

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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Page 1 of 16

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		5643
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-180° zones)	ANSI/IES LM-79:2019	N/A		145.1
Luminaire Output (lm) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	300		5520
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	Standard	Premium	141.9
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		38.9
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	480V	15.32
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	480V	0.819
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3985±275	4005
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		83.8
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	N/A		20
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%		5.1%
Input Voltage (V)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Cast		480.0
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A
Input Current (A)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		0.099
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		38.9
(Goniophotometer – Section 4.2)		Non-Worst Case		N/A

2.0 Test List

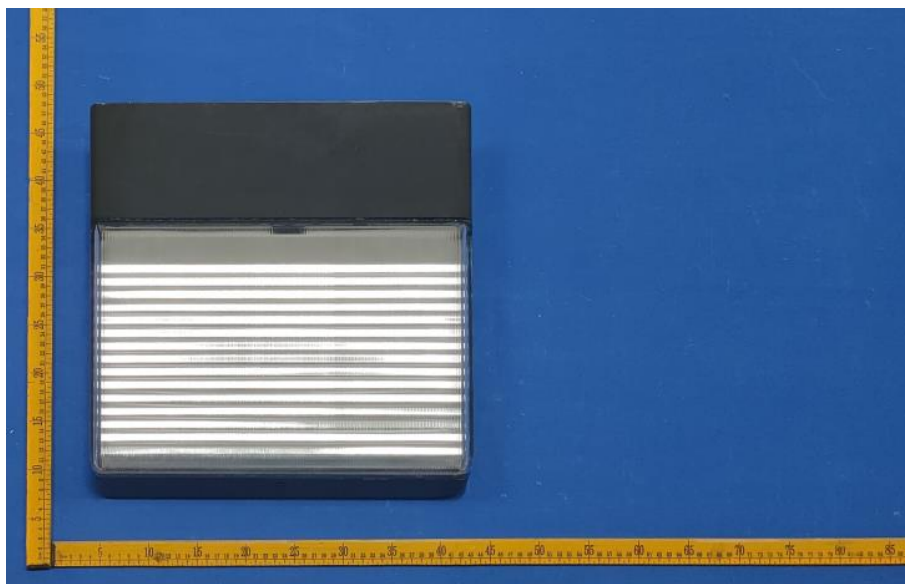
Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-10-09	PWLED/480 @41W4000K	-	241009002-S1
2	Goniophotometer Test	2024-10-09	PWLED/480 @41W4000K	-	241009002-S1
3	THD and PF Test	2024-10-09	PWLED/480 @41W4000K	-	241009002-S1
Remark (If any):					
<ol style="list-style-type: 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/480 @41W4000K, color tunable from 3000K, 4000K and 5000K.

Electrical Specification: 480Vac, 50/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	PWLED/480 @41W4000K	Sample ID	241009002-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

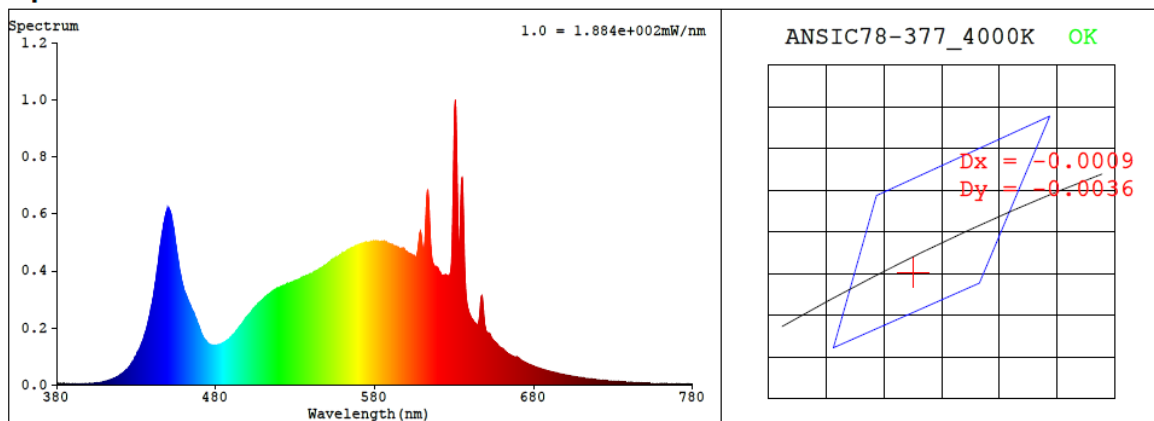
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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
480.0	60	0.099	38.9	0.819

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4005	83.8	20	-0.0014	84	97	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3793$ $y = 0.3731$ / $u' = 0.2258$ $v' = 0.4998$ ($duv = -1.41e-03$)

CCT= 4005K Prcp WL: $L_d = 579.9\text{nm}$ Purity=25.8%

Peak WL: $L_p = 631\text{nm}$ FWHM: $= 7.8\text{nm}$ Ratio: R=18.6% G=77.9% B=3.5%

Render Index: $R_a = 83.8$ AvgR = 77.6 TM30: $R_f = 84$ $R_g = 97$

EEL: 0.09509 A++ Highest

R1 =83 R2 =89 R3 =93 R4 =83 R5 =82 R6 =84 R7 =87

R8 =69 R9 =20 R10=73 R11=81 R12=63 R13=84 R14=96 R15=78

4.1 Integrating Sphere Test

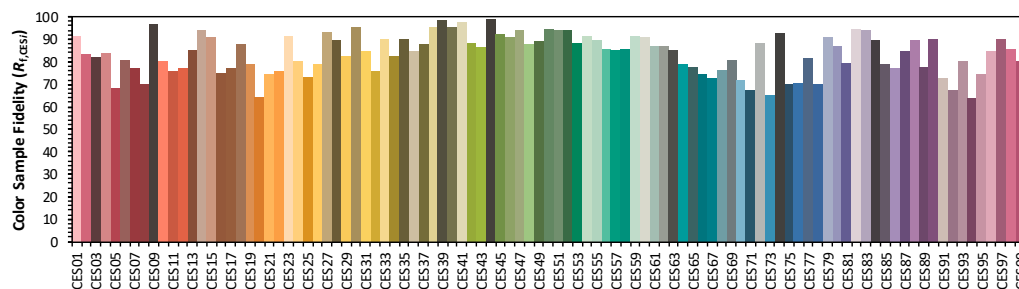
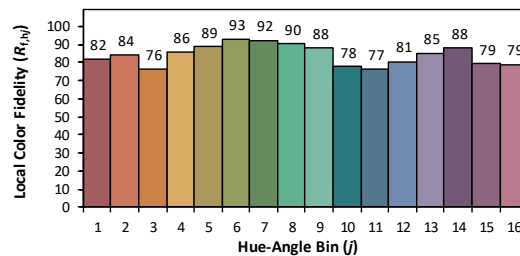
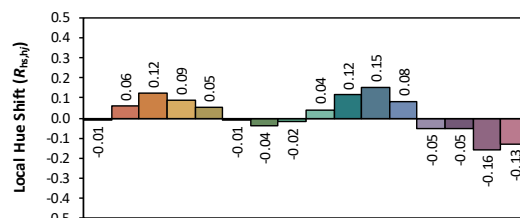
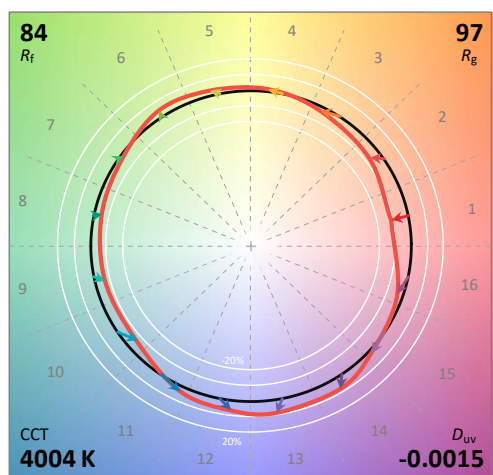
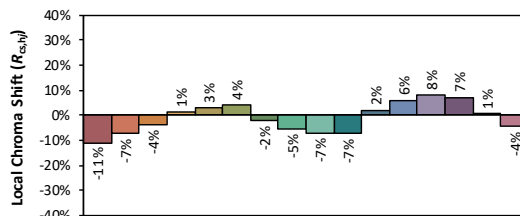
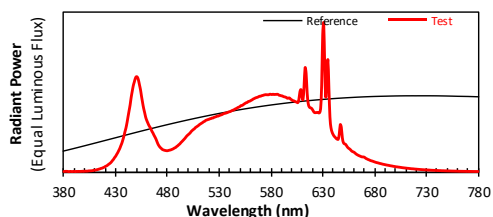
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/10/10

Model: PWLED/480 @41W4000K



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

x 0.3793
 y 0.3729
 u' 0.2259
 v' 0.4997

CIE 13.3-1995
(CRI)

R_a 84
 R_g 20

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	2.90E-06	447	5.57E-04	514	3.20E-04	581	5.01E-04	648	2.89E-04	715	2.15E-05
381	3.90E-06	448	5.81E-04	515	3.25E-04	582	5.03E-04	649	2.21E-04	716	2.07E-05
382	4.30E-06	449	6.05E-04	516	3.28E-04	583	5.01E-04	650	1.90E-04	717	2.04E-05
383	4.00E-06	450	6.17E-04	517	3.34E-04	584	5.02E-04	651	1.82E-04	718	1.98E-05
384	3.30E-06	451	6.13E-04	518	3.36E-04	585	5.02E-04	652	1.80E-04	719	1.89E-05
385	1.90E-06	452	5.96E-04	519	3.39E-04	586	5.03E-04	653	1.71E-04	720	1.85E-05
386	3.70E-06	453	5.64E-04	520	3.41E-04	587	5.01E-04	654	1.60E-04	721	1.79E-05
387	3.10E-06	454	5.33E-04	521	3.44E-04	588	4.96E-04	655	1.54E-04	722	1.72E-05
388	2.70E-06	455	4.90E-04	522	3.45E-04	589	4.95E-04	656	1.49E-04	723	1.68E-05
389	3.30E-06	456	4.50E-04	523	3.49E-04	590	4.93E-04	657	1.43E-04	724	1.60E-05
390	4.00E-06	457	4.13E-04	524	3.49E-04	591	4.92E-04	658	1.35E-04	725	1.57E-05
391	2.20E-06	458	3.85E-04	525	3.53E-04	592	4.88E-04	659	1.32E-04	726	1.51E-05
392	3.60E-06	459	3.55E-04	526	3.56E-04	593	4.86E-04	660	1.29E-04	727	1.47E-05
393	3.30E-06	460	3.35E-04	527	3.58E-04	594	4.85E-04	661	1.24E-04	728	1.42E-05
394	3.80E-06	461	3.19E-04	528	3.61E-04	595	4.81E-04	662	1.18E-04	729	1.38E-05
395	3.60E-06	462	3.03E-04	529	3.62E-04	596	4.77E-04	663	1.13E-04	730	1.34E-05
396	3.80E-06	463	2.92E-04	530	3.65E-04	597	4.78E-04	664	1.09E-04	731	1.31E-05
397	3.90E-06	464	2.80E-04	531	3.68E-04	598	4.79E-04	665	1.06E-04	732	1.26E-05
398	4.80E-06	465	2.64E-04	532	3.70E-04	599	4.71E-04	666	1.03E-04	733	1.23E-05
399	3.90E-06	466	2.53E-04	533	3.72E-04	600	4.67E-04	667	9.99E-05	734	1.17E-05
400	5.00E-06	467	2.38E-04	534	3.76E-04	601	4.62E-04	668	9.77E-05	735	1.12E-05
401	5.30E-06	468	2.26E-04	535	3.79E-04	602	4.61E-04	669	9.73E-05	736	1.09E-05
402	5.30E-06	469	2.12E-04	536	3.80E-04	603	4.57E-04	670	9.62E-05	737	1.06E-05
403	5.60E-06	470	1.95E-04	537	3.82E-04	604	4.54E-04	671	9.18E-05	738	1.04E-05
404	7.00E-06	471	1.79E-04	538	3.84E-04	605	4.51E-04	672	8.67E-05	739	1.01E-05
405	7.10E-06	472	1.68E-04	539	3.88E-04	606	4.49E-04	673	8.38E-05	740	9.50E-06
406	7.70E-06	473	1.59E-04	540	3.90E-04	607	4.68E-04	674	8.02E-05	741	9.50E-06
407	8.10E-06	474	1.53E-04	541	3.92E-04	608	5.18E-04	675	7.78E-05	742	9.10E-06
408	9.30E-06	475	1.46E-04	542	3.96E-04	609	5.33E-04	676	7.44E-05	743	8.80E-06
409	1.07E-05	476	1.43E-04	543	3.99E-04	610	4.85E-04	677	7.22E-05	744	8.80E-06
410	1.16E-05	477	1.41E-04	544	4.01E-04	611	4.69E-04	678	7.04E-05	745	8.00E-06
411	1.31E-05	478	1.39E-04	545	4.06E-04	612	5.53E-04	679	6.79E-05	746	8.10E-06
412	1.47E-05	479	1.38E-04	546	4.09E-04	613	6.75E-04	680	6.54E-05	747	7.80E-06
413	1.65E-05	480	1.38E-04	547	4.12E-04	614	6.37E-04	681	6.30E-05	748	7.50E-06
414	1.87E-05	481	1.39E-04	548	4.17E-04	615	5.11E-04	682	6.10E-05	749	7.30E-06
415	2.06E-05	482	1.41E-04	549	4.20E-04	616	4.44E-04	683	5.95E-05	750	7.10E-06
416	2.33E-05	483	1.42E-04	550	4.23E-04	617	4.21E-04	684	5.76E-05	751	6.80E-06
417	2.49E-05	484	1.45E-04	551	4.29E-04	618	4.16E-04	685	5.57E-05	752	6.70E-06
418	2.83E-05	485	1.48E-04	552	4.30E-04	619	4.13E-04	686	5.41E-05	753	6.60E-06
419	3.09E-05	486	1.51E-04	553	4.34E-04	620	4.05E-04	687	5.24E-05	754	6.20E-06
420	3.56E-05	487	1.56E-04	554	4.39E-04	621	3.94E-04	688	5.04E-05	755	6.00E-06
421	3.85E-05	488	1.59E-04	555	4.44E-04	622	3.85E-04	689	4.91E-05	756	5.90E-06
422	4.29E-05	489	1.65E-04	556	4.48E-04	623	3.84E-04	690	4.76E-05	757	5.80E-06
423	4.83E-05	490	1.70E-04	557	4.50E-04	624	3.84E-04	691	4.62E-05	758	5.40E-06
424	5.32E-05	491	1.76E-04	558	4.55E-04	625	3.85E-04	692	4.47E-05	759	5.50E-06
425	5.85E-05	492	1.82E-04	559	4.57E-04	626	3.83E-04	693	4.36E-05	760	5.30E-06
426	6.57E-05	493	1.90E-04	560	4.60E-04	627	3.83E-04	694	4.24E-05	761	5.00E-06
427	7.45E-05	494	1.97E-04	561	4.64E-04	628	4.09E-04	695	4.08E-05	762	4.60E-06
428	8.24E-05	495	2.03E-04	562	4.68E-04	629	5.59E-04	696	3.95E-05	763	4.70E-06
429	9.33E-05	496	2.11E-04	563	4.73E-04	630	8.87E-04	697	3.85E-05	764	4.40E-06
430	1.02E-04	497	2.18E-04	564	4.75E-04	631	9.64E-04	698	3.70E-05	765	4.40E-06
431	1.14E-04	498	2.27E-04	565	4.79E-04	632	6.74E-04	699	3.60E-05	766	4.20E-06
432	1.25E-04	499	2.35E-04	566	4.81E-04	633	4.83E-04	700	3.47E-05	767	4.20E-06
433	1.39E-04	500	2.41E-04	567	4.83E-04	634	6.06E-04	701	3.35E-05	768	4.00E-06
434	1.52E-04	501	2.47E-04	568	4.86E-04	635	7.28E-04	702	3.29E-05	769	3.70E-06
435	1.70E-04	502	2.53E-04	569	4.90E-04	636	5.44E-04	703	3.17E-05	770	4.10E-06
436	1.86E-04	503	2.62E-04	570	4.90E-04	637	3.55E-04	704	3.10E-05	771	3.60E-06
437	2.08E-04	504	2.68E-04	571	4.93E-04	638	2.87E-04	705	2.99E-05	772	3.60E-06
438	2.32E-04	505	2.74E-04	572	4.95E-04	639	2.59E-04	706	2.89E-05	773	3.50E-06
439	2.60E-04	506	2.79E-04	573	4.97E-04	640	2.44E-04	707	2.78E-05	774	3.40E-06
440	2.86E-04	507	2.87E-04	574	4.99E-04	641	2.32E-04	708	2.70E-05	775	3.30E-06
441	3.19E-04	508	2.91E-04	575	5.00E-04	642	2.25E-04	709	2.62E-05	776	3.20E-06
442	3.58E-04	509	2.96E-04	576	5.00E-04	643	2.17E-04	710	2.55E-05	777	3.20E-06
443	3.97E-04	510	3.01E-04	577	5.00E-04	644	2.12E-04	711	2.46E-05	778	3.10E-06
444	4.34E-04	511	3.07E-04	578	5.00E-04	645	2.12E-04	712	2.38E-05	779	3.10E-06
445	4.82E-04	512	3.11E-04	579	5.03E-04	646	2.43E-04	713	2.33E-05	780	3.10E-06
446	5.20E-04	513	3.16E-04	580	5.02E-04	647	3.06E-04	714	2.23E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	PWLED/480 @41W4000K	Sample ID	241009002-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	43.1

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	480.0	60	0.099	38.9	0.819
NON-WORST CASE	N/A	N/A	N/A	N/A	N/A

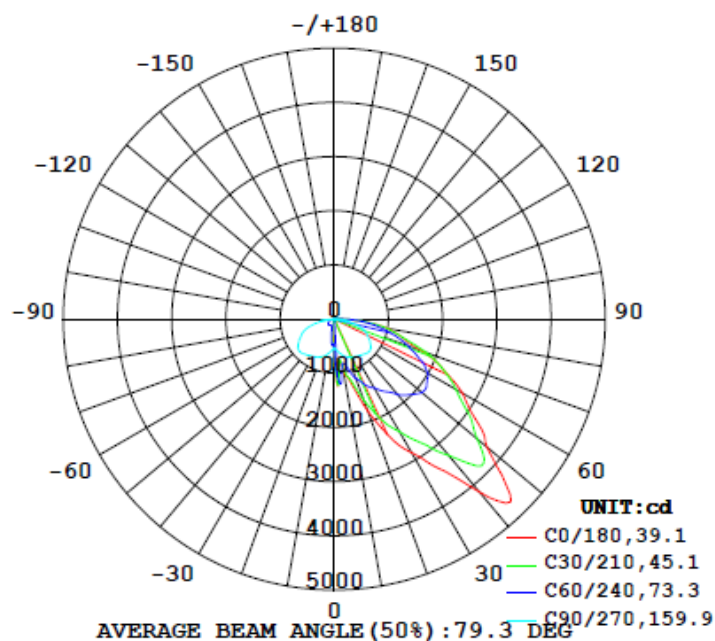
Test Result

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	5643	89.5	151.0	40.0	85.4	145.1	4.9%	B1-U3-G3
0°-90° zones	5520	89.5	151.0	40.0	85.4	141.9	5.1%	B1-U3-G3

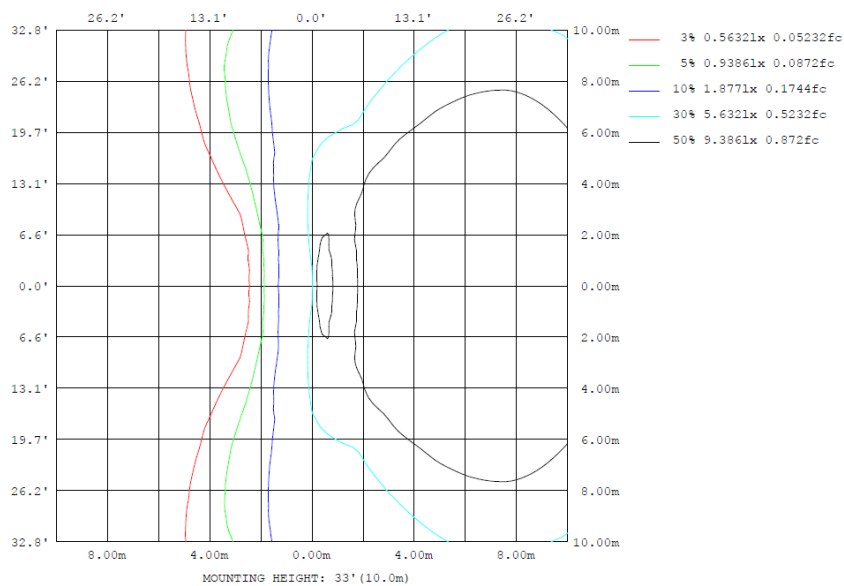
4.2 Goniophotometer Test

Lighting Distribution Curve

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

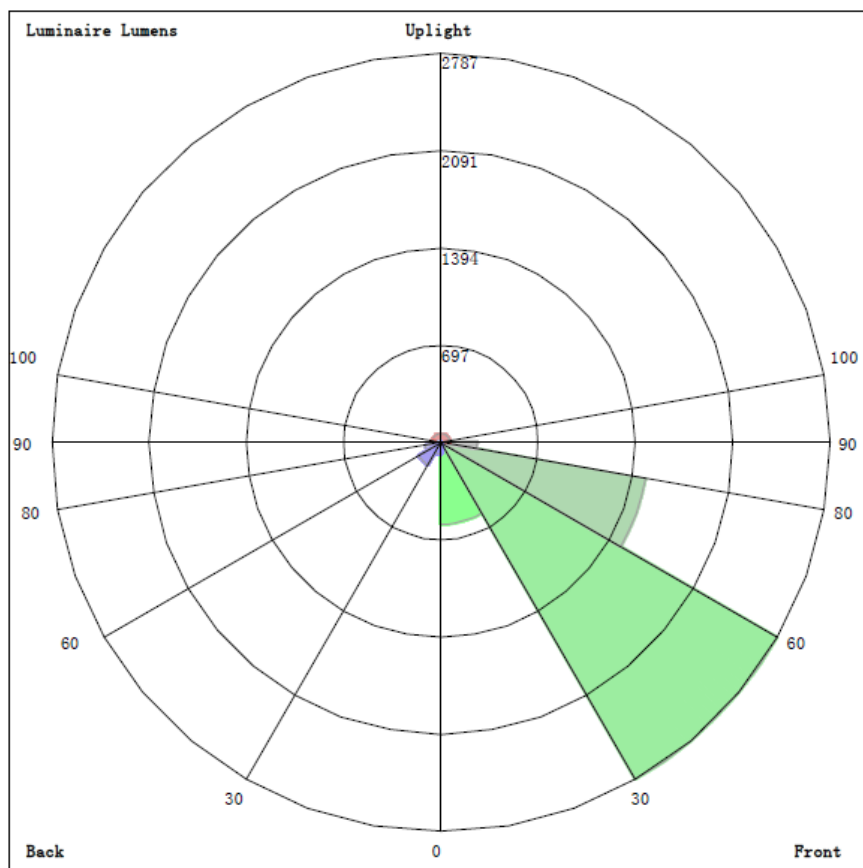
ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	%lum, lamp
10	979.3	809.5	643.8	207.3	108.3	207.3	643.8	809.5	0- 10	61.42	61.42	1.09,1.09
20	1801	1346	744.7	73.55	34.59	73.55	744.7	1346	10- 20	184.6	246.0	4.36,4.36
30	2842	1989	798.2	62.82	24.66	62.82	798.2	1989	20- 30	421.2	667.2	11.8,11.8
40	4164	2574	847.0	59.45	10.95	59.45	847.0	2574	30- 40	735.4	1403	24.9,24.9
50	3675	3068	872.8	54.70	2.575	54.70	872.8	3068	40- 50	1110	2513	44.5,44.5
60	2726	2429	741.3	47.08	0.1183	47.08	741.3	2429	50- 60	1128	3640	64.5,64.5
70	1716	1769	574.3	38.26	0.2834	38.26	574.3	1769	60- 70	960.7	4601	81.5,81.5
80	989.4	963.6	265.3	25.26	0.6595	25.26	265.3	963.6	70- 80	640.7	5242	92.9,92.9
90	175.2	215.3	32.43	9.916	1.208	9.916	32.43	215.3	80- 90	278.6	5520	97.8,97.8
100	89.14	73.02	7.086	3.911	1.840	3.911	7.086	73.02	90-100	59.71	5580	98.9,98.9
110	50.32	34.08	4.507	2.977	2.280	2.977	4.507	34.08	100-110	25.96	5606	99.3,99.3
120	25.82	21.78	3.782	2.963	2.499	2.963	3.782	21.78	110-120	13.52	5620	99.6,99.6
130	20.23	16.77	3.259	3.035	2.813	3.035	3.259	16.77	120-130	8.920	5629	99.7,99.7
140	16.84	13.35	2.600	2.818	2.711	2.818	2.600	13.35	130-140	6.360	5635	99.9,99.9
150	13.25	10.62	2.192	2.297	2.451	2.297	2.192	10.62	140-150	4.261	5639	99.9,99.9
160	9.443	8.360	2.086	1.958	1.844	1.958	2.086	8.360	150-160	2.568	5642	100,100
170	6.802	7.298	1.936	1.783	1.236	1.783	1.936	7.298	160-170	1.232	5643	100,100
180	0	1.145	1.297	1.280	1.020	1.280	1.297	1.145	170-180	0.2687	5643	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	61.42	0-10	61.42	1.09%
10-20	184.57	0-20	245.99	4.36%
20-30	421.17	0-30	667.16	11.82%
30-40	735.45	0-40	1402.61	24.86%
40-50	1109.96	0-50	2512.57	44.53%
50-60	1127.93	0-60	3640.50	64.51%
60-70	960.66	0-70	4601.16	81.54%
70-80	640.74	0-80	5241.90	92.89%
80-90	278.59	0-90	5520.49	97.83%
90-100	59.71	0-100	5580.20	98.89%
100-110	25.96	0-110	5606.16	99.35%
110-120	13.52	0-120	5619.68	99.59%
120-130	8.92	0-130	5628.60	99.74%
130-140	6.36	0-140	5634.96	99.86%
140-150	4.26	0-150	5639.22	99.93%
150-160	2.57	0-160	5641.79	99.98%
160-170	1.23	0-170	5643.02	100.00%
170-180	0.27	0-180	5643.29	100.00%

4.2 Goniophotometer Test

LCS/BUG

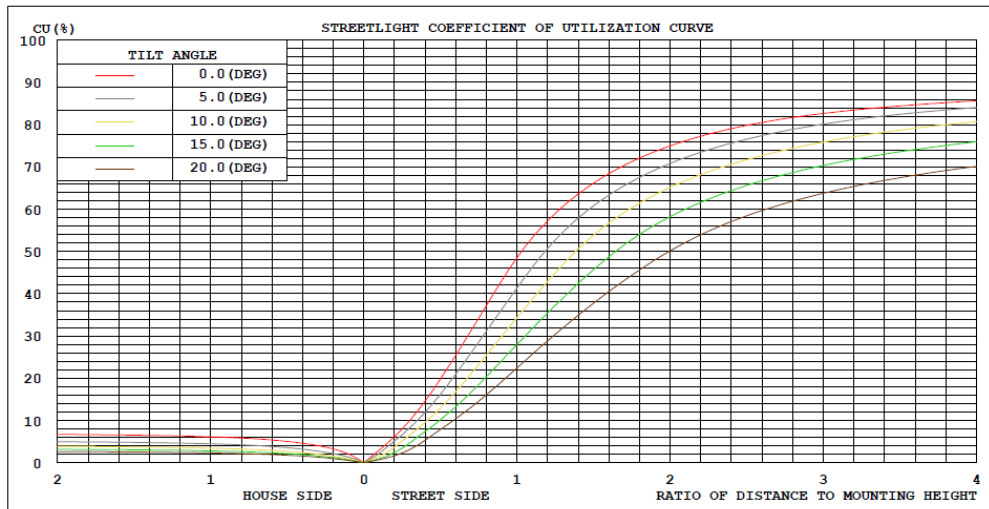


LUMINAIRE CLASSIFICATION SYSTEM (LCS)

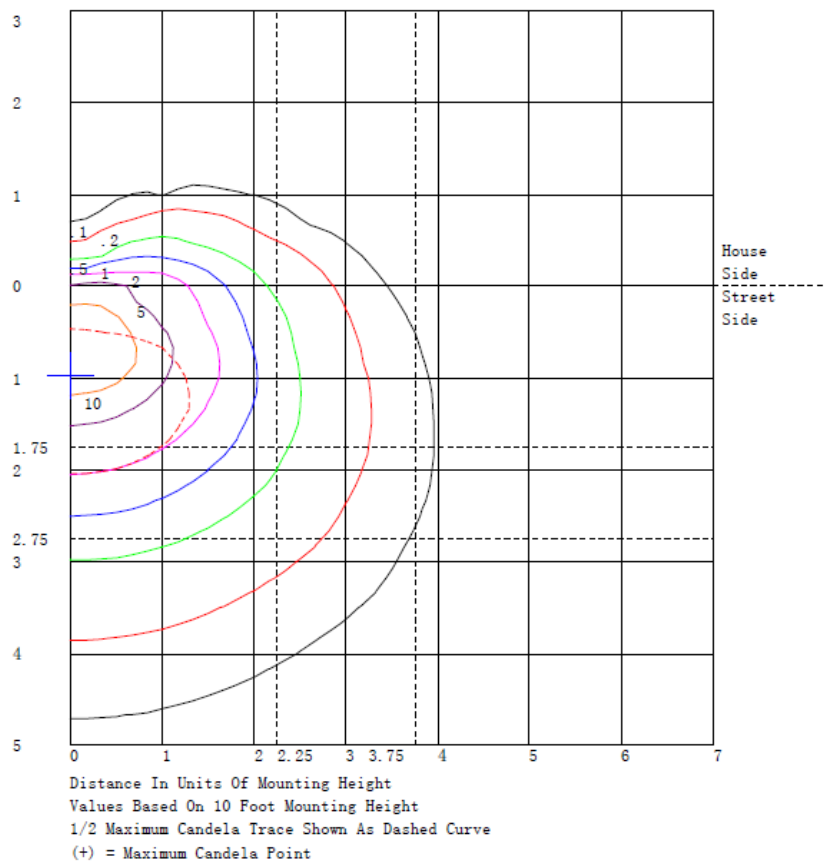
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	584.3	N.A.	10.4
FM - Front-Medium (30-60)	2787.5	N.A.	49.4
FH - Front-High (60-80)	1489.3	N.A.	26.4
FVH - Front-Very High (80-90)	259.0	N.A.	4.6
BL - Back-Low (0-30)	82.9	N.A.	1.5
BM - Back-Medium (30-60)	185.8	N.A.	3.3
BH - Back-High (60-80)	112.1	N.A.	2.0
BVH - Back-Very High (80-90)	19.6	N.A.	0.3
UL - Uplight-Low (90-100)	59.7	N.A.	1.1
UH - Uplight-High (100-180)	63.1	N.A.	1.1
Total	5643.3	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	522	533	541	544	544	539	535	526	518	509	497	491	522	491	497	509	518	526	535
5	869	894	991	1177	1189	1010	583	445	430	441	380	339	339	339	380	441	490	445	583
10	979	961	893	809	841	1104	644	438	329	207	141	114	108	114	141	207	329	438	644
15	1244	1231	1163	1119	926	898	708	375	197	103	69.5	55.6	52.7	55.6	69.5	103	197	375	708
20	1801	1777	1584	1346	1161	864	745	330	142	73.5	47.2	36.4	34.6	36.4	47.2	73.5	142	330	745
25	2375	2327	2036	1694	1336	981	773	291	132	65.5	39.8	28.8	27.9	28.8	39.8	65.5	132	291	773
30	2842	2724	2394	1989	1463	989	798	278	131	62.8	37.3	26.0	24.7	26.0	37.3	62.8	131	278	798
35	3367	3181	2785	2252	1631	968	814	288	138	61.1	36.3	21.9	17.6	21.9	36.3	61.1	138	288	814
40	4164	3840	3282	2574	1816	992	847	300	143	59.5	34.9	16.3	11.0	16.3	34.9	59.5	143	300	847
45	4596	4334	3834	2911	1973	1001	875	312	152	58.0	33.9	13.0	6.18	13.0	33.9	58.0	152	312	875
50	3675	3574	3439	3068	2105	1132	873	307	149	54.7	33.6	11.3	2.57	11.3	33.6	54.7	149	307	873
55	3147	3095	3015	2770	2084	1232	815	303	145	50.4	35.3	10.9	0.40	10.9	35.3	50.4	145	303	815
60	2726	2702	2589	2429	1998	1178	741	291	131	47.1	36.6	12.5	0.12	12.5	36.6	47.1	131	291	741
65	2229	2251	2227	2118	1732	1079	661	261	115	42.8	38.7	13.6	0.18	13.6	38.7	42.8	115	261	661
70	1716	1764	1804	1769	1456	931	574	219	96.6	38.3	35.6	12.8	0.28	12.8	35.6	38.3	96.6	219	574
75	1285	1293	1304	1343	1143	775	426	162	70.9	33.6	31.7	10.8	0.44	10.8	31.7	33.6	70.9	162	426
80	989	986	982	964	824	509	265	114	52.8	25.3	24.2	8.56	0.66	8.56	24.2	25.3	52.8	114	265
85	544	546	557	586	523	300	132	67.8	35.2	16.7	16.1	5.85	0.91	5.85	16.1	16.7	35.2	67.8	132
90	175	178	190	215	210	114	32.4	34.6	18.6	9.92	9.38	3.71	1.21	3.71	9.38	9.92	18.6	34.6	32.4
95	120	118	117	118	104	45.6	11.0	14.6	10.1	5.45	4.88	2.33	1.51	2.33	4.88	5.45	10.1	14.6	11.0
100	89.1	86.5	79.8	73.0	60.5	27.9	7.09	8.81	6.41	3.91	3.47	1.94	1.84	1.94	3.47	3.91	6.41	8.81	7.09
105	65.4	63.3	56.8	48.9	39.8	19.3	5.36	6.29	4.75	3.24	2.90	1.87	2.13	1.87	2.90	3.24	4.75	6.29	5.36
110	50.3	48.0	41.2	34.1	27.0	14.6	4.51	4.88	3.84	2.98	2.71	1.96	2.28	1.96	2.71	2.98	3.84	4.88	4.51
115	33.3	32.7	29.4	25.9	20.9	12.1	4.07	4.07	3.44	2.92	2.72	2.16	2.41	2.16	2.72	2.92	3.44	4.07	4.07
120	25.8	25.8	24.1	21.8	17.3	10.5	3.78	3.68	3.27	2.96	2.84	2.40	2.50	2.40	2.84	2.96	3.27	3.68	3.78
125	22.5	22.7	21.0	18.9	14.9	9.47	3.56	3.50	3.18	3.02	2.97	2.64	2.68	2.64	2.97	3.02	3.18	3.50	3.56
130	20.2	20.4	18.6	16.8	13.0	8.71	3.26	3.18	3.11	3.03	3.02	2.76	2.81	2.76	3.02	3.03	3.11	3.18	3.26
135	18.2	18.4	16.8	14.8	11.6	8.12	2.93	2.95	3.00	3.00	2.96	2.76	2.77	2.76	2.96	3.00	3.00	2.95	2.93
140	16.8	16.6	15.3	13.3	10.5	7.62	2.60	2.70	2.81	2.82	2.78	2.61	2.71	2.61	2.78	2.82	2.81	2.70	2.60
145	14.9	14.9	13.8	11.9	9.58	7.33	2.35	2.48	2.53	2.56	2.52	2.37	2.60	2.37	2.52	2.56	2.53	2.48	2.35
150	13.3	13.2	12.2	10.6	8.71	7.32	2.19	2.30	2.30	2.30	2.25	2.14	2.45	2.14	2.25	2.30	2.30	2.30	2.19
155	11.2	11.2	10.5	9.36	8.04	7.33	2.14	2.23	2.20	2.14	2.04	1.92	2.19	1.92	2.04	2.14	2.20	2.23	2.14
160	9.44	9.52	9.12	8.36	7.56	7.49	2.09	2.12	2.06	1.96	1.83	1.64	1.84	1.64	1.83	1.96	2.06	2.12	2.09
165	7.90	7.89	7.92	7.57	7.44	4.98	2.01	2.02	1.96	1.86	1.74	1.33	1.49	1.33	1.74	1.86	1.96	2.02	2.01
170	6.80	6.83	7.08	7.30	6.46	1.92	1.94	1.91	1.86	1.78	1.57	1.26	1.24	1.26	1.57	1.78	1.86	1.91	1.94
175	5.03	4.96	4.40	1.76	1.38	1.53	1.67	1.64	1.55	1.50	1.42	1.34	1.18	1.34	1.42	1.50	1.55	1.64	1.67
180	0.00	0.00	0.51	1.15	1.22	1.27	1.30	1.30	1.30	1.28	1.26	1.24	1.02	1.24	1.26	1.28	1.30	1.30	1.30

Table--2

UNIT: cd

C (DEG) y (DEG)	285	300	315	330	345														
0	539	544	544	541	533														
5	1010	1189	1177	991	894														
10	1104	841	809	893	961														
15	898	926	1119	1163	1231														
20	864	1161	1346	1584	1777														
25	981	1336	1694	2036	2327														
30	989	1463	1989	2394	2724														
35	968	1631	2252	2785	3181														
40	992	1816	2574	3282	3840														
45	1001	1973	2911	3834	4334														
50	1132	2105	3068	3439	3574														
55	1232	2084	2770	3015	3095														
60	1178	1998	2429	2589	2702														
65	1079	1732	2118	2227	2251														
70	931	1456	1769	1804	1764														
75	775	1143	1343	1304	1293														
80	509	824	964	982	986														
85	300	523	586	557	546														
90	114	210	215	190	178														
95	45.6	104	118	117	118														
100	27.9	60.5	73.0	79.8	86.5														
105	19.3	39.8	48.9	56.8	63.3														
110	14.6	27.0	34.1	41.2	48.0														
115	12.1	20.9	25.9	29.4	32.7														
120	10.5	17.3	21.8	24.1	25.8														
125	9.47	14.9	18.9	21.0	22.7														
130	8.71	13.0	16.8	18.6	20.4														
135	8.12	11.6	14.8	16.8	18.4														
140	7.62	10.5	13.3	15.3	16.6														
145	7.33	9.58	11.9	13.8	14.9														
150	7.32	8.71	10.6	12.2	13.2														
155	7.33	8.04	9.36	10.5	11.2														
160	7.49	7.56	8.36	9.12	9.52														
165	4.98	7.44	7.57	7.92	7.89														
170	1.92	6.46	7.30	7.08	6.83														
175	1.53	1.38	1.76	4.40	4.96														
180	1.27	1.22	1.15	0.51	0.00														

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	PWLED/480 @41W4000K	Sample ID	241009002-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(%)
480.0	60	0.099	38.9	0.819	15.32

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*****