

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

Prepared By

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Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

Integrated Retrofit Kits for 1x4 Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	IES LM-79-2008	1500		3421
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	135.2
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		25.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	8.82
			277V	8.61
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
			277V	0.974
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	5101
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.2
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		13
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%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	IES LM-79-2008	≥75%		77.4%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	21.4
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	IES LM-79-2008	0°-180°	1.0-2.0	1.28
		90°-270°	1.0-2.0	1.28
Input Voltage (V)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Cast		120.0
(Goniophotometer – Section 4.2)		Non-Worst Case		277.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.212
(Goniophotometer – Section 4.2)		Non-Worst Case		0.093
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		25.3
(Goniophotometer – Section 4.2)		Non-Worst Case		25.2

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-12	RPLED1X4 @25W5000K	240306004-S1
2	Goniophotometer Test	2024-03-12	RPLED1X4 @25W5000K	240306004-S1
3	THD and PF Test	2024-03-12	RPLED1X4 @25W5000K	240306004-S1

Remark (If any)

1. The results contained in this report pertain only to the tested samples.
2. Test Troffer is Lithonia GT8 lensed 1x4.
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. RPLED1X4 @25W5000K, 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.	RPLED1X4 @25W5000K	Sample ID	240306004-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

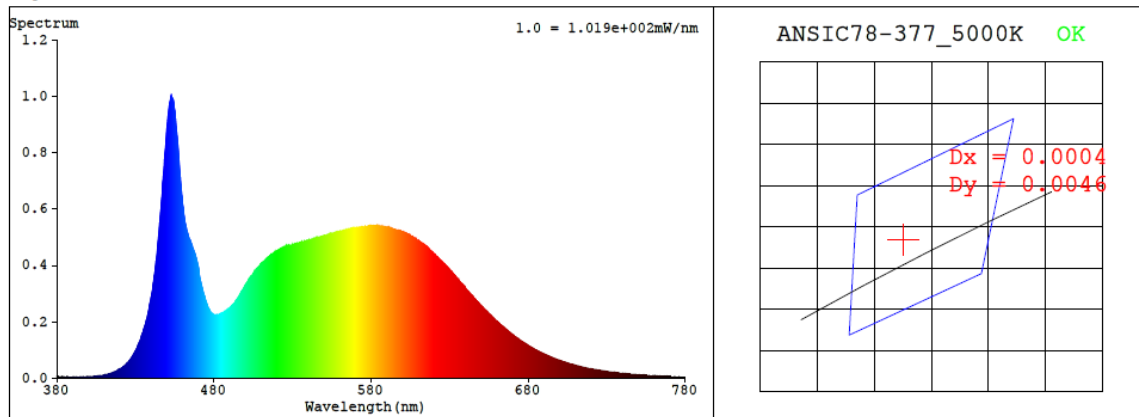
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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. 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	0.212	25.3	0.995
277.0	60	0.093	25.2	0.974

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
5101	84.2	13	0.0022	84	95	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3427$ $y = 0.3540$ / $u' = 0.2089$ $v' = 0.4855$ ($duv=2.16e-03$)

CCT= 5101K Prcp WL: Ld=569.0nm Purity=9.0%

Peak WL: Lp=453nm FWHM: =19.4nm Ratio:R=15.7% G=79.6% B=4.7%

Render Index: Ra = 84.2 AvgR = 77.7 TM30:Rf=84 Rg=95

EEL: 0.09905 A++ Highest

R1 =83	R2 =90	R3 =94	R4 =83	R5 =83	R6 =85	R7 =87
R8 =69	R9 =13	R10=75	R11=83	R12=61	R13=85	R14=97 R15=78

4.1 Integrating Sphere Test

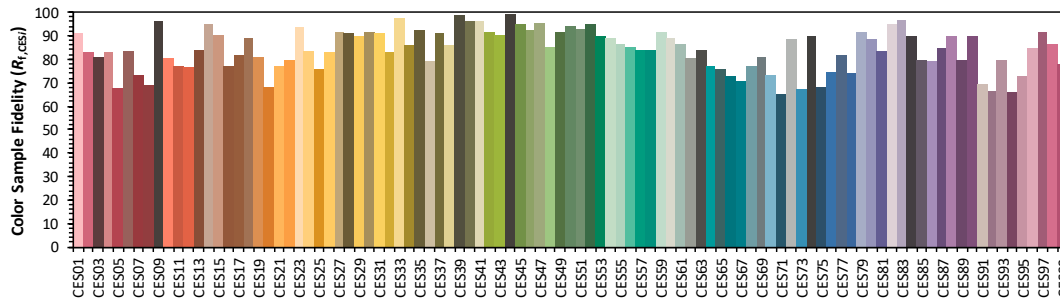
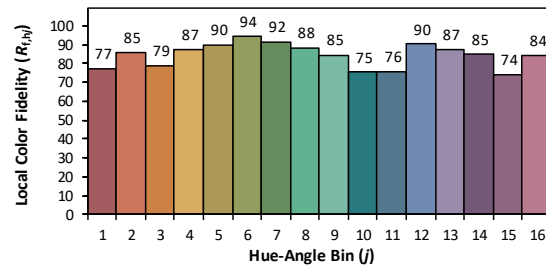
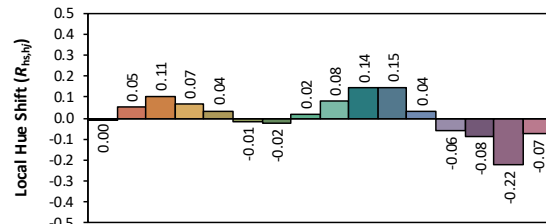
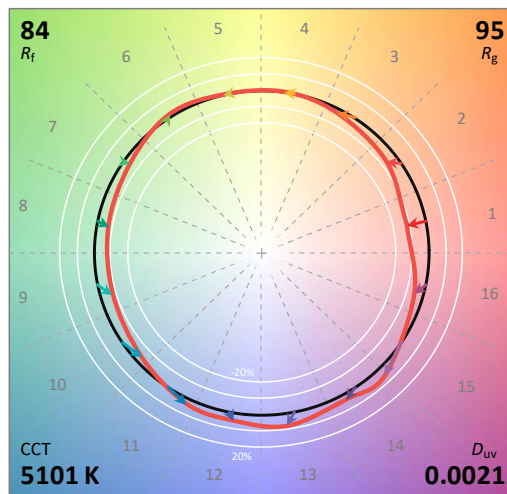
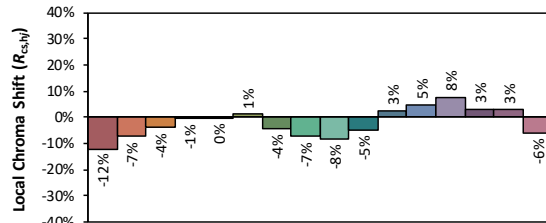
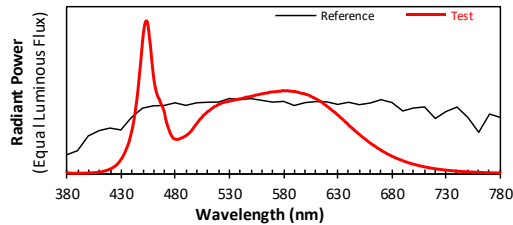
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/13

Model: RPLED1X4 @25W5000K



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

x 0.3427
 y 0.3538
 u' 0.2089
 v' 0.4854

CIE 13.3-1995
(CRI)

R_a 84
 R_g 13

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	6.00E-06	447	6.65E-04	514	4.27E-04	581	5.40E-04	648	2.69E-04	715	3.83E-05
381	5.70E-06	448	7.34E-04	515	4.31E-04	582	5.40E-04	649	2.62E-04	716	3.72E-05
382	4.00E-06	449	8.15E-04	516	4.37E-04	583	5.41E-04	650	2.57E-04	717	3.63E-05
383	4.70E-06	450	8.90E-04	517	4.40E-04	584	5.42E-04	651	2.51E-04	718	3.51E-05
384	3.60E-06	451	9.44E-04	518	4.43E-04	585	5.39E-04	652	2.45E-04	719	3.41E-05
385	3.20E-06	452	9.82E-04	519	4.48E-04	586	5.38E-04	653	2.40E-04	720	3.29E-05
386	3.40E-06	453	9.96E-04	520	4.51E-04	587	5.38E-04	654	2.35E-04	721	3.21E-05
387	3.60E-06	454	9.89E-04	521	4.53E-04	588	5.37E-04	655	2.29E-04	722	3.08E-05
388	3.40E-06	455	9.50E-04	522	4.58E-04	589	5.36E-04	656	2.24E-04	723	3.00E-05
389	3.10E-06	456	8.85E-04	523	4.61E-04	590	5.35E-04	657	2.18E-04	724	2.90E-05
390	3.60E-06	457	8.26E-04	524	4.63E-04	591	5.36E-04	658	2.12E-04	725	2.83E-05
391	4.00E-06	458	7.51E-04	525	4.64E-04	592	5.32E-04	659	2.06E-04	726	2.72E-05
392	3.70E-06	459	6.82E-04	526	4.69E-04	593	5.32E-04	660	2.02E-04	727	2.63E-05
393	4.20E-06	460	6.21E-04	527	4.69E-04	594	5.29E-04	661	1.97E-04	728	2.56E-05
394	3.70E-06	461	5.76E-04	528	4.69E-04	595	5.28E-04	662	1.92E-04	729	2.47E-05
395	3.50E-06	462	5.43E-04	529	4.71E-04	596	5.25E-04	663	1.87E-04	730	2.41E-05
396	4.30E-06	463	5.18E-04	530	4.73E-04	597	5.23E-04	664	1.83E-04	731	2.31E-05
397	4.50E-06	464	4.98E-04	531	4.75E-04	598	5.23E-04	665	1.77E-04	732	2.21E-05
398	4.80E-06	465	4.87E-04	532	4.75E-04	599	5.22E-04	666	1.72E-04	733	2.15E-05
399	5.00E-06	466	4.67E-04	533	4.78E-04	600	5.19E-04	667	1.68E-04	734	2.09E-05
400	5.40E-06	467	4.52E-04	534	4.79E-04	601	5.17E-04	668	1.63E-04	735	2.04E-05
401	4.80E-06	468	4.38E-04	535	4.81E-04	602	5.15E-04	669	1.59E-04	736	1.99E-05
402	5.90E-06	469	4.17E-04	536	4.84E-04	603	5.13E-04	670	1.54E-04	737	1.91E-05
403	6.20E-06	470	3.95E-04	537	4.83E-04	604	5.10E-04	671	1.50E-04	738	1.84E-05
404	6.90E-06	471	3.57E-04	538	4.85E-04	605	5.06E-04	672	1.46E-04	739	1.80E-05
405	6.90E-06	472	3.31E-04	539	4.88E-04	606	5.02E-04	673	1.42E-04	740	1.74E-05
406	7.70E-06	473	3.08E-04	540	4.89E-04	607	4.98E-04	674	1.38E-04	741	1.67E-05
407	8.10E-06	474	2.88E-04	541	4.89E-04	608	4.96E-04	675	1.33E-04	742	1.60E-05
408	9.10E-06	475	2.69E-04	542	4.92E-04	609	4.92E-04	676	1.30E-04	743	1.56E-05
409	1.02E-05	476	2.53E-04	543	4.93E-04	610	4.88E-04	677	1.26E-04	744	1.51E-05
410	1.13E-05	477	2.42E-04	544	4.95E-04	611	4.85E-04	678	1.23E-04	745	1.46E-05
411	1.20E-05	478	2.32E-04	545	4.98E-04	612	4.80E-04	679	1.19E-04	746	1.42E-05
412	1.32E-05	479	2.27E-04	546	4.99E-04	613	4.76E-04	680	1.15E-04	747	1.38E-05
413	1.47E-05	480	2.26E-04	547	5.00E-04	614	4.72E-04	681	1.12E-04	748	1.34E-05
414	1.67E-05	481	2.24E-04	548	5.00E-04	615	4.69E-04	682	1.09E-04	749	1.29E-05
415	1.85E-05	482	2.24E-04	549	5.02E-04	616	4.63E-04	683	1.06E-04	750	1.24E-05
416	2.14E-05	483	2.25E-04	550	5.05E-04	617	4.57E-04	684	1.02E-04	751	1.20E-05
417	2.28E-05	484	2.28E-04	551	5.04E-04	618	4.52E-04	685	9.99E-05	752	1.18E-05
418	2.58E-05	485	2.32E-04	552	5.08E-04	619	4.47E-04	686	9.70E-05	753	1.15E-05
419	2.95E-05	486	2.34E-04	553	5.09E-04	620	4.41E-04	687	9.42E-05	754	1.11E-05
420	3.19E-05	487	2.37E-04	554	5.12E-04	621	4.35E-04	688	9.11E-05	755	1.09E-05
421	3.50E-05	488	2.41E-04	555	5.13E-04	622	4.30E-04	689	8.83E-05	756	1.04E-05
422	3.94E-05	489	2.44E-04	556	5.14E-04	623	4.24E-04	690	8.58E-05	757	1.00E-05
423	4.36E-05	490	2.48E-04	557	5.15E-04	624	4.19E-04	691	8.32E-05	758	9.70E-06
424	4.87E-05	491	2.55E-04	558	5.18E-04	625	4.13E-04	692	8.08E-05	759	9.50E-06
425	5.39E-05	492	2.60E-04	559	5.19E-04	626	4.07E-04	693	7.80E-05	760	9.10E-06
426	6.12E-05	493	2.66E-04	560	5.20E-04	627	4.03E-04	694	7.60E-05	761	8.90E-06
427	6.79E-05	494	2.75E-04	561	5.22E-04	628	3.97E-04	695	7.35E-05	762	8.60E-06
428	7.68E-05	495	2.82E-04	562	5.23E-04	629	3.90E-04	696	7.09E-05	763	8.30E-06
429	8.61E-05	496	2.91E-04	563	5.24E-04	630	3.84E-04	697	6.86E-05	764	8.20E-06
430	9.60E-05	497	3.02E-04	564	5.25E-04	631	3.79E-04	698	6.68E-05	765	7.80E-06
431	1.07E-04	498	3.11E-04	565	5.27E-04	632	3.71E-04	699	6.46E-05	766	7.70E-06
432	1.21E-04	499	3.20E-04	566	5.27E-04	633	3.65E-04	700	6.30E-05	767	7.40E-06
433	1.33E-04	500	3.30E-04	567	5.31E-04	634	3.59E-04	701	6.12E-05	768	7.10E-06
434	1.52E-04	501	3.39E-04	568	5.32E-04	635	3.53E-04	702	5.88E-05	769	6.80E-06
435	1.68E-04	502	3.48E-04	569	5.32E-04	636	3.46E-04	703	5.73E-05	770	6.80E-06
436	1.85E-04	503	3.57E-04	570	5.34E-04	637	3.39E-04	704	5.55E-05	771	6.30E-06
437	2.06E-04	504	3.64E-04	571	5.35E-04	638	3.34E-04	705	5.34E-05	772	6.20E-06
438	2.31E-04	505	3.71E-04	572	5.34E-04	639	3.27E-04	706	5.17E-05	773	6.10E-06
439	2.61E-04	506	3.81E-04	573	5.34E-04	640	3.20E-04	707	5.02E-05	774	5.90E-06
440	2.90E-04	507	3.86E-04	574	5.36E-04	641	3.12E-04	708	4.86E-05	775	5.80E-06
441	3.25E-04	508	3.92E-04	575	5.36E-04	642	3.06E-04	709	4.69E-05	776	5.60E-06
442	3.65E-04	509	3.99E-04	576	5.38E-04	643	3.00E-04	710	4.55E-05	777	5.40E-06
443	4.13E-04	510	4.06E-04	577	5.37E-04	644	2.94E-04	711	4.39E-05	778	5.30E-06
444	4.65E-04	511	4.10E-04	578	5.39E-04	645	2.88E-04	712	4.29E-05	779	5.30E-06
445	5.22E-04	512	4.15E-04	579	5.41E-04	646	2.81E-04	713	4.11E-05	780	5.30E-06
446	5.91E-04	513	4.21E-04	580	5.41E-04	647	2.74E-04	714	4.00E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	RPLED1X4 @25W5000K	Sample ID	240306004-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	24.8	Humidity (%RH)	42.2

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 $25 \pm 1^\circ\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.</p> <p>The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1.0° vertical intervals and 15° horizontal intervals.</p>

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.0	60	0.212	25.3	0.995
NON-WORST CASE	277.0	60	0.093	25.2	0.974

Test Result

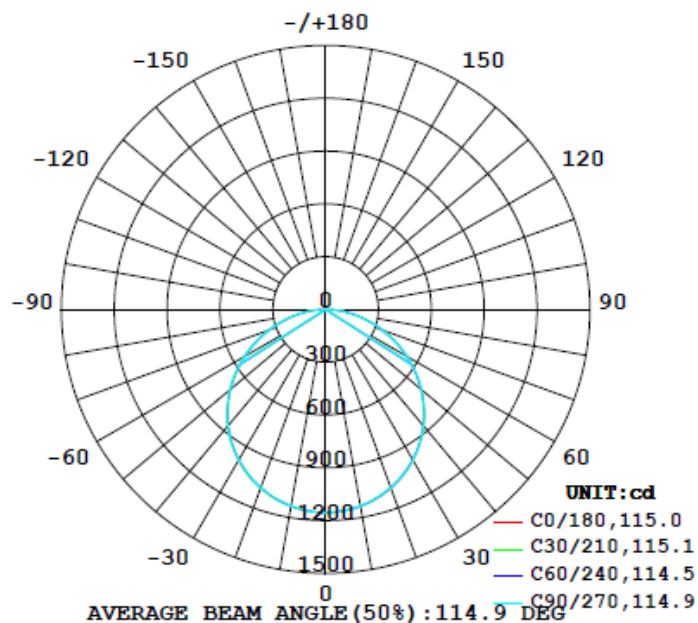
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
3421	165.4	165.0	114.8	114.7	135.2	77.4%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
21.4	21.3	1.28	1.28

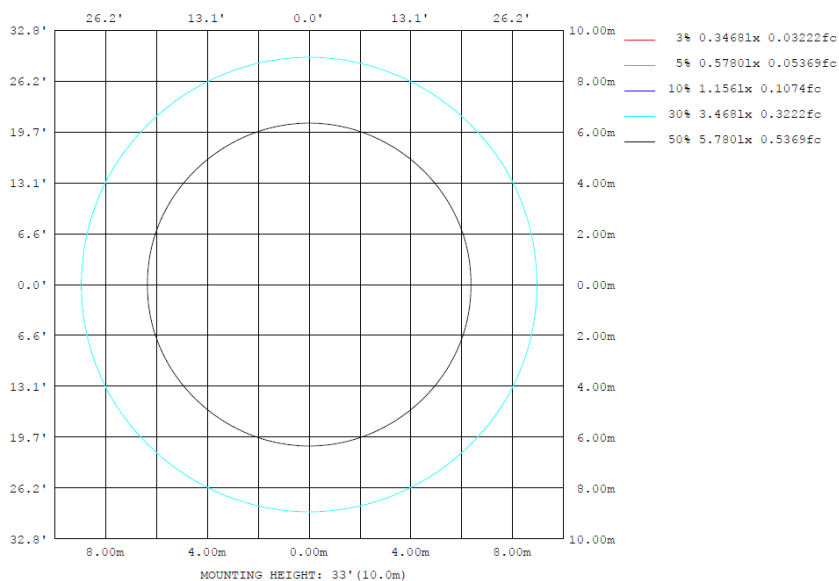
4.2 Goniophotometer Test

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	1136	1135	1135	1135	1136	1135	1135	1135	0~ 10	109.3	109.3	3.19,3.19
20	1082	1077	1080	1077	1082	1077	1080	1077	10~ 20	313.8	423.1	12.4,12.4
30	991.0	986.3	988.2	986.3	991.0	986.3	988.2	986.3	20~ 30	478.6	901.7	26.4,26.4
40	864.9	861.4	863.2	861.4	864.9	861.4	863.2	861.4	30~ 40	581.5	1483	43.4,43.4
50	708.9	705.9	707.7	705.9	708.9	705.9	707.7	705.9	40~ 50	608.1	2091	61.1,61.1
60	533.1	528.8	530.3	528.8	533.1	528.8	530.3	528.8	50~ 60	555.1	2646	77.4,77.4
70	344.6	340.3	341.7	340.3	344.6	340.3	341.7	340.3	60~ 70	431.9	3078	90,90
80	160.6	156.3	156.7	156.3	160.6	156.3	156.7	156.3	70~ 80	261.9	3340	97.6,97.6
90	0	0	0	0	0	0	0	0	80~ 90	81.15	3421	100,100
100	0	0	0	0	0	0	0	0	90~100	0	3421	100,100
110	0	0	0	0	0	0	0	0	100~110	0	3421	100,100
120	0	0	0	0	0	0	0	0	110~120	0	3421	100,100
130	0	0	0	0	0	0	0	0	120~130	0	3421	100,100
140	0	0	0	0	0	0	0	0	130~140	0	3421	100,100
150	0	0	0	0	0	0	0	0	140~150	0	3421	100,100
160	0	0	0	0	0	0	0	0	150~160	0	3421	100,100
170	0	0	0	0	0	0	0	0	160~170	0	3421	100,100
180	0	0	0	0	0	0	0	0	170~180	0	3421	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	109.27	0-10	109.27	3.19%
10-20	313.83	0-20	423.10	12.37%
20-30	478.61	0-30	901.71	26.36%
30-40	581.52	0-40	1483.23	43.35%
40-50	608.12	0-50	2091.35	61.13%
50-60	555.12	0-60	2646.47	77.35%
60-70	431.88	0-70	3078.35	89.97%
70-80	261.88	0-80	3340.23	97.63%
80-90	81.15	0-90	3421.38	100.00%
90-100	0.00	0-100	3421.38	100.00%
100-110	0.00	0-110	3421.38	100.00%
110-120	0.00	0-120	3421.38	100.00%
120-130	0.00	0-130	3421.38	100.00%
130-140	0.00	0-140	3421.38	100.00%
140-150	0.00	0-150	3421.38	100.00%
150-160	0.00	0-160	3421.38	100.00%
160-170	0.00	0-170	3421.38	100.00%
170-180	0.00	0-180	3421.38	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	12.4	14.1	12.8	14.4	14.7	12.3	14.0	12.7	14.3	14.6
	3H	14.3	15.8	14.7	16.2	16.5	14.2	15.8	14.6	16.1	16.4
	4H	15.1	16.5	15.5	16.8	17.2	15.0	16.4	15.4	16.8	17.1
	6H	15.7	17.0	16.1	17.4	17.7	15.6	16.9	16.0	17.3	17.7
	8H	15.9	17.2	16.3	17.5	17.9	15.8	17.0	16.2	17.4	17.8
	12H	16.1	17.3	16.5	17.6	18.1	15.9	17.1	16.4	17.5	18.0
4H	2H	13.1	14.5	13.4	14.8	15.2	13.0	14.4	13.4	14.8	15.2
	3H	15.2	16.4	15.6	16.8	17.2	15.1	16.3	15.5	16.7	17.1
	4H	16.1	17.2	16.5	17.6	18.0	16.0	17.1	16.5	17.5	18.0
	6H	16.8	17.8	17.3	18.2	18.7	16.8	17.7	17.2	18.1	18.6
	8H	17.1	18.0	17.6	18.4	18.9	17.0	17.9	17.5	18.3	18.8
	12H	17.3	18.1	17.8	18.6	19.1	17.2	18.0	17.7	18.5	19.0
8H	4H	16.4	17.3	16.9	17.8	18.2	16.4	17.3	16.8	17.7	18.2
	6H	17.3	18.1	17.8	18.6	19.0	17.2	18.0	17.7	18.5	18.9
	8H	17.7	18.4	18.2	18.9	19.3	17.6	18.3	18.1	18.8	19.2
	12H	18.0	18.6	18.5	19.1	19.6	17.9	18.5	18.4	19.0	19.5
12H	4H	16.5	17.3	17.0	17.8	18.2	16.4	17.2	16.9	17.7	18.2
	6H	17.4	18.1	17.9	18.5	19.1	17.3	18.0	17.9	18.5	19.0
	8H	17.8	18.4	18.3	18.9	19.5	17.7	18.3	18.2	18.8	19.4

Maximum UGR = 19.6

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	16.7	18.4	17.1	18.7	19.0	16.6	18.3	17.0	18.6	18.9
	3H	18.6	20.1	19.0	20.5	20.8	18.5	20.1	18.9	20.4	20.7
	4H	19.4	20.8	19.8	21.1	21.5	19.3	20.7	19.7	21.1	21.4
	6H	20.0	21.3	20.4	21.7	22.0	19.9	21.2	20.3	21.6	22.0
	8H	20.2	21.5	20.6	21.8	22.2	20.1	21.3	20.5	21.7	22.1
	12H	20.4	21.6	20.8	21.9	22.4	20.2	21.4	20.7	21.8	22.3
4H	2H	17.4	18.8	17.7	19.1	19.5	17.3	18.7	17.7	19.1	19.5
	3H	19.5	20.7	19.9	21.1	21.5	19.4	20.6	19.8	21.0	21.4
	4H	20.4	21.5	20.8	21.9	22.3	20.3	21.4	20.8	21.8	22.3
	6H	21.1	22.1	21.6	22.5	23.0	21.1	22.0	21.5	22.4	22.9
	8H	21.4	22.3	21.9	22.7	23.2	21.3	22.2	21.8	22.6	23.1
	12H	21.6	22.4	22.1	22.9	23.4	21.5	22.3	22.0	22.8	23.3
8H	4H	20.7	21.6	21.2	22.1	22.5	20.7	21.6	21.1	22.0	22.5
	6H	21.6	22.4	22.1	22.9	23.3	21.5	22.3	22.0	22.8	23.2
	8H	22.0	22.7	22.5	23.2	23.6	21.9	22.6	22.4	23.1	23.5
	12H	22.3	22.9	22.8	23.4	23.9	22.2	22.8	22.7	23.3	23.8
12H	4H	20.8	21.6	21.3	22.1	22.5	20.7	21.5	21.2	22.0	22.5
	6H	21.7	22.4	22.2	22.8	23.4	21.6	22.3	22.2	22.8	23.3
	8H	22.1	22.7	22.6	23.2	23.8	22.0	22.6	22.5	23.1	23.7

Maximum UGR = 23.9

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1156	1155	1154	1155	1155	1155	1155	1155	1155	1155	1154	1155	1156	1155	1154	1155	1155	1155	1155
5	1151	1150	1150	1149	1149	1150	1149	1150	1149	1149	1150	1150	1151	1150	1150	1149	1149	1150	1149
10	1136	1136	1135	1135	1135	1135	1135	1135	1135	1135	1135	1136	1136	1136	1135	1135	1135	1135	1135
15	1114	1114	1112	1111	1111	1111	1111	1111	1111	1111	1112	1114	1114	1114	1112	1111	1111	1111	1113
20	1082	1082	1080	1077	1078	1078	1080	1078	1078	1077	1080	1082	1082	1082	1080	1077	1078	1078	1080
25	1041	1041	1040	1038	1035	1037	1038	1037	1035	1038	1040	1041	1041	1041	1040	1038	1035	1037	1038
30	991	991	989	986	986	987	988	987	986	986	989	991	991	991	989	986	986	987	988
35	932	932	931	928	927	928	929	928	927	928	931	932	932	932	931	928	927	928	929
40	865	866	865	861	861	861	863	861	861	861	865	866	865	866	865	861	861	861	863
45	790	791	791	787	785	786	789	786	785	787	791	791	790	791	791	787	785	786	789
50	709	711	710	706	705	706	708	706	705	706	710	711	709	711	710	706	705	706	708
55	622	624	623	619	618	619	622	619	618	619	623	624	622	624	623	619	618	619	622
60	533	534	532	529	528	528	530	528	528	529	532	534	533	534	532	529	528	528	530
65	439	440	438	435	434	434	437	434	434	435	438	440	439	440	438	435	434	434	437
70	345	344	343	340	339	339	342	339	339	340	343	344	345	344	343	340	339	339	342
75	251	251	249	247	245	246	247	246	245	247	249	251	251	251	249	247	245	246	247
80	161	160	158	156	156	156	157	156	156	156	158	160	161	160	158	156	156	156	157
85	75.6	74.7	73.2	71.9	71.5	71.7	72.1	71.7	71.5	71.9	73.2	74.7	75.6	74.7	73.2	71.9	71.5	71.7	72.1
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) γ (DEG)	285	300	315	330	345														
0	1155	1155	1155	1154	1155														
5	1150	1149	1149	1150	1150														
10	1135	1135	1135	1135	1136														
15	1111	1111	1111	1112	1114														
20	1078	1078	1077	1080	1082														
25	1037	1035	1038	1040	1041														
30	987	986	986	989	991														
35	928	927	928	931	932														
40	861	861	861	865	866														
45	786	785	787	791	791														
50	706	705	706	710	711														
55	619	618	619	623	624														
60	528	528	529	532	534														
65	434	434	435	438	440														
70	339	339	340	343	344														
75	246	245	247	249	251														
80	156	156	156	158	160														
85	71.7	71.5	71.9	73.2	74.7														
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.	RPLED1X4 @25W5000K	Sample ID	240306004-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	0.212	25.3	0.995	8.82
277.0	60	0.093	25.2	0.974	8.61

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*****