

## 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: 2024-03-08

Revised Date: N/A

## 1.0 Test Summary

DLC Technical Requirements V5.1

Integrated Retrofit Kits for 2x2 Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	IES LM-79-2008	2000		3431
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	140.6
		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	9.16
			277V	8.43
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	4245
		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%		76.7%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	21.5
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	IES LM-79-2008	0°-180°	1.0-2.0	1.30
		90°-270°	1.0-2.0	1.30
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	2024-03-06	RPLED2X2 @25W4000K	240306002-S1
2	Goniophotometer Test	2024-03-06	RPLED2X2 @25W4000K	240306002-S1
3	THD and PF Test	2024-03-06	RPLED2X2 @25W4000K	240306002-S1

### Remark (If any)

1. The results contained in this report pertain only to the tested samples.
2. Test Troffer is Lithonia 2GT8 lensed 2x2.
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. RPLED2X2 @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>	RPLED2X2 @25W4000K	<b>Sample ID</b>	240306002-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

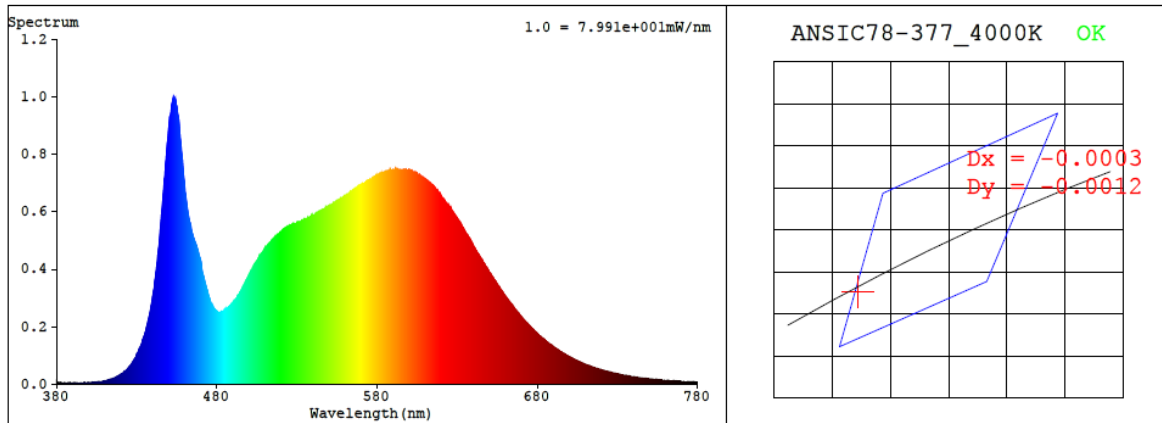
<b>Test Method</b>
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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
4245	85.0	18	-0.0005	84	95	-11%

#### 4.1 Integrating Sphere Test



#### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3700$   $y = 0.3690$  /  $u' = 0.2213$   $v' = 0.4965$  ( $duv = -4.72e-04$ )

CCT= 4245K Prcp WL:  $L_d = 578.4\text{nm}$  Purity=21.7%

Peak WL:  $L_p = 453\text{nm}$  FWHM:  $\approx 22.0\text{nm}$  Ratio: R=17.9% G=78.0% B=4.1%

Render Index:  $R_a = 85.0$  AvgR = 78.8 TM30:  $R_f = 85$   $R_g = 96$

EEL: 0.09463 A++ Highest

R1 =84 R2 =91 R3 =95 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

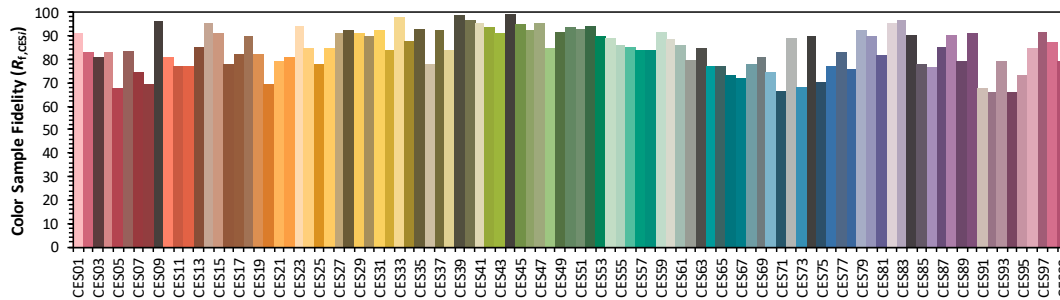
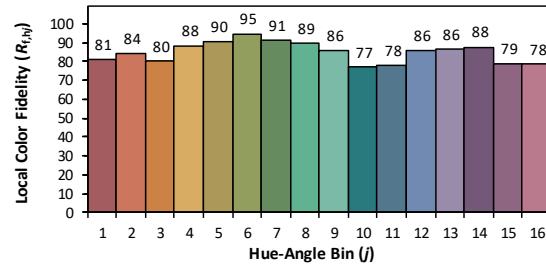
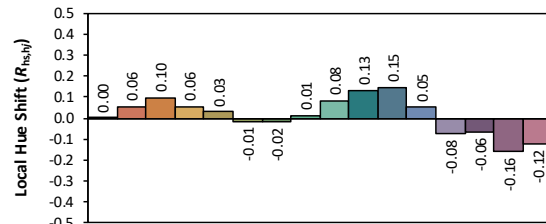
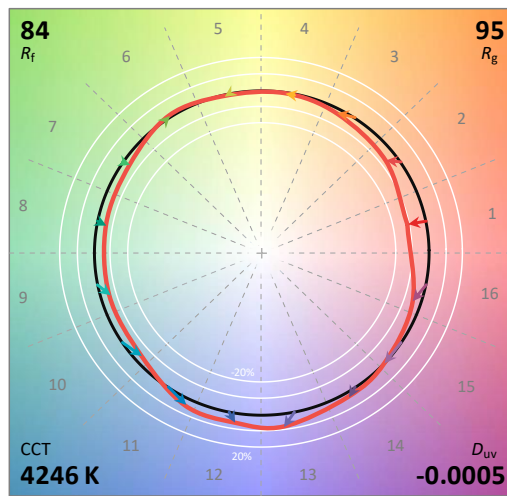
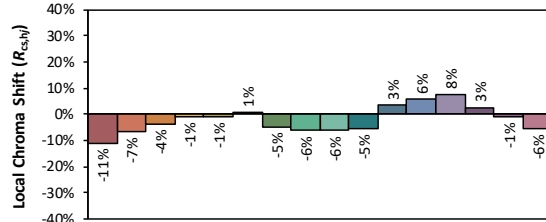
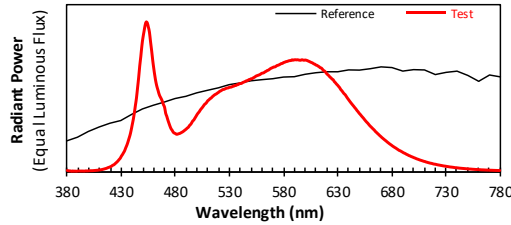
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/8

Model: RPLED2X2 @25W4000K



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

$x$  0.3699  
 $y$  0.3688  
 $u'$  0.2213  
 $v'$  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	7.80E-06	447	7.05E-04	514	4.99E-04	581	7.30E-04	648	4.08E-04	715	5.83E-05
381	6.00E-06	448	7.69E-04	515	5.05E-04	582	7.33E-04	649	4.00E-04	716	5.64E-05
382	5.10E-06	449	8.41E-04	516	5.11E-04	583	7.35E-04	650	3.90E-04	717	5.52E-05
383	4.60E-06	450	8.95E-04	517	5.16E-04	584	7.37E-04	651	3.82E-04	718	5.30E-05
384	2.50E-06	451	9.36E-04	518	5.20E-04	585	7.40E-04	652	3.73E-04	719	5.09E-05
385	4.70E-06	452	9.77E-04	519	5.25E-04	586	7.41E-04	653	3.65E-04	720	4.99E-05
386	2.90E-06	453	9.99E-04	520	5.30E-04	587	7.42E-04	654	3.57E-04	721	4.86E-05
387	4.00E-06	454	9.92E-04	521	5.36E-04	588	7.47E-04	655	3.47E-04	722	4.67E-05
388	2.90E-06	455	9.64E-04	522	5.39E-04	589	7.44E-04	656	3.39E-04	723	4.52E-05
389	3.30E-06	456	9.30E-04	523	5.44E-04	590	7.46E-04	657	3.30E-04	724	4.39E-05
390	4.40E-06	457	8.67E-04	524	5.48E-04	591	7.47E-04	658	3.23E-04	725	4.25E-05
391	4.70E-06	458	8.09E-04	525	5.49E-04	592	7.46E-04	659	3.14E-04	726	4.12E-05
392	4.00E-06	459	7.44E-04	526	5.53E-04	593	7.47E-04	660	3.06E-04	727	3.98E-05
393	4.20E-06	460	6.88E-04	527	5.56E-04	594	7.45E-04	661	2.99E-04	728	3.83E-05
394	4.20E-06	461	6.39E-04	528	5.58E-04	595	7.44E-04	662	2.92E-04	729	3.73E-05
395	3.90E-06	462	5.96E-04	529	5.59E-04	596	7.44E-04	663	2.84E-04	730	3.63E-05
396	3.70E-06	463	5.65E-04	530	5.63E-04	597	7.47E-04	664	2.78E-04	731	3.49E-05
397	5.10E-06	464	5.41E-04	531	5.64E-04	598	7.45E-04	665	2.69E-04	732	3.39E-05
398	4.70E-06	465	5.15E-04	532	5.65E-04	599	7.43E-04	666	2.62E-04	733	3.27E-05
399	4.90E-06	466	4.99E-04	533	5.69E-04	600	7.45E-04	667	2.55E-04	734	3.14E-05
400	5.80E-06	467	4.85E-04	534	5.71E-04	601	7.44E-04	668	2.48E-04	735	3.07E-05
401	5.90E-06	468	4.68E-04	535	5.75E-04	602	7.41E-04	669	2.41E-04	736	2.97E-05
402	6.40E-06	469	4.46E-04	536	5.75E-04	603	7.38E-04	670	2.35E-04	737	2.89E-05
403	6.30E-06	470	4.30E-04	537	5.80E-04	604	7.35E-04	671	2.28E-04	738	2.77E-05
404	6.90E-06	471	3.90E-04	538	5.81E-04	605	7.31E-04	672	2.22E-04	739	2.65E-05
405	7.50E-06	472	3.70E-04	539	5.86E-04	606	7.28E-04	673	2.16E-04	740	2.63E-05
406	8.10E-06	473	3.45E-04	540	5.88E-04	607	7.25E-04	674	2.10E-04	741	2.51E-05
407	8.90E-06	474	3.24E-04	541	5.89E-04	608	7.20E-04	675	2.04E-04	742	2.44E-05
408	9.50E-06	475	3.03E-04	542	5.93E-04	609	7.17E-04	676	1.98E-04	743	2.33E-05
409	1.03E-05	476	2.86E-04	543	5.97E-04	610	7.11E-04	677	1.92E-04	744	2.28E-05
410	1.14E-05	477	2.76E-04	544	6.00E-04	611	7.09E-04	678	1.86E-04	745	2.20E-05
411	1.27E-05	478	2.63E-04	545	6.04E-04	612	7.04E-04	679	1.81E-04	746	2.15E-05
412	1.39E-05	479	2.58E-04	546	6.07E-04	613	7.00E-04	680	1.76E-04	747	2.08E-05
413	1.58E-05	480	2.54E-04	547	6.09E-04	614	6.94E-04	681	1.71E-04	748	2.01E-05
414	1.76E-05	481	2.50E-04	548	6.14E-04	615	6.92E-04	682	1.66E-04	749	1.94E-05
415	1.98E-05	482	2.51E-04	549	6.15E-04	616	6.84E-04	683	1.61E-04	750	1.88E-05
416	2.17E-05	483	2.53E-04	550	6.20E-04	617	6.76E-04	684	1.57E-04	751	1.83E-05
417	2.48E-05	484	2.55E-04	551	6.21E-04	618	6.71E-04	685	1.52E-04	752	1.75E-05
418	2.78E-05	485	2.59E-04	552	6.26E-04	619	6.64E-04	686	1.47E-04	753	1.72E-05
419	3.00E-05	486	2.63E-04	553	6.30E-04	620	6.54E-04	687	1.42E-04	754	1.67E-05
420	3.34E-05	487	2.67E-04	554	6.35E-04	621	6.47E-04	688	1.39E-04	755	1.60E-05
421	3.68E-05	488	2.73E-04	555	6.39E-04	622	6.40E-04	689	1.35E-04	756	1.56E-05
422	4.27E-05	489	2.78E-04	556	6.42E-04	623	6.31E-04	690	1.31E-04	757	1.51E-05
423	4.56E-05	490	2.84E-04	557	6.45E-04	624	6.26E-04	691	1.26E-04	758	1.46E-05
424	5.17E-05	491	2.91E-04	558	6.47E-04	625	6.17E-04	692	1.23E-04	759	1.43E-05
425	5.83E-05	492	2.97E-04	559	6.52E-04	626	6.13E-04	693	1.19E-04	760	1.38E-05
426	6.49E-05	493	3.08E-04	560	6.57E-04	627	6.01E-04	694	1.15E-04	761	1.33E-05
427	7.26E-05	494	3.15E-04	561	6.58E-04	628	5.94E-04	695	1.12E-04	762	1.30E-05
428	8.16E-05	495	3.25E-04	562	6.61E-04	629	5.85E-04	696	1.08E-04	763	1.22E-05
429	8.98E-05	496	3.38E-04	563	6.66E-04	630	5.78E-04	697	1.05E-04	764	1.21E-05
430	1.03E-04	497	3.45E-04	564	6.70E-04	631	5.69E-04	698	1.01E-04	765	1.18E-05
431	1.14E-04	498	3.57E-04	565	6.75E-04	632	5.60E-04	699	9.87E-05	766	1.14E-05
432	1.26E-04	499	3.68E-04	566	6.77E-04	633	5.48E-04	700	9.55E-05	767	1.10E-05
433	1.39E-04	500	3.81E-04	567	6.83E-04	634	5.40E-04	701	9.24E-05	768	1.07E-05
434	1.58E-04	501	3.91E-04	568	6.88E-04	635	5.30E-04	702	8.97E-05	769	1.03E-05
435	1.75E-04	502	3.99E-04	569	6.92E-04	636	5.21E-04	703	8.62E-05	770	1.01E-05
436	1.96E-04	503	4.11E-04	570	6.95E-04	637	5.14E-04	704	8.38E-05	771	9.60E-06
437	2.20E-04	504	4.20E-04	571	6.98E-04	638	5.04E-04	705	8.12E-05	772	9.30E-06
438	2.44E-04	505	4.29E-04	572	6.99E-04	639	4.93E-04	706	7.83E-05	773	9.20E-06
439	2.74E-04	506	4.39E-04	573	7.03E-04	640	4.83E-04	707	7.59E-05	774	8.80E-06
440	3.11E-04	507	4.49E-04	574	7.08E-04	641	4.73E-04	708	7.36E-05	775	8.60E-06
441	3.47E-04	508	4.55E-04	575	7.10E-04	642	4.63E-04	709	7.12E-05	776	8.30E-06
442	3.92E-04	509	4.63E-04	576	7.13E-04	643	4.54E-04	710	6.88E-05	777	8.10E-06
443	4.42E-04	510	4.74E-04	577	7.17E-04	644	4.45E-04	711	6.72E-05	778	7.90E-06
444	4.92E-04	511	4.79E-04	578	7.21E-04	645	4.36E-04	712	6.42E-05	779	7.80E-06
445	5.60E-04	512	4.87E-04	579	7.22E-04	646	4.27E-04	713	6.25E-05	780	7.80E-06
446	6.27E-04	513	4.91E-04	580	7.28E-04	647	4.18E-04	714	6.01E-05	N/A	N/A

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	RPLED2X2 @25W4000K	<b>Sample ID</b>	240306002-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.9	<b>Humidity (%RH)</b>	41.8

<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\pm1^{\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		( $0^{\circ}$ - $60^{\circ}$ )
3431	166.2	166.2	117.8	117.6	140.6	76.7%

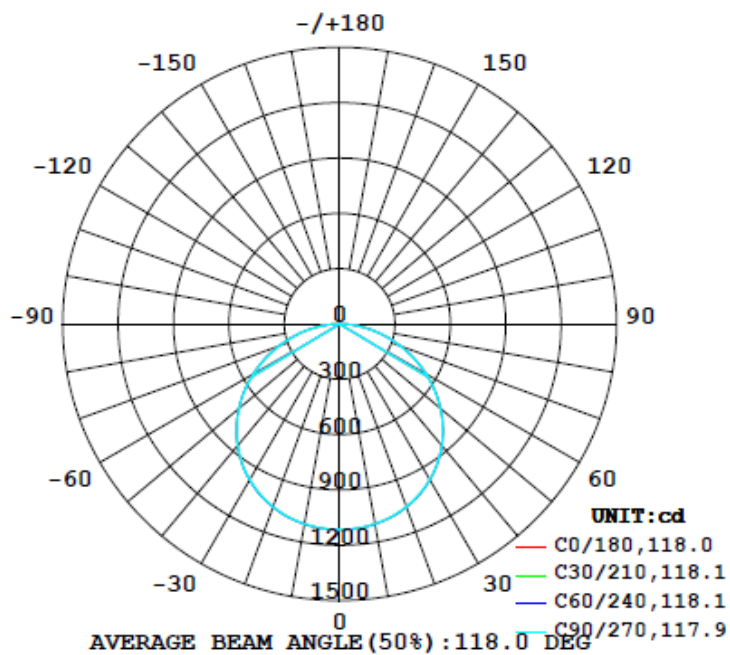
UGR		Spacing Criterion	
Crosswise	Endwise	( $0^{\circ}$ - $180^{\circ}$ )	( $90^{\circ}$ - $270^{\circ}$ )
21.5	21.5	1.30	1.30



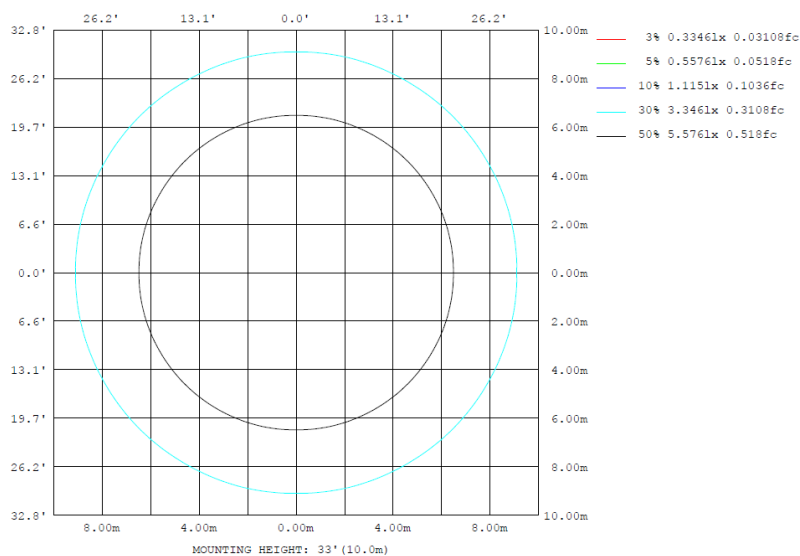
## 4.2 Goniophotometer Test

### 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	1100	1101	1100	1101	1100	1101	1100	1101	0- 10	105.8	105.8	3.08,3.08
20	1055	1057	1055	1057	1055	1057	1055	1057	10- 20	306.0	411.8	12,12
30	974.9	977.8	974.6	977.8	974.9	977.8	974.6	977.8	20- 30	470.6	882.4	25.7,25.7
40	859.5	861.7	858.6	861.7	859.5	861.7	858.6	861.7	30- 40	577.4	1460	42.5,42.5
50	711.9	714.3	711.0	714.3	711.9	714.3	711.0	714.3	40- 50	609.8	2070	60.3,60.3
60	539.6	540.1	537.8	540.1	539.6	540.1	537.8	540.1	50- 60	562.0	2632	76.7,76.7
70	351.1	351.9	349.5	351.9	351.1	351.9	349.5	351.9	60- 70	441.7	3073	89.6,89.6
80	164.4	165.2	163.2	165.2	164.4	165.2	163.2	165.2	70- 80	271.1	3344	97.5,97.5
90	0	0	0	0	0	0	0	0	80- 90	87.00	3431	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3431	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3431	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3431	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3431	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3431	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3431	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3431	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3431	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3431	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	105.82	0-10	105.82	3.08%
10-20	305.97	0-20	411.79	12.00%
20-30	470.57	0-30	882.36	25.71%
30-40	577.41	0-40	1459.77	42.54%
40-50	609.82	0-50	2069.59	60.31%
50-60	562.00	0-60	2631.59	76.69%
60-70	441.66	0-70	3073.25	89.56%
70-80	271.12	0-80	3344.37	97.46%
80-90	87.00	0-90	3431.37	100.00%
90-100	0.00	0-100	3431.37	100.00%
100-110	0.00	0-110	3431.37	100.00%
110-120	0.00	0-120	3431.37	100.00%
120-130	0.00	0-130	3431.37	100.00%
130-140	0.00	0-140	3431.37	100.00%
140-150	0.00	0-150	3431.37	100.00%
150-160	0.00	0-160	3431.37	100.00%
160-170	0.00	0-170	3431.37	100.00%
170-180	0.00	0-180	3431.37	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	12.4	14.1	12.8	14.4	14.7
	3H	14.4	15.9	14.7	16.2	16.6	14.3	15.8	14.7	16.2	16.5
	4H	15.1	16.6	15.5	16.9	17.3	15.1	16.5	15.5	16.9	17.2
	6H	15.7	17.1	16.1	17.4	17.8	15.7	17.0	16.1	17.4	17.8
	8H	16.0	17.2	16.4	17.6	18.0	15.9	17.2	16.3	17.6	18.0
	12H	16.1	17.3	16.5	17.7	18.1	16.1	17.3	16.5	17.7	18.1
4H	2H	13.1	14.5	13.5	14.9	15.2	13.1	14.5	13.5	14.9	15.2
	3H	15.3	16.5	15.7	16.9	17.3	15.2	16.5	15.7	16.8	17.2
	4H	16.2	17.3	16.6	17.7	18.1	16.1	17.2	16.6	17.6	18.1
	6H	16.9	17.9	17.4	18.3	18.8	16.9	17.9	17.3	18.3	18.7
	8H	17.2	18.1	17.7	18.5	19.0	17.2	18.1	17.6	18.5	19.0
	12H	17.4	18.2	17.9	18.7	19.2	17.4	18.2	17.9	18.7	19.1
8H	4H	16.5	17.4	17.0	17.9	18.3	16.5	17.4	17.0	17.9	18.3
	6H	17.4	18.2	17.9	18.7	19.2	17.4	18.2	17.9	18.6	19.1
	8H	17.8	18.5	18.3	19.0	19.5	17.8	18.4	18.3	19.0	19.4
	12H	18.1	18.7	18.6	19.2	19.8	18.1	18.7	18.6	19.2	19.7
12H	4H	16.6	17.4	17.1	17.9	18.3	16.6	17.4	17.0	17.8	18.3
	6H	17.5	18.2	18.0	18.7	19.2	17.5	18.2	18.0	18.6	19.2
	8H	17.9	18.6	18.5	19.0	19.6	17.9	18.5	18.4	19.0	19.6

Maximum UGR = 19.8

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	16.7	18.4	17.1	18.7	19.0
	3H	18.7	20.2	19.0	20.5	20.9	18.6	20.1	19.0	20.5	20.8
	4H	19.4	20.9	19.8	21.2	21.6	19.4	20.8	19.8	21.2	21.5
	6H	20.0	21.4	20.4	21.7	22.1	20.0	21.3	20.4	21.7	22.1
	8H	20.3	21.5	20.7	21.9	22.3	20.2	21.5	20.6	21.9	22.3
	12H	20.4	21.6	20.8	22.0	22.4	20.4	21.6	20.8	22.0	22.4
4H	2H	17.4	18.8	17.8	19.2	19.5	17.4	18.8	17.8	19.2	19.5
	3H	19.6	20.8	20.0	21.2	21.6	19.5	20.8	20.0	21.1	21.5
	4H	20.5	21.6	20.9	22.0	22.4	20.4	21.5	20.9	21.9	22.4
	6H	21.2	22.2	21.7	22.6	23.1	21.2	22.2	21.6	22.6	23.0
	8H	21.5	22.4	22.0	22.8	23.3	21.5	22.4	21.9	22.8	23.3
	12H	21.7	22.5	22.2	23.0	23.5	21.7	22.5	22.2	23.0	23.4
8H	4H	20.8	21.7	21.3	22.2	22.6	20.8	21.7	21.3	22.2	22.6
	6H	21.7	22.5	22.2	23.0	23.5	21.7	22.5	22.2	22.9	23.4
	8H	22.1	22.8	22.6	23.3	23.8	22.1	22.7	22.6	23.3	23.7
	12H	22.4	23.0	22.9	23.5	24.1	22.4	23.0	22.9	23.5	24.0
12H	4H	20.9	21.7	21.4	22.2	22.6	20.9	21.7	21.3	22.1	22.6
	6H	21.8	22.5	22.3	23.0	23.5	21.8	22.5	22.3	22.9	23.5
	8H	22.2	22.9	22.8	23.3	23.9	22.2	22.8	22.7	23.3	23.9

Maximum UGR = 24.1

## 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	1115	1115	1114	1114	1115	1115	1113	1115	1115	1114	1114	1115	1115	1115	1114	1114	1115	1115	1113
5	1112	1113	1112	1113	1112	1112	1112	1112	1112	1113	1112	1113	1112	1113	1112	1113	1112	1112	1112
10	1100	1102	1101	1101	1101	1101	1100	1101	1101	1101	1101	1102	1100	1102	1101	1101	1101	1101	1100
15	1084	1084	1083	1084	1083	1084	1082	1084	1083	1084	1083	1084	1084	1084	1083	1084	1083	1084	1082
20	1055	1056	1056	1057	1057	1056	1055	1056	1057	1056	1056	1055	1056	1056	1057	1057	1056	1056	1055
25	1020	1022	1021	1021	1021	1021	1018	1021	1021	1021	1021	1022	1020	1022	1021	1021	1021	1021	1018
30	975	977	976	978	976	977	975	977	976	978	976	977	975	977	976	978	976	977	975
35	923	923	923	924	924	923	921	923	924	924	923	923	923	923	923	924	924	923	921
40	859	862	862	862	861	862	859	862	861	862	862	862	859	862	862	862	861	862	859
45	790	792	791	791	790	790	789	790	790	791	791	792	790	792	791	791	790	790	789
50	712	714	714	714	713	713	711	713	713	714	714	714	712	714	714	714	713	713	711
55	628	630	630	630	629	629	627	629	629	630	630	630	628	630	630	630	629	629	627
60	540	540	541	540	540	539	538	539	540	540	541	540	540	540	541	540	540	539	538
65	446	448	447	447	446	446	445	446	446	447	447	448	446	448	447	447	446	446	445
70	351	353	352	352	351	350	349	350	351	352	352	353	351	353	352	352	351	350	349
75	257	257	257	257	257	256	255	256	257	257	257	257	257	257	257	257	257	256	255
80	164	165	166	165	165	164	163	164	165	165	166	165	164	165	166	165	165	164	163
85	77.9	78.6	78.8	78.9	78.9	78.2	77.8	78.2	78.9	78.9	78.8	78.6	77.9	78.6	78.8	78.9	78.9	78.2	77.8
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) y (DEG)	285	300	315	330	345														
0	1115	1115	1114	1114	1115														
5	1112	1112	1113	1112	1113														
10	1101	1101	1101	1101	1102														
15	1084	1083	1084	1083	1084														
20	1056	1057	1057	1056	1056														
25	1021	1021	1021	1021	1022														
30	977	976	978	976	977														
35	923	924	924	923	923														
40	862	861	862	862	862														
45	790	790	791	791	792														
50	713	713	714	714	714														
55	629	629	630	630	630														
60	539	540	540	541	540														
65	446	446	447	447	448														
70	350	351	352	352	353														
75	256	257	257	257	257														
80	164	165	165	166	165														
85	78.2	78.9	78.9	78.8	78.6														
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>	RPLED2X2 @25W4000K	<b>Sample ID</b>	240306002-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	9.16
277.0	60	0.090	24.3	0.972	8.43

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