

## 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.**

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Issue Date: 2024-02-28  
Revised Date: N/A

## 1.0 Test Summary

DLC Technical Requirements V5.1

Integrated Retrofit Kits for 2x4 Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	IES LM-79-2008	3000		4689
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	139.6
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		33.6
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	8.41
			277V	8.45
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.996
			277V	0.985
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	5026
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.3
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%		77.8%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	19.7
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	IES LM-79-2008	0°-180°	1.0-2.0	1.26
		90°-270°	1.0-2.0	1.28
Input Voltage (V)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Cast		120.0
(Goniophotometer – Section 4.2)		Non-Worst Case		277.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.281
(Goniophotometer – Section 4.2)		Non-Worst Case		0.123
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		33.6
(Goniophotometer – Section 4.2)		Non-Worst Case		33.5

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-02-23	RPLED2X4 @35W5000K	240130004-S1
2	Goniophotometer Test	2024-02-23	RPLED2X4 @35W5000K	240130004-S1
3	THD and PF Test	2024-02-23	RPLED2X4 @35W5000K	240130004-S1

### Remark (If any)

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

## 3.0 Product Description

Luminaire Description: Model No. RPLED2X4 @35W5000K, 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>	RPLED2X4 @35W5000K	<b>Sample ID</b>	240130004-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

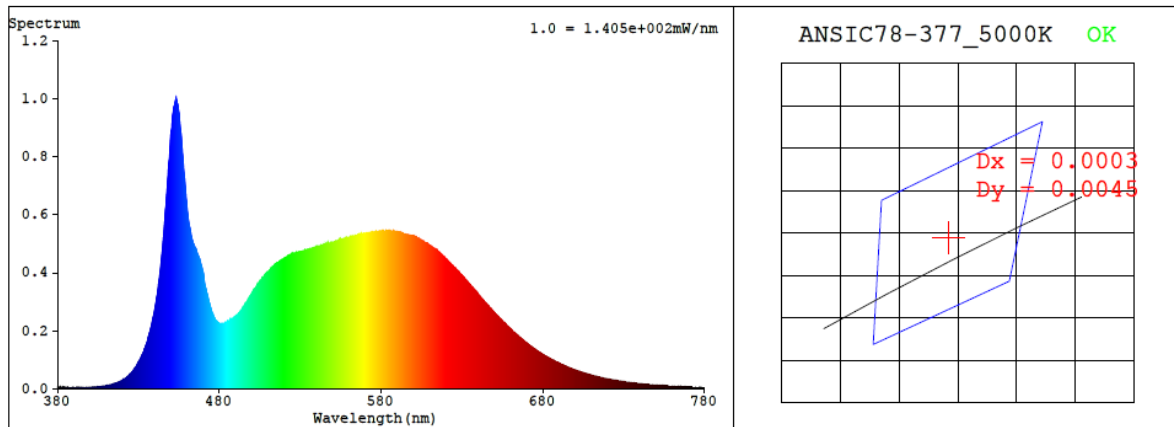
<b>Test Method</b>
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.281	33.6	0.996
277.0	60	0.123	33.5	0.985

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
5026	84.3	14	0.0021	84	95	-12%

#### 4.1 Integrating Sphere Test



#### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3447$   $y = 0.3556$  /  $u' = 0.2097$   $v' = 0.4865$  ( $duv=2.12e-03$ )

CCT= 5026K Prcp WL: Ld=570.3nm Purity=10.1%

Peak WL: Lp=453nm FWHM: =19.1nm Ratio:R=15.9% G=79.4% B=4.7%

Render Index: Ra = 84.3 AvgR = 77.8 TM30:Rf=84 Rg=95

EEL: 0.09740 A++ Highest

R1 =83	R2 =90	R3 =94	R4 =83	R5 =83	R6 =85	R7 =87
R8 =69	R9 =14	R10=75	R11=82	R12=61	R13=85	R14=97 R15=78

## 4.1 Integrating Sphere Test

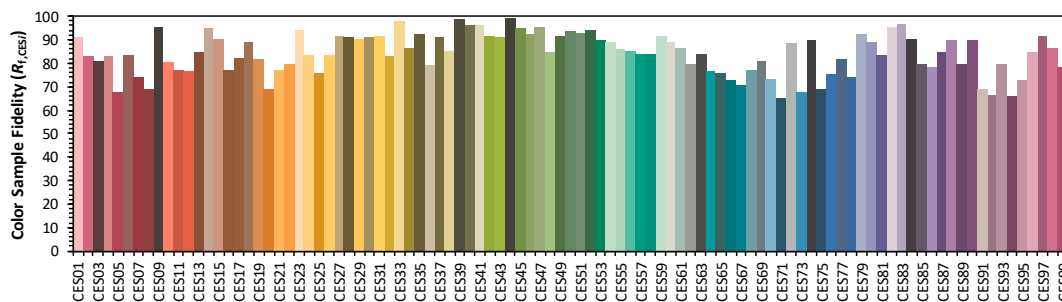
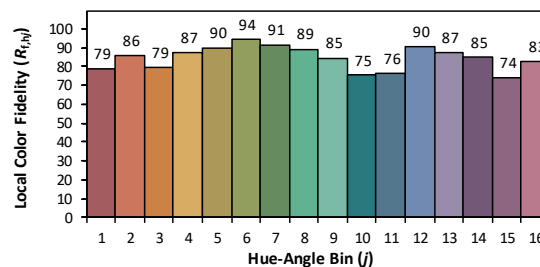
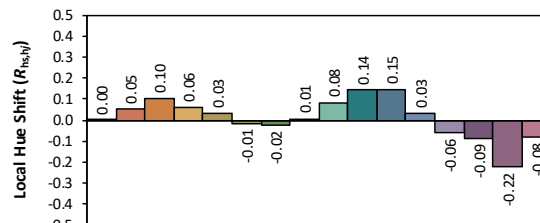
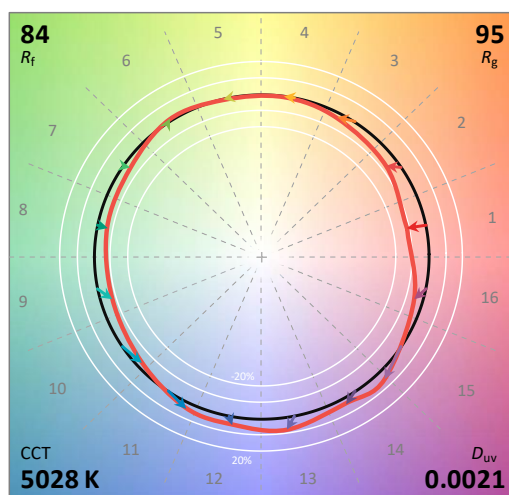
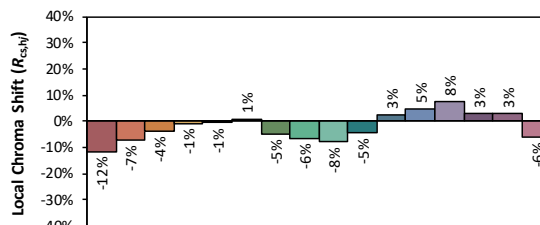
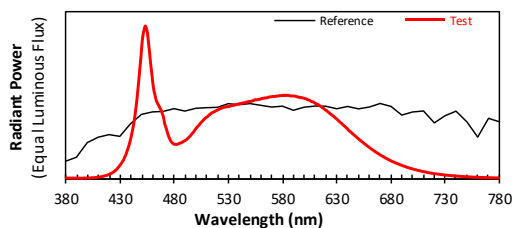
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/2/28

Model: RPLED2X4 @35W5000K



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

$x$  0.3447  
 $y$  0.3554  
 $u'$  0.2097  
 $v'$  0.4864

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	5.60E-06	447	6.37E-04	514	4.27E-04	581	5.46E-04	648	2.75E-04	715	3.98E-05
381	4.00E-06	448	7.18E-04	515	4.31E-04	582	5.43E-04	649	2.68E-04	716	3.87E-05
382	4.60E-06	449	7.91E-04	516	4.34E-04	583	5.45E-04	650	2.62E-04	717	3.74E-05
383	4.20E-06	450	8.81E-04	517	4.39E-04	584	5.44E-04	651	2.56E-04	718	3.60E-05
384	4.60E-06	451	9.41E-04	518	4.41E-04	585	5.45E-04	652	2.51E-04	719	3.48E-05
385	3.00E-06	452	9.72E-04	519	4.46E-04	586	5.42E-04	653	2.44E-04	720	3.39E-05
386	5.00E-06	453	9.97E-04	520	4.49E-04	587	5.42E-04	654	2.40E-04	721	3.29E-05
387	3.80E-06	454	9.83E-04	521	4.53E-04	588	5.40E-04	655	2.33E-04	722	3.20E-05
388	3.30E-06	455	9.53E-04	522	4.56E-04	589	5.41E-04	656	2.28E-04	723	3.08E-05
389	3.90E-06	456	8.90E-04	523	4.58E-04	590	5.41E-04	657	2.23E-04	724	2.99E-05
390	3.90E-06	457	8.25E-04	524	4.62E-04	591	5.39E-04	658	2.17E-04	725	2.90E-05
391	4.00E-06	458	7.54E-04	525	4.65E-04	592	5.39E-04	659	2.11E-04	726	2.80E-05
392	4.40E-06	459	6.93E-04	526	4.68E-04	593	5.36E-04	660	2.06E-04	727	2.72E-05
393	3.80E-06	460	6.28E-04	527	4.67E-04	594	5.34E-04	661	2.01E-04	728	2.65E-05
394	3.40E-06	461	5.78E-04	528	4.71E-04	595	5.32E-04	662	1.95E-04	729	2.56E-05
395	3.80E-06	462	5.48E-04	529	4.71E-04	596	5.31E-04	663	1.91E-04	730	2.49E-05
396	4.50E-06	463	5.16E-04	530	4.71E-04	597	5.30E-04	664	1.86E-04	731	2.38E-05
397	4.50E-06	464	4.98E-04	531	4.73E-04	598	5.29E-04	665	1.80E-04	732	2.31E-05
398	4.80E-06	465	4.85E-04	532	4.75E-04	599	5.27E-04	666	1.76E-04	733	2.25E-05
399	5.10E-06	466	4.71E-04	533	4.78E-04	600	5.25E-04	667	1.71E-04	734	2.16E-05
400	5.30E-06	467	4.57E-04	534	4.77E-04	601	5.22E-04	668	1.67E-04	735	2.10E-05
401	5.30E-06	468	4.43E-04	535	4.80E-04	602	5.21E-04	669	1.62E-04	736	2.04E-05
402	4.50E-06	469	4.21E-04	536	4.83E-04	603	5.17E-04	670	1.58E-04	737	1.95E-05
403	6.20E-06	470	3.99E-04	537	4.83E-04	604	5.14E-04	671	1.53E-04	738	1.89E-05
404	6.50E-06	471	3.60E-04	538	4.86E-04	605	5.12E-04	672	1.49E-04	739	1.85E-05
405	7.10E-06	472	3.38E-04	539	4.86E-04	606	5.08E-04	673	1.45E-04	740	1.79E-05
406	7.20E-06	473	3.15E-04	540	4.90E-04	607	5.04E-04	674	1.41E-04	741	1.72E-05
407	8.10E-06	474	2.91E-04	541	4.91E-04	608	5.02E-04	675	1.37E-04	742	1.69E-05
408	8.50E-06	475	2.71E-04	542	4.91E-04	609	4.99E-04	676	1.33E-04	743	1.62E-05
409	1.00E-05	476	2.56E-04	543	4.94E-04	610	4.94E-04	677	1.29E-04	744	1.56E-05
410	1.05E-05	477	2.43E-04	544	4.96E-04	611	4.89E-04	678	1.25E-04	745	1.54E-05
411	1.15E-05	478	2.34E-04	545	4.96E-04	612	4.87E-04	679	1.22E-04	746	1.47E-05
412	1.28E-05	479	2.28E-04	546	4.96E-04	613	4.84E-04	680	1.18E-04	747	1.42E-05
413	1.40E-05	480	2.25E-04	547	5.02E-04	614	4.79E-04	681	1.15E-04	748	1.39E-05
414	1.59E-05	481	2.25E-04	548	5.02E-04	615	4.74E-04	682	1.11E-04	749	1.34E-05
415	1.77E-05	482	2.24E-04	549	5.04E-04	616	4.70E-04	683	1.09E-04	750	1.31E-05
416	1.98E-05	483	2.26E-04	550	5.05E-04	617	4.63E-04	684	1.05E-04	751	1.26E-05
417	2.13E-05	484	2.29E-04	551	5.04E-04	618	4.59E-04	685	1.02E-04	752	1.23E-05
418	2.41E-05	485	2.33E-04	552	5.09E-04	619	4.53E-04	686	9.92E-05	753	1.19E-05
419	2.59E-05	486	2.33E-04	553	5.10E-04	620	4.48E-04	687	9.70E-05	754	1.14E-05
420	2.95E-05	487	2.38E-04	554	5.14E-04	621	4.43E-04	688	9.36E-05	755	1.10E-05
421	3.26E-05	488	2.41E-04	555	5.16E-04	622	4.37E-04	689	9.11E-05	756	1.07E-05
422	3.63E-05	489	2.46E-04	556	5.15E-04	623	4.31E-04	690	8.87E-05	757	1.04E-05
423	4.12E-05	490	2.50E-04	557	5.16E-04	624	4.25E-04	691	8.53E-05	758	1.00E-05
424	4.52E-05	491	2.54E-04	558	5.18E-04	625	4.20E-04	692	8.30E-05	759	9.70E-06
425	5.13E-05	492	2.61E-04	559	5.19E-04	626	4.15E-04	693	8.06E-05	760	9.50E-06
426	5.72E-05	493	2.67E-04	560	5.21E-04	627	4.09E-04	694	7.83E-05	761	9.20E-06
427	6.43E-05	494	2.75E-04	561	5.24E-04	628	4.04E-04	695	7.54E-05	762	8.90E-06
428	7.33E-05	495	2.82E-04	562	5.25E-04	629	3.96E-04	696	7.29E-05	763	8.60E-06
429	8.09E-05	496	2.91E-04	563	5.26E-04	630	3.91E-04	697	7.10E-05	764	8.60E-06
430	9.17E-05	497	2.99E-04	564	5.28E-04	631	3.84E-04	698	6.85E-05	765	8.10E-06
431	1.01E-04	498	3.07E-04	565	5.28E-04	632	3.77E-04	699	6.67E-05	766	7.80E-06
432	1.13E-04	499	3.18E-04	566	5.29E-04	633	3.71E-04	700	6.48E-05	767	7.70E-06
433	1.23E-04	500	3.28E-04	567	5.31E-04	634	3.65E-04	701	6.28E-05	768	7.50E-06
434	1.41E-04	501	3.37E-04	568	5.34E-04	635	3.59E-04	702	6.05E-05	769	7.00E-06
435	1.55E-04	502	3.45E-04	569	5.35E-04	636	3.52E-04	703	5.90E-05	770	7.00E-06
436	1.77E-04	503	3.52E-04	570	5.35E-04	637	3.46E-04	704	5.70E-05	771	6.80E-06
437	1.96E-04	504	3.61E-04	571	5.37E-04	638	3.39E-04	705	5.51E-05	772	6.60E-06
438	2.19E-04	505	3.70E-04	572	5.37E-04	639	3.33E-04	706	5.34E-05	773	6.40E-06
439	2.45E-04	506	3.76E-04	573	5.37E-04	640	3.26E-04	707	5.19E-05	774	6.20E-06
440	2.74E-04	507	3.84E-04	574	5.38E-04	641	3.18E-04	708	5.03E-05	775	6.00E-06
441	3.08E-04	508	3.92E-04	575	5.40E-04	642	3.11E-04	709	4.84E-05	776	5.80E-06
442	3.44E-04	509	3.98E-04	576	5.40E-04	643	3.06E-04	710	4.71E-05	777	5.40E-06
443	3.86E-04	510	4.03E-04	577	5.42E-04	644	2.99E-04	711	4.53E-05	778	5.60E-06
444	4.39E-04	511	4.08E-04	578	5.42E-04	645	2.94E-04	712	4.41E-05	779	5.60E-06
445	4.96E-04	512	4.16E-04	579	5.44E-04	646	2.87E-04	713	4.28E-05	780	5.60E-06
446	5.66E-04	513	4.20E-04	580	5.43E-04	647	2.81E-04	714	4.09E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	RPLED2X4 @35W5000K	<b>Sample ID</b>	240130004-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.8	<b>Humidity (%RH)</b>	42.3

<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	0.281	33.6	0.996
<b>NON-WORST CASE</b>	277.0	60	0.123	33.5	0.985

#### 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		( $0^\circ$ - $60^\circ$ )
4689	164.1	164.3	113.2	113.9	139.6	77.8%

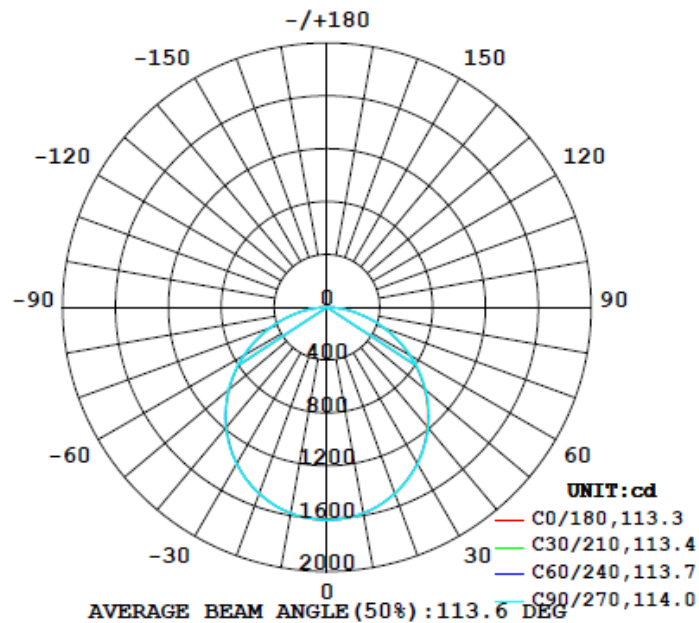
UGR		Spacing Criterion	
Crosswise	Endwise	( $0^\circ$ - $180^\circ$ )	( $90^\circ$ - $270^\circ$ )
19.6	19.7	1.26	1.28



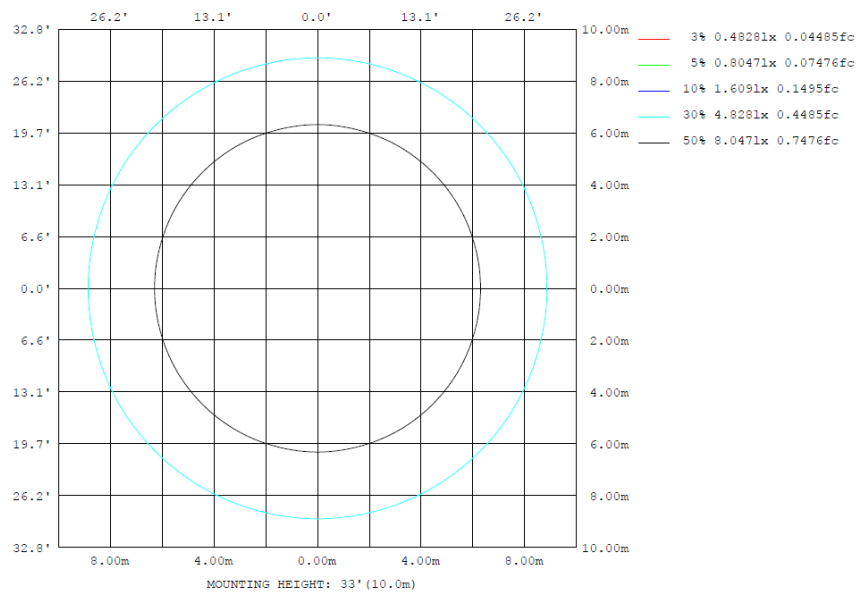
## 4.2 Goniophotometer Test

### Lighting Distribution Curve

**LUMINOUS INTENSITY DISTRIBUTION DIAGRAM**



### Isolux Plot



## 4.2 Goniophotometer Test

### Zonal Lumen Summary

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1581	1581	1583	1581	1581	1581	1583	1581	0- 10	152.3	152.3	3.25, 3.25
20	1500	1500	1502	1500	1500	1500	1502	1500	10- 20	436.8	589.1	12.6, 12.6
30	1364	1367	1369	1367	1364	1367	1369	1367	20- 30	663.5	1253	26.7, 26.7
40	1183	1189	1191	1189	1183	1189	1191	1189	30- 40	802.1	2055	43.8, 43.8
50	966.1	970.5	974.9	970.5	966.1	970.5	974.9	970.5	40- 50	835.3	2890	61.6, 61.6
60	720.4	723.0	728.4	723.0	720.4	723.0	728.4	723.0	50- 60	759.2	3649	77.8, 77.8
70	459.2	461.7	464.9	461.7	459.2	461.7	464.9	461.7	60- 70	586.7	4236	90.3, 90.3
80	205.1	205.6	207.5	205.6	205.1	205.6	207.5	205.6	70- 80	349.5	4586	97.8, 97.8
90	0	0	0	0	0	0	0	0	80- 90	103.6	4689	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	4689	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4689	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4689	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4689	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4689	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4689	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4689	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4689	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4689	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	152.33	0-10	152.33	3.25%
10-20	436.79	0-20	589.12	12.56%
20-30	663.50	0-30	1252.62	26.71%
30-40	802.14	0-40	2054.76	43.82%
40-50	835.29	0-50	2890.05	61.63%
50-60	759.22	0-60	3649.27	77.82%
60-70	586.73	0-70	4236.00	90.34%
70-80	349.53	0-80	4585.53	97.79%
80-90	103.61	0-90	4689.14	100.00%
90-100	0.00	0-100	4689.14	100.00%
100-110	0.00	0-110	4689.14	100.00%
110-120	0.00	0-120	4689.14	100.00%
120-130	0.00	0-130	4689.14	100.00%
130-140	0.00	0-140	4689.14	100.00%
140-150	0.00	0-150	4689.14	100.00%
150-160	0.00	0-160	4689.14	100.00%
160-170	0.00	0-170	4689.14	100.00%
170-180	0.00	0-180	4689.14	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				
		9.7	11.3	10.0	11.6	11.9	9.7	11.4	10.1	11.7	12.0
	3H	11.5	13.0	11.9	13.4	13.7	11.6	13.1	12.0	13.4	13.8
	4H	12.3	13.7	12.7	14.0	14.4	12.3	13.7	12.7	14.1	14.5
	6H	12.8	14.1	13.2	14.5	14.9	12.9	14.2	13.3	14.6	14.9
	8H	13.0	14.3	13.4	14.6	15.0	13.1	14.3	13.5	14.7	15.1
	12H	13.1	14.3	13.6	14.7	15.1	13.2	14.4	13.6	14.8	15.2
4H	2H	10.3	11.7	10.7	12.1	12.5	10.4	11.8	10.8	12.1	12.5
	3H	12.4	13.6	12.8	14.0	14.4	12.5	13.7	12.9	14.1	14.5
	4H	13.3	14.4	13.7	14.8	15.2	13.3	14.4	13.8	14.8	15.3
	6H	14.0	14.9	14.4	15.4	15.8	14.0	15.0	14.5	15.4	15.9
	8H	14.2	15.1	14.7	15.5	16.0	14.3	15.2	14.7	15.6	16.1
	12H	14.4	15.2	14.9	15.7	16.1	14.5	15.2	14.9	15.7	16.2
8H	4H	13.6	14.5	14.1	14.9	15.4	13.7	14.6	14.1	15.0	15.5
	6H	14.4	15.2	14.9	15.7	16.1	14.5	15.2	15.0	15.7	16.2
	8H	14.8	15.4	15.3	15.9	16.4	14.8	15.5	15.3	16.0	16.5
	12H	15.0	15.6	15.5	16.1	16.7	15.1	15.7	15.6	16.2	16.7
12H	4H	13.7	14.5	14.2	14.9	15.4	13.7	14.5	14.2	15.0	15.5
	6H	14.5	15.2	15.1	15.7	16.2	14.6	15.2	15.1	15.7	16.2
	8H	14.9	15.5	15.4	16.0	16.5	15.0	15.5	15.5	16.0	16.6

Maximum UGR = 16.7

### 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				
		15.1	16.7	15.4	17.0	17.3	15.1	16.8	15.5	17.1	17.4
	3H	16.9	18.4	17.3	18.8	19.1	17.0	18.5	17.4	18.8	19.2
	4H	17.7	19.1	18.1	19.4	19.8	17.7	19.1	18.1	19.5	19.9
	6H	18.2	19.5	18.6	19.9	20.3	18.3	19.6	18.7	20.0	20.3
	8H	18.4	19.7	18.8	20.0	20.4	18.5	19.7	18.9	20.1	20.5
	12H	18.5	19.7	19.0	20.1	20.5	18.6	19.8	19.0	20.2	20.6
4H	2H	15.7	17.1	16.1	17.5	17.9	15.8	17.2	16.2	17.5	17.9
	3H	17.8	19.0	18.2	19.4	19.8	17.9	19.1	18.3	19.5	19.9
	4H	18.7	19.8	19.1	20.2	20.6	18.7	19.8	19.2	20.2	20.7
	6H	19.4	20.3	19.8	20.8	21.2	19.4	20.4	19.9	20.8	21.3
	8H	19.6	20.5	20.1	20.9	21.4	19.7	20.6	20.1	21.0	21.5
	12H	19.8	20.6	20.3	21.1	21.5	19.9	20.6	20.3	21.1	21.6
8H	4H	19.0	19.9	19.5	20.3	20.8	19.1	20.0	19.5	20.4	20.9
	6H	19.8	20.6	20.3	21.1	21.5	19.9	20.6	20.4	21.1	21.6
	8H	20.2	20.8	20.7	21.3	21.8	20.2	20.9	20.7	21.4	21.9
	12H	20.4	21.0	20.9	21.5	22.1	20.5	21.1	21.0	21.6	22.1
12H	4H	19.1	19.9	19.6	20.3	20.8	19.1	19.9	19.6	20.4	20.9
	6H	19.9	20.6	20.5	21.1	21.6	20.0	20.6	20.5	21.1	21.6
	8H	20.3	20.9	20.8	21.4	21.9	20.4	20.9	20.9	21.4	22.0

Maximum UGR = 22.1

## 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	1609	1608	1610	1609	1610	1609	1610	1609	1610	1609	1610	1608	1609	1608	1610	1609	1610	1609	1610
5	1604	1601	1604	1601	1603	1603	1603	1603	1601	1604	1601	1604	1601	1604	1601	1603	1603	1603	1603
10	1581	1580	1583	1581	1583	1581	1583	1581	1583	1581	1583	1580	1581	1580	1583	1581	1583	1581	1583
15	1548	1548	1547	1547	1549	1547	1549	1547	1549	1547	1547	1548	1548	1548	1547	1547	1549	1547	1549
20	1500	1499	1501	1500	1501	1500	1502	1500	1501	1500	1501	1499	1500	1499	1501	1500	1501	1500	1502
25	1439	1439	1441	1439	1441	1439	1442	1439	1441	1439	1441	1439	1439	1439	1441	1439	1441	1439	1442
30	1364	1364	1367	1367	1368	1368	1369	1368	1367	1367	1367	1364	1364	1364	1367	1367	1368	1368	1369
35	1279	1279	1281	1283	1284	1284	1286	1284	1283	1281	1279	1279	1279	1279	1281	1283	1284	1284	1286
40	1183	1183	1186	1189	1190	1190	1191	1190	1189	1186	1183	1183	1183	1183	1186	1189	1190	1190	1191
45	1079	1079	1081	1084	1086	1085	1089	1085	1086	1084	1081	1079	1079	1079	1081	1084	1086	1085	1089
50	966	966	968	971	972	973	975	973	972	971	968	966	966	966	968	971	972	973	975
55	845	845	847	850	852	853	855	853	852	850	847	845	845	845	847	850	852	853	855
60	720	720	721	723	726	726	728	726	723	721	720	720	720	720	721	723	726	726	728
65	590	590	592	593	594	596	598	596	594	593	592	590	590	590	592	593	594	596	598
70	459	459	460	462	462	463	465	463	462	462	460	459	459	459	460	462	462	463	465
75	329	329	330	331	331	332	333	332	331	331	330	329	329	329	330	331	331	332	333
80	205	205	205	206	205	206	207	206	205	206	205	205	205	205	205	206	205	206	207
85	91.2	91.2	91.0	90.8	91.4	92.1	93.0	92.1	91.4	90.8	91.0	91.2	91.2	91.2	91.0	90.8	91.4	92.1	93.0
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	1609	1610	1609	1610	1608														
5	1603	1603	1601	1604	1601														
10	1581	1583	1581	1583	1580														
15	1547	1549	1547	1547	1548														
20	1500	1501	1500	1501	1499														
25	1439	1441	1439	1441	1439														
30	1368	1368	1367	1367	1364														
35	1284	1284	1283	1281	1279														
40	1190	1190	1189	1186	1183														
45	1085	1086	1084	1081	1079														
50	973	972	971	968	966														
55	853	852	850	847	845														
60	726	726	723	721	720														
65	596	594	593	592	590														
70	463	462	462	460	459														
75	332	331	331	330	329														
80	206	205	206	205	205														
85	92.1	91.4	90.8	91.0	91.2														
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>	RPLED2X4 @35W5000K	<b>Sample ID</b>	240130004-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 25±1°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	0.281	33.6	0.996	8.41
277.0	60	0.123	33.5	0.985	8.45

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