

## 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 2x2 Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	IES LM-79-2008	2000		3395
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	134.7
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		25.2
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	8.85
			277V	8.72
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.996
			277V	0.974
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	5101
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.2
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		13
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%		76.7%
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	1.30
		90°-270°	1.0-2.0	1.32
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		0.211
(Goniophotometer – Section 4.2)		Non-Worst Case		0.093
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		25.2
(Goniophotometer – Section 4.2)		Non-Worst Case		25.0

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-06	RPLED2X2 @25W5000K	240306002-S1
2	Goniophotometer Test	2024-03-06	RPLED2X2 @25W5000K	240306002-S1
3	THD and PF Test	2024-03-06	RPLED2X2 @25W5000K	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 @25W5000K, 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 @25W5000K	<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

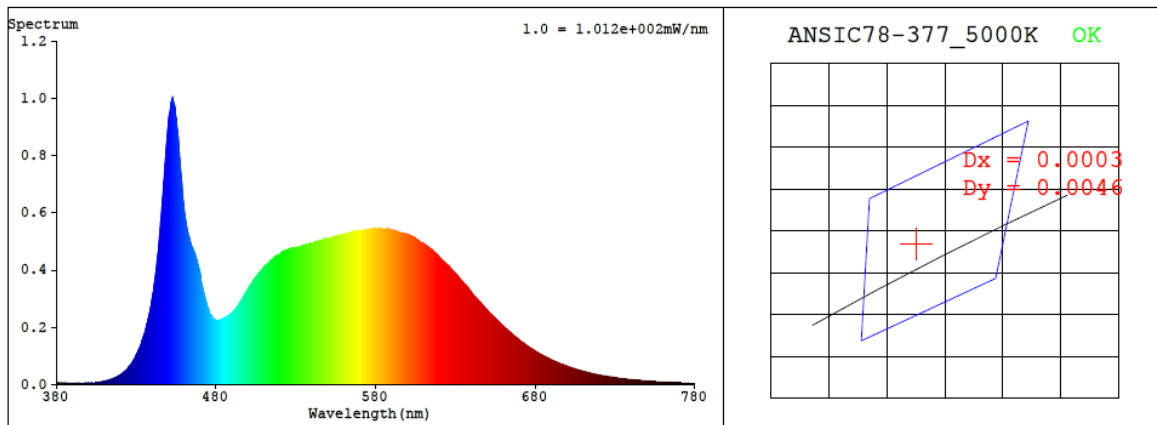
<b>Test Method</b>
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.211	25.2	0.996
277.0	60	0.093	25.0	0.974

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
5101	84.2	13	0.0022	84	95	-12%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3427$   $y = 0.3540$  /  $u' = 0.2089$   $v' = 0.4855$  ( $duv=2.16e-03$ )

CCT= 5101K Prcp WL: Ld=569.0nm Purity=9.0%

Peak WL: Lp=453nm FWHM: =19.6nm Ratio:R=15.7% G=79.6% B=4.7%

Render Index: Ra = 84.2 AvgR = 77.6 TM30:Rf=84 Rg=95

EEL: 0.09846 A++ Highest

R1 =83 R2 =90 R3 =93 R4 =84 R5 =83 R6 =85 R7 =87

R8 =69 R9 =13 R10=74 R11=83 R12=61 R13=85 R14=97 R15=78

## 4.1 Integrating Sphere Test

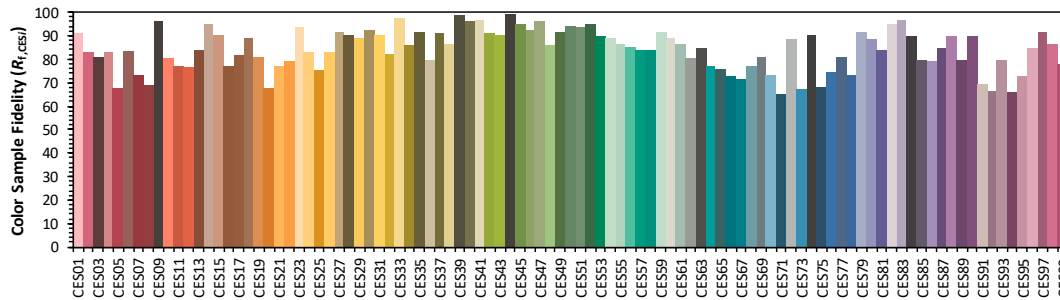
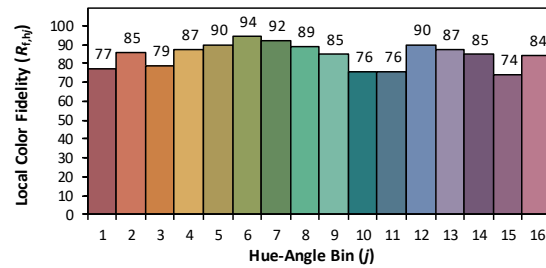
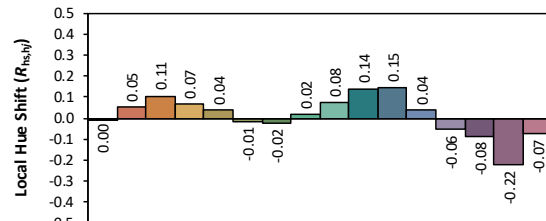
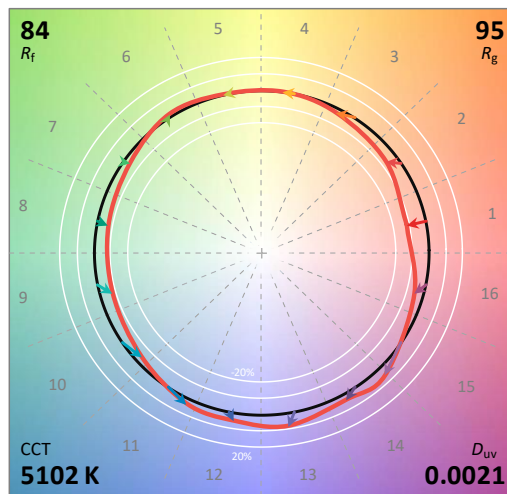
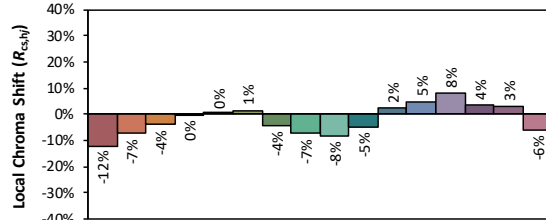
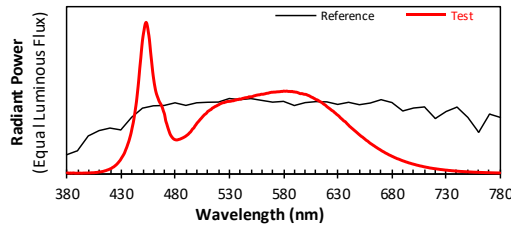
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/8

Model: RPLED2X2 @25W5000K



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

$x$  0.3426  
 $y$  0.3538  
 $u'$  0.2089  
 $v'$  0.4854

CIE 13.3-1995  
(CRI)

$R_a$  84  
 $R_g$  13

## 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	5.50E-06	447	6.92E-04	514	4.31E-04	581	5.44E-04	648	2.71E-04	715	3.86E-05
381	4.80E-06	448	7.64E-04	515	4.35E-04	582	5.44E-04	649	2.65E-04	716	3.75E-05
382	3.00E-06	449	8.43E-04	516	4.40E-04	583	5.45E-04	650	2.58E-04	717	3.65E-05
383	5.10E-06	450	9.04E-04	517	4.44E-04	584	5.43E-04	651	2.53E-04	718	3.53E-05
384	3.50E-06	451	9.46E-04	518	4.47E-04	585	5.42E-04	652	2.46E-04	719	3.42E-05
385	4.90E-06	452	9.86E-04	519	4.51E-04	586	5.43E-04	653	2.42E-04	720	3.32E-05
386	5.10E-06	453	9.98E-04	520	4.54E-04	587	5.41E-04	654	2.36E-04	721	3.24E-05
387	3.90E-06	454	9.76E-04	521	4.59E-04	588	5.43E-04	655	2.31E-04	722	3.12E-05
388	3.40E-06	455	9.33E-04	522	4.63E-04	589	5.40E-04	656	2.24E-04	723	3.03E-05
389	3.50E-06	456	8.82E-04	523	4.66E-04	590	5.40E-04	657	2.19E-04	724	2.93E-05
390	3.60E-06	457	8.06E-04	524	4.69E-04	591	5.38E-04	658	2.14E-04	725	2.82E-05
391	3.80E-06	458	7.40E-04	525	4.69E-04	592	5.38E-04	659	2.08E-04	726	2.74E-05
392	4.10E-06	459	6.73E-04	526	4.72E-04	593	5.35E-04	660	2.02E-04	727	2.66E-05
393	3.50E-06	460	6.19E-04	527	4.74E-04	594	5.33E-04	661	1.97E-04	728	2.57E-05
394	3.70E-06	461	5.74E-04	528	4.76E-04	595	5.29E-04	662	1.93E-04	729	2.48E-05
395	4.50E-06	462	5.39E-04	529	4.77E-04	596	5.28E-04	663	1.88E-04	730	2.39E-05
396	4.40E-06	463	5.16E-04	530	4.77E-04	597	5.29E-04	664	1.83E-04	731	2.35E-05
397	4.80E-06	464	4.97E-04	531	4.78E-04	598	5.26E-04	665	1.78E-04	732	2.27E-05
398	4.50E-06	465	4.77E-04	532	4.80E-04	599	5.24E-04	666	1.74E-04	733	2.17E-05
399	4.90E-06	466	4.65E-04	533	4.81E-04	600	5.24E-04	667	1.69E-04	734	2.13E-05
400	5.20E-06	467	4.52E-04	534	4.82E-04	601	5.23E-04	668	1.64E-04	735	2.05E-05
401	5.20E-06	468	4.34E-04	535	4.86E-04	602	5.19E-04	669	1.60E-04	736	1.98E-05
402	6.10E-06	469	4.11E-04	536	4.85E-04	603	5.16E-04	670	1.55E-04	737	1.93E-05
403	6.40E-06	470	3.91E-04	537	4.90E-04	604	5.13E-04	671	1.51E-04	738	1.86E-05
404	6.50E-06	471	3.51E-04	538	4.88E-04	605	5.09E-04	672	1.47E-04	739	1.80E-05
405	6.90E-06	472	3.29E-04	539	4.92E-04	606	5.05E-04	673	1.43E-04	740	1.75E-05
406	8.10E-06	473	3.05E-04	540	4.92E-04	607	5.02E-04	674	1.38E-04	741	1.68E-05
407	8.30E-06	474	2.83E-04	541	4.93E-04	608	4.98E-04	675	1.35E-04	742	1.62E-05
408	9.60E-06	475	2.63E-04	542	4.96E-04	609	4.94E-04	676	1.31E-04	743	1.57E-05
409	1.05E-05	476	2.50E-04	543	4.98E-04	610	4.89E-04	677	1.27E-04	744	1.51E-05
410	1.15E-05	477	2.40E-04	544	5.00E-04	611	4.88E-04	678	1.23E-04	745	1.48E-05
411	1.26E-05	478	2.32E-04	545	5.01E-04	612	4.84E-04	679	1.20E-04	746	1.44E-05
412	1.40E-05	479	2.27E-04	546	5.02E-04	613	4.79E-04	680	1.16E-04	747	1.38E-05
413	1.53E-05	480	2.24E-04	547	5.03E-04	614	4.75E-04	681	1.13E-04	748	1.36E-05
414	1.74E-05	481	2.23E-04	548	5.07E-04	615	4.71E-04	682	1.10E-04	749	1.31E-05
415	1.96E-05	482	2.23E-04	549	5.07E-04	616	4.67E-04	683	1.06E-04	750	1.27E-05
416	2.15E-05	483	2.26E-04	550	5.08E-04	617	4.60E-04	684	1.04E-04	751	1.23E-05
417	2.46E-05	484	2.28E-04	551	5.08E-04	618	4.56E-04	685	9.98E-05	752	1.18E-05
418	2.67E-05	485	2.30E-04	552	5.11E-04	619	4.51E-04	686	9.77E-05	753	1.15E-05
419	2.98E-05	486	2.34E-04	553	5.14E-04	620	4.44E-04	687	9.53E-05	754	1.12E-05
420	3.32E-05	487	2.37E-04	554	5.15E-04	621	4.38E-04	688	9.20E-05	755	1.08E-05
421	3.63E-05	488	2.41E-04	555	5.18E-04	622	4.33E-04	689	8.91E-05	756	1.03E-05
422	4.20E-05	489	2.45E-04	556	5.19E-04	623	4.28E-04	690	8.63E-05	757	1.02E-05
423	4.53E-05	490	2.50E-04	557	5.20E-04	624	4.22E-04	691	8.38E-05	758	9.80E-06
424	5.16E-05	491	2.55E-04	558	5.21E-04	625	4.16E-04	692	8.15E-05	759	9.60E-06
425	5.71E-05	492	2.61E-04	559	5.23E-04	626	4.12E-04	693	7.86E-05	760	9.30E-06
426	6.42E-05	493	2.69E-04	560	5.24E-04	627	4.05E-04	694	7.65E-05	761	9.00E-06
427	7.20E-05	494	2.76E-04	561	5.24E-04	628	4.00E-04	695	7.42E-05	762	8.70E-06
428	8.08E-05	495	2.86E-04	562	5.26E-04	629	3.93E-04	696	7.14E-05	763	8.40E-06
429	8.96E-05	496	2.96E-04	563	5.27E-04	630	3.87E-04	697	6.98E-05	764	8.20E-06
430	1.02E-04	497	3.01E-04	564	5.29E-04	631	3.82E-04	698	6.76E-05	765	7.90E-06
431	1.13E-04	498	3.14E-04	565	5.31E-04	632	3.74E-04	699	6.52E-05	766	7.80E-06
432	1.25E-04	499	3.23E-04	566	5.31E-04	633	3.67E-04	700	6.35E-05	767	7.40E-06
433	1.38E-04	500	3.34E-04	567	5.34E-04	634	3.61E-04	701	6.15E-05	768	7.20E-06
434	1.57E-04	501	3.42E-04	568	5.36E-04	635	3.54E-04	702	5.97E-05	769	7.10E-06
435	1.74E-04	502	3.50E-04	569	5.37E-04	636	3.48E-04	703	5.74E-05	770	6.80E-06
436	1.95E-04	503	3.58E-04	570	5.37E-04	637	3.44E-04	704	5.58E-05	771	6.60E-06
437	2.16E-04	504	3.66E-04	571	5.38E-04	638	3.37E-04	705	5.41E-05	772	6.30E-06
438	2.41E-04	505	3.74E-04	572	5.38E-04	639	3.29E-04	706	5.21E-05	773	6.10E-06
439	2.68E-04	506	3.82E-04	573	5.39E-04	640	3.22E-04	707	5.07E-05	774	6.00E-06
440	3.03E-04	507	3.90E-04	574	5.40E-04	641	3.14E-04	708	4.94E-05	775	5.80E-06
441	3.36E-04	508	3.95E-04	575	5.40E-04	642	3.08E-04	709	4.75E-05	776	5.60E-06
442	3.78E-04	509	4.01E-04	576	5.41E-04	643	3.01E-04	710	4.58E-05	777	5.40E-06
443	4.26E-04	510	4.11E-04	577	5.41E-04	644	2.96E-04	711	4.45E-05	778	5.30E-06
444	4.76E-04	511	4.15E-04	578	5.43E-04	645	2.89E-04	712	4.30E-05	779	5.20E-06
445	5.42E-04	512	4.20E-04	579	5.42E-04	646	2.83E-04	713	4.17E-05	780	5.20E-06
446	6.11E-04	513	4.24E-04	580	5.45E-04	647	2.77E-04	714	4.04E-05	N/A	N/A

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	RPLED2X2 @25W5000K	<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 \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	0.211	25.2	0.996
<b>NON-WORST CASE</b>	277.0	60	0.093	25.0	0.974

#### 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		( $0^{\circ}$ - $60^{\circ}$ )
3395	166.2	166.2	117.6	117.9	134.7	76.7%

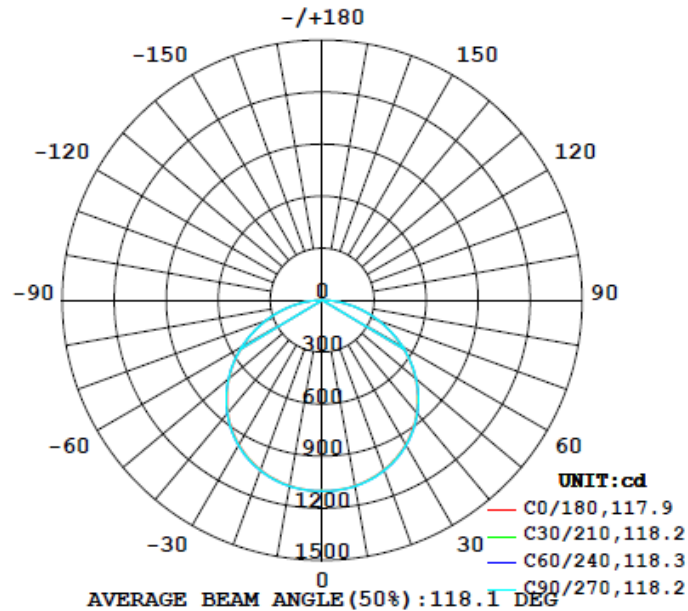
UGR		Spacing Criterion	
Crosswise	Endwise	( $0^{\circ}$ - $180^{\circ}$ )	( $90^{\circ}$ - $270^{\circ}$ )
21.4	21.4	1.30	1.32



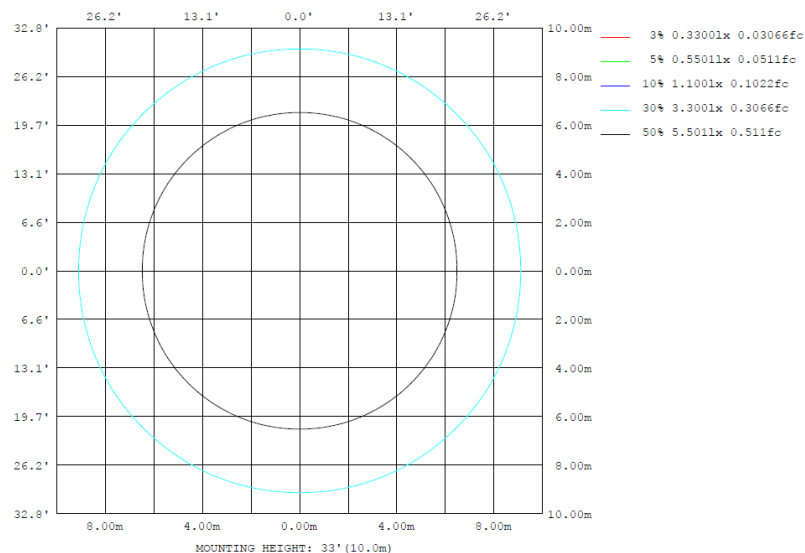
## 4.2 Goniophotometer Test

### 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	1086	1089	1090	1089	1086	1089	1090	1089	0- 10	104.5	104.5	3.08, 3.08
20	1040	1045	1045	1045	1040	1045	1045	1045	10- 20	302.5	407.0	12, 12
30	960.4	966.7	966.1	966.7	960.4	966.7	966.1	966.7	20- 30	465.5	872.5	25.7, 25.7
40	847.0	853.4	852.2	853.4	847.0	853.4	852.2	853.4	30- 40	571.3	1444	42.5, 42.5
50	701.5	706.7	706.4	706.7	701.5	706.7	706.4	706.7	40- 50	603.6	2047	60.3, 60.3
60	531.3	535.1	534.5	535.1	531.3	535.1	534.5	535.1	50- 60	556.3	2604	76.7, 76.7
70	345.9	348.6	347.2	348.6	345.9	348.6	347.2	348.6	60- 70	437.1	3041	89.6, 89.6
80	162.0	163.6	161.9	163.6	162.0	163.6	161.9	163.6	70- 80	268.4	3309	97.5, 97.5
90	0	0	0	0	0	0	0	0	80- 90	85.82	3395	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	3395	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	3395	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	3395	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	3395	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	3395	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	3395	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	3395	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	3395	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	3395	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	104.54	0-10	104.54	3.08%
10-20	302.45	0-20	406.99	11.99%
20-30	465.48	0-30	872.47	25.70%
30-40	571.29	0-40	1443.76	42.53%
40-50	603.62	0-50	2047.38	60.31%
50-60	556.34	0-60	2603.72	76.69%
60-70	437.11	0-70	3040.83	89.57%
70-80	268.37	0-80	3309.20	97.47%
80-90	85.82	0-90	3395.02	100.00%
90-100	0.00	0-100	3395.02	100.00%
100-110	0.00	0-110	3395.02	100.00%
110-120	0.00	0-120	3395.02	100.00%
120-130	0.00	0-130	3395.02	100.00%
130-140	0.00	0-140	3395.02	100.00%
140-150	0.00	0-150	3395.02	100.00%
150-160	0.00	0-160	3395.02	100.00%
160-170	0.00	0-170	3395.02	100.00%
170-180	0.00	0-180	3395.02	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	14.3	15.8	14.7	16.2	16.5	14.3	15.9	14.7	16.2	16.6
	4H	15.1	16.5	15.5	16.9	17.3	15.1	16.5	15.5	16.9	17.3
	6H	15.7	17.0	16.1	17.4	17.8	15.7	17.1	16.1	17.4	17.8
	8H	15.9	17.2	16.4	17.6	18.0	15.9	17.2	16.4	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	15.2	16.5	15.7	16.9	17.2	15.3	16.5	15.7	16.9	17.3
	4H	16.2	17.2	16.6	17.7	18.1	16.2	17.3	16.6	17.7	18.1
	6H	16.9	17.9	17.4	18.3	18.8	16.9	17.9	17.4	18.3	18.8
	8H	17.2	18.1	17.7	18.5	19.0	17.2	18.1	17.7	18.5	19.0
	12H	17.4	18.2	17.9	18.7	19.2	17.4	18.2	17.9	18.7	19.2
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	19.1	17.4	18.2	17.9	18.7	19.1
	8H	17.8	18.5	18.3	19.0	19.4	17.8	18.5	18.3	19.0	19.5
	12H	18.1	18.7	18.6	19.2	19.7	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	17.1	17.9	18.3
	6H	17.5	18.2	18.0	18.7	19.2	17.5	18.2	18.0	18.7	19.2
	8H	17.9	18.5	18.4	19.0	19.6	17.9	18.5	18.4	19.0	19.6

Maximum UGR = 19.7

### 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		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.6	18.3	17.0	18.6	18.9	16.6	18.3	17.0	18.6	18.9
	3H	18.5	20.0	18.9	20.4	20.7	18.5	20.1	18.9	20.4	20.8
	4H	19.3	20.7	19.7	21.1	21.5	19.3	20.7	19.7	21.1	21.5
	6H	19.9	21.2	20.3	21.6	22.0	19.9	21.3	20.3	21.6	22.0
	8H	20.1	21.4	20.6	21.8	22.2	20.1	21.4	20.6	21.8	22.2
	12H	20.3	21.5	20.7	21.9	22.3	20.3	21.5	20.7	21.9	22.3
4H	2H	17.3	18.7	17.7	19.1	19.4	17.3	18.7	17.7	19.1	19.4
	3H	19.4	20.7	19.9	21.1	21.4	19.5	20.7	19.9	21.1	21.5
	4H	20.4	21.4	20.8	21.9	22.3	20.4	21.5	20.8	21.9	22.3
	6H	21.1	22.1	21.6	22.5	23.0	21.1	22.1	21.6	22.5	23.0
	8H	21.4	22.3	21.9	22.7	23.2	21.4	22.3	21.9	22.7	23.2
	12H	21.6	22.4	22.1	22.9	23.4	21.6	22.4	22.1	22.9	23.4
8H	4H	20.7	21.6	21.2	22.1	22.5	20.7	21.6	21.2	22.1	22.5
	6H	21.6	22.4	22.1	22.9	23.3	21.6	22.4	22.1	22.9	23.3
	8H	22.0	22.7	22.5	23.2	23.6	22.0	22.7	22.5	23.2	23.7
	12H	22.3	22.9	22.8	23.4	23.9	22.3	22.9	22.8	23.4	23.9
12H	4H	20.8	21.6	21.3	22.1	22.5	20.8	21.6	21.3	22.1	22.5
	6H	21.7	22.4	22.2	22.9	23.4	21.7	22.4	22.2	22.9	23.4
	8H	22.1	22.7	22.6	23.2	23.8	22.1	22.7	22.6	23.2	23.8

Maximum UGR = 23.9

## 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	1100	1100	1101	1101	1101	1101	1100	1101	1101	1101	1101	1100	1100	1100	1101	1101	1101	1101	1100
5	1096	1097	1098	1099	1099	1099	1100	1099	1099	1099	1098	1097	1096	1097	1098	1099	1099	1099	1100
10	1086	1087	1088	1089	1089	1090	1090	1090	1089	1089	1088	1087	1086	1087	1088	1089	1089	1090	1090
15	1068	1069	1070	1071	1072	1073	1071	1073	1072	1071	1070	1069	1068	1069	1070	1071	1072	1073	1071
20	1040	1042	1043	1045	1046	1047	1045	1047	1046	1045	1043	1042	1040	1042	1043	1045	1046	1047	1045
25	1006	1007	1009	1011	1012	1012	1011	1012	1012	1011	1009	1007	1006	1007	1009	1011	1012	1012	1011
30	960	963	965	967	968	968	966	968	968	967	965	963	960	963	965	967	968	968	966
35	908	910	913	914	915	916	915	916	915	914	913	910	908	910	913	914	915	916	915
40	847	849	852	853	854	855	852	855	854	853	852	849	847	849	852	853	854	855	852
45	778	780	782	783	784	785	784	785	784	783	782	780	778	780	782	783	784	785	784
50	701	704	707	707	707	707	706	707	707	707	704	701	704	707	707	707	707	707	706
55	619	621	624	624	624	625	622	625	624	624	621	619	621	624	624	624	625	625	622
60	531	532	534	535	534	536	535	536	534	535	534	532	531	532	534	535	534	536	535
65	439	442	443	443	443	443	441	443	443	443	442	439	442	443	443	443	443	443	441
70	346	348	348	349	348	348	347	348	348	349	348	346	348	348	348	349	348	348	347
75	253	253	255	254	254	254	253	254	254	254	255	253	253	253	255	254	254	254	253
80	162	163	163	164	163	163	162	163	163	164	163	162	163	163	164	163	163	163	162
85	76.4	77.3	77.8	77.7	77.5	77.1	77.0	77.1	77.5	77.7	77.8	77.3	76.4	77.3	77.8	77.7	77.5	77.1	77.0
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) γ (DEG)	285	300	315	330	345														
0	1101	1101	1101	1101	1100														
5	1099	1099	1099	1098	1097														
10	1090	1089	1089	1088	1087														
15	1073	1072	1071	1070	1069														
20	1047	1046	1045	1043	1042														
25	1012	1012	1011	1009	1007														
30	968	968	967	965	963														
35	916	915	914	913	910														
40	855	854	853	852	849														
45	785	784	783	782	780														
50	707	707	707	707	704														
55	625	624	624	624	621														
60	536	534	535	534	532														
65	443	443	443	443	442														
70	348	348	349	348	348														
75	254	254	254	255	253														
80	163	163	164	163	163														
85	77.1	77.5	77.7	77.8	77.3														
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 @25W5000K	<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	0.211	25.2	0.996	8.85
277.0	60	0.093	25.0	0.974	8.72

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