

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		2601
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	137.6
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		18.9
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.50
			277V	8.38
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
			277V	0.931
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	5096
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.4
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		14
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	20.4
		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		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.073
(Goniophotometer – Section 4.2)		Non-Worst Case		0.153
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		18.9
(Goniophotometer – Section 4.2)		Non-Worst Case		18.3

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-12	RPLED1X4 @18W5000K	240306004-S1
2	Goniophotometer Test	2024-03-12	RPLED1X4 @18W5000K	240306004-S1
3	THD and PF Test	2024-03-12	RPLED1X4 @18W5000K	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 @18W5000K, 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 @18W5000K	Sample ID	240306004-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

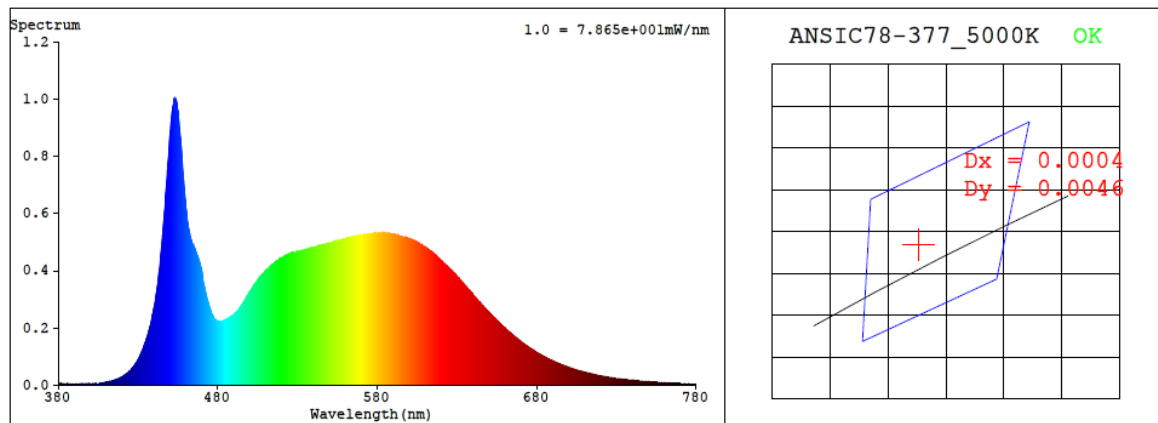
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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	0.153	18.3	0.994
277.0	60	0.073	18.9	0.931

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
5096	84.4	14	0.0022	84	95	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3428$ $y = 0.3541$ / $u' = 0.2089$ $v' = 0.4855$ ($duv=2.16e-03$)

CCT= 5096K Prcp WL: Ld=569.1nm Purity=9.1%

Peak WL: Lp=453nm FWHM: =18.7nm Ratio:R=15.7% G=79.5% B=4.8%

Render Index: Ra = 84.4 AvgR = 77.9 TM30:Rf=84 Rg=95

EEL: 0.09476 A++ Highest

R1 =83 R2 =90 R3 =94 R4 =83 R5 =83 R6 =85 R7 =87

R8 =69 R9 =14 R10=76 R11=83 R12=61 R13=85 R14=97 R15=78

4.1 Integrating Sphere Test

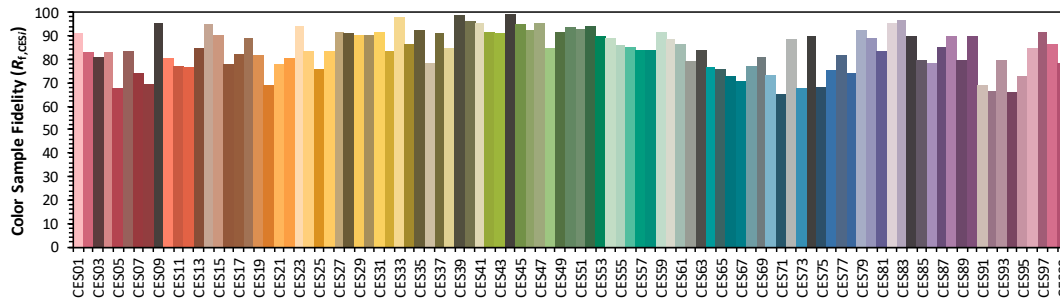
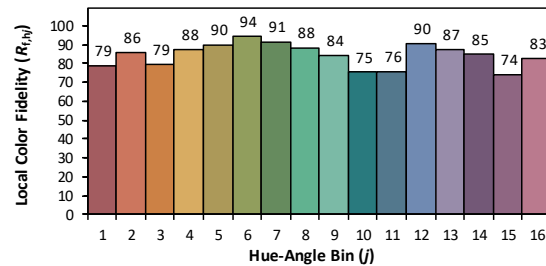
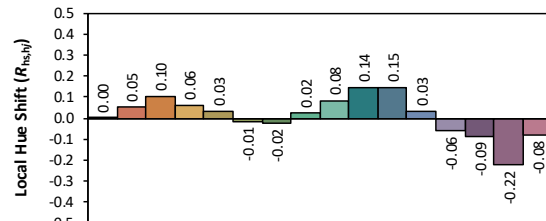
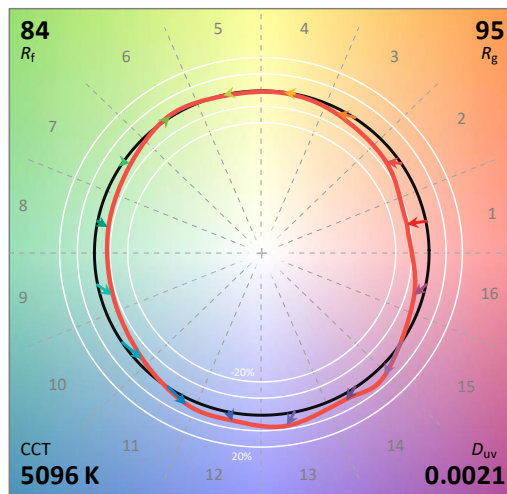
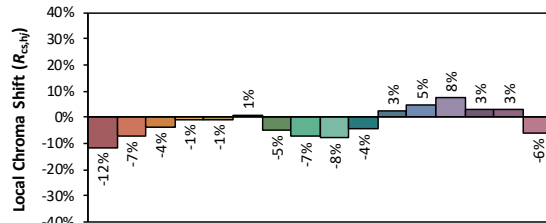
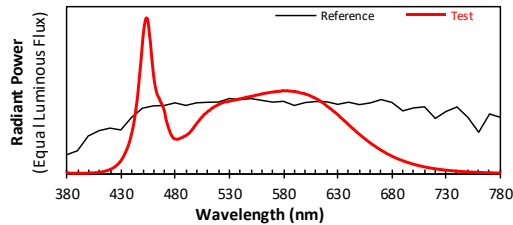
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/13

Model: RPLED1X4 @18W5000K



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

x 0.3428
 y 0.3539
 u' 0.2090
 v' 0.4855

CIE 13.3-1995
(CRI)

R_a 84
 R_g 14

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	6.41E-04	514	4.21E-04	581	5.32E-04	648	2.66E-04	715	3.83E-05
381	5.50E-06	448	7.10E-04	515	4.23E-04	582	5.31E-04	649	2.60E-04	716	3.69E-05
382	5.00E-06	449	7.93E-04	516	4.30E-04	583	5.31E-04	650	2.54E-04	717	3.58E-05
383	4.60E-06	450	8.75E-04	517	4.34E-04	584	5.33E-04	651	2.49E-04	718	3.44E-05
384	3.70E-06	451	9.35E-04	518	4.35E-04	585	5.30E-04	652	2.43E-04	719	3.37E-05
385	3.80E-06	452	9.75E-04	519	4.40E-04	586	5.30E-04	653	2.37E-04	720	3.23E-05
386	4.10E-06	453	9.98E-04	520	4.44E-04	587	5.30E-04	654	2.32E-04	721	3.17E-05
387	3.90E-06	454	9.94E-04	521	4.45E-04	588	5.28E-04	655	2.26E-04	722	3.04E-05
388	3.30E-06	455	9.59E-04	522	4.51E-04	589	5.28E-04	656	2.21E-04	723	2.91E-05
389	3.80E-06	456	8.93E-04	523	4.54E-04	590	5.27E-04	657	2.14E-04	724	2.86E-05
390	4.00E-06	457	8.34E-04	524	4.56E-04	591	5.27E-04	658	2.10E-04	725	2.78E-05
391	3.90E-06	458	7.53E-04	525	4.58E-04	592	5.24E-04	659	2.04E-04	726	2.68E-05
392	3.50E-06	459	6.84E-04	526	4.62E-04	593	5.24E-04	660	1.99E-04	727	2.61E-05
393	3.70E-06	460	6.21E-04	527	4.62E-04	594	5.21E-04	661	1.94E-04	728	2.53E-05
394	3.60E-06	461	5.73E-04	528	4.61E-04	595	5.19E-04	662	1.89E-04	729	2.43E-05
395	4.10E-06	462	5.40E-04	529	4.63E-04	596	5.18E-04	663	1.85E-04	730	2.34E-05
396	4.40E-06	463	5.12E-04	530	4.65E-04	597	5.16E-04	664	1.80E-04	731	2.31E-05
397	3.80E-06	464	4.96E-04	531	4.67E-04	598	5.16E-04	665	1.75E-04	732	2.21E-05
398	3.90E-06	465	4.84E-04	532	4.68E-04	599	5.15E-04	666	1.70E-04	733	2.14E-05
399	5.00E-06	466	4.66E-04	533	4.70E-04	600	5.11E-04	667	1.66E-04	734	2.07E-05
400	5.10E-06	467	4.52E-04	534	4.71E-04	601	5.09E-04	668	1.61E-04	735	2.00E-05
401	5.40E-06	468	4.39E-04	535	4.72E-04	602	5.07E-04	669	1.57E-04	736	1.96E-05
402	5.50E-06	469	4.18E-04	536	4.76E-04	603	5.05E-04	670	1.53E-04	737	1.88E-05
403	6.00E-06	470	3.98E-04	537	4.75E-04	604	5.02E-04	671	1.48E-04	738	1.81E-05
404	6.30E-06	471	3.58E-04	538	4.77E-04	605	4.99E-04	672	1.44E-04	739	1.75E-05
405	6.20E-06	472	3.33E-04	539	4.79E-04	606	4.95E-04	673	1.40E-04	740	1.69E-05
406	7.20E-06	473	3.08E-04	540	4.81E-04	607	4.90E-04	674	1.37E-04	741	1.64E-05
407	7.30E-06	474	2.88E-04	541	4.82E-04	608	4.90E-04	675	1.32E-04	742	1.59E-05
408	8.30E-06	475	2.68E-04	542	4.84E-04	609	4.85E-04	676	1.28E-04	743	1.54E-05
409	9.40E-06	476	2.52E-04	543	4.85E-04	610	4.82E-04	677	1.25E-04	744	1.49E-05
410	1.05E-05	477	2.40E-04	544	4.86E-04	611	4.78E-04	678	1.22E-04	745	1.46E-05
411	1.06E-05	478	2.30E-04	545	4.90E-04	612	4.75E-04	679	1.18E-04	746	1.39E-05
412	1.24E-05	479	2.25E-04	546	4.91E-04	613	4.70E-04	680	1.14E-04	747	1.36E-05
413	1.32E-05	480	2.23E-04	547	4.92E-04	614	4.66E-04	681	1.11E-04	748	1.30E-05
414	1.55E-05	481	2.21E-04	548	4.93E-04	615	4.63E-04	682	1.08E-04	749	1.27E-05
415	1.69E-05	482	2.22E-04	549	4.95E-04	616	4.56E-04	683	1.04E-04	750	1.22E-05
416	1.93E-05	483	2.23E-04	550	4.96E-04	617	4.53E-04	684	1.02E-04	751	1.19E-05
417	2.13E-05	484	2.26E-04	551	4.96E-04	618	4.46E-04	685	9.80E-05	752	1.15E-05
418	2.31E-05	485	2.30E-04	552	4.98E-04	619	4.40E-04	686	9.56E-05	753	1.13E-05
419	2.64E-05	486	2.31E-04	553	5.00E-04	620	4.34E-04	687	9.26E-05	754	1.09E-05
420	2.89E-05	487	2.35E-04	554	5.04E-04	621	4.30E-04	688	8.97E-05	755	1.05E-05
421	3.20E-05	488	2.40E-04	555	5.03E-04	622	4.26E-04	689	8.77E-05	756	1.02E-05
422	3.57E-05	489	2.42E-04	556	5.05E-04	623	4.19E-04	690	8.46E-05	757	9.90E-06
423	4.03E-05	490	2.46E-04	557	5.07E-04	624	4.15E-04	691	8.18E-05	758	9.60E-06
424	4.48E-05	491	2.52E-04	558	5.07E-04	625	4.08E-04	692	7.94E-05	759	9.10E-06
425	4.97E-05	492	2.57E-04	559	5.10E-04	626	4.03E-04	693	7.71E-05	760	8.90E-06
426	5.66E-05	493	2.62E-04	560	5.12E-04	627	3.97E-04	694	7.49E-05	761	8.50E-06
427	6.31E-05	494	2.71E-04	561	5.13E-04	628	3.93E-04	695	7.23E-05	762	8.50E-06
428	7.05E-05	495	2.78E-04	562	5.15E-04	629	3.86E-04	696	7.07E-05	763	8.20E-06
429	7.88E-05	496	2.87E-04	563	5.16E-04	630	3.80E-04	697	6.78E-05	764	7.90E-06
430	8.84E-05	497	2.96E-04	564	5.16E-04	631	3.74E-04	698	6.62E-05	765	7.80E-06
431	9.86E-05	498	3.07E-04	565	5.19E-04	632	3.66E-04	699	6.39E-05	766	7.50E-06
432	1.12E-04	499	3.15E-04	566	5.19E-04	633	3.60E-04	700	6.21E-05	767	7.10E-06
433	1.24E-04	500	3.25E-04	567	5.21E-04	634	3.54E-04	701	5.98E-05	768	6.80E-06
434	1.41E-04	501	3.33E-04	568	5.22E-04	635	3.48E-04	702	5.83E-05	769	6.80E-06
435	1.55E-04	502	3.42E-04	569	5.23E-04	636	3.42E-04	703	5.62E-05	770	6.60E-06
436	1.72E-04	503	3.51E-04	570	5.24E-04	637	3.35E-04	704	5.46E-05	771	6.50E-06
437	1.93E-04	504	3.59E-04	571	5.25E-04	638	3.30E-04	705	5.31E-05	772	6.10E-06
438	2.16E-04	505	3.66E-04	572	5.26E-04	639	3.24E-04	706	5.10E-05	773	5.90E-06
439	2.43E-04	506	3.75E-04	573	5.26E-04	640	3.16E-04	707	4.97E-05	774	5.90E-06
440	2.72E-04	507	3.81E-04	574	5.27E-04	641	3.09E-04	708	4.79E-05	775	5.60E-06
441	3.05E-04	508	3.87E-04	575	5.27E-04	642	3.03E-04	709	4.62E-05	776	5.40E-06
442	3.42E-04	509	3.92E-04	576	5.28E-04	643	2.96E-04	710	4.48E-05	777	5.30E-06
443	3.91E-04	510	4.00E-04	577	5.29E-04	644	2.91E-04	711	4.34E-05	778	5.10E-06
444	4.40E-04	511	4.04E-04	578	5.30E-04	645	2.85E-04	712	4.20E-05	779	5.10E-06
445	4.96E-04	512	4.08E-04	579	5.32E-04	646	2.78E-04	713	4.06E-05	780	5.20E-06
446	5.67E-04	513	4.15E-04	580	5.32E-04	647	2.72E-04	714	3.94E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	RPLED1X4 @18W5000K	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	277.0	60	0.073	18.9	0.931
NON-WORST CASE	120.0	60	0.153	18.3	0.994

Test Result

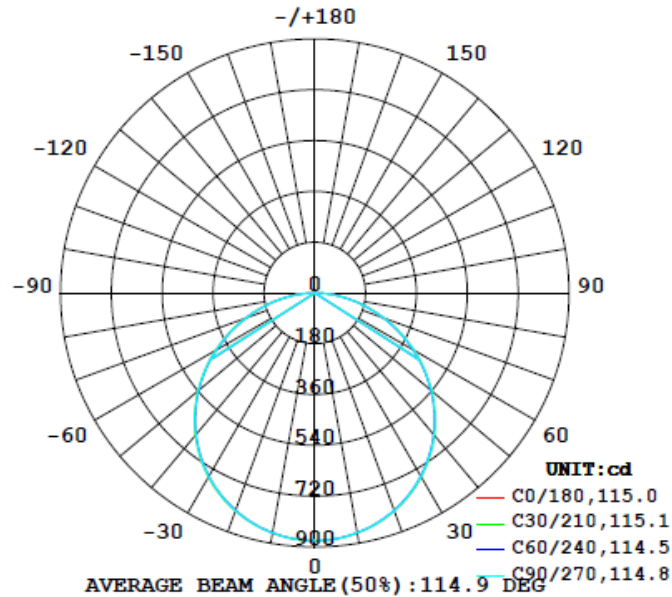
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
2601	165.4	165.0	114.9	114.8	137.6	77.4%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
20.4	20.3	1.28	1.28

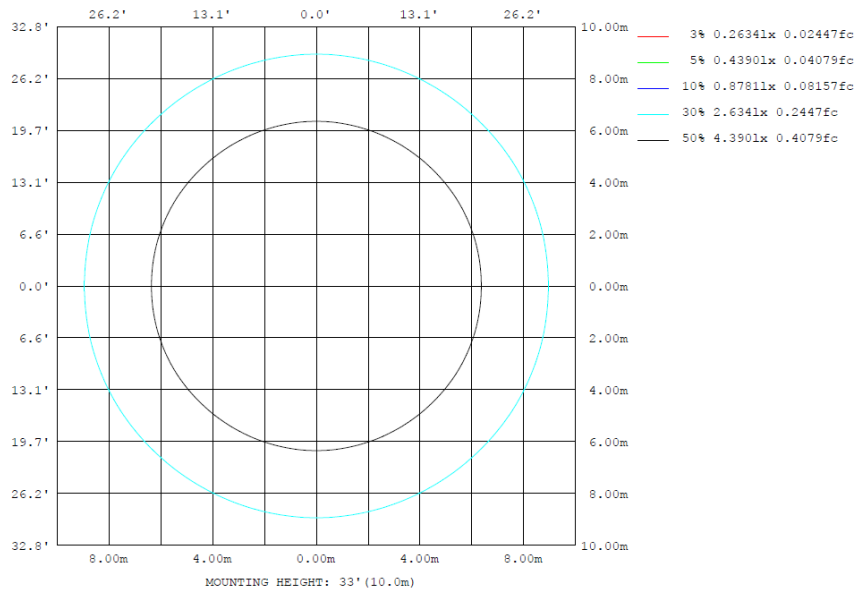
4.2 Goniophotometer Test

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	863.9	862.4	862.8	862.4	863.9	862.4	862.8	862.4	0- 10	83.08	83.08	3.19, 3.19
20	821.7	819.5	820.7	819.5	821.7	819.5	820.7	819.5	10- 20	238.6	321.7	12.4, 12.4
30	752.9	750.6	751.1	750.6	752.9	750.6	751.1	750.6	20- 30	363.8	685.5	26.4, 26.4
40	657.0	655.2	656.1	655.2	657.0	655.2	656.1	655.2	30- 40	442.1	1128	43.4, 43.4
50	538.5	537.3	538.3	537.3	538.5	537.3	538.3	537.3	40- 50	462.4	1590	61.1, 61.1
60	404.6	401.9	403.1	401.9	404.6	401.9	403.1	401.9	50- 60	422.0	2012	77.4, 77.4
70	261.8	258.3	259.5	258.3	261.8	258.3	259.5	258.3	60- 70	328.2	2340	90, 90
80	122.0	118.8	119.0	118.8	122.0	118.8	119.0	118.8	70- 80	199.0	2539	97.6, 97.6
90	0	0	0	0	0	0	0	0	80- 90	61.62	2601	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	2601	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	2601	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	2601	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	2601	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	2601	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	2601	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	2601	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	2601	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	2601	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	83.08	0-10	83.08	3.19%
10-20	238.62	0-20	321.70	12.37%
20-30	363.84	0-30	685.54	26.36%
30-40	442.10	0-40	1127.64	43.36%
40-50	462.37	0-50	1590.01	61.14%
50-60	421.97	0-60	2011.98	77.36%
60-70	328.21	0-70	2340.19	89.98%
70-80	198.95	0-80	2539.14	97.63%
80-90	61.62	0-90	2600.76	100.00%
90-100	0.00	0-100	2600.76	100.00%
100-110	0.00	0-110	2600.76	100.00%
110-120	0.00	0-120	2600.76	100.00%
120-130	0.00	0-130	2600.76	100.00%
130-140	0.00	0-140	2600.76	100.00%
140-150	0.00	0-150	2600.76	100.00%
150-160	0.00	0-160	2600.76	100.00%
160-170	0.00	0-170	2600.76	100.00%
170-180	0.00	0-180	2600.76	100.00%

4.2 Goniophotometer Test

UGR – Uncorrected Table:

UGR TABLE - UNCORRECTED

Reflectances										
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										
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise			
		12.4	14.1	12.8	14.4	14.7	12.3	14.0	12.7	14.3
	3H	14.3	15.8	14.7	16.2	16.5	14.2	15.7	14.6	16.1
	4H	15.1	16.5	15.5	16.8	17.2	15.0	16.4	15.4	16.8
	6H	15.7	17.0	16.1	17.4	17.7	15.6	16.9	16.0	17.3
	8H	15.9	17.1	16.3	17.5	17.9	15.8	17.0	16.2	17.4
	12H	16.0	17.3	16.5	17.6	18.1	15.9	17.1	16.4	17.5
4H	2H	13.1	14.5	13.4	14.8	15.2	13.0	14.4	13.4	14.8
	3H	15.2	16.4	15.6	16.8	17.2	15.1	16.3	15.5	16.7
	4H	16.1	17.2	16.5	17.6	18.0	16.0	17.1	16.5	17.5
	6H	16.8	17.8	17.3	18.2	18.7	16.7	17.7	17.2	18.1
	8H	17.1	18.0	17.6	18.4	18.9	17.0	17.9	17.5	18.3
	12H	17.3	18.1	17.8	18.6	19.1	17.2	18.0	17.7	18.5
8H	4H	16.4	17.3	16.9	17.8	18.2	16.4	17.3	16.8	17.7
	6H	17.3	18.1	17.8	18.6	19.0	17.2	18.0	17.7	18.5
	8H	17.7	18.4	18.2	18.9	19.3	17.6	18.2	18.1	18.8
	12H	18.0	18.6	18.5	19.1	19.6	17.9	18.5	18.4	18.9
12H	4H	16.5	17.3	17.0	17.8	18.2	16.4	17.2	16.9	17.7
	6H	17.4	18.1	17.9	18.5	19.1	17.3	18.0	17.9	18.5
	8H	17.8	18.4	18.3	18.9	19.5	17.7	18.3	18.2	18.8

Maximum UGR = 19.6

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances										
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										
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise			
		15.7	17.4	16.1	17.7	18.0	15.6	17.3	16.0	17.6
	3H	17.6	19.1	18.0	19.5	19.8	17.5	19.0	17.9	19.4
	4H	18.4	19.8	18.8	20.1	20.5	18.3	19.7	18.7	20.1
	6H	19.0	20.3	19.4	20.7	21.0	18.9	20.2	19.3	20.6
	8H	19.2	20.4	19.6	20.8	21.2	19.1	20.3	19.5	20.7
	12H	19.3	20.6	19.8	20.9	21.4	19.2	20.4	19.7	20.8
4H	2H	16.4	17.8	16.7	18.1	18.5	16.3	17.7	16.7	18.1
	3H	18.5	19.7	18.9	20.1	20.5	18.4	19.6	18.8	20.0
	4H	19.4	20.5	19.8	20.9	21.3	19.3	20.4	19.8	20.8
	6H	20.1	21.1	20.6	21.5	22.0	20.0	21.0	20.5	21.4
	8H	20.4	21.3	20.9	21.7	22.2	20.3	21.2	20.8	21.6
	12H	20.6	21.4	21.1	21.9	22.4	20.5	21.3	21.0	21.8
8H	4H	19.7	20.6	20.2	21.1	21.5	19.7	20.6	20.1	21.0
	6H	20.6	21.4	21.1	21.9	22.3	20.5	21.3	21.0	21.8
	8H	21.0	21.7	21.5	22.2	22.6	20.9	21.5	21.4	22.1
	12H	21.3	21.9	21.8	22.4	22.9	21.2	21.8	21.7	22.2
12H	4H	19.8	20.6	20.3	21.1	21.5	19.7	20.5	20.2	21.0
	6H	20.7	21.4	21.2	21.8	22.4	20.6	21.3	21.2	21.8
	8H	21.1	21.7	21.6	22.2	22.8	21.0	21.6	21.5	22.1

Maximum UGR = 22.9

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	878	878	878	878	879	879	878	879	879	878	878	878	878	878	878	878	879	879	878
5	874	874	874	874	874	874	874	874	874	874	874	874	874	874	874	874	874	874	874
10	864	864	863	862	862	863	863	863	862	862	863	864	864	864	863	862	862	863	863
15	846	846	846	845	844	844	845	844	844	845	846	846	846	846	846	845	844	844	845
20	822	823	822	820	819	820	821	820	819	820	822	823	822	823	822	820	819	820	821
25	790	791	791	788	788	788	789	788	788	788	791	791	790	791	791	788	788	788	789
30	753	754	753	751	749	750	751	750	749	751	753	754	753	754	753	751	749	750	751
35	708	709	709	706	705	705	707	705	705	706	709	709	708	709	709	706	705	705	707
40	657	658	658	655	654	654	656	654	654	655	658	658	657	658	658	655	654	654	656
45	600	602	602	598	597	598	600	598	597	598	602	602	600	602	602	598	597	598	600
50	539	540	541	537	536	537	538	537	536	537	541	540	539	540	541	537	536	537	538
55	473	475	474	471	470	470	473	470	470	471	474	475	473	475	474	471	470	470	473
60	405	406	405	402	401	401	403	401	401	402	405	406	405	406	405	402	401	401	403
65	334	334	334	331	330	330	332	330	330	331	334	334	334	334	334	331	330	330	332
70	262	262	261	258	258	258	259	258	258	258	261	262	262	262	261	258	258	258	259
75	191	191	189	187	187	186	188	186	187	187	189	191	191	191	189	187	187	186	188
80	122	122	120	119	118	118	119	118	118	119	120	122	122	122	120	119	118	118	119
85	57.4	56.8	55.8	54.6	54.2	54.2	54.7	54.2	54.2	54.6	55.8	56.8	57.4	56.8	55.8	54.6	54.2	54.2	54.7
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	879	879	878	879	878														
5	874	874	874	874	874														
10	863	862	862	863	864														
15	844	844	845	846	846														
20	820	819	820	822	823														
25	788	788	788	791	791														
30	750	749	751	753	754														
35	705	705	706	709	709														
40	654	654	655	658	658														
45	598	597	598	602	602														
50	537	536	537	541	540														
55	470	470	471	474	475														
60	401	401	402	405	406														
65	330	330	331	334	334														
70	258	258	258	261	262														
75	186	187	187	189	191														
80	118	118	119	120	122														
85	54.2	54.2	54.6	55.8	56.8														
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 @18W5000K	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	0.153	18.3	0.994	7.50
277.0	60	0.073	18.9	0.931	8.38

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*****