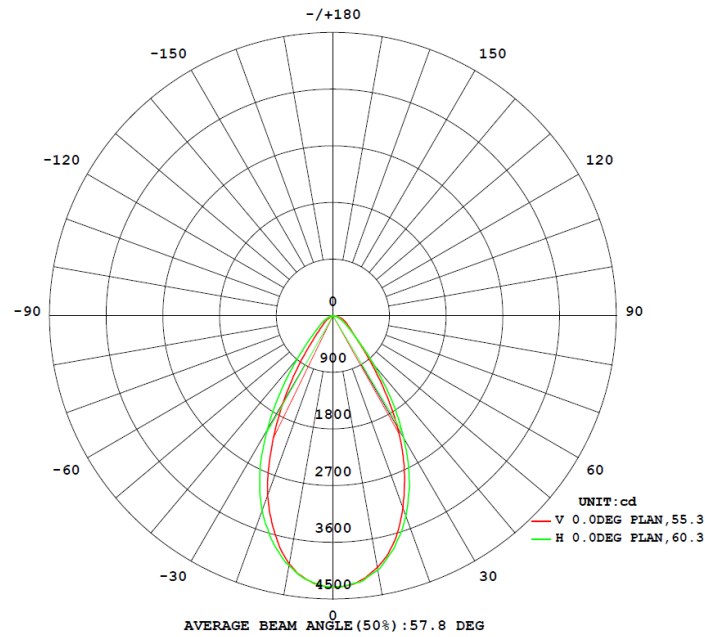
Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
<b>WORST CASE</b>	120.0	60	0.259	30.5	0.983
<b>NON-WORST CASE</b>	N/A	N/A	N/A	N/A	N/A

### Test Result

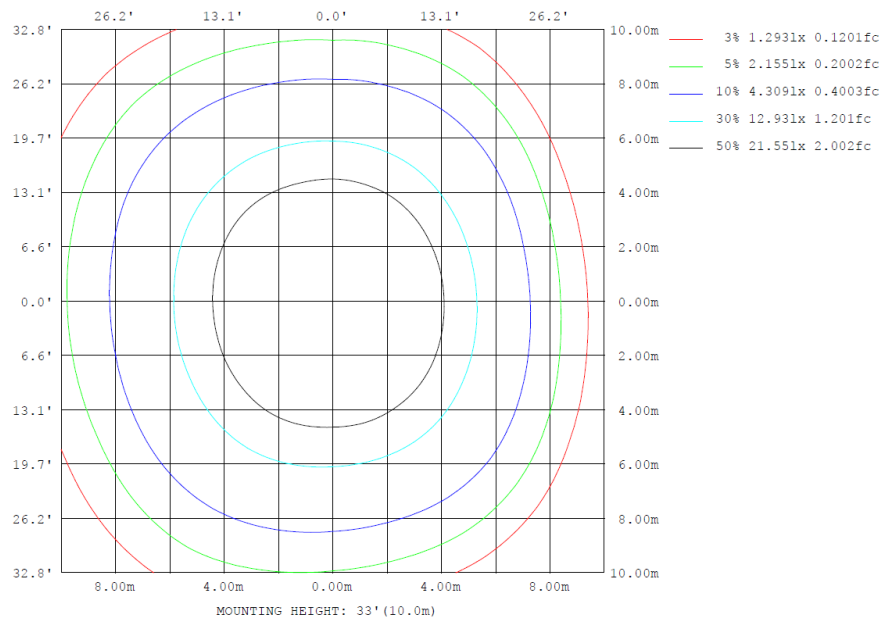
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement	NEMA Type
	C0-180	C90-270	C0-180	C90-270		(0°-90°)	
4408	90.6	95.8	55.3	60.4	144.5	100.0%	5H x 5V

## 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	4004	4068	4104	4090	4059	4049	4029	4003	0- 10	399.1	399.1	9.06, 9.06
20	3039	3283	3388	3384	3249	3361	3296	3165	10- 20	1036	1436	32.6, 32.6
30	1579	2040	2250	2284	2057	2242	2092	1847	20- 30	1225	2660	60.3, 60.3
40	477.5	870.5	1000	1110	878.4	1075	860.0	724.3	30- 40	882.7	3543	80.4, 80.4
50	194.0	299.2	371.7	471.9	404.8	471.8	335.6	258.7	40- 50	426.4	3969	90, 90
60	83.37	123.6	190.7	260.7	256.9	257.3	175.2	109.4	50- 60	228.0	4197	95.2, 95.2
70	9.703	32.92	91.45	149.5	161.0	142.0	79.94	26.37	60- 70	129.2	4326	98.1, 98.1
80	0.0490	0.0832	27.74	67.50	80.47	61.43	22.30	0.0471	70- 80	58.89	4385	99.5, 99.5
90	0	0	0	0	0	0	0	0	80- 90	22.72	4408	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0000	4408	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4408	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4408	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4408	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4408	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4408	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4408	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4408	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4408	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

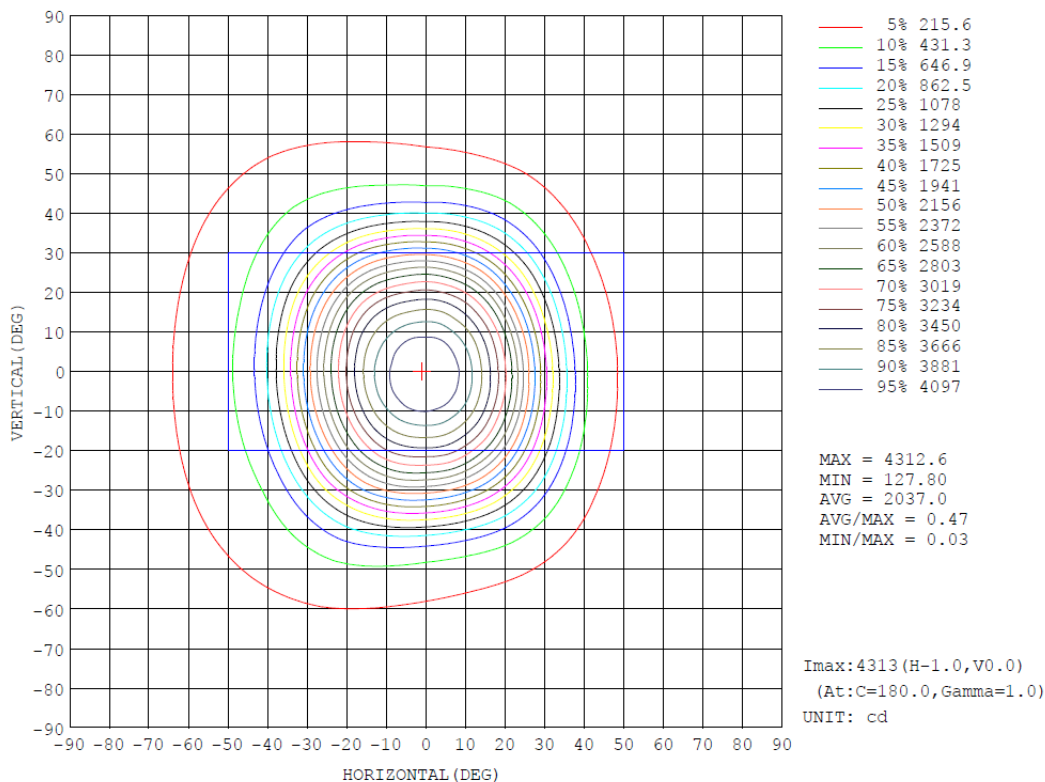
	Zonal (lm)		Total (lm)	Percent
0-10	399.15	0-10	399.15	9.06%
10-20	1036.36	0-20	1435.51	32.57%
20-30	1224.61	0-30	2660.12	60.35%
30-40	882.72	0-40	3542.84	80.37%
40-50	426.39	0-50	3969.23	90.05%
50-60	227.98	0-60	4197.21	95.22%
60-70	129.17	0-70	4326.38	98.15%
70-80	58.89	0-80	4385.27	99.48%
80-90	22.72	0-90	4407.99	100.00%
90-100	0.00	0-100	4407.99	100.00%
100-110	0.00	0-110	4407.99	100.00%
110-120	0.00	0-120	4407.99	100.00%
120-130	0.00	0-130	4407.99	100.00%
130-140	0.00	0-140	4407.99	100.00%
140-150	0.00	0-150	4407.99	100.00%
150-160	0.00	0-160	4407.99	100.00%
160-170	0.00	0-170	4407.99	100.00%
170-180	0.00	0-180	4407.99	100.00%

## 4.2 Goniophotometer Test

### Area Flux Diagram

		AREA FLUX DIAGRAM																UNIT:lm		Φ t	Φ a
VERTICAL (DEG)	90	0.09	0.32	0.52	0.68	0.78	0.81	0.75	0.60	0.40	0.21	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	5.25	0.00
	80	0.12	0.39	0.71	1.07	1.43	1.71	1.86	1.82	1.60	1.24	0.81	0.41	0.13	0.02	0.00	0.00	0.00	0.00	13.3	0.00
	70	0.13	0.46	1.00	1.73	2.59	3.39	3.95	4.16	4.00	3.52	2.73	1.79	0.92	0.29	0.03	0.00	0.00	0.00	30.7	0.00
	60	0.13	0.56	1.37	2.55	4.02	5.63	6.96	7.65	7.68	7.21	6.06	4.28	2.44	1.09	0.25	0.01	0.00	0.00	57.9	0.00
	50	0.14	0.67	1.75	3.36	5.63	8.81	12.4	15.2	16.5	16.1	13.2	8.57	4.56	2.17	0.72	0.07	0.00	0.00	110	54.8
	40	0.15	0.78	2.09	4.13	7.45	13.9	24.7	36.6	43.2	42.0	31.9	17.7	7.51	3.33	1.27	0.20	0.00	0.00	237	209
	30	0.16	0.87	2.37	4.80	9.48	22.0	45.5	68.9	81.1	79.7	61.7	33.9	12.3	4.44	1.77	0.35	0.01	0.00	429	407
	20	0.16	0.93	2.57	5.31	11.4	30.6	63.5	94.4	110	109	88.0	50.7	18.3	5.51	2.15	0.48	0.01	0.00	593	573
	10	0.17	0.97	2.68	5.61	12.6	35.3	72.5	107	125	125	102	61.7	22.9	6.30	2.37	0.56	0.02	0.00	682	663
	0	0.17	0.97	2.68	5.60	12.4	34.7	72.2	107	126	126	103	63.1	23.9	6.48	2.39	0.56	0.02	0.00	687	668
	-10	0.16	0.94	2.58	5.30	11.0	29.3	62.9	95.1	113	112	91.5	54.7	20.6	5.93	2.21	0.50	0.01	0.00	607	587
	-20	0.16	0.88	2.39	4.79	8.99	21.0	46.4	72.3	85.7	83.9	66.6	38.6	14.6	4.88	1.85	0.38	0.01	0.00	453	431
	-30	0.15	0.79	2.12	4.14	7.18	13.6	26.6	41.3	48.9	46.5	35.8	20.6	8.81	3.67	1.35	0.22	0.00	0.00	262	234
	-40	0.14	0.69	1.79	3.40	5.60	8.92	13.8	18.1	19.5	17.8	14.1	9.33	5.15	2.39	0.80	0.09	0.00	0.00	122	72.9
	-50	0.14	0.58	1.41	2.62	4.12	5.89	7.70	8.66	8.52	7.63	6.33	4.62	2.72	1.24	0.31	0.02	0.00	0.00	62.5	0.00
	-60	0.13	0.47	1.04	1.82	2.74	3.65	4.36	4.61	4.43	3.88	3.04	2.05	1.10	0.38	0.05	0.00	0.00	0.00	33.7	0.00
	-70	0.12	0.40	0.74	1.14	1.56	1.91	2.11	2.10	1.88	1.49	1.00	0.54	0.20	0.03	0.00	0.00	0.00	0.00	15.2	0.00
	-80	0.09	0.32	0.54	0.72	0.85	0.90	0.87	0.74	0.54	0.32	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	6.08	0.00
	-90																				
		-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90	
Φ t	2.51	12.0	30.3	58.8	110	242	469	686	798	783	628	373	146	48.1	17.5	3.44	0.07	0.00	4408	---	
Φ a	0.00	0.00	0.00	0.00	51.0	200	432	651	764	751	598	343	108	1.65	0.00	0.00	0.00	0.00	---	3900	

### Isocandela



## 4.2 Goniophotometer Test

## Luminous Distribution Intensity Data

H (DEG)		UNIT: °cd																	
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	45.3	46.7	47.7	48.7	49.4	50.3	51.0	51.5	51.8	51.5	50.7	49.3	47.1	44.2	40.8	36.8	32.4	27.7
-70	0.00	46.9	50.1	53.9	59.9	67.3	74.9	82.6	90.2	97.0	103	108	111	112	111	109	104	98.6	91.4
-60	0.00	48.4	54.0	64.5	78.2	93.6	110	127	143	159	173	188	201	211	215	214	209	201	191
-50	0.00	49.9	59.8	77.4	99.0	123	147	172	196	225	253	287	326	366	393	405	405	393	372
-40	0.00	51.2	66.1	90.6	120	150	182	215	250	293	349	430	541	675	816	923	997	1023	1000
-30	0.00	52.4	72.0	102	137	173	212	254	302	364	465	654	943	1309	1666	1972	2168	2262	2250
-20	0.00	53.3	76.6	111	150	191	236	287	349	446	638	986	1484	2018	2519	2922	3220	3356	3388
-10	0.00	54.0	79.5	117	158	202	251	309	388	522	803	1273	1902	2496	3053	3526	3852	4049	4104
0	0.00	54.1	80.5	119	161	205	257	317	405	558	878	1399	2057	2680	3249	3732	4059	4261	4307
10	0.00	53.9	79.2	116	158	201	251	309	390	538	835	1319	1933	2522	3078	3524	3806	3974	4029
20	0.00	53.2	76.1	110	149	190	235	286	354	467	681	1044	1528	2019	2486	2866	3111	3236	3296
30	0.00	52.2	71.3	101	136	171	210	254	307	383	501	684	942	1243	1552	1817	1985	2080	2092
40	0.00	51.0	65.3	89.0	118	148	179	213	251	299	358	436	521	610	695	773	828	865	866
50	0.00	49.6	58.9	75.7	96.6	120	144	168	193	222	251	280	307	328	342	348	349	346	336
60	0.00	48.1	53.3	62.8	75.7	90.1	106	122	138	152	166	177	185	191	193	192	188	183	175
70	0.00	46.6	49.4	52.7	57.7	64.1	71.0	77.8	84.1	89.7	94.8	98.4	100	101	99.6	96.6	92.3	86.8	79.9
80	0.00	45.0	46.1	46.7	47.3	47.7	47.8	47.8	47.6	47.1	46.3	44.9	43.0	40.6	37.7	34.3	30.7	26.6	22.3
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	23.0	18.4	14.0	9.71	5.67	2.12	0.32	0.01	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.00		
-70	82.8	73.1	62.5	51.8	40.7	29.6	19.2	11.0	5.60	1.65	0.09	0.05	0.05	0.06	0.06	0.07	0.07	0.00		
-60	179	166	151	133	112	91.5	71.7	52.4	33.6	17.0	6.68	1.29	0.00	0.05	0.06	0.06	0.07	0.00		
-50	351	326	299	268	232	192	152	113	80.5	53.5	28.6	10.2	1.84	0.04	0.05	0.06	0.07	0.00		
-40	948	862	751	620	480	358	262	192	138	94.1	59.8	29.4	8.61	0.43	0.05	0.05	0.06	0.00		
-30	2176	2014	1754	1420	1049	697	433	276	193	136	89.2	51.3	18.5	2.97	0.04	0.05	0.06	0.00		
-20	3336	3125	2772	2289	1718	1156	677	380	240	169	114	68.7	30.5	6.34	0.00	0.05	0.06	0.00		
-10	4021	3803	3417	2867	2184	1485	878	461	272	189	131	79.9	38.4	8.82	0.04	0.05	0.06	0.00		
0	4234	4004	3577	3039	2308	1579	925	478	280	194	136	83.4	40.9	9.70	0.06	0.05	0.06	0.00		
10	3960	3724	3329	2772	2078	1390	800	426	260	184	128	78.6	37.6	8.46	0.03	0.05	0.06	0.00		
20	3208	3007	2631	2101	1544	1005	574	333	222	162	110	66.6	28.9	5.46	0.02	0.05	0.05	0.00		
30	2027	1852	1578	1239	899	583	363	241	177	128	85.1	48.3	16.7	2.30	0.04	0.05	0.06	0.00		
40	848	783	681	560	427	312	228	171	125	88.1	55.3	26.1	6.74	0.20	0.05	0.05	0.06	0.00		
50	333	316	291	258	217	175	135	101	73.6	47.9	24.2	7.85	1.10	0.04	0.05	0.06	0.07	0.00		
60	167	155	140	121	101	82.0	63.2	45.1	27.5	13.0	4.56	0.42	0.02	0.05	0.05	0.06	0.07	0.00		
70	72.1	63.4	53.8	43.6	33.1	22.8	14.3	8.16	3.39	0.47	0.01	0.05	0.05	0.06	0.06	0.06	0.07	0.00		
80	18.2	14.1	10.1	6.05	2.47	0.20	0.00	0.00	0.05	0.05	0.06	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

<b>Model No.</b>	LF34LW @4000K	<b>Sample ID</b>	240726003-S1
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

<b>Test Method</b>
<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 <math>25 \pm 1^\circ\text{C}</math>. 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	0.259	30.5	0.983	15.14

## 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\*\*\*\*\*