

Photometric Test Report

Relevant Standards

- ☒ IES LM-79-2008
- ☒ ANSI C82.77-2017

Prepared For

RAB Lighting Inc.

Prepared By

Dongguan New Testing Centre Co., Ltd.

Prepare by:

Alan Wang

Engineer: Alan Wang

Date: 2024-02-28

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2024-02-28

Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

Integrated Retrofit Kits for 2x4 Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	IES LM-79-2008	3000		3643
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	148.1
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.6
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.28
			277V	8.07
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.996
			277V	0.953
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3985±275	4203
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		85.1
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		18
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		95
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-12%≤IES Rcs,h1≤+23%		-11%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	IES LM-79-2008	≥75%		77.8%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	18.8
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	IES LM-79-2008	0°-180°	1.0-2.0	1.26
		90°-270°	1.0-2.0	1.28
Input Voltage (V)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Cast		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.093
(Goniophotometer – Section 4.2)		Non-Worst Case		0.205
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.6
(Goniophotometer – Section 4.2)		Non-Worst Case		24.5

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-02-23	RPLED2X4 @25W4000K	240130004-S1
2	Goniophotometer Test	2024-02-23	RPLED2X4 @25W4000K	240130004-S1
3	THD and PF Test	2024-02-23	RPLED2X4 @25W4000K	240130004-S1

Remark (If any)

1. The results contained in this report pertain only to the tested samples.
2. Test Troffer is Lithonia 2GT8 lensed 2x4.
3. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
4. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

3.0 Product Description

Luminaire Description: Model No. RPLED2X4 @25W4000K, color tunable from 3500K, 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.	RPLED2X4 @25W4000K	Sample ID	240130004-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

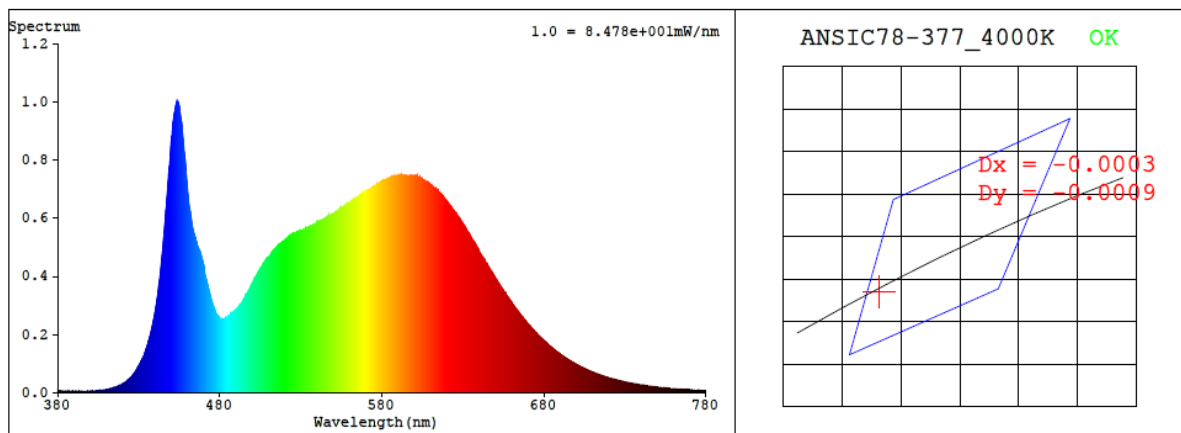
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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.</p> <p>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	0.205	24.5	0.996
277.0	60	0.093	24.6	0.953

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4203	85.1	18	-0.0004	84	95	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3716$ $y = 0.3703$ / $u' = 0.2218$ $v' = 0.4974$ ($duv=-3.62e-04$)

CCT= 4203K Prp WL: Ld=578.5nm Purity=22.6%

Peak WL: Lp=454nm FWHM: =21.9nm Ratio:R=18.1% G=77.9% B=4.1%

Render Index: Ra = 85.1 AvgR = 79.0 TM30:Rf=85 Rg=95

EEI: 0.09077 A++ Highest

R1 =84 R2 =92 R3 =96 R4 =83 R5 =84 R6 =87 R7 =87

R8 =68 R9 =18 R10=79 R11=82 R12=61 R13=86 R14=98 R15=79

4.1 Integrating Sphere Test

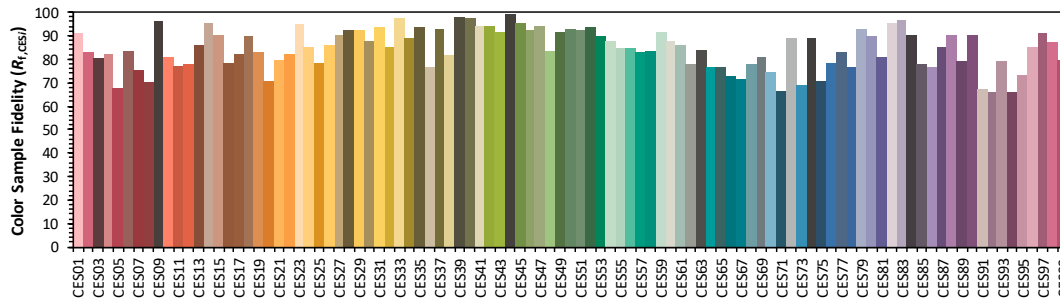
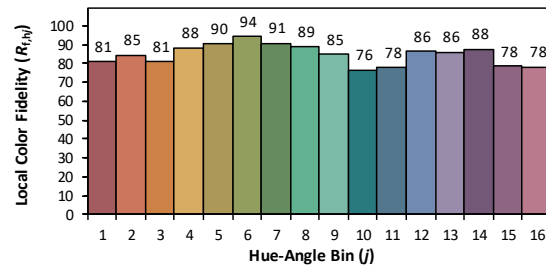
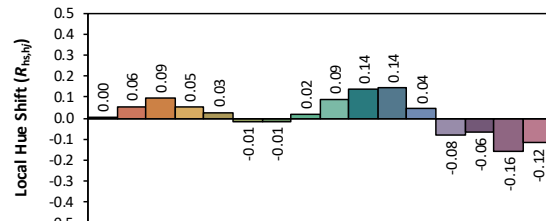
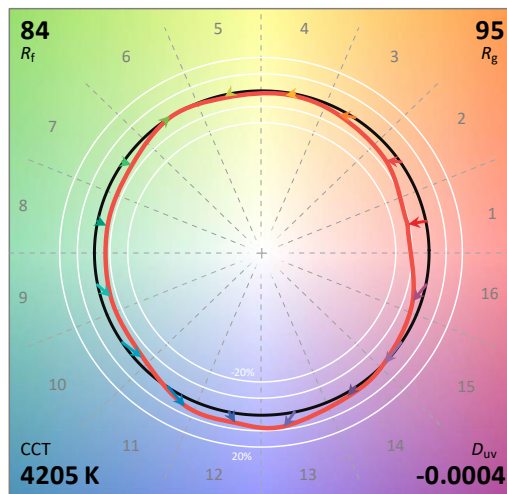
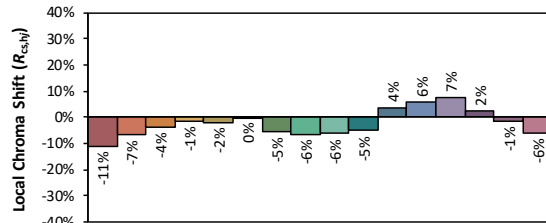
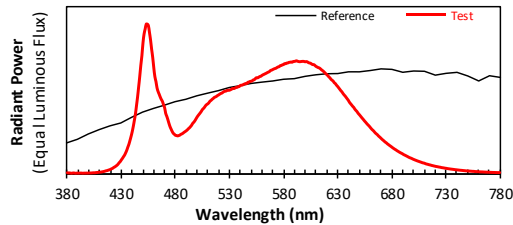
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/2/28

Model: RPLED2X4 @25W4000K



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

x 0.3716
 y 0.3702
 u' 0.2219
 v' 0.4973

CIE 13.3-1995
(CRI)

R_a 85
 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	7.10E-06	447	6.45E-04	514	4.95E-04	581	7.32E-04	648	4.13E-04	715	5.98E-05
381	5.90E-06	448	7.20E-04	515	5.00E-04	582	7.31E-04	649	4.02E-04	716	5.84E-05
382	5.90E-06	449	7.84E-04	516	5.07E-04	583	7.35E-04	650	3.94E-04	717	5.59E-05
383	4.70E-06	450	8.69E-04	517	5.10E-04	584	7.36E-04	651	3.86E-04	718	5.44E-05
384	3.70E-06	451	9.27E-04	518	5.14E-04	585	7.40E-04	652	3.77E-04	719	5.24E-05
385	5.20E-06	452	9.60E-04	519	5.20E-04	586	7.40E-04	653	3.68E-04	720	5.08E-05
386	5.60E-06	453	9.93E-04	520	5.24E-04	587	7.42E-04	654	3.60E-04	721	4.91E-05
387	4.50E-06	454	9.93E-04	521	5.29E-04	588	7.41E-04	655	3.51E-04	722	4.79E-05
388	3.60E-06	455	9.84E-04	522	5.34E-04	589	7.45E-04	656	3.43E-04	723	4.64E-05
389	4.80E-06	456	9.39E-04	523	5.36E-04	590	7.46E-04	657	3.34E-04	724	4.49E-05
390	4.20E-06	457	8.89E-04	524	5.41E-04	591	7.48E-04	658	3.26E-04	725	4.38E-05
391	4.60E-06	458	8.28E-04	525	5.46E-04	592	7.50E-04	659	3.19E-04	726	4.18E-05
392	4.80E-06	459	7.74E-04	526	5.48E-04	593	7.47E-04	660	3.11E-04	727	4.06E-05
393	5.00E-06	460	7.04E-04	527	5.50E-04	594	7.45E-04	661	3.02E-04	728	3.96E-05
394	4.00E-06	461	6.46E-04	528	5.54E-04	595	7.44E-04	662	2.94E-04	729	3.81E-05
395	4.30E-06	462	6.13E-04	529	5.54E-04	596	7.45E-04	663	2.87E-04	730	3.70E-05
396	4.70E-06	463	5.71E-04	530	5.55E-04	597	7.46E-04	664	2.79E-04	731	3.59E-05
397	4.60E-06	464	5.46E-04	531	5.58E-04	598	7.47E-04	665	2.71E-04	732	3.44E-05
398	5.00E-06	465	5.28E-04	532	5.62E-04	599	7.46E-04	666	2.65E-04	733	3.34E-05
399	4.60E-06	466	5.09E-04	533	5.67E-04	600	7.44E-04	667	2.59E-04	734	3.22E-05
400	5.70E-06	467	4.93E-04	534	5.66E-04	601	7.45E-04	668	2.51E-04	735	3.14E-05
401	5.30E-06	468	4.81E-04	535	5.69E-04	602	7.43E-04	669	2.44E-04	736	3.04E-05
402	5.70E-06	469	4.59E-04	536	5.73E-04	603	7.39E-04	670	2.37E-04	737	2.95E-05
403	6.00E-06	470	4.40E-04	537	5.74E-04	604	7.36E-04	671	2.30E-04	738	2.85E-05
404	6.90E-06	471	4.02E-04	538	5.78E-04	605	7.34E-04	672	2.24E-04	739	2.74E-05
405	6.70E-06	472	3.83E-04	539	5.79E-04	606	7.29E-04	673	2.18E-04	740	2.68E-05
406	7.60E-06	473	3.60E-04	540	5.86E-04	607	7.25E-04	674	2.11E-04	741	2.58E-05
407	8.50E-06	474	3.36E-04	541	5.88E-04	608	7.25E-04	675	2.07E-04	742	2.50E-05
408	9.00E-06	475	3.14E-04	542	5.89E-04	609	7.20E-04	676	2.00E-04	743	2.41E-05
409	1.03E-05	476	2.97E-04	543	5.93E-04	610	7.14E-04	677	1.95E-04	744	2.33E-05
410	1.05E-05	477	2.82E-04	544	5.96E-04	611	7.10E-04	678	1.89E-04	745	2.28E-05
411	1.16E-05	478	2.69E-04	545	5.99E-04	612	7.06E-04	679	1.84E-04	746	2.19E-05
412	1.28E-05	479	2.63E-04	546	5.99E-04	613	7.03E-04	680	1.79E-04	747	2.12E-05
413	1.43E-05	480	2.56E-04	547	6.08E-04	614	6.98E-04	681	1.73E-04	748	2.05E-05
414	1.59E-05	481	2.54E-04	548	6.08E-04	615	6.92E-04	682	1.68E-04	749	1.97E-05
415	1.81E-05	482	2.52E-04	549	6.13E-04	616	6.86E-04	683	1.63E-04	750	1.94E-05
416	2.03E-05	483	2.54E-04	550	6.14E-04	617	6.80E-04	684	1.59E-04	751	1.86E-05
417	2.18E-05	484	2.57E-04	551	6.17E-04	618	6.73E-04	685	1.54E-04	752	1.82E-05
418	2.46E-05	485	2.62E-04	552	6.23E-04	619	6.66E-04	686	1.50E-04	753	1.76E-05
419	2.67E-05	486	2.65E-04	553	6.25E-04	620	6.59E-04	687	1.45E-04	754	1.71E-05
420	2.99E-05	487	2.70E-04	554	6.32E-04	621	6.52E-04	688	1.41E-04	755	1.64E-05
421	3.36E-05	488	2.75E-04	555	6.38E-04	622	6.44E-04	689	1.37E-04	756	1.63E-05
422	3.69E-05	489	2.80E-04	556	6.37E-04	623	6.37E-04	690	1.33E-04	757	1.54E-05
423	4.25E-05	490	2.86E-04	557	6.41E-04	624	6.27E-04	691	1.28E-04	758	1.48E-05
424	4.61E-05	491	2.92E-04	558	6.46E-04	625	6.21E-04	692	1.25E-04	759	1.45E-05
425	5.17E-05	492	2.99E-04	559	6.48E-04	626	6.15E-04	693	1.21E-04	760	1.40E-05
426	5.71E-05	493	3.06E-04	560	6.53E-04	627	6.05E-04	694	1.18E-04	761	1.35E-05
427	6.46E-05	494	3.14E-04	561	6.57E-04	628	5.99E-04	695	1.14E-04	762	1.30E-05
428	7.40E-05	495	3.23E-04	562	6.61E-04	629	5.89E-04	696	1.10E-04	763	1.27E-05
429	8.16E-05	496	3.35E-04	563	6.64E-04	630	5.81E-04	697	1.07E-04	764	1.26E-05
430	9.25E-05	497	3.42E-04	564	6.68E-04	631	5.72E-04	698	1.04E-04	765	1.21E-05
431	1.02E-04	498	3.52E-04	565	6.72E-04	632	5.62E-04	699	1.01E-04	766	1.17E-05
432	1.14E-04	499	3.64E-04	566	6.75E-04	633	5.53E-04	700	9.69E-05	767	1.13E-05
433	1.25E-04	500	3.76E-04	567	6.79E-04	634	5.45E-04	701	9.40E-05	768	1.10E-05
434	1.40E-04	501	3.87E-04	568	6.86E-04	635	5.34E-04	702	9.10E-05	769	1.05E-05
435	1.56E-04	502	3.96E-04	569	6.88E-04	636	5.25E-04	703	8.83E-05	770	1.05E-05
436	1.77E-04	503	4.05E-04	570	6.92E-04	637	5.17E-04	704	8.53E-05	771	9.90E-06
437	1.97E-04	504	4.15E-04	571	6.96E-04	638	5.07E-04	705	8.29E-05	772	9.70E-06
438	2.22E-04	505	4.27E-04	572	6.99E-04	639	4.97E-04	706	8.03E-05	773	9.30E-06
439	2.49E-04	506	4.34E-04	573	7.01E-04	640	4.88E-04	707	7.78E-05	774	9.10E-06
440	2.78E-04	507	4.43E-04	574	7.06E-04	641	4.75E-04	708	7.50E-05	775	9.00E-06
441	3.13E-04	508	4.53E-04	575	7.10E-04	642	4.66E-04	709	7.27E-05	776	8.60E-06
442	3.53E-04	509	4.60E-04	576	7.11E-04	643	4.58E-04	710	7.12E-05	777	8.40E-06
443	3.96E-04	510	4.65E-04	577	7.18E-04	644	4.48E-04	711	6.84E-05	778	8.10E-06
444	4.52E-04	511	4.72E-04	578	7.19E-04	645	4.41E-04	712	6.56E-05	779	8.20E-06
445	5.10E-04	512	4.82E-04	579	7.24E-04	646	4.30E-04	713	6.39E-05	780	8.20E-06
446	5.77E-04	513	4.88E-04	580	7.25E-04	647	4.21E-04	714	6.19E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	RPLED2X4 @25W4000K	Sample ID	240130004-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	24.8	Humidity (%RH)	42.3

Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at $25\pm1^{\circ}\text{C}$, 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	0.093	24.6	0.953
NON-WORST CASE	120.0	60	0.205	24.5	0.996

Test Result

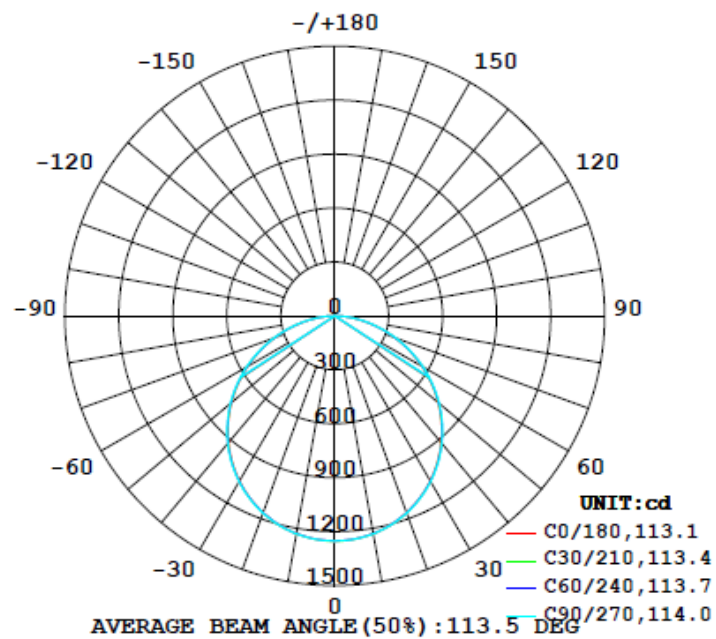
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
3643	164.1	164.3	113.1	113.9	148.1	77.8%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
18.7	18.8	1.26	1.28

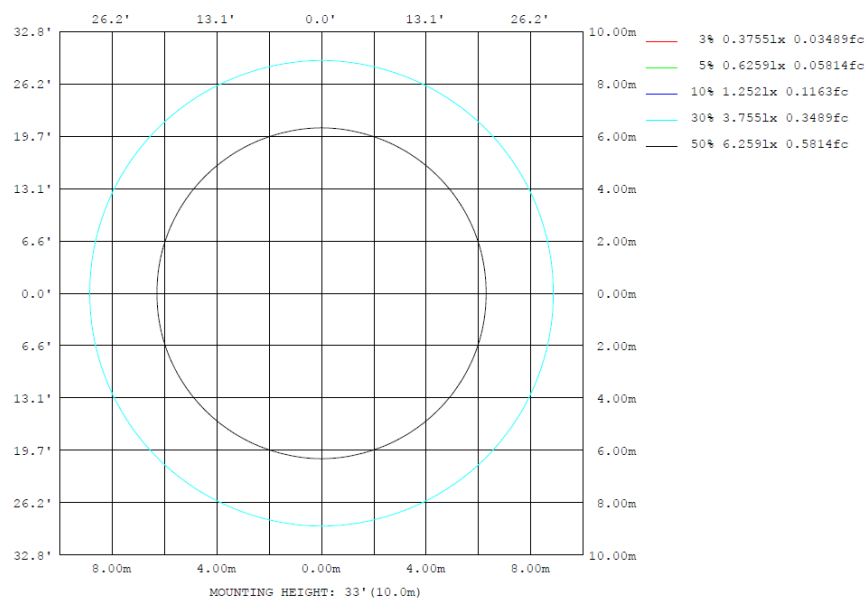
4.2 Goniophotometer Test

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	Φ zone	Φ total	lum, lamp
10	1229	1228	1231	1228	1229	1228	1231	1228	0- 10	118.4	118.4	3.25,3.25
20	1165	1166	1168	1166	1165	1166	1168	1166	10- 20	339.5	458.0	12.6,12.6
30	1059	1062	1064	1062	1059	1062	1064	1062	20- 30	515.6	973.5	26.7,26.7
40	918.7	923.8	927.0	923.8	918.7	923.8	927.0	923.8	30- 40	623.5	1597	43.8,43.8
50	749.7	754.8	758.4	754.8	749.7	754.8	758.4	754.8	40- 50	649.1	2246	61.6,61.6
60	558.7	562.1	566.0	562.1	558.7	562.1	566.0	562.1	50- 60	589.8	2836	77.8,77.8
70	356.0	358.2	361.3	358.2	356.0	358.2	361.3	358.2	60- 70	455.8	3292	90.3,90.3
80	158.8	159.5	161.2	159.5	158.8	159.5	161.2	159.5	70- 80	271.4	3563	97.8,97.8
90	0	0	0	0	0	0	0	0	80- 90	80.24	3643	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3643	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3643	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3643	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3643	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3643	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3643	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3643	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3643	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3643	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	118.41	0-10	118.41	3.25%
10-20	339.54	0-20	457.95	12.57%
20-30	515.58	0-30	973.53	26.72%
30-40	623.49	0-40	1597.02	43.83%
40-50	649.08	0-50	2246.10	61.65%
50-60	589.80	0-60	2835.90	77.84%
60-70	455.77	0-70	3291.67	90.35%
70-80	271.42	0-80	3563.09	97.80%
80-90	80.24	0-90	3643.33	100.00%
90-100	0.00	0-100	3643.33	100.00%
100-110	0.00	0-110	3643.33	100.00%
110-120	0.00	0-120	3643.33	100.00%
120-130	0.00	0-130	3643.33	100.00%
130-140	0.00	0-140	3643.33	100.00%
140-150	0.00	0-150	3643.33	100.00%
150-160	0.00	0-160	3643.33	100.00%
160-170	0.00	0-170	3643.33	100.00%
170-180	0.00	0-180	3643.33	100.00%

4.2 Goniophotometer Test

UGR – Uncorrected Table:

UGR TABLE - UNCORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	9.7	11.3	10.0	11.6	11.9	9.7	11.4	10.1	11.7	12.0
	3H	11.5	13.0	11.9	13.4	13.7	11.6	13.1	12.0	13.4	13.8
	4H	12.3	13.7	12.7	14.0	14.4	12.3	13.7	12.7	14.1	14.5
	6H	12.8	14.1	13.2	14.5	14.9	12.9	14.2	13.3	14.5	14.9
	8H	13.0	14.2	13.4	14.6	15.0	13.1	14.3	13.5	14.7	15.1
	12H	13.1	14.3	13.5	14.7	15.1	13.2	14.4	13.6	14.8	15.2
4H	2H	10.3	11.7	10.7	12.1	12.5	10.4	11.8	10.8	12.1	12.5
	3H	12.4	13.6	12.8	14.0	14.4	12.5	13.7	12.9	14.1	14.5
	4H	13.3	14.4	13.7	14.8	15.2	13.3	14.4	13.8	14.8	15.3
	6H	14.0	14.9	14.4	15.4	15.8	14.0	15.0	14.5	15.4	15.9
	8H	14.2	15.1	14.7	15.5	16.0	14.3	15.1	14.7	15.6	16.1
	12H	14.4	15.2	14.9	15.7	16.1	14.5	15.2	14.9	15.7	16.2
8H	4H	13.6	14.5	14.1	14.9	15.4	13.7	14.5	14.1	15.0	15.5
	6H	14.4	15.2	14.9	15.7	16.1	14.5	15.2	15.0	15.7	16.2
	8H	14.8	15.4	15.3	15.9	16.4	14.8	15.5	15.3	16.0	16.5
	12H	15.0	15.6	15.5	16.1	16.7	15.1	15.7	15.6	16.2	16.7
12H	4H	13.7	14.5	14.2	14.9	15.4	13.7	14.5	14.2	15.0	15.4
	6H	14.5	15.2	15.1	15.7	16.2	14.6	15.2	15.1	15.7	16.2
	8H	14.9	15.5	15.4	16.0	16.5	14.9	15.5	15.5	16.0	16.6

Maximum UGR = 16.7

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.2	15.8	14.5	16.1	16.4	14.2	15.9	14.6	16.2	16.5
	3H	16.0	17.5	16.4	17.9	18.2	16.1	17.6	16.5	17.9	18.3
	4H	16.8	18.2	17.2	18.5	18.9	16.8	18.2	17.2	18.6	19.0
	6H	17.3	18.6	17.7	19.0	19.4	17.4	18.7	17.8	19.0	19.4
	8H	17.5	18.7	17.9	19.1	19.5	17.6	18.8	18.0	19.2	19.6
	12H	17.6	18.8	18.0	19.2	19.6	17.7	18.9	18.1	19.3	19.7
4H	2H	14.8	16.2	15.2	16.6	17.0	14.9	16.3	15.3	16.6	17.0
	3H	16.9	18.1	17.3	18.5	18.9	17.0	18.2	17.4	18.6	19.0
	4H	17.8	18.9	18.2	19.3	19.7	17.8	18.9	18.3	19.3	19.8
	6H	18.5	19.4	18.9	19.9	20.3	18.5	19.5	19.0	19.9	20.4
	8H	18.7	19.6	19.2	20.0	20.5	18.8	19.6	19.2	20.1	20.6
	12H	18.9	19.7	19.4	20.2	20.6	19.0	19.7	19.4	20.2	20.7
8H	4H	18.1	19.0	18.6	19.4	19.9	18.2	19.0	18.6	19.5	20.0
	6H	18.9	19.7	19.4	20.2	20.6	19.0	19.7	19.5	20.2	20.7
	8H	19.3	19.9	19.8	20.4	20.9	19.3	20.0	19.8	20.5	21.0
	12H	19.5	20.1	20.0	20.6	21.2	19.6	20.2	20.1	20.7	21.2
12H	4H	18.2	19.0	18.7	19.4	19.9	18.2	19.0	18.7	19.5	19.9
	6H	19.0	19.7	19.6	20.2	20.7	19.1	19.7	19.6	20.2	20.7
	8H	19.4	20.0	19.9	20.5	21.0	19.4	20.0	20.0	20.5	21.1

Maximum UGR = 21.2

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
γ (DEG)	0	1252	1252	1252	1251	1251	1250	1251	1250	1251	1251	1252	1252	1252	1252	1251	1251	1250	1251
5	1246	1247	1247	1245	1246	1245	1246	1245	1246	1245	1247	1247	1246	1247	1247	1245	1246	1245	1246
10	1229	1230	1231	1228	1230	1230	1231	1230	1230	1228	1231	1230	1229	1230	1231	1228	1230	1230	1231
15	1202	1204	1204	1203	1203	1203	1204	1203	1203	1204	1204	1204	1202	1204	1204	1203	1203	1203	1204
20	1165	1166	1166	1166	1166	1165	1168	1165	1166	1166	1166	1166	1165	1166	1166	1166	1166	1165	1168
25	1117	1119	1119	1118	1118	1118	1121	1118	1118	1118	1119	1119	1117	1119	1119	1118	1118	1118	1121
30	1059	1061	1063	1062	1062	1062	1064	1062	1062	1062	1063	1061	1059	1061	1063	1062	1062	1062	1064
35	994	995	997	997	997	997	1001	997	997	997	997	995	994	995	997	997	997	997	1001
40	919	920	922	924	924	924	927	924	924	924	922	920	919	920	922	924	924	924	927
45	837	839	841	842	843	843	846	843	843	842	841	839	837	839	841	842	843	843	846
50	750	751	753	755	755	756	758	756	755	755	753	751	750	751	753	755	755	756	758
55	656	656	659	661	662	663	665	663	662	661	659	656	656	656	659	661	662	663	665
60	559	560	561	562	563	564	566	564	563	562	561	560	559	560	561	562	563	564	566
65	458	459	460	461	461	463	465	463	461	461	460	459	458	459	460	461	461	463	465
70	356	356	357	358	358	359	361	359	358	358	357	356	356	356	357	358	358	359	361
75	255	256	256	257	257	258	259	258	257	257	256	256	255	256	256	257	257	258	259
80	159	159	159	159	159	160	161	160	159	159	159	159	159	159	159	159	159	160	161
85	70.3	70.6	70.5	70.4	70.6	71.0	71.9	71.0	70.6	70.4	70.5	70.6	70.3	70.6	70.5	70.4	70.6	71.0	71.9
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
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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

Table--2

UNIT: cd

C (DEG)	285	300	315	330	345														
γ (DEG)	0	1250	1251	1251	1252	1252													
5	1245	1246	1245	1247	1247														
10	1230	1230	1228	1231	1230														
15	1203	1203	1203	1204	1204														
20	1165	1166	1166	1166	1166														
25	1118	1118	1118	1119	1119														
30	1062	1062	1062	1063	1061														
35	997	997	997	997	995														
40	924	924	924	922	920														
45	843	843	842	841	839														
50	756	755	755	753	751														
55	663	662	661	659	656														
60	564	563	562	561	560														
65	463	461	461	460	459														
70	359	358	358	357	356														
75	258	257	257	256	256														
80	160	159	159	159	159														
85	71.0	70.6	70.4	70.5	70.6														
90	0.00	0.00	0.00	0.00	0.00														
95	0.00	0.00	0.00	0.00	0.00														
100	0.00	0.00	0.00	0.00	0.00														
105	0.00	0.00	0.00	0.00	0.00														
110	0.00	0.00	0.00	0.00	0.00														
115	0.00	0.00	0.00	0.00	0.00														
120	0.00	0.00	0.00	0.00	0.00														
125	0.00	0.00	0.00	0.00	0.00														
130	0.00	0.00	0.00	0.00	0.00														
135	0.00	0.00	0.00	0.00	0.00														
140	0.00	0.00	0.00	0.00	0.00														
145	0.00	0.00	0.00	0.00	0.00														
150	0.00	0.00	0.00	0.00	0.00														
155	0.00	0.00	0.00	0.00	0.00														
160	0.00	0.00	0.00	0.00	0.00														
165	0.00	0.00	0.00	0.00	0.00														
170	0.00	0.00	0.00	0.00	0.00														
175	0.00	0.00	0.00	0.00	0.00														
180	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.	RPLED2X4 @25W4000K	Sample ID	240130004-S1
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The samples were tested according to the ANSI C82.77:2014</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	0.205	24.5	0.996	7.28
277.0	60	0.093	24.6	0.953	8.07

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*****