

## 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: 2024-03-13

Review by:

*Vincent Yuan*

Technical Lead: Vincent Yuan

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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		3464
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	142.0
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.4
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	9.03
			277V	8.14
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
			277V	0.972
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		84.9
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	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		0.204
(Goniophotometer – Section 4.2)		Non-Worst Case		0.090
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.4
(Goniophotometer – Section 4.2)		Non-Worst Case		24.3

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-12	RPLED1X4 @25W4000K	240306004-S1
2	Goniophotometer Test	2024-03-12	RPLED1X4 @25W4000K	240306004-S1
3	THD and PF Test	2024-03-12	RPLED1X4 @25W4000K	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 @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

<b>Model No.</b>	RPLED1X4 @25W4000K	<b>Sample ID</b>	240306004-S1
<b>Operate time (Min.)</b>	10	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

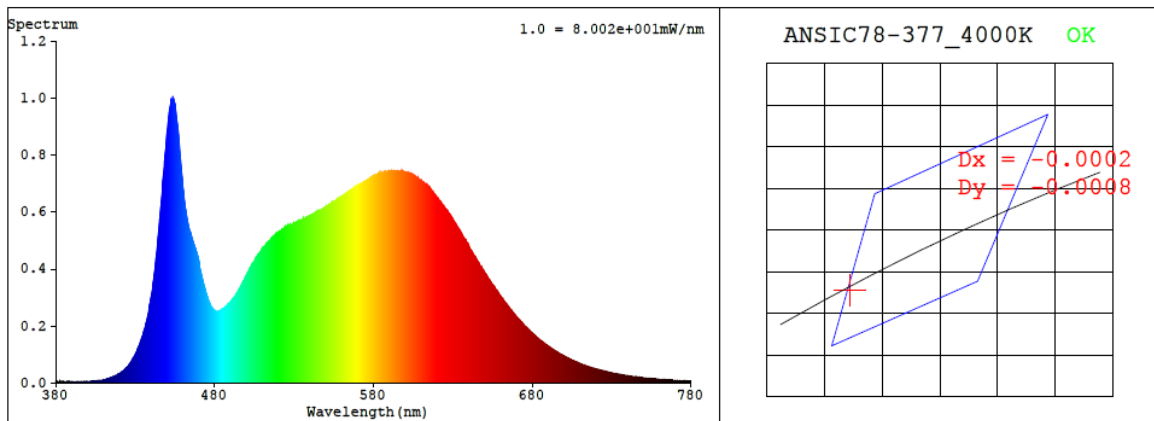
<b>Test Method</b>
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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 4<math>\pi</math> 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	0.204	24.4	0.995
277.0	60	0.090	24.3	0.972

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4250	84.9	18	-0.0003	84	95	-11%

#### 4.1 Integrating Sphere Test



#### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3699$   $y = 0.3692$  /  $u' = 0.2211$   $v' = 0.4966$  ( $duv = -3.34e-04$ )

CCT= 4250K Prcp WL:  $L_d = 578.3\text{nm}$  Purity=21.8%

Peak WL:  $L_p = 454\text{nm}$  FWHM:  $= 22.1\text{nm}$  Ratio: R=17.9% G=78.0% B=4.1%

Render Index:  $R_a = 84.9$  AvgR = 78.7 TM30:  $R_f = 84$   $R_g = 95$

EEL: 0.09462 A++ Highest

R1 =84 R2 =91 R3 =95 R4 =83 R5 =83 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

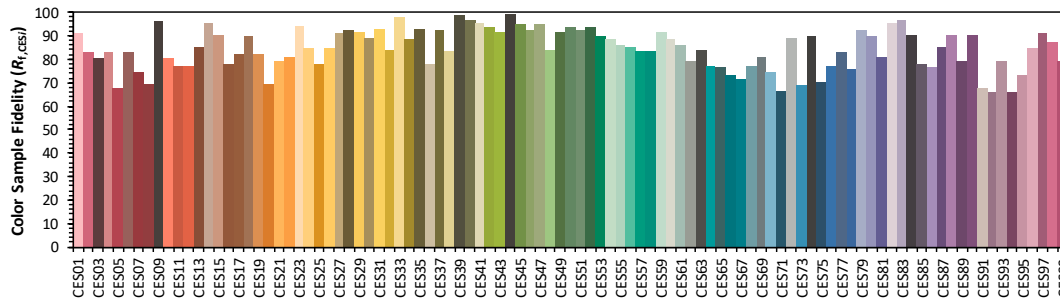
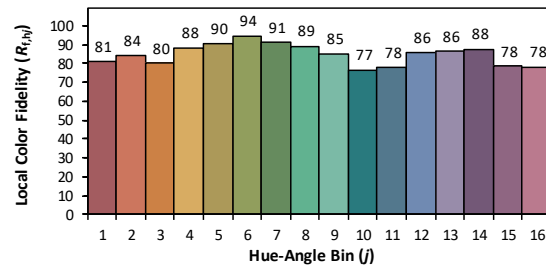
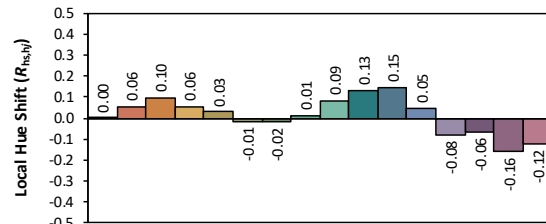
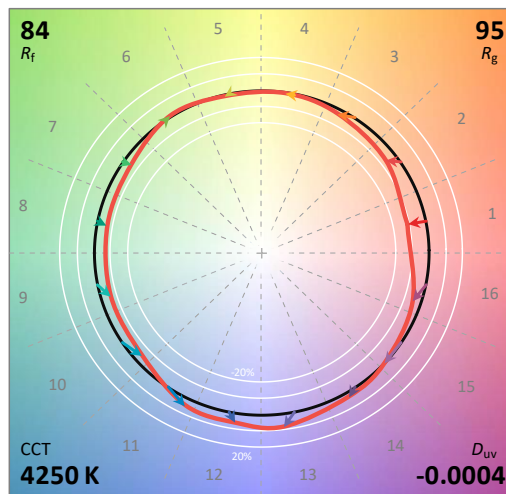
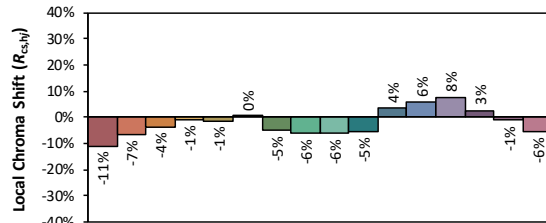
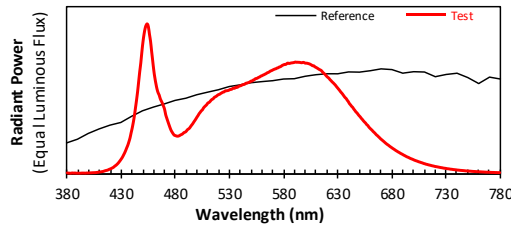
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/13

Model: RPLED1X4 @25W4000K



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

$x$  0.3698  
 $y$  0.3690  
 $u'$  0.2212  
 $v'$  0.4966

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	5.80E-06	447	6.82E-04	514	4.97E-04	581	7.30E-04	648	4.06E-04	715	5.81E-05
381	4.40E-06	448	7.41E-04	515	5.01E-04	582	7.30E-04	649	3.96E-04	716	5.64E-05
382	4.00E-06	449	8.15E-04	516	5.10E-04	583	7.35E-04	650	3.87E-04	717	5.44E-05
383	3.30E-06	450	8.81E-04	517	5.14E-04	584	7.39E-04	651	3.80E-04	718	5.26E-05
384	4.70E-06	451	9.32E-04	518	5.18E-04	585	7.36E-04	652	3.70E-04	719	5.12E-05
385	5.20E-06	452	9.71E-04	519	5.25E-04	586	7.37E-04	653	3.62E-04	720	4.90E-05
386	4.10E-06	453	9.93E-04	520	5.29E-04	587	7.40E-04	654	3.53E-04	721	4.79E-05
387	5.10E-06	454	1.00E-03	521	5.31E-04	588	7.40E-04	655	3.45E-04	722	4.65E-05
388	3.90E-06	455	9.81E-04	522	5.37E-04	589	7.42E-04	656	3.38E-04	723	4.51E-05
389	3.70E-06	456	9.31E-04	523	5.40E-04	590	7.43E-04	657	3.28E-04	724	4.36E-05
390	4.00E-06	457	8.85E-04	524	5.45E-04	591	7.46E-04	658	3.22E-04	725	4.21E-05
391	3.60E-06	458	8.18E-04	525	5.46E-04	592	7.44E-04	659	3.12E-04	726	4.08E-05
392	3.60E-06	459	7.54E-04	526	5.53E-04	593	7.44E-04	660	3.04E-04	727	3.97E-05
393	4.30E-06	460	6.91E-04	527	5.54E-04	594	7.44E-04	661	2.97E-04	728	3.79E-05
394	4.60E-06	461	6.40E-04	528	5.55E-04	595	7.44E-04	662	2.90E-04	729	3.70E-05
395	4.50E-06	462	6.00E-04	529	5.56E-04	596	7.42E-04	663	2.82E-04	730	3.59E-05
396	4.40E-06	463	5.65E-04	530	5.60E-04	597	7.41E-04	664	2.75E-04	731	3.45E-05
397	4.10E-06	464	5.41E-04	531	5.63E-04	598	7.43E-04	665	2.68E-04	732	3.32E-05
398	5.10E-06	465	5.25E-04	532	5.64E-04	599	7.43E-04	666	2.60E-04	733	3.27E-05
399	4.90E-06	466	5.01E-04	533	5.69E-04	600	7.39E-04	667	2.54E-04	734	3.11E-05
400	5.30E-06	467	4.85E-04	534	5.71E-04	601	7.38E-04	668	2.47E-04	735	3.04E-05
401	5.80E-06	468	4.70E-04	535	5.71E-04	602	7.38E-04	669	2.40E-04	736	2.95E-05
402	6.10E-06	469	4.51E-04	536	5.79E-04	603	7.35E-04	670	2.32E-04	737	2.82E-05
403	6.70E-06	470	4.30E-04	537	5.76E-04	604	7.33E-04	671	2.27E-04	738	2.75E-05
404	7.00E-06	471	3.95E-04	538	5.80E-04	605	7.30E-04	672	2.20E-04	739	2.67E-05
405	7.30E-06	472	3.72E-04	539	5.85E-04	606	7.26E-04	673	2.14E-04	740	2.58E-05
406	7.70E-06	473	3.50E-04	540	5.87E-04	607	7.21E-04	674	2.08E-04	741	2.47E-05
407	8.40E-06	474	3.29E-04	541	5.90E-04	608	7.21E-04	675	2.01E-04	742	2.42E-05
408	9.60E-06	475	3.08E-04	542	5.94E-04	609	7.14E-04	676	1.96E-04	743	2.32E-05
409	1.03E-05	476	2.90E-04	543	5.96E-04	610	7.10E-04	677	1.91E-04	744	2.24E-05
410	1.16E-05	477	2.78E-04	544	5.97E-04	611	7.06E-04	678	1.85E-04	745	2.20E-05
411	1.27E-05	478	2.66E-04	545	6.03E-04	612	7.02E-04	679	1.80E-04	746	2.12E-05
412	1.41E-05	479	2.58E-04	546	6.05E-04	613	6.97E-04	680	1.75E-04	747	2.07E-05
413	1.53E-05	480	2.55E-04	547	6.07E-04	614	6.93E-04	681	1.70E-04	748	1.97E-05
414	1.77E-05	481	2.52E-04	548	6.10E-04	615	6.89E-04	682	1.65E-04	749	1.91E-05
415	2.02E-05	482	2.51E-04	549	6.14E-04	616	6.80E-04	683	1.60E-04	750	1.86E-05
416	2.21E-05	483	2.52E-04	550	6.19E-04	617	6.73E-04	684	1.55E-04	751	1.81E-05
417	2.38E-05	484	2.56E-04	551	6.19E-04	618	6.67E-04	685	1.51E-04	752	1.75E-05
418	2.68E-05	485	2.60E-04	552	6.25E-04	619	6.59E-04	686	1.46E-04	753	1.72E-05
419	3.03E-05	486	2.63E-04	553	6.28E-04	620	6.50E-04	687	1.42E-04	754	1.64E-05
420	3.28E-05	487	2.69E-04	554	6.34E-04	621	6.44E-04	688	1.38E-04	755	1.58E-05
421	3.66E-05	488	2.75E-04	555	6.36E-04	622	6.38E-04	689	1.34E-04	756	1.53E-05
422	4.02E-05	489	2.78E-04	556	6.39E-04	623	6.29E-04	690	1.30E-04	757	1.50E-05
423	4.49E-05	490	2.83E-04	557	6.44E-04	624	6.22E-04	691	1.25E-04	758	1.45E-05
424	5.14E-05	491	2.93E-04	558	6.46E-04	625	6.13E-04	692	1.22E-04	759	1.40E-05
425	5.64E-05	492	2.99E-04	559	6.52E-04	626	6.07E-04	693	1.18E-04	760	1.35E-05
426	6.30E-05	493	3.04E-04	560	6.54E-04	627	5.99E-04	694	1.14E-04	761	1.32E-05
427	7.05E-05	494	3.15E-04	561	6.58E-04	628	5.92E-04	695	1.11E-04	762	1.29E-05
428	7.94E-05	495	3.24E-04	562	6.61E-04	629	5.82E-04	696	1.08E-04	763	1.25E-05
429	8.91E-05	496	3.34E-04	563	6.65E-04	630	5.73E-04	697	1.04E-04	764	1.20E-05
430	9.94E-05	497	3.45E-04	564	6.69E-04	631	5.65E-04	698	1.01E-04	765	1.17E-05
431	1.11E-04	498	3.56E-04	565	6.74E-04	632	5.56E-04	699	9.78E-05	766	1.12E-05
432	1.25E-04	499	3.67E-04	566	6.77E-04	633	5.46E-04	700	9.47E-05	767	1.08E-05
433	1.39E-04	500	3.79E-04	567	6.81E-04	634	5.38E-04	701	9.12E-05	768	1.05E-05
434	1.56E-04	501	3.89E-04	568	6.86E-04	635	5.29E-04	702	8.85E-05	769	1.02E-05
435	1.74E-04	502	4.02E-04	569	6.89E-04	636	5.18E-04	703	8.59E-05	770	1.00E-05
436	1.91E-04	503	4.11E-04	570	6.93E-04	637	5.09E-04	704	8.35E-05	771	9.60E-06
437	2.14E-04	504	4.20E-04	571	6.96E-04	638	5.02E-04	705	8.03E-05	772	9.20E-06
438	2.39E-04	505	4.27E-04	572	6.99E-04	639	4.91E-04	706	7.83E-05	773	8.90E-06
439	2.72E-04	506	4.39E-04	573	7.01E-04	640	4.81E-04	707	7.56E-05	774	8.80E-06
440	3.04E-04	507	4.48E-04	574	7.05E-04	641	4.68E-04	708	7.35E-05	775	8.60E-06
441	3.41E-04	508	4.54E-04	575	7.07E-04	642	4.60E-04	709	7.08E-05	776	8.10E-06
442	3.84E-04	509	4.62E-04	576	7.12E-04	643	4.50E-04	710	6.81E-05	777	8.00E-06
443	4.36E-04	510	4.72E-04	577	7.14E-04	644	4.44E-04	711	6.62E-05	778	7.60E-06
444	4.89E-04	511	4.76E-04	578	7.18E-04	645	4.32E-04	712	6.36E-05	779	7.60E-06
445	5.47E-04	512	4.82E-04	579	7.24E-04	646	4.23E-04	713	6.21E-05	780	7.60E-06
446	6.14E-04	513	4.91E-04	580	7.27E-04	647	4.13E-04	714	5.98E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	RPLED1X4 @25W4000K	<b>Sample ID</b>	240306004-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.8	<b>Humidity (%RH)</b>	42.2

<b>Test Method</b>
<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 <math>25 \pm 1^{\circ}\text{C}</math>, 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 <math>\pm 0.2</math> 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 <math>1.0^{\circ}</math> vertical intervals and <math>15^{\circ}</math> horizontal intervals.</p>

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
<b>WORST CASE</b>	120.0	60	0.204	24.4	0.995
<b>NON-WORST CASE</b>	277.0	60	0.090	24.3	0.972

#### 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		( $0^{\circ}$ - $60^{\circ}$ )
3464	165.4	165.0	114.7	114.6	142.0	77.4%

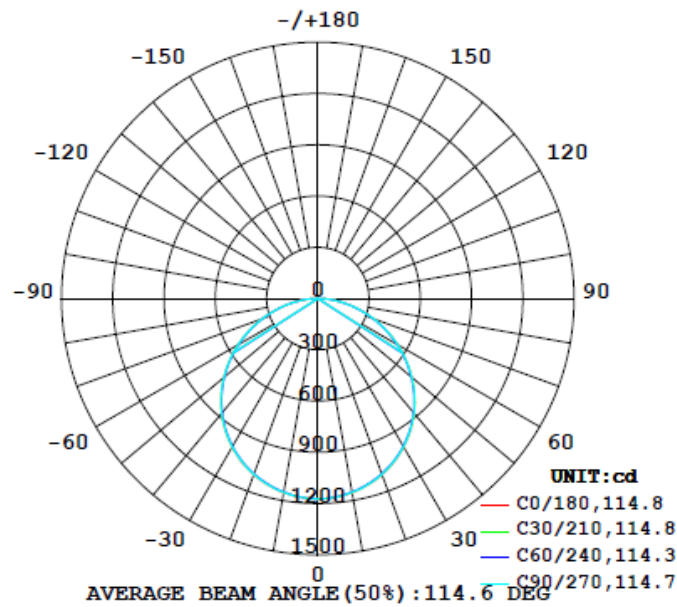
UGR		Spacing Criterion	
Crosswise	Endwise	( $0^{\circ}$ - $180^{\circ}$ )	( $90^{\circ}$ - $270^{\circ}$ )
21.4	21.3	1.28	1.28



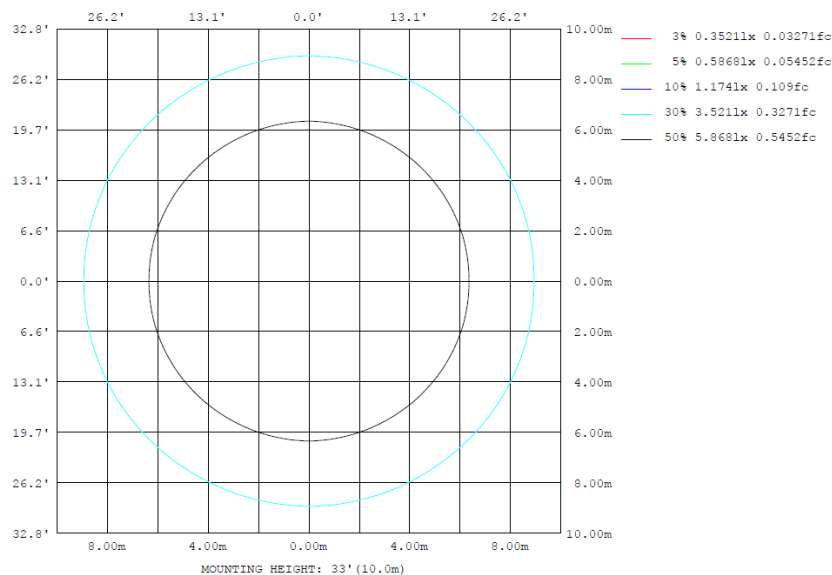
## 4.2 Goniophotometer Test

### 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	θlum, lamp
10	1155	1150	1152	1150	1155	1150	1152	1150	0- 10	110.9	110.9	3.2,3.2
20	1098	1093	1095	1093	1098	1093	1095	1093	10- 20	318.3	429.2	12.4,12.4
30	1004	999.9	1002	999.9	1004	999.9	1002	999.9	20- 30	485.0	914.2	26.4,26.4
40	875.2	872.6	874.9	872.6	875.2	872.6	874.9	872.6	30- 40	589.0	1503	43.4,43.4
50	717.5	714.3	717.2	714.3	717.5	714.3	717.2	714.3	40- 50	615.6	2119	61.2,61.2
60	538.9	534.9	536.9	534.9	538.9	534.9	536.9	534.9	50- 60	561.5	2680	77.4,77.4
70	348.8	343.5	346.0	343.5	348.8	343.5	346.0	343.5	60- 70	436.7	3117	90,90
80	162.6	158.1	158.8	158.1	162.6	158.1	158.8	158.1	70- 80	264.8	3382	97.6,97.6
90	0	0	0	0	0	0	0	0	80- 90	82.08	3464	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3464	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3464	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3464	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3464	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3464	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3464	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3464	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3464	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3464	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	110.90	0-10	110.90	3.20%
10-20	318.31	0-20	429.21	12.39%
20-30	485.03	0-30	914.24	26.39%
30-40	588.95	0-40	1503.19	43.40%
40-50	615.57	0-50	2118.76	61.17%
50-60	561.49	0-60	2680.25	77.38%
60-70	436.69	0-70	3116.94	89.98%
70-80	264.84	0-80	3381.78	97.63%
80-90	82.08	0-90	3463.86	100.00%
90-100	0.00	0-100	3463.86	100.00%
100-110	0.00	0-110	3463.86	100.00%
110-120	0.00	0-120	3463.86	100.00%
120-130	0.00	0-130	3463.86	100.00%
130-140	0.00	0-140	3463.86	100.00%
140-150	0.00	0-150	3463.86	100.00%
150-160	0.00	0-160	3463.86	100.00%
160-170	0.00	0-170	3463.86	100.00%
170-180	0.00	0-180	3463.86	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	16.7	17.1
	6H	15.7	17.0	16.1	17.3	17.7	15.6	16.9	16.0	17.2	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	18.9	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	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	17.8	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											

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	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	20.4	20.8	18.5	20.0	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	21.6	22.0	19.9	21.2	20.3	21.6	21.9
	8H	20.2	21.4	20.6	21.8	22.2	20.1	21.3	20.5	21.7	22.1
	12H	20.3	21.5	20.8	21.9	22.4	20.2	21.4	20.7	21.8	22.2
4H	2H	17.3	18.8	17.7	19.1	19.5	17.3	18.7	17.7	19.1	19.4
	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	22.2
	6H	21.1	22.1	21.6	22.5	23.0	21.0	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	23.2
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	22.6	22.5	23.2	23.6	21.9	22.5	22.4	23.1	23.5
	12H	22.3	22.9	22.8	23.4	23.9	22.2	22.8	22.7	23.2	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	22.1	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) y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1174	1174	1173	1173	1173	1174	1174	1174	1173	1173	1173	1174	1174	1174	1173	1173	1173	1174	1174
5	1169	1169	1167	1166	1166	1166	1167	1166	1166	1166	1167	1169	1169	1169	1167	1166	1166	1166	1167
10	1155	1153	1152	1150	1150	1151	1152	1151	1150	1150	1152	1153	1155	1153	1152	1150	1150	1151	1152
15	1130	1129	1128	1126	1125	1125	1128	1125	1125	1126	1128	1129	1130	1129	1128	1126	1125	1125	1128
20	1098	1098	1095	1093	1092	1093	1095	1093	1092	1093	1095	1098	1098	1098	1095	1093	1092	1093	1095
25	1056	1055	1053	1050	1049	1051	1052	1051	1049	1050	1053	1055	1056	1055	1053	1050	1049	1051	1052
30	1004	1005	1003	1000	998	999	1002	999	998	1000	1003	1005	1004	1005	1003	1000	998	999	1002
35	944	945	943	940	939	940	942	940	939	940	943	945	944	945	943	940	939	940	942
40	875	877	876	873	871	872	875	872	871	873	876	877	875	877	876	873	871	872	875
45	800	802	800	796	795	796	798	796	795	796	800	802	800	802	800	796	795	796	798
50	717	720	719	714	713	714	717	714	713	714	719	720	717	720	719	714	713	714	717
55	630	631	630	626	625	626	629	626	625	626	630	631	630	631	630	626	625	626	629
60	539	540	539	535	533	534	537	534	533	535	539	540	539	540	539	535	533	534	537
65	445	445	443	440	438	439	442	439	438	440	443	445	445	445	443	440	438	439	442
70	349	349	347	344	343	343	346	343	343	344	347	349	349	349	347	344	343	343	346
75	254	254	252	249	248	248	250	248	248	249	252	254	254	252	249	248	248	248	250
80	163	162	160	158	157	158	159	158	157	158	160	162	163	162	160	158	157	158	159
85	76.6	75.4	74.2	73.0	72.3	72.4	72.7	72.4	72.3	73.0	74.2	75.4	76.6	75.4	74.2	73.0	72.3	72.4	72.7
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) y (DEG)	285	300	315	330	345														
0	1174	1173	1173	1173	1174														
5	1166	1166	1166	1167	1169														
10	1151	1150	1150	1152	1153														
15	1125	1125	1126	1128	1129														
20	1093	1092	1093	1095	1098														
25	1051	1049	1050	1053	1055														
30	999	998	1000	1003	1005														
35	940	939	940	943	945														
40	872	871	873	876	877														
45	796	795	796	800	802														
50	714	713	714	719	720														
55	626	625	626	630	631														
60	534	533	535	539	540														
65	439	438	440	443	445														
70	343	343	344	347	349														
75	248	248	249	252	254														
80	158	157	158	160	162														
85	72.4	72.3	73.0	74.2	75.4														
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

<b>Model No.</b>	RPLED1X4 @25W4000K	<b>Sample ID</b>	240306004-S1
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

<b>Test Method</b>
<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 <math>25 \pm 1^{\circ}\text{C}</math>. 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	0.204	24.4	0.995	9.03
277.0	60	0.090	24.3	0.972	8.14

## 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\*\*\*\*\*