

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

Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2) (0°-180° zones)	ANSI/IES LM-79:2019	N/A		5850
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-180° zones)	ANSI/IES LM-79:2019	N/A		152.7
Luminaire Output (lm) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	300		5702
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	Standard	Premium	148.9
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		38.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	3.24
			277V	14.90
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.996
			277V	0.917
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3985±275	3953
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		83.6
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	N/A		19
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		97
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-11%
Zonal Lumen Requirement (80°-90°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≤10%		5.2%
Input Voltage (V)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Cast		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		0.151
(Goniophotometer – Section 4.2)		Non-Worst Case		0.319
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		38.3
(Goniophotometer – Section 4.2)		Non-Worst Case		38.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-10-09	PWLED @41W4000K	-	241009001-S1
2	Goniophotometer Test	2024-10-09	PWLED @41W4000K	-	241009001-S1
3	THD and PF Test	2024-10-09	PWLED @41W4000K	-	241009001-S1
Remark (If any):					
<ol style="list-style-type: none"> The results contained in this report pertain only to the tested samples. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd. 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. PWLED @41W4000K, color tunable from 3000K, 4000K and 5000K.

Electrical Specification: 120-277Vac, 50/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	PWLED @41W4000K	Sample ID	241009001-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	0.319	38.1	0.996
277.0	60	0.151	38.3	0.917

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3953	83.6	19	-0.0010	84	97	-11%

4.1 Integrating Sphere Test

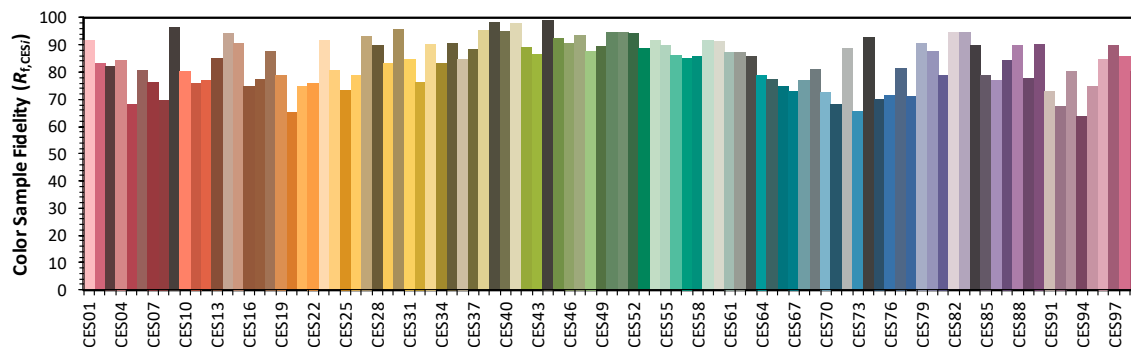
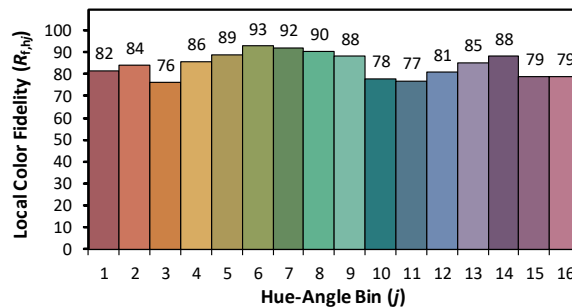
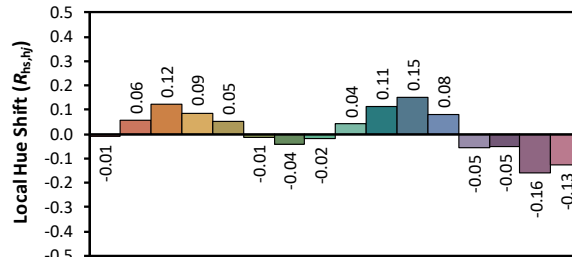
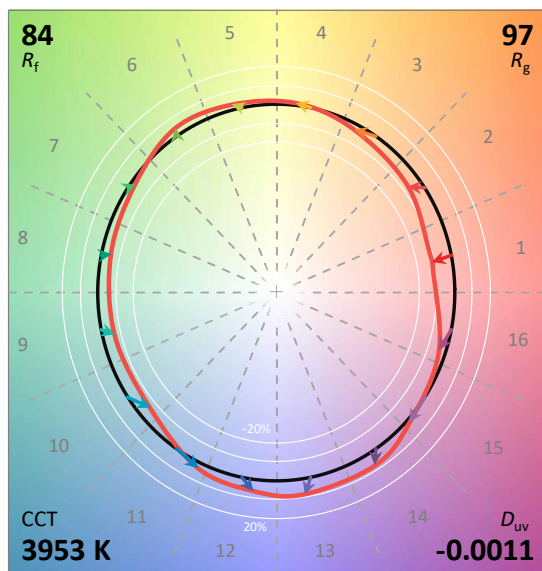
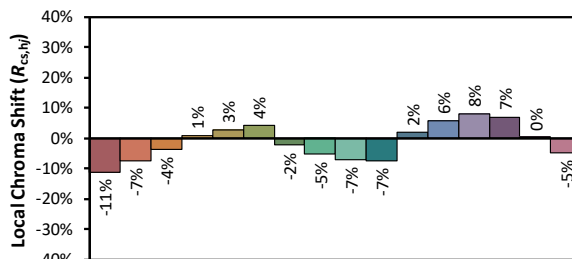
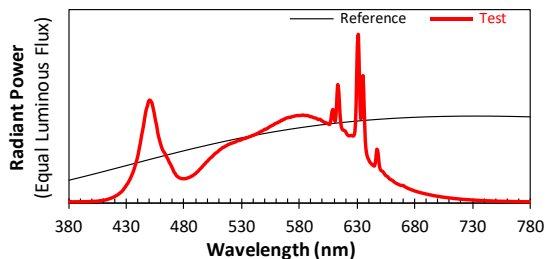
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/10/10

Model: PWLED @41W4000K



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

x 0.3818
 y 0.3753
 u' 0.2266
 v' 0.5011

CIE 13.3-1995
(CRI)

R_a 84
 R_g 19

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	2.60E-06	447	5.36E-04	514	3.18E-04	581	5.02E-04	648	2.89E-04	715	2.10E-05
381	3.30E-06	448	5.56E-04	515	3.21E-04	582	5.04E-04	649	2.21E-04	716	2.07E-05
382	3.70E-06	449	5.83E-04	516	3.26E-04	583	5.04E-04	650	1.90E-04	717	1.98E-05
383	2.10E-06	450	5.92E-04	517	3.29E-04	584	5.02E-04	651	1.82E-04	718	1.93E-05
384	2.90E-06	451	5.84E-04	518	3.34E-04	585	5.01E-04	652	1.79E-04	719	1.86E-05
385	3.00E-06	452	5.73E-04	519	3.36E-04	586	5.02E-04	653	1.70E-04	720	1.81E-05
386	2.40E-06	453	5.42E-04	520	3.40E-04	587	5.01E-04	654	1.60E-04	721	1.73E-05
387	3.40E-06	454	5.13E-04	521	3.41E-04	588	4.99E-04	655	1.53E-04	722	1.70E-05
388	2.40E-06	455	4.73E-04	522	3.44E-04	589	4.96E-04	656	1.50E-04	723	1.61E-05
389	3.60E-06	456	4.45E-04	523	3.46E-04	590	4.95E-04	657	1.43E-04	724	1.60E-05
390	3.00E-06	457	4.02E-04	524	3.48E-04	591	4.93E-04	658	1.35E-04	725	1.51E-05
391	2.70E-06	458	3.73E-04	525	3.50E-04	592	4.90E-04	659	1.32E-04	726	1.48E-05
392	4.00E-06	459	3.48E-04	526	3.56E-04	593	4.88E-04	660	1.28E-04	727	1.46E-05
393	3.30E-06	460	3.25E-04	527	3.57E-04	594	4.87E-04	661	1.24E-04	728	1.40E-05
394	3.70E-06	461	3.06E-04	528	3.58E-04	595	4.83E-04	662	1.17E-04	729	1.36E-05
395	2.80E-06	462	2.94E-04	529	3.60E-04	596	4.79E-04	663	1.13E-04	730	1.30E-05
396	4.00E-06	463	2.85E-04	530	3.64E-04	597	4.80E-04	664	1.09E-04	731	1.25E-05
397	3.80E-06	464	2.71E-04	531	3.67E-04	598	4.79E-04	665	1.06E-04	732	1.24E-05
398	4.40E-06	465	2.59E-04	532	3.68E-04	599	4.72E-04	666	1.02E-04	733	1.19E-05
399	4.30E-06	466	2.47E-04	533	3.69E-04	600	4.69E-04	667	9.98E-05	734	1.14E-05
400	5.00E-06	467	2.31E-04	534	3.73E-04	601	4.64E-04	668	9.72E-05	735	1.10E-05
401	4.90E-06	468	2.20E-04	535	3.75E-04	602	4.62E-04	669	9.72E-05	736	1.09E-05
402	5.90E-06	469	2.06E-04	536	3.77E-04	603	4.59E-04	670	9.67E-05	737	1.02E-05
403	5.40E-06	470	1.93E-04	537	3.80E-04	604	4.56E-04	671	9.15E-05	738	1.01E-05
404	6.30E-06	471	1.76E-04	538	3.82E-04	605	4.52E-04	672	8.72E-05	739	9.70E-06
405	6.60E-06	472	1.67E-04	539	3.87E-04	606	4.51E-04	673	8.37E-05	740	9.40E-06
406	7.40E-06	473	1.56E-04	540	3.87E-04	607	4.70E-04	674	8.06E-05	741	9.20E-06
407	9.50E-06	474	1.49E-04	541	3.91E-04	608	5.21E-04	675	7.76E-05	742	8.80E-06
408	8.90E-06	475	1.44E-04	542	3.93E-04	609	5.36E-04	676	7.50E-05	743	8.50E-06
409	1.13E-05	476	1.40E-04	543	3.97E-04	610	4.86E-04	677	7.26E-05	744	8.40E-06
410	1.16E-05	477	1.39E-04	544	3.98E-04	611	4.69E-04	678	7.02E-05	745	8.20E-06
411	1.25E-05	478	1.37E-04	545	4.05E-04	612	5.55E-04	679	6.73E-05	746	7.80E-06
412	1.42E-05	479	1.37E-04	546	4.07E-04	613	6.79E-04	680	6.52E-05	747	7.50E-06
413	1.57E-05	480	1.36E-04	547	4.11E-04	614	6.39E-04	681	6.31E-05	748	7.30E-06
414	1.80E-05	481	1.37E-04	548	4.14E-04	615	5.15E-04	682	6.09E-05	749	7.10E-06
415	2.04E-05	482	1.38E-04	549	4.18E-04	616	4.46E-04	683	5.93E-05	750	7.00E-06
416	2.27E-05	483	1.41E-04	550	4.22E-04	617	4.22E-04	684	5.72E-05	751	6.70E-06
417	2.50E-05	484	1.43E-04	551	4.23E-04	618	4.17E-04	685	5.54E-05	752	6.40E-06
418	2.82E-05	485	1.46E-04	552	4.27E-04	619	4.15E-04	686	5.38E-05	753	6.00E-06
419	3.10E-05	486	1.49E-04	553	4.32E-04	620	4.08E-04	687	5.18E-05	754	6.00E-06
420	3.46E-05	487	1.53E-04	554	4.36E-04	621	3.94E-04	688	5.08E-05	755	6.00E-06
421	3.89E-05	488	1.57E-04	555	4.40E-04	622	3.87E-04	689	4.90E-05	756	5.60E-06
422	4.17E-05	489	1.62E-04	556	4.44E-04	623	3.84E-04	690	4.71E-05	757	5.80E-06
423	4.71E-05	490	1.67E-04	557	4.46E-04	624	3.86E-04	691	4.61E-05	758	5.30E-06
424	5.23E-05	491	1.74E-04	558	4.51E-04	625	3.87E-04	692	4.45E-05	759	5.10E-06
425	5.81E-05	492	1.79E-04	559	4.55E-04	626	3.83E-04	693	4.30E-05	760	5.20E-06
426	6.38E-05	493	1.88E-04	560	4.58E-04	627	3.85E-04	694	4.16E-05	761	4.80E-06
427	7.19E-05	494	1.94E-04	561	4.60E-04	628	4.09E-04	695	4.05E-05	762	4.90E-06
428	8.12E-05	495	2.01E-04	562	4.65E-04	629	5.59E-04	696	3.89E-05	763	4.70E-06
429	9.02E-05	496	2.09E-04	563	4.67E-04	630	8.86E-04	697	3.78E-05	764	4.30E-06
430	1.01E-04	497	2.16E-04	564	4.74E-04	631	9.67E-04	698	3.65E-05	765	4.30E-06
431	1.10E-04	498	2.23E-04	565	4.74E-04	632	6.78E-04	699	3.56E-05	766	4.20E-06
432	1.22E-04	499	2.31E-04	566	4.79E-04	633	4.83E-04	700	3.46E-05	767	4.20E-06
433	1.35E-04	500	2.37E-04	567	4.81E-04	634	6.08E-04	701	3.35E-05	768	4.00E-06
434	1.50E-04	501	2.45E-04	568	4.85E-04	635	7.33E-04	702	3.21E-05	769	3.80E-06
435	1.65E-04	502	2.52E-04	569	4.88E-04	636	5.47E-04	703	3.10E-05	770	3.70E-06
436	1.82E-04	503	2.58E-04	570	4.89E-04	637	3.57E-04	704	3.03E-05	771	3.40E-06
437	2.04E-04	504	2.63E-04	571	4.92E-04	638	2.88E-04	705	2.93E-05	772	3.50E-06
438	2.26E-04	505	2.69E-04	572	4.91E-04	639	2.60E-04	706	2.83E-05	773	3.40E-06
439	2.49E-04	506	2.77E-04	573	4.94E-04	640	2.45E-04	707	2.74E-05	774	3.30E-06
440	2.77E-04	507	2.83E-04	574	4.96E-04	641	2.32E-04	708	2.69E-05	775	3.20E-06
441	3.13E-04	508	2.88E-04	575	4.98E-04	642	2.24E-04	709	2.57E-05	776	3.20E-06
442	3.46E-04	509	2.92E-04	576	4.99E-04	643	2.17E-04	710	2.48E-05	777	3.20E-06
443	3.88E-04	510	2.99E-04	577	5.01E-04	644	2.12E-04	711	2.46E-05	778	2.90E-06
444	4.20E-04	511	3.04E-04	578	5.02E-04	645	2.11E-04	712	2.39E-05	779	3.00E-06
445	4.59E-04	512	3.09E-04	579	5.02E-04	646	2.43E-04	713	2.26E-05	780	3.00E-06
446	5.01E-04	513	3.15E-04	580	5.02E-04	647	3.06E-04	714	2.18E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	PWLED @41W4000K	Sample ID	241009001-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	42.2

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	277.0	60	0.151	38.3	0.917
NON-WORST CASE	120.0	60	0.319	38.1	0.996

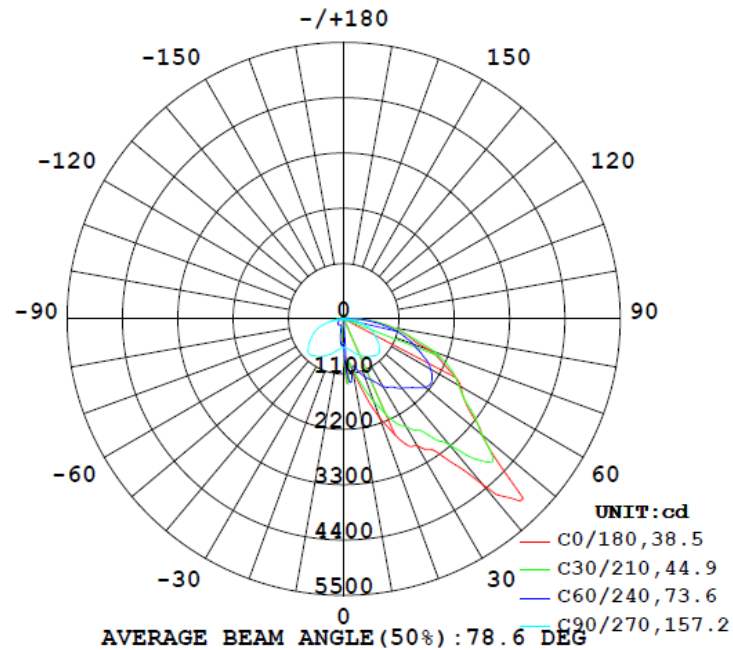
Test Result

Result Type	Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement (80°-90°)	BUG
		C0-180	C90-270	C0-180	C90-270			
0°-180° zones	5850	90.6	150.6	39.8	82.8	152.7	5.1%	B1-U3-G3
0°-90° zones	5702	90.6	150.6	39.8	82.8	148.9	5.2%	B1-U3-G3

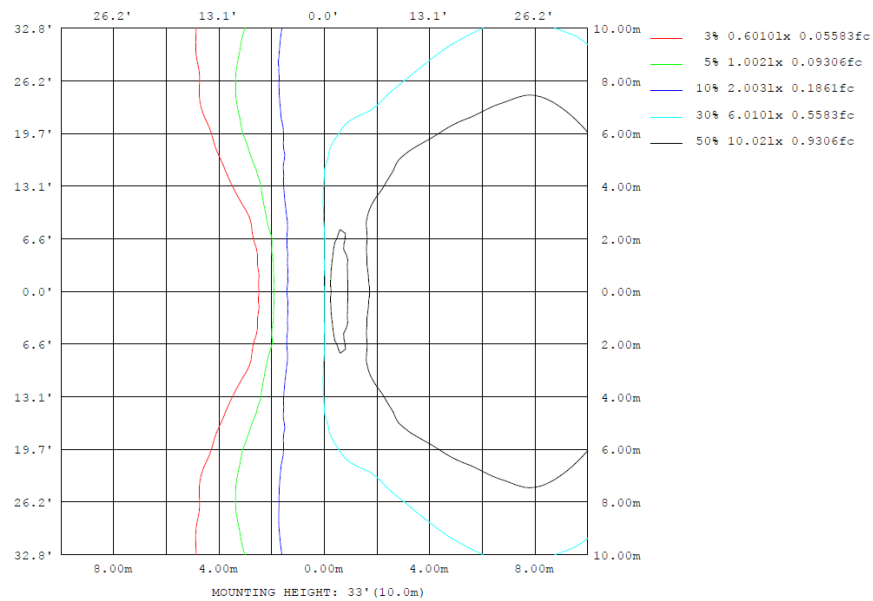
4.2 Goniophotometer Test

Lighting Distribution Curve

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

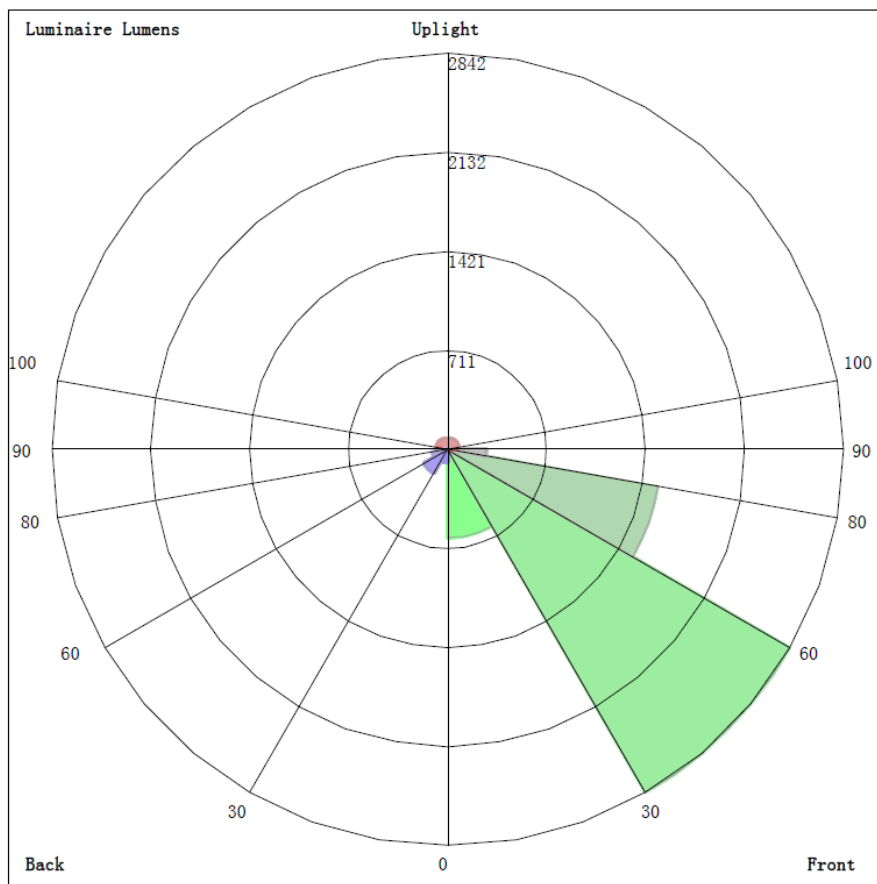
ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	lum, lamp
10	1067	938.2	610.9	253.9	122.3	253.9	610.9	938.2	0- 10	67.56	67.56	1.15,1.15
20	2093	1421	742.5	79.88	38.39	79.88	742.5	1421	10- 20	205.7	273.3	4.67,4.67
30	2911	2014	856.4	67.93	25.85	67.93	856.4	2014	20- 30	449.5	722.8	12.4,12.4
40	4317	2506	957.9	60.93	11.17	60.93	957.9	2506	30- 40	748.8	1472	25.2,25.2
50	3578	3199	920.4	52.54	2.022	52.54	920.4	3199	40- 50	1155	2627	44.9,44.9
60	2685	2427	741.7	43.33	0.1371	43.33	741.7	2427	50- 60	1133	3760	64.3,64.3
70	1794	1854	544.8	34.46	0.3210	34.46	544.8	1854	60- 70	980.2	4740	81.81
80	996.4	1004	252.7	23.04	0.7071	23.04	252.7	1004	70- 80	664.7	5405	92.4,92.4
90	204.7	245.5	37.81	9.925	1.253	9.925	37.81	245.5	80- 90	296.8	5702	97.5,97.5
100	105.8	87.63	8.561	4.357	1.868	4.357	8.561	87.63	90-100	66.67	5768	98.6,98.6
110	63.59	46.05	5.550	3.300	2.304	3.300	5.550	46.05	100-110	31.84	5800	99.1,99.1
120	38.45	31.47	4.794	3.195	2.548	3.195	4.794	31.47	110-120	18.24	5819	99.5,99.5
130	33.04	23.70	4.028	3.261	2.886	3.261	4.028	23.70	120-130	12.58	5831	99.7,99.7
140	24.00	18.64	3.098	3.044	2.812	3.044	3.098	18.64	130-140	8.545	5840	99.8,99.8
150	19.31	14.27	2.524	2.513	2.569	2.513	2.524	14.27	140-150	5.605	5845	99.9,99.9
160	13.98	10.67	2.319	2.125	1.926	2.125	2.319	10.67	150-160	3.268	5849	100,100
170	7.844	7.608	2.167	1.959	1.311	1.959	2.167	7.608	160-170	1.475	5850	100,100
180	1.109	1.189	1.340	1.366	1.097	1.366	1.340	1.189	170-180	0.2922	5850	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	67.56	0-10	67.56	1.15%
10-20	205.73	0-20	273.29	4.67%
20-30	449.48	0-30	722.77	12.36%
30-40	748.80	0-40	1471.57	25.16%
40-50	1155.30	0-50	2626.87	44.90%
50-60	1133.25	0-60	3760.12	64.28%
60-70	980.17	0-70	4740.29	81.03%
70-80	664.71	0-80	5405.00	92.39%
80-90	296.76	0-90	5701.76	97.47%
90-100	66.67	0-100	5768.43	98.61%
100-110	31.84	0-110	5800.27	99.15%
110-120	18.24	0-120	5818.51	99.46%
120-130	12.58	0-130	5831.09	99.68%
130-140	8.55	0-140	5839.64	99.82%
140-150	5.60	0-150	5845.24	99.92%
150-160	3.27	0-160	5848.51	99.97%
160-170	1.48	0-170	5849.99	100.00%
170-180	0.29	0-180	5850.28	100.00%

4.2 Goniophotometer Test

LCS/BUG

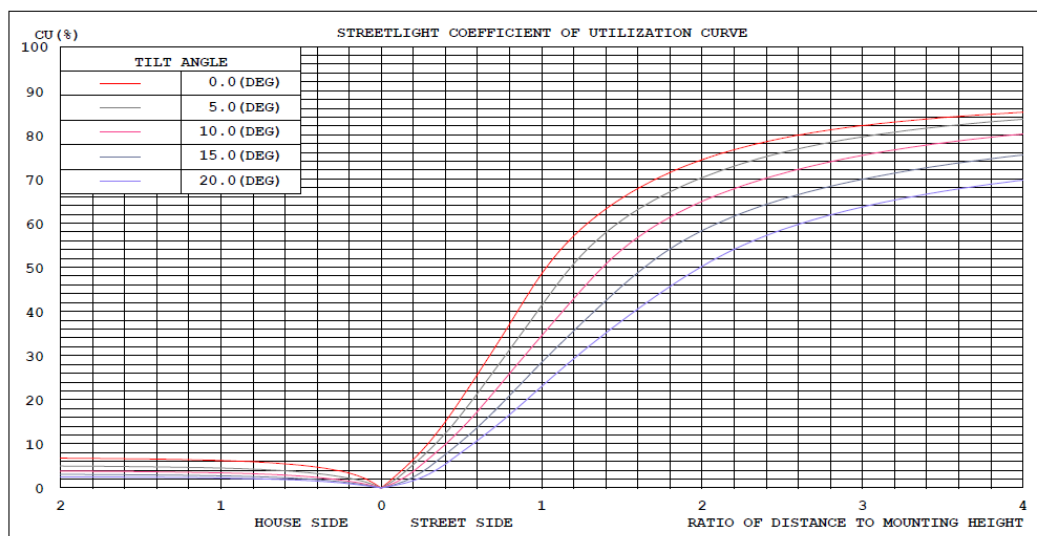


LUMINAIRE CLASSIFICATION SYSTEM (LCS)

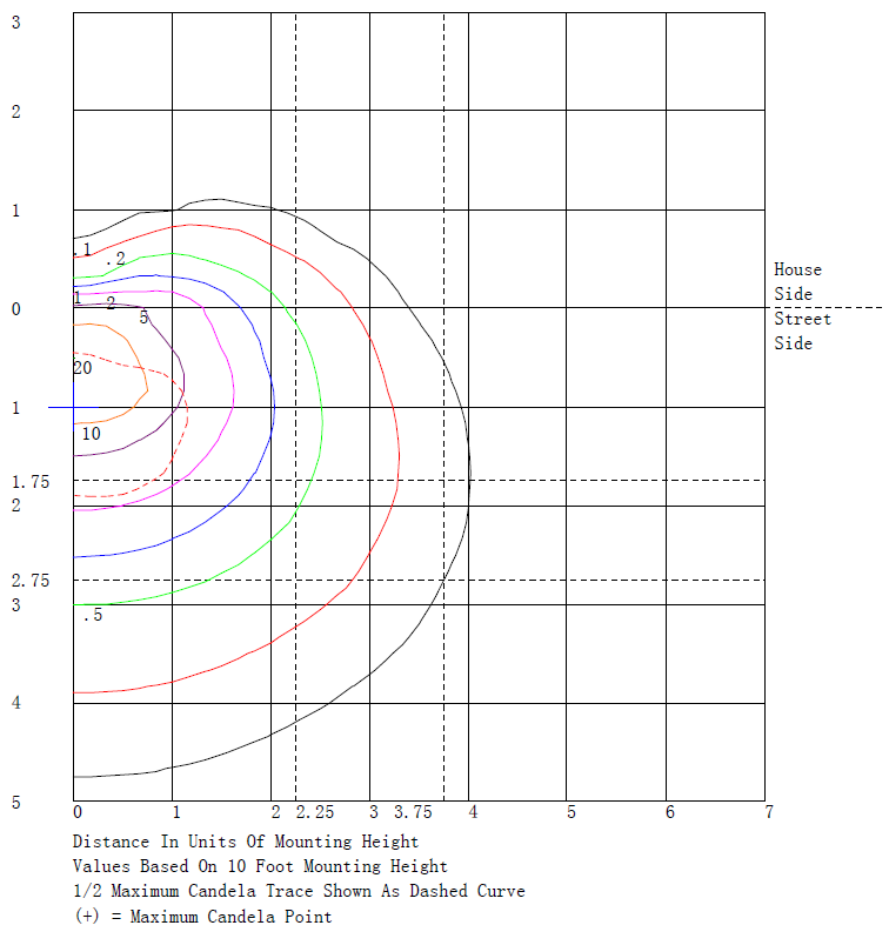
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	632.7	N.A.	10.8
FM - Front-Medium (30-60)	2842.1	N.A.	48.6
FH - Front-High (60-80)	1533.7	N.A.	26.2
FVH - Front-Very High (80-90)	276.8	N.A.	4.7
BL - Back-Low (0-30)	90.1	N.A.	1.5
BM - Back-Medium (30-60)	195.2	N.A.	3.3
BH - Back-High (60-80)	111.2	N.A.	1.9
BVH - Back-Very High (80-90)	20.0	N.A.	0.3
UL - Uplight-Low (90-100)	66.7	N.A.	1.1
UH - Uplight-High (100-180)	81.8	N.A.	1.4
Total	5850.3	N.A.	100.0
BUG Rating	B1-U3-G3		

4.2 Goniophotometer Test

Coefficients of Utilization



Isolines



4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	563	569	572	575	575	574	570	566	558	549	546	539	563	539	546	549	558	566	570
5	1004	1041	1149	1290	1229	1000	584	491	535	503	450	411	408	411	450	503	535	491	584
10	1067	1060	1019	938	985	1159	611	487	390	254	167	130	122	130	167	254	390	487	611
15	1499	1458	1324	1173	1055	1058	680	421	234	118	78.8	60.9	58.0	60.9	78.8	118	234	421	680
20	2093	2001	1741	1421	1227	1004	742	363	161	79.9	52.3	40.3	38.4	40.3	52.3	79.9	161	363	742
25	2657	2552	2183	1749	1352	1072	809	320	139	71.5	43.3	31.5	30.2	31.5	43.3	71.5	139	320	809
30	2911	2812	2477	2014	1559	1127	856	313	138	67.9	38.6	27.5	25.8	27.5	38.6	67.9	138	313	856
35	3236	3131	2732	2212	1654	1114	910	313	146	63.3	35.7	22.0	18.1	22.0	35.7	63.3	146	313	910
40	4317	3965	3259	2506	1803	1097	958	310	159	60.9	32.4	15.7	11.2	15.7	32.4	60.9	159	310	958
45	5046	4744	4029	2908	1934	1141	980	320	158	58.1	29.4	11.5	5.94	11.5	29.4	58.1	158	320	980
50	3578	3596	3592	3199	2124	1198	920	320	156	52.5	27.5	8.60	2.02	8.60	27.5	52.5	156	320	920
55	2987	3024	3028	2803	2138	1211	849	317	148	46.8	26.9	8.07	0.14	8.07	26.9	46.8	148	317	849
60	2685	2718	2638	2427	1991	1209	742	307	136	43.3	27.1	9.30	0.14	9.30	27.1	43.3	136	307	742
65	2232	2310	2340	2161	1732	1075	657	279	118	40.1	28.0	10.1	0.21	10.1	28.0	40.1	118	279	657
70	1794	1866	1929	1854	1472	936	545	233	102	34.5	27.5	10.0	0.32	10.0	27.5	34.5	102	233	545
75	1336	1356	1386	1426	1193	782	396	179	73.8	29.0	23.1	8.82	0.49	8.82	23.1	29.0	73.8	179	396
80	996	1010	1002	1004	860	529	253	128	55.4	23.0	19.1	7.04	0.71	7.04	19.1	23.0	55.4	128	253
85	622	621	620	619	531	308	138	73.2	36.7	15.8	13.4	5.03	0.96	5.03	13.4	15.8	36.7	73.2	138
90	205	211	223	245	226	116	37.8	37.0	20.1	9.93	7.91	3.34	1.25	3.34	7.91	9.93	20.1	37.0	37.8
95	137	137	135	132	111	44.5	12.9	17.0	10.9	5.89	4.50	2.35	1.55	2.35	4.50	5.89	10.9	17.0	12.9
100	106	104	96.8	87.6	70.6	29.2	8.56	10.9	7.36	4.36	3.37	2.05	1.87	2.05	3.37	4.36	7.36	10.9	8.56
105	78.2	77.5	71.2	62.5	48.5	22.1	6.50	8.03	5.56	3.64	2.93	2.02	2.14	2.02	2.93	3.64	5.56	8.03	6.50
110	63.6	61.6	54.3	46.1	35.6	17.6	5.55	6.44	4.55	3.30	2.80	2.14	2.30	2.14	2.80	3.30	4.55	6.44	5.55
115	47.2	45.8	40.7	36.1	28.4	15.0	5.09	5.45	4.01	3.20	2.82	2.34	2.44	2.34	2.82	3.20	4.01	5.45	5.09
120	38.5	37.8	34.8	31.5	24.2	13.2	4.79	4.82	3.76	3.20	2.96	2.59	2.55	2.59	2.96	3.20	3.76	4.82	4.79
125	34.5	34.6	32.4	28.0	20.8	11.9	4.43	4.35	3.65	3.25	3.10	2.81	2.74	2.81	3.10	3.25	3.65	4.35	4.43
130	33.0	32.1	28.3	23.7	17.8	10.7	4.03	3.92	3.53	3.26	3.16	2.91	2.89	2.91	3.16	3.26	3.53	3.92	4.03
135	26.3	25.9	23.8	20.9	15.5	9.44	3.55	3.55	3.37	3.22	3.11	2.90	2.86	2.90	3.11	3.22	3.37	3.55	3.55
140	24.0	23.5	21.8	18.6	13.7	8.59	3.10	3.19	3.11	3.04	2.95	2.75	2.81	2.75	2.95	3.04	3.11	3.19	3.10
145	22.5	21.9	19.8	16.4	12.2	7.96	2.75	2.86	2.83	2.77	2.69	2.52	2.71	2.52	2.69	2.77	2.83	2.86	2.75
150	19.3	18.9	17.1	14.3	10.8	7.56	2.52	2.59	2.57	2.51	2.43	2.30	2.57	2.30	2.43	2.51	2.57	2.59	2.52
155	16.8	16.5	15.0	12.5	9.58	7.37	2.42	2.47	2.41	2.33	2.18	1.97	2.30	1.97	2.18	2.33	2.41	2.47	2.42
160	14.0	13.8	12.7	10.7	8.58	7.23	2.32	2.35	2.26	2.12	1.93	1.55	1.93	1.55	1.93	2.12	2.26	2.35	2.32
165	10.8	10.7	10.1	8.92	7.77	6.07	2.23	2.24	2.15	2.03	1.89	1.41	1.57	1.41	1.89	2.03	2.15	2.24	2.23
170	7.84	7.79	7.73	7.61	7.23	2.15	2.17	2.14	2.06	1.96	1.48	1.33	1.31	1.33	1.48	1.96	2.06	2.14	2.17
175	6.13	6.10	5.79	2.40	1.45	1.58	1.69	1.67	1.63	1.57	1.51	1.44	1.25	1.44	1.51	1.57	1.63	1.67	1.69
180	1.11	1.04	1.12	1.19	1.26	1.31	1.34	1.35	1.37	1.37	1.37	1.37	1.10	1.37	1.37	1.37	1.37	1.35	1.34

Table--2

UNIT: cd

C (DEG) y (DEG)	285	300	315	330	345														
0	574	575	575	572	569														
5	1000	1229	1290	1149	1041														
10	1159	985	938	1019	1060														
15	1058	1055	1173	1324	1458														
20	1004	1227	1421	1741	2001														
25	1072	1352	1749	2183	2552														
30	1127	1559	2014	2477	2812														
35	1114	1654	2212	2732	3131														
40	1097	1803	2506	3259	3965														
45	1141	1934	2908	4029	4744														
50	1198	2124	3199	3592	3596														
55	1211	2138	2803	3028	3024														
60	1209	1991	2427	2638	2718														
65	1075	1732	2161	2340	2310														
70	936	1472	1854	1929	1866														
75	782	1193	1426	1386	1356														
80	529	860	1004	1002	1010														
85	308	531	619	620	621														
90	116	226	245	223	211														
95	44.5	111	132	135	137														
100	29.2	70.6	87.6	96.8	104														
105	22.1	48.5	62.5	71.2	77.5														
110	17.6	35.6	46.1	54.3	61.6														
115	15.0	28.4	36.1	40.7	45.8														
120	13.2	24.2	31.5	34.8	37.8														
125	11.9	20.8	28.0	32.4	34.6														
130	10.7	17.8	23.7	28.3	32.1														
135	9.44	15.5	20.9	23.8	25.9														
140	8.59	13.7	18.6	21.8	23.5														
145	7.96	12.2	16.4	19.8	21.9														
150	7.56	10.8	14.3	17.1	18.9														
155	7.37	9.58	12.5	15.0	16.5														
160	7.23	8.58	10.7	12.7	13.8														
165	6.07	7.77	8.92	10.1	10.7														
170	2.15	7.23	7.61	7.73	7.79														
175	1.58	1.45	2.40	5.79	6.10														
180	1.31	1.26	1.19	1.12	1.04														

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	PWLED @41W4000K	Sample ID	241009001-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	0.319	38.1	0.996	3.24
277.0	60	0.151	38.3	0.917	14.90

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	2024-08-06	2025-08-05
NTC-F01-019	Temperature & Humidity Meter	2023-11-06	2024-11-05

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