

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		2611
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	141.9
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		18.4
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.65
			277V	7.69
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.992
			277V	0.926
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3985±275	4250
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		85.0
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%		77.4%
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		0.072
(Goniophotometer – Section 4.2)		Non-Worst Case		0.153
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		18.4
(Goniophotometer – Section 4.2)		Non-Worst Case		18.2

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-12	RPLED1X4 @18W4000K	240306004-S1
2	Goniophotometer Test	2024-03-12	RPLED1X4 @18W4000K	240306004-S1
3	THD and PF Test	2024-03-12	RPLED1X4 @18W4000K	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 @18W4000K, 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 @18W4000K	Sample ID	240306004-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

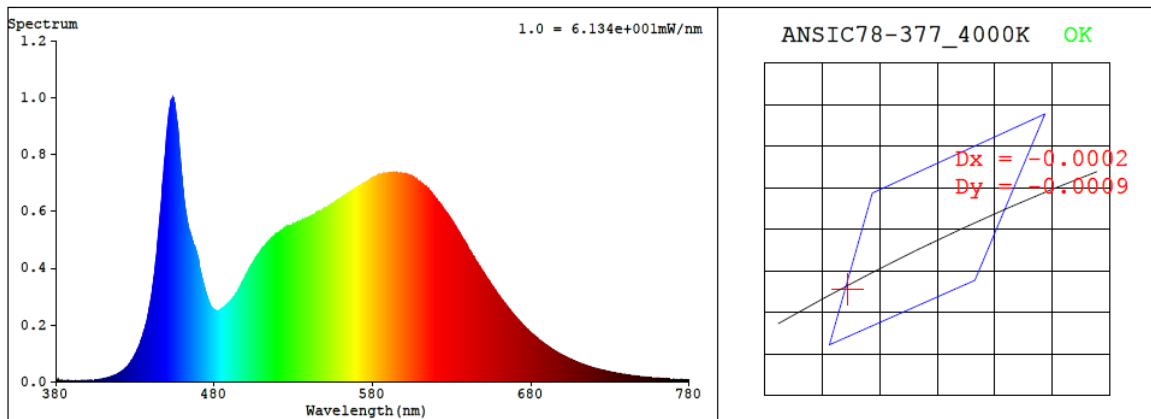
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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.</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	0.153	18.2	0.992
277.0	60	0.072	18.4	0.926

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4250	85.0	18	-0.0004	84	95	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3698$ $y = 0.3691$ / $u' = 0.2211$ $v' = 0.4966$ ($duv = -3.77e-04$)

CCT= 4250K Prcp WL: Ld=578.3nm Purity=21.7%

Peak WL: Lp=454nm FWHM: =21.8nm Ratio:R=17.9% G=78.0% B=4.1%

Render Index: Ra = 85.0 AvgR = 78.9 TM30:Rf=85 Rg=95

EEL: 0.09490 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

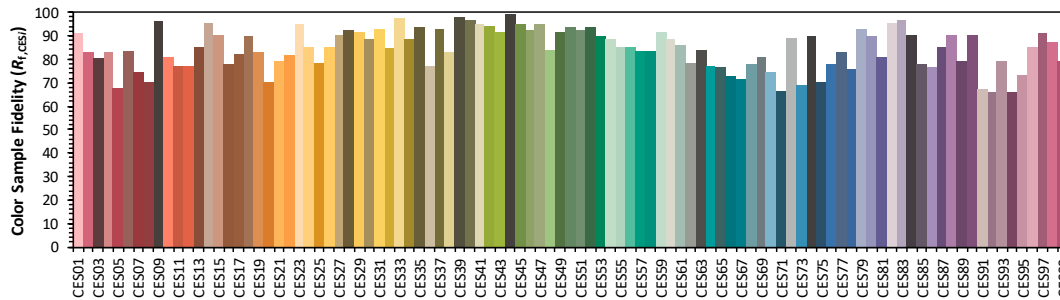
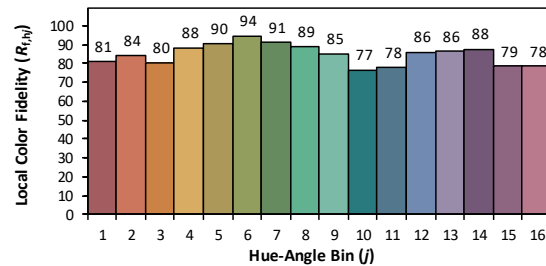
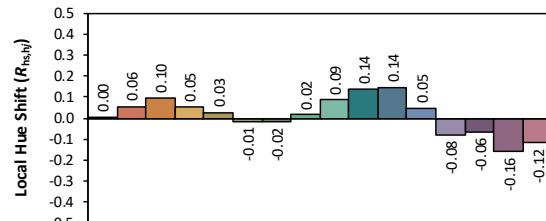
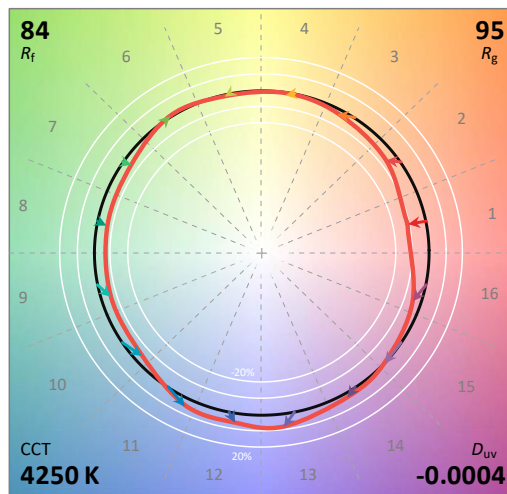
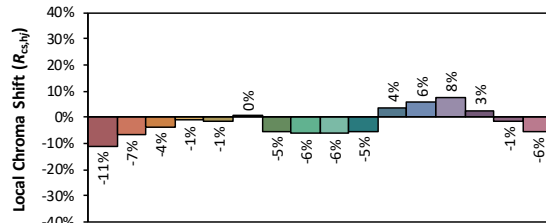
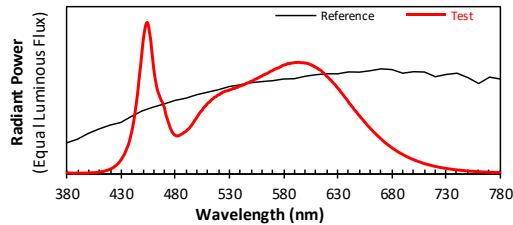
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/13

Model: RPLED1X4 @18W4000K



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

x 0.3698
 y 0.3689
 u' 0.2212
 v' 0.4965

CIE 13.3-1995
(CRI)

R_a 85
 R_g 18

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	4.60E-06	447	6.65E-04	514	4.92E-04	581	7.19E-04	648	4.03E-04	715	5.77E-05
381	5.10E-06	448	7.26E-04	515	4.96E-04	582	7.21E-04	649	3.93E-04	716	5.56E-05
382	5.20E-06	449	7.97E-04	516	5.04E-04	583	7.24E-04	650	3.85E-04	717	5.38E-05
383	3.60E-06	450	8.69E-04	517	5.08E-04	584	7.29E-04	651	3.77E-04	718	5.20E-05
384	4.70E-06	451	9.22E-04	518	5.11E-04	585	7.26E-04	652	3.67E-04	719	5.02E-05
385	3.90E-06	452	9.64E-04	519	5.18E-04	586	7.28E-04	653	3.60E-04	720	4.87E-05
386	2.80E-06	453	9.91E-04	520	5.23E-04	587	7.31E-04	654	3.52E-04	721	4.72E-05
387	3.10E-06	454	1.00E-03	521	5.24E-04	588	7.31E-04	655	3.42E-04	722	4.60E-05
388	4.60E-06	455	9.82E-04	522	5.31E-04	589	7.32E-04	656	3.36E-04	723	4.43E-05
389	3.70E-06	456	9.35E-04	523	5.33E-04	590	7.34E-04	657	3.25E-04	724	4.29E-05
390	3.50E-06	457	8.93E-04	524	5.39E-04	591	7.36E-04	658	3.17E-04	725	4.14E-05
391	2.90E-06	458	8.24E-04	525	5.42E-04	592	7.35E-04	659	3.09E-04	726	4.04E-05
392	3.20E-06	459	7.57E-04	526	5.46E-04	593	7.36E-04	660	3.02E-04	727	3.91E-05
393	3.50E-06	460	6.93E-04	527	5.46E-04	594	7.36E-04	661	2.95E-04	728	3.75E-05
394	3.50E-06	461	6.41E-04	528	5.48E-04	595	7.36E-04	662	2.87E-04	729	3.67E-05
395	3.90E-06	462	6.01E-04	529	5.50E-04	596	7.34E-04	663	2.79E-04	730	3.53E-05
396	4.20E-06	463	5.64E-04	530	5.53E-04	597	7.33E-04	664	2.72E-04	731	3.41E-05
397	4.00E-06	464	5.38E-04	531	5.56E-04	598	7.34E-04	665	2.66E-04	732	3.30E-05
398	4.70E-06	465	5.21E-04	532	5.58E-04	599	7.33E-04	666	2.58E-04	733	3.20E-05
399	4.50E-06	466	5.00E-04	533	5.63E-04	600	7.30E-04	667	2.52E-04	734	3.09E-05
400	5.10E-06	467	4.83E-04	534	5.63E-04	601	7.31E-04	668	2.45E-04	735	2.99E-05
401	5.00E-06	468	4.72E-04	535	5.64E-04	602	7.29E-04	669	2.39E-04	736	2.91E-05
402	6.00E-06	469	4.51E-04	536	5.71E-04	603	7.27E-04	670	2.31E-04	737	2.79E-05
403	6.10E-06	470	4.33E-04	537	5.70E-04	604	7.24E-04	671	2.25E-04	738	2.70E-05
404	6.30E-06	471	3.96E-04	538	5.73E-04	605	7.20E-04	672	2.18E-04	739	2.59E-05
405	7.20E-06	472	3.72E-04	539	5.78E-04	606	7.19E-04	673	2.12E-04	740	2.55E-05
406	6.80E-06	473	3.50E-04	540	5.79E-04	607	7.12E-04	674	2.06E-04	741	2.45E-05
407	7.90E-06	474	3.29E-04	541	5.81E-04	608	7.12E-04	675	2.00E-04	742	2.38E-05
408	8.60E-06	475	3.08E-04	542	5.86E-04	609	7.06E-04	676	1.95E-04	743	2.31E-05
409	1.02E-05	476	2.91E-04	543	5.86E-04	610	7.03E-04	677	1.89E-04	744	2.23E-05
410	1.09E-05	477	2.76E-04	544	5.89E-04	611	6.99E-04	678	1.84E-04	745	2.16E-05
411	1.17E-05	478	2.65E-04	545	5.95E-04	612	6.93E-04	679	1.78E-04	746	2.09E-05
412	1.39E-05	479	2.57E-04	546	5.99E-04	613	6.89E-04	680	1.73E-04	747	2.02E-05
413	1.44E-05	480	2.54E-04	547	6.00E-04	614	6.85E-04	681	1.67E-04	748	1.94E-05
414	1.63E-05	481	2.50E-04	548	6.02E-04	615	6.81E-04	682	1.64E-04	749	1.87E-05
415	1.83E-05	482	2.50E-04	549	6.07E-04	616	6.72E-04	683	1.59E-04	750	1.86E-05
416	2.10E-05	483	2.51E-04	550	6.11E-04	617	6.66E-04	684	1.54E-04	751	1.79E-05
417	2.28E-05	484	2.54E-04	551	6.11E-04	618	6.60E-04	685	1.49E-04	752	1.72E-05
418	2.46E-05	485	2.59E-04	552	6.16E-04	619	6.53E-04	686	1.44E-04	753	1.66E-05
419	2.83E-05	486	2.62E-04	553	6.21E-04	620	6.44E-04	687	1.40E-04	754	1.62E-05
420	3.11E-05	487	2.67E-04	554	6.25E-04	621	6.38E-04	688	1.36E-04	755	1.58E-05
421	3.45E-05	488	2.73E-04	555	6.26E-04	622	6.31E-04	689	1.32E-04	756	1.51E-05
422	3.84E-05	489	2.76E-04	556	6.31E-04	623	6.23E-04	690	1.29E-04	757	1.48E-05
423	4.28E-05	490	2.82E-04	557	6.34E-04	624	6.17E-04	691	1.24E-04	758	1.43E-05
424	4.85E-05	491	2.89E-04	558	6.38E-04	625	6.07E-04	692	1.20E-04	759	1.38E-05
425	5.34E-05	492	2.96E-04	559	6.42E-04	626	6.01E-04	693	1.17E-04	760	1.33E-05
426	5.93E-05	493	3.01E-04	560	6.45E-04	627	5.93E-04	694	1.13E-04	761	1.30E-05
427	6.65E-05	494	3.12E-04	561	6.51E-04	628	5.86E-04	695	1.10E-04	762	1.26E-05
428	7.51E-05	495	3.20E-04	562	6.54E-04	629	5.76E-04	696	1.06E-04	763	1.21E-05
429	8.46E-05	496	3.31E-04	563	6.57E-04	630	5.68E-04	697	1.03E-04	764	1.17E-05
430	9.47E-05	497	3.42E-04	564	6.60E-04	631	5.60E-04	698	9.97E-05	765	1.16E-05
431	1.06E-04	498	3.54E-04	565	6.64E-04	632	5.51E-04	699	9.68E-05	766	1.11E-05
432	1.18E-04	499	3.62E-04	566	6.67E-04	633	5.41E-04	700	9.38E-05	767	1.09E-05
433	1.31E-04	500	3.75E-04	567	6.71E-04	634	5.32E-04	701	9.06E-05	768	1.03E-05
434	1.48E-04	501	3.85E-04	568	6.76E-04	635	5.23E-04	702	8.79E-05	769	1.03E-05
435	1.66E-04	502	3.96E-04	569	6.79E-04	636	5.14E-04	703	8.54E-05	770	9.80E-06
436	1.82E-04	503	4.07E-04	570	6.83E-04	637	5.04E-04	704	8.26E-05	771	9.40E-06
437	2.03E-04	504	4.15E-04	571	6.88E-04	638	4.97E-04	705	8.00E-05	772	9.20E-06
438	2.30E-04	505	4.22E-04	572	6.90E-04	639	4.86E-04	706	7.73E-05	773	8.90E-06
439	2.59E-04	506	4.35E-04	573	6.93E-04	640	4.76E-04	707	7.50E-05	774	8.70E-06
440	2.90E-04	507	4.43E-04	574	6.97E-04	641	4.64E-04	708	7.22E-05	775	8.50E-06
441	3.29E-04	508	4.49E-04	575	6.98E-04	642	4.57E-04	709	6.97E-05	776	8.10E-06
442	3.70E-04	509	4.58E-04	576	7.02E-04	643	4.47E-04	710	6.74E-05	777	7.80E-06
443	4.21E-04	510	4.66E-04	577	7.06E-04	644	4.39E-04	711	6.56E-05	778	7.50E-06
444	4.72E-04	511	4.71E-04	578	7.09E-04	645	4.28E-04	712	6.30E-05	779	7.60E-06
445	5.29E-04	512	4.77E-04	579	7.15E-04	646	4.20E-04	713	6.14E-05	780	7.60E-06
446	5.96E-04	513	4.85E-04	580	7.18E-04	647	4.11E-04	714	5.93E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	RPLED1X4 @18W4000K	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	0.072	18.4	0.926
NON-WORST CASE	120.0	60	0.153	18.2	0.992

Test Result

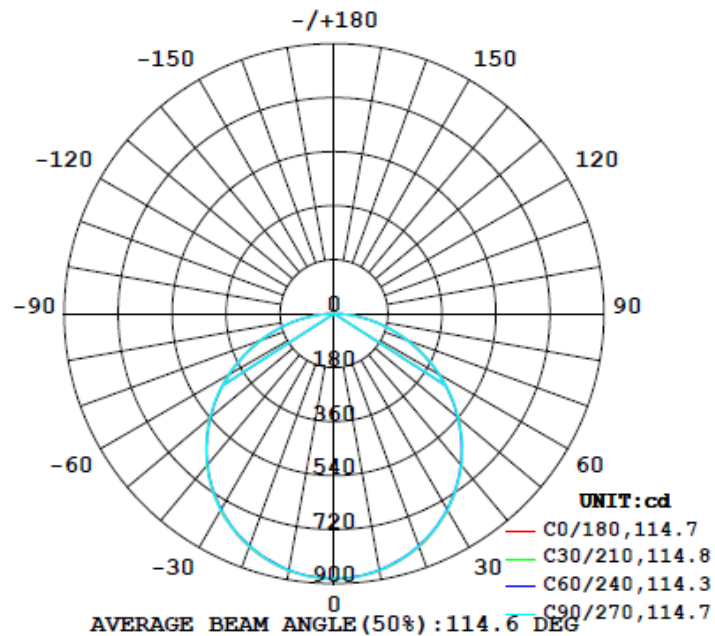
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
2611	165.4	164.9	114.6	114.4	141.9	77.4%

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

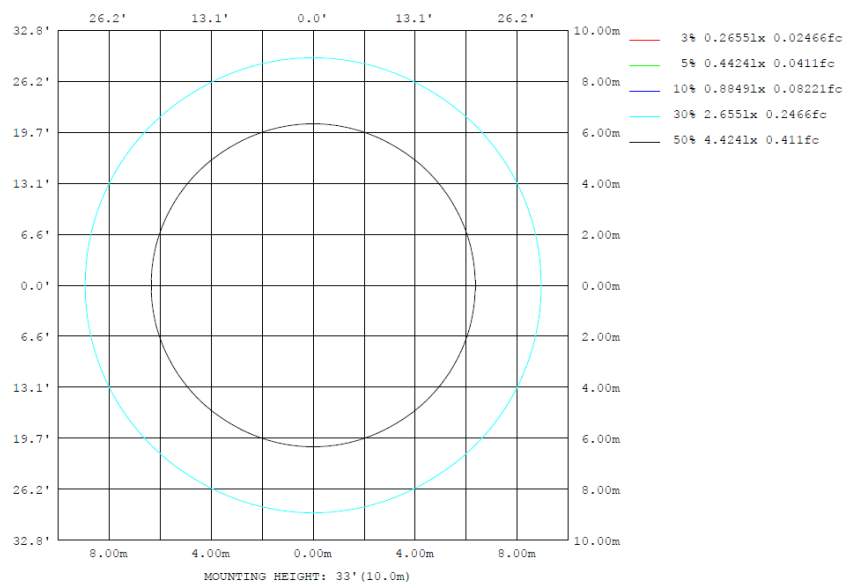
4.2 Goniophotometer Test

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	869.4	869.3	868.1	869.3	869.4	869.3	868.1	869.3	0- 10	83.64	83.64	3.2,3.2
20	827.6	825.0	824.9	825.0	827.6	825.0	824.9	825.0	10- 20	240.0	323.7	12.4,12.4
30	757.4	754.6	755.6	754.6	757.4	754.6	755.6	754.6	20- 30	365.7	689.4	26.4,26.4
40	660.4	658.8	659.3	658.8	660.4	658.8	659.3	658.8	30- 40	444.1	1133	43.4,43.4
50	540.8	538.9	540.2	538.9	540.8	538.9	540.2	538.9	40- 50	464.2	1598	61.2,61.2
60	406.2	403.2	404.7	403.2	406.2	403.2	404.7	403.2	50- 60	423.3	2021	77.4,77.4
70	262.6	259.4	260.3	259.4	262.6	259.4	260.3	259.4	60- 70	329.2	2350	90,90
80	122.2	119.3	119.5	119.3	122.2	119.3	119.5	119.3	70- 80	199.4	2550	97.6,97.6
90	0	0	0	0	0	0	0	0	80- 90	61.74	2611	100,100
100	0	0	0	0	0	0	0	0	90-100	0	2611	100,100
110	0	0	0	0	0	0	0	0	100-110	0	2611	100,100
120	0	0	0	0	0	0	0	0	110-120	0	2611	100,100
130	0	0	0	0	0	0	0	0	120-130	0	2611	100,100
140	0	0	0	0	0	0	0	0	130-140	0	2611	100,100
150	0	0	0	0	0	0	0	0	140-150	0	2611	100,100
160	0	0	0	0	0	0	0	0	150-160	0	2611	100,100
170	0	0	0	0	0	0	0	0	160-170	0	2611	100,100
180	0	0	0	0	0	0	0	0	170-180	0	2611	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	83.64	0-10	83.64	3.20%
10-20	240.04	0-20	323.68	12.40%
20-30	365.72	0-30	689.40	26.40%
30-40	444.09	0-40	1133.49	43.41%
40-50	464.17	0-50	1597.66	61.18%
50-60	423.35	0-60	2021.01	77.39%
60-70	329.17	0-70	2350.18	90.00%
70-80	199.41	0-80	2549.59	97.64%
80-90	61.74	0-90	2611.33	100.00%
90-100	0.00	0-100	2611.33	100.00%
100-110	0.00	0-110	2611.33	100.00%
110-120	0.00	0-120	2611.33	100.00%
120-130	0.00	0-130	2611.33	100.00%
130-140	0.00	0-140	2611.33	100.00%
140-150	0.00	0-150	2611.33	100.00%
150-160	0.00	0-160	2611.33	100.00%
160-170	0.00	0-170	2611.33	100.00%
170-180	0.00	0-180	2611.33	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		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	16.1	16.5	14.2	15.7	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	17.3	17.7	15.6	16.9	16.0	17.3	17.6
	8H	15.9	17.1	16.3	17.5	17.9	15.8	17.0	16.2	17.4	17.8
	12H	16.0	17.2	16.5	17.6	18.1	15.9	17.1	16.4	17.5	17.9
4H	2H	13.0	14.5	13.4	14.8	15.2	13.0	14.4	13.4	14.8	15.1
	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	17.9
	6H	16.8	17.8	17.3	18.2	18.7	16.7	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	18.9
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	18.5	19.0	17.2	18.0	17.7	18.5	18.9
	8H	17.7	18.3	18.2	18.8	19.3	17.6	18.2	18.1	18.7	19.2
	12H	18.0	18.6	18.5	19.1	19.6	17.9	18.5	18.4	18.9	19.5
12H	4H	16.5	17.3	16.9	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	17.8	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											
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	15.7	17.4	16.1	17.7	18.0	15.6	17.3	16.0	17.6	17.9
	3H	17.6	19.1	18.0	19.4	19.8	17.5	19.0	17.9	19.4	19.7
	4H	18.4	19.8	18.8	20.1	20.5	18.3	19.7	18.7	20.1	20.4
	6H	19.0	20.3	19.4	20.6	21.0	18.9	20.2	19.3	20.6	20.9
	8H	19.2	20.4	19.6	20.8	21.2	19.1	20.3	19.5	20.7	21.1
	12H	19.3	20.5	19.8	20.9	21.4	19.2	20.4	19.7	20.8	21.2
4H	2H	16.3	17.8	16.7	18.1	18.5	16.3	17.7	16.7	18.1	18.4
	3H	18.5	19.7	18.9	20.1	20.5	18.4	19.6	18.8	20.0	20.4
	4H	19.4	20.5	19.8	20.9	21.3	19.3	20.4	19.8	20.8	21.2
	6H	20.1	21.1	20.6	21.5	22.0	20.0	21.0	20.5	21.4	21.9
	8H	20.4	21.3	20.9	21.7	22.2	20.3	21.2	20.8	21.6	22.1
	12H	20.6	21.4	21.1	21.9	22.4	20.5	21.3	21.0	21.8	22.2
8H	4H	19.7	20.6	20.2	21.1	21.5	19.7	20.6	20.1	21.0	21.5
	6H	20.6	21.4	21.1	21.8	22.3	20.5	21.3	21.0	21.8	22.2
	8H	21.0	21.6	21.5	22.1	22.6	20.9	21.5	21.4	22.0	22.5
	12H	21.3	21.9	21.8	22.4	22.9	21.2	21.8	21.7	22.2	22.8
12H	4H	19.8	20.6	20.2	21.1	21.5	19.7	20.5	20.2	21.0	21.5
	6H	20.7	21.4	21.2	21.8	22.4	20.6	21.3	21.1	21.8	22.3
	8H	21.1	21.7	21.6	22.2	22.8	21.0	21.6	21.5	22.1	22.7

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	885	885	884	886	884	885	884	885	884	886	884	885	885	885	884	886	884	885	884
5	881	880	879	881	878	881	880	881	878	881	879	880	881	880	879	881	878	881	880
10	869	870	869	869	867	868	868	868	867	869	869	870	869	870	869	869	867	868	868
15	852	852	850	849	849	850	851	850	849	849	850	852	852	852	850	849	849	850	851
20	828	827	826	825	822	825	825	825	822	825	826	827	828	827	826	825	822	825	825
25	795	796	794	792	791	792	794	792	791	792	794	796	795	796	794	792	791	792	794
30	757	758	755	755	752	754	756	754	752	755	755	758	757	758	755	755	752	754	756
35	712	712	711	710	708	708	710	708	708	710	711	712	712	712	711	710	708	708	710
40	660	661	660	659	656	658	659	658	656	659	660	661	660	661	660	659	656	658	659
45	602	603	604	601	599	600	602	600	599	601	604	603	602	603	604	601	599	600	602
50	541	542	542	539	537	539	540	539	537	539	542	542	541	542	542	539	537	539	540
55	475	476	475	473	471	472	474	472	471	473	475	476	475	476	475	473	471	472	474
60	406	407	406	403	402	403	405	403	402	403	406	407	406	407	406	403	402	403	405
65	335	336	334	332	330	331	333	331	330	332	334	336	335	336	334	332	330	331	333
70	263	262	261	259	258	259	260	259	258	259	261	262	263	262	261	259	258	259	260
75	191	191	190	188	187	187	189	187	187	188	190	191	191	191	190	188	187	187	189
80	122	122	121	119	118	119	120	119	118	119	121	122	122	122	121	119	118	119	120
85	57.5	57.0	55.6	55.0	54.1	54.4	54.8	54.4	54.1	55.0	55.6	57.0	57.5	57.0	55.6	55.0	54.1	54.4	54.8
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)	295	300	315	330	345														
0	885	884	886	884	885														
5	881	878	881	879	880														
10	868	867	869	869	870														
15	850	849	849	850	852														
20	825	822	825	826	827														
25	792	791	792	794	796														
30	754	752	755	755	758														
35	708	708	710	711	712														
40	658	656	659	660	661														
45	600	599	601	604	603														
50	539	537	539	542	542														
55	472	471	473	475	476														
60	403	402	403	406	407														
65	331	330	332	334	336														
70	259	258	259	261	262														
75	187	187	188	190	191														
80	119	118	119	121	122														
85	54.4	54.1	55.0	55.6	57.0														
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 @18W4000K	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	18.2	0.992	7.65
277.0	60	0.072	18.4	0.926	7.69

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*****