

Photometric Test Report

Relevant Standards

- ☒ IES LM-79-2008
- ☒ ANSI C82.77-2017

Prepared For

RAB Lighting Inc.

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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		3326.8
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	130.5
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		25.5
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	18.63
			277V	11.10
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
			277V	0.950
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3465±245	3506
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		83.3
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		10
Minimum Rf (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥70		85
Minimum Rg (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥89		96
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%		77.4%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	21.3
		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		0.214
(Goniophotometer – Section 4.2)		Non-Worst Case		0.097
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		25.5
(Goniophotometer – Section 4.2)		Non-Worst Case		25.4

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-12	RPLED1X4 @25W3500K	240306004-S1
2	Goniophotometer Test	2024-03-12	RPLED1X4 @25W3500K	240306004-S1
3	THD and PF Test	2024-03-12	RPLED1X4 @25W3500K	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 @25W3500K, color tunable from 3500K, 4000K and 5000K.

Electrical Specification: 120-277Vac, 50/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	RPLED1X4 @25W3500K	Sample ID	240306004-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

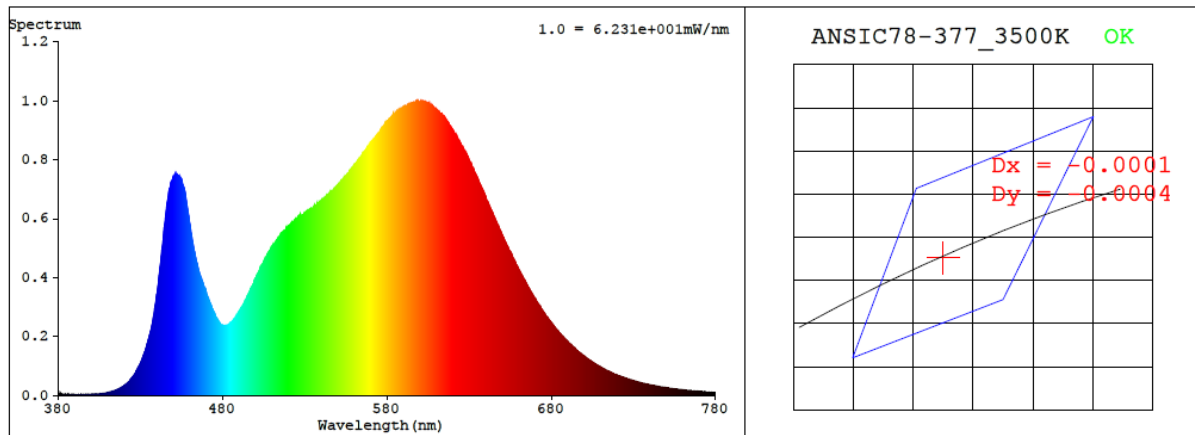
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.</p> <p>The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. 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	0.214	25.5	0.995
277.0	60	0.097	25.4	0.950

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3506	83.3	10	-0.0001	85	96	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4048$ $y = 0.3902$ / $u' = 0.2356$ $v' = 0.5110$ ($duv = -1.33e-04$)

CCT= 3506K Prcp WL: Ld=580.9nm Purity=38.6%

Peak WL: Lp=601nm FWHM: =144.5nm Ratio:R=20.3% G=76.6% B=3.1%

Render Index: Ra = 83.3 AvgR = 77.2 TM30:Rf=84 Rg=96

EEL: 0.10359 A++ Highest

R1 =82 R2 =90 R3 =96 R4 =82 R5 =82 R6 =87 R7 =85

R8 =63 R9 =10 R10=77 R11=81 R12=66 R13=84 R14=98 R15=75

4.1 Integrating Sphere Test

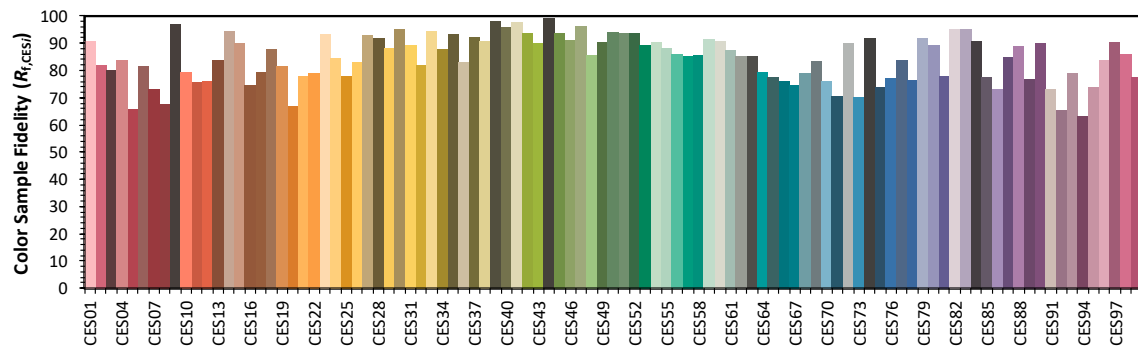
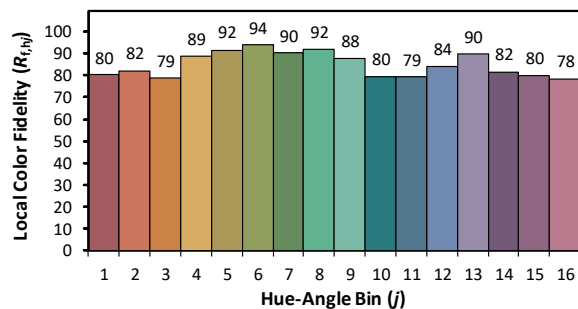
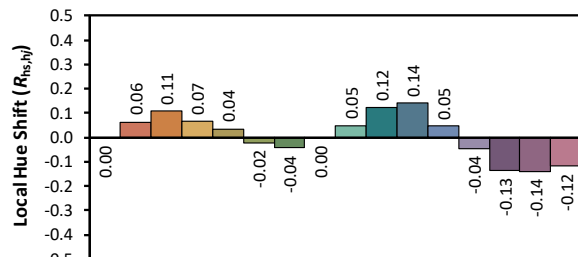
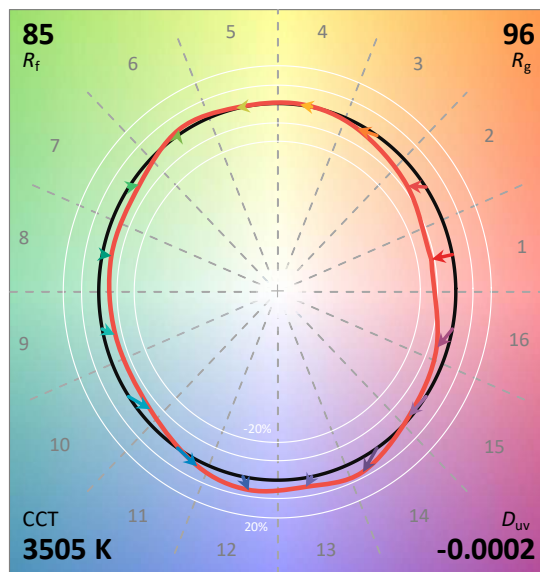
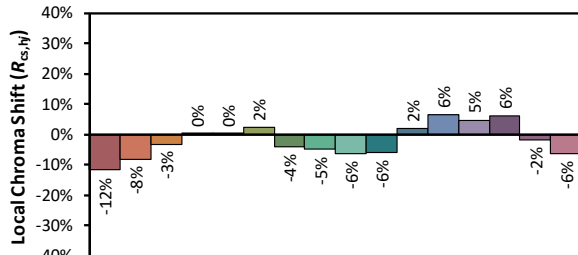
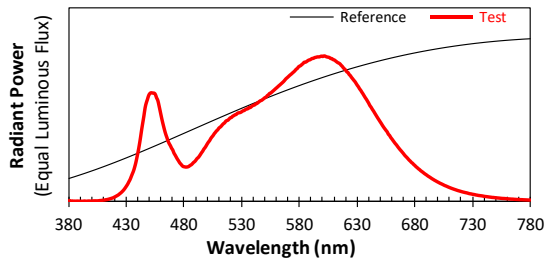
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/13

Model: RPLED1X4 @25W3500K



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

x 0.4048
 y 0.3901
 u' 0.2357
 v' 0.5109

CIE 13.3-1995
(CRI)

R_a 83
 R_9 10

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	6.80E-06	447	6.76E-04	514	5.35E-04	581	9.34E-04	648	5.71E-04	715	8.17E-05
381	5.50E-06	448	7.00E-04	515	5.41E-04	582	9.41E-04	649	5.59E-04	716	7.91E-05
382	3.10E-06	449	7.26E-04	516	5.52E-04	583	9.48E-04	650	5.46E-04	717	7.62E-05
383	4.00E-06	450	7.40E-04	517	5.56E-04	584	9.57E-04	651	5.34E-04	718	7.39E-05
384	2.50E-06	451	7.46E-04	518	5.60E-04	585	9.57E-04	652	5.21E-04	719	7.17E-05
385	3.10E-06	452	7.46E-04	519	5.68E-04	586	9.61E-04	653	5.10E-04	720	6.94E-05
386	2.40E-06	453	7.44E-04	520	5.75E-04	587	9.67E-04	654	4.99E-04	721	6.70E-05
387	3.40E-06	454	7.44E-04	521	5.78E-04	588	9.71E-04	655	4.88E-04	722	6.49E-05
388	2.90E-06	455	7.34E-04	522	5.86E-04	589	9.73E-04	656	4.78E-04	723	6.30E-05
389	3.00E-06	456	7.11E-04	523	5.90E-04	590	9.78E-04	657	4.62E-04	724	6.11E-05
390	1.80E-06	457	6.95E-04	524	5.96E-04	591	9.83E-04	658	4.54E-04	725	5.96E-05
391	2.50E-06	458	6.62E-04	525	5.98E-04	592	9.83E-04	659	4.41E-04	726	5.73E-05
392	1.70E-06	459	6.24E-04	526	6.06E-04	593	9.88E-04	660	4.31E-04	727	5.49E-05
393	3.50E-06	460	5.87E-04	527	6.09E-04	594	9.90E-04	661	4.19E-04	728	5.33E-05
394	3.30E-06	461	5.51E-04	528	6.10E-04	595	9.92E-04	662	4.09E-04	729	5.20E-05
395	2.20E-06	462	5.18E-04	529	6.13E-04	596	9.93E-04	663	3.98E-04	730	5.00E-05
396	3.00E-06	463	4.87E-04	530	6.18E-04	597	9.93E-04	664	3.89E-04	731	4.87E-05
397	3.70E-06	464	4.60E-04	531	6.23E-04	598	9.96E-04	665	3.78E-04	732	4.72E-05
398	3.50E-06	465	4.38E-04	532	6.25E-04	599	9.99E-04	666	3.68E-04	733	4.52E-05
399	3.00E-06	466	4.14E-04	533	6.32E-04	600	9.96E-04	667	3.58E-04	734	4.39E-05
400	3.00E-06	467	3.97E-04	534	6.36E-04	601	9.99E-04	668	3.49E-04	735	4.22E-05
401	4.40E-06	468	3.83E-04	535	6.37E-04	602	9.99E-04	669	3.39E-04	736	4.12E-05
402	4.80E-06	469	3.66E-04	536	6.45E-04	603	9.95E-04	670	3.30E-04	737	4.01E-05
403	4.90E-06	470	3.54E-04	537	6.45E-04	604	9.93E-04	671	3.20E-04	738	3.91E-05
404	4.60E-06	471	3.33E-04	538	6.50E-04	605	9.91E-04	672	3.11E-04	739	3.77E-05
405	4.90E-06	472	3.20E-04	539	6.57E-04	606	9.88E-04	673	3.03E-04	740	3.61E-05
406	5.80E-06	473	3.06E-04	540	6.61E-04	607	9.82E-04	674	2.94E-04	741	3.48E-05
407	7.00E-06	474	2.92E-04	541	6.63E-04	608	9.82E-04	675	2.85E-04	742	3.40E-05
408	7.40E-06	475	2.80E-04	542	6.70E-04	609	9.75E-04	676	2.78E-04	743	3.29E-05
409	8.60E-06	476	2.66E-04	543	6.73E-04	610	9.72E-04	677	2.69E-04	744	3.17E-05
410	9.90E-06	477	2.57E-04	544	6.80E-04	611	9.67E-04	678	2.63E-04	745	3.07E-05
411	1.07E-05	478	2.48E-04	545	6.86E-04	612	9.60E-04	679	2.54E-04	746	2.98E-05
412	1.26E-05	479	2.41E-04	546	6.92E-04	613	9.55E-04	680	2.47E-04	747	2.84E-05
413	1.36E-05	480	2.39E-04	547	6.95E-04	614	9.50E-04	681	2.39E-04	748	2.81E-05
414	1.56E-05	481	2.37E-04	548	7.01E-04	615	9.45E-04	682	2.33E-04	749	2.71E-05
415	1.78E-05	482	2.37E-04	549	7.07E-04	616	9.36E-04	683	2.26E-04	750	2.62E-05
416	2.00E-05	483	2.38E-04	550	7.14E-04	617	9.28E-04	684	2.20E-04	751	2.55E-05
417	2.27E-05	484	2.42E-04	551	7.17E-04	618	9.18E-04	685	2.12E-04	752	2.45E-05
418	2.49E-05	485	2.48E-04	552	7.27E-04	619	9.10E-04	686	2.06E-04	753	2.39E-05
419	2.88E-05	486	2.52E-04	553	7.33E-04	620	9.02E-04	687	2.01E-04	754	2.29E-05
420	3.30E-05	487	2.60E-04	554	7.42E-04	621	8.90E-04	688	1.94E-04	755	2.20E-05
421	3.74E-05	488	2.68E-04	555	7.45E-04	622	8.85E-04	689	1.88E-04	756	2.14E-05
422	4.20E-05	489	2.74E-04	556	7.52E-04	623	8.73E-04	690	1.83E-04	757	2.11E-05
423	4.68E-05	490	2.84E-04	557	7.59E-04	624	8.65E-04	691	1.77E-04	758	2.07E-05
424	5.37E-05	491	2.95E-04	558	7.66E-04	625	8.53E-04	692	1.72E-04	759	1.98E-05
425	5.99E-05	492	3.02E-04	559	7.74E-04	626	8.43E-04	693	1.67E-04	760	1.90E-05
426	6.74E-05	493	3.11E-04	560	7.81E-04	627	8.33E-04	694	1.62E-04	761	1.85E-05
427	7.56E-05	494	3.23E-04	561	7.87E-04	628	8.24E-04	695	1.56E-04	762	1.78E-05
428	8.53E-05	495	3.36E-04	562	7.95E-04	629	8.11E-04	696	1.52E-04	763	1.73E-05
429	9.64E-05	496	3.47E-04	563	8.02E-04	630	7.99E-04	697	1.47E-04	764	1.67E-05
430	1.08E-04	497	3.61E-04	564	8.09E-04	631	7.88E-04	698	1.42E-04	765	1.66E-05
431	1.21E-04	498	3.70E-04	565	8.16E-04	632	7.74E-04	699	1.38E-04	766	1.56E-05
432	1.37E-04	499	3.83E-04	566	8.23E-04	633	7.64E-04	700	1.34E-04	767	1.53E-05
433	1.52E-04	500	3.97E-04	567	8.32E-04	634	7.51E-04	701	1.29E-04	768	1.47E-05
434	1.72E-04	501	4.09E-04	568	8.42E-04	635	7.39E-04	702	1.25E-04	769	1.43E-05
435	1.91E-04	502	4.19E-04	569	8.49E-04	636	7.26E-04	703	1.22E-04	770	1.39E-05
436	2.11E-04	503	4.33E-04	570	8.56E-04	637	7.13E-04	704	1.18E-04	771	1.32E-05
437	2.38E-04	504	4.44E-04	571	8.63E-04	638	7.01E-04	705	1.14E-04	772	1.31E-05
438	2.68E-04	505	4.54E-04	572	8.70E-04	639	6.88E-04	706	1.10E-04	773	1.29E-05
439	3.06E-04	506	4.66E-04	573	8.77E-04	640	6.74E-04	707	1.07E-04	774	1.23E-05
440	3.45E-04	507	4.75E-04	574	8.84E-04	641	6.59E-04	708	1.03E-04	775	1.19E-05
441	3.89E-04	508	4.86E-04	575	8.91E-04	642	6.48E-04	709	9.97E-05	776	1.16E-05
442	4.38E-04	509	4.93E-04	576	8.99E-04	643	6.34E-04	710	9.63E-05	777	1.12E-05
443	4.92E-04	510	5.04E-04	577	9.08E-04	644	6.23E-04	711	9.32E-05	778	1.08E-05
444	5.41E-04	511	5.10E-04	578	9.14E-04	645	6.10E-04	712	9.01E-05	779	1.05E-05
445	5.90E-04	512	5.17E-04	579	9.24E-04	646	5.97E-04	713	8.72E-05	780	1.05E-05
446	6.43E-04	513	5.27E-04	580	9.30E-04	647	5.84E-04	714	8.45E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	RPLED1X4 @25W3500K	Sample ID	240306004-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	42.4

Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.</p> <p>The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1.0° vertical intervals and 15° horizontal intervals.</p>

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.0	60	0.214	25.5	0.995
NON-WORST CASE	277.0	60	0.097	25.4	0.950

Test Result

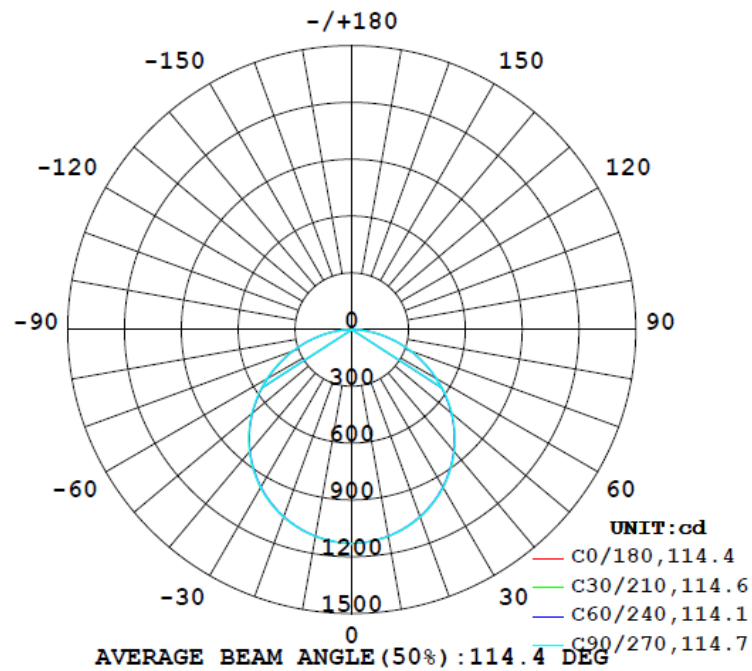
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
3326.8	165.3	165.0	114.3	114.5	130.5	77.4%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
21.3	21.2	1.28	1.28

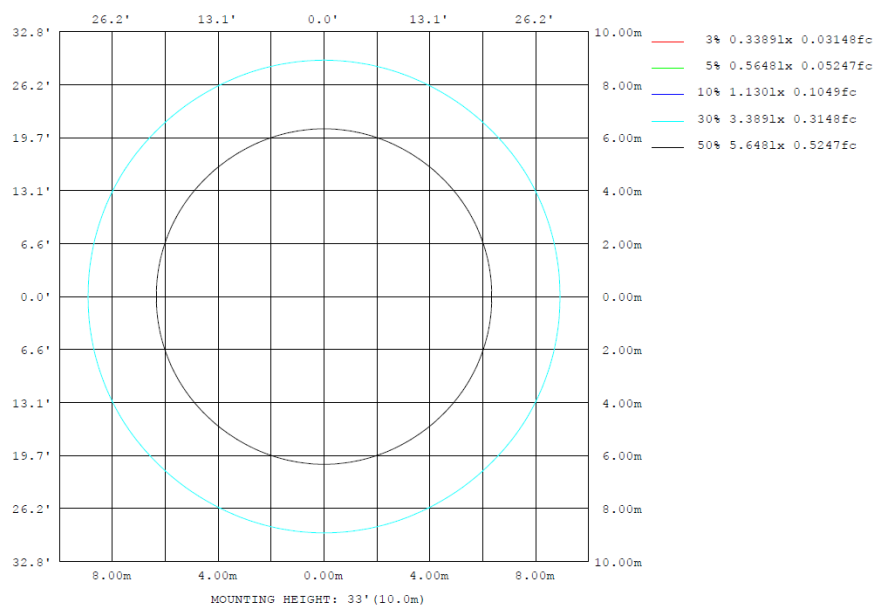
4.2 Goniophotometer Test

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	Φlum, lamp
10	1110	1107	1108	1107	1110	1107	1108	1107	0~ 10	106.7	106.7	3.21, 3.21
20	1055	1051	1053	1051	1055	1051	1053	1051	10~ 20	306.2	412.9	12.4, 12.4
30	964.0	960.6	963.0	960.6	964.0	960.6	963.0	960.6	20~ 30	466.3	879.1	26.4, 26.4
40	839.6	838.5	840.5	838.5	839.6	838.5	840.5	838.5	30~ 40	565.9	1445	43.4, 43.4
50	687.1	686.0	689.5	686.0	687.1	686.0	689.5	686.0	40~ 50	591.2	2036	61.2, 61.2
60	515.5	513.3	516.6	513.3	515.5	513.3	516.6	513.3	50~ 60	539.0	2575	77.4, 77.4
70	333.4	329.7	332.8	329.7	333.4	329.7	332.8	329.7	60~ 70	419.0	2994	90, 90
80	154.8	151.2	152.7	151.2	154.8	151.2	152.7	151.2	70~ 80	254.0	3248	97.6, 97.6
90	0	0	0	0	0	0	0	0	80~ 90	78.63	3327	100, 100
100	0	0	0	0	0	0	0	0	90~100	0	3327	100, 100
110	0	0	0	0	0	0	0	0	100~110	0	3327	100, 100
120	0	0	0	0	0	0	0	0	110~120	0	3327	100, 100
130	0	0	0	0	0	0	0	0	120~130	0	3327	100, 100
140	0	0	0	0	0	0	0	0	130~140	0	3327	100, 100
150	0	0	0	0	0	0	0	0	140~150	0	3327	100, 100
160	0	0	0	0	0	0	0	0	150~160	0	3327	100, 100
170	0	0	0	0	0	0	0	0	160~170	0	3327	100, 100
180	0	0	0	0	0	0	0	0	170~180	0	3327	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	106.69	0-10	106.69	3.21%
10-20	306.16	0-20	412.85	12.41%
20-30	466.26	0-30	879.11	26.43%
30-40	565.87	0-40	1444.98	43.43%
40-50	591.20	0-50	2036.18	61.21%
50-60	538.97	0-60	2575.15	77.41%
60-70	419.00	0-70	2994.15	90.00%
70-80	254.02	0-80	3248.17	97.64%
80-90	78.63	0-90	3326.80	100.00%
90-100	0.00	0-100	3326.80	100.00%
100-110	0.00	0-110	3326.80	100.00%
110-120	0.00	0-120	3326.80	100.00%
120-130	0.00	0-130	3326.80	100.00%
130-140	0.00	0-140	3326.80	100.00%
140-150	0.00	0-150	3326.80	100.00%
150-160	0.00	0-160	3326.80	100.00%
160-170	0.00	0-170	3326.80	100.00%
170-180	0.00	0-180	3326.80	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	14.0	12.7	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	15.8	14.6	16.1	16.4
	4H	15.0	16.5	15.4	16.8	17.2	15.0	16.4	15.4	16.8	17.1
	6H	15.6	17.0	16.0	17.3	17.7	15.6	16.9	16.0	17.3	17.7
	8H	15.8	17.1	16.3	17.5	17.9	15.8	17.0	16.2	17.4	17.8
	12H	16.0	17.2	16.4	17.6	18.0	15.9	17.1	16.4	17.5	18.0
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	15.6	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	17.5	18.4	18.9	17.0	17.9	17.5	18.3	18.8
	12H	17.3	18.1	17.8	18.6	19.0	17.2	18.0	17.7	18.5	19.0
8H	4H	16.4	17.3	16.9	17.7	18.2	16.4	17.3	16.8	17.7	18.2
	6H	17.3	18.0	17.8	18.5	19.0	17.2	18.0	17.7	18.5	18.9
	8H	17.7	18.3	18.2	18.8	19.3	17.6	18.2	18.1	18.8	19.2
	12H	18.0	18.6	18.5	19.0	19.6	17.9	18.5	18.4	19.0	19.5
12H	4H	16.5	17.3	16.9	17.7	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	17.9	18.5	19.0
	8H	17.8	18.4	18.3	18.9	19.4	17.7	18.3	18.2	18.8	19.4

Maximum UGR = 19.6

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.6	18.2	16.9	18.6	18.9	16.5	18.2	16.9	18.5	18.8
	3H	18.5	20.0	18.9	20.3	20.7	18.4	20.0	18.8	20.3	20.6
	4H	19.2	20.7	19.6	21.0	21.4	19.2	20.6	19.6	21.0	21.3
	6H	19.8	21.2	20.2	21.5	21.9	19.8	21.1	20.2	21.5	21.9
	8H	20.0	21.3	20.5	21.7	22.1	20.0	21.2	20.4	21.6	22.0
	12H	20.2	21.4	20.6	21.8	22.2	20.1	21.3	20.6	21.7	22.2
4H	2H	17.2	18.7	17.6	19.0	19.4	17.2	18.6	17.6	19.0	19.3
	3H	19.4	20.6	19.8	21.0	21.4	19.3	20.5	19.8	20.9	21.3
	4H	20.3	21.4	20.7	21.8	22.2	20.2	21.3	20.7	21.7	22.1
	6H	21.0	22.0	21.5	22.4	22.9	20.9	21.9	21.4	22.3	22.8
	8H	21.3	22.2	21.7	22.6	23.1	21.2	22.1	21.7	22.5	23.0
	12H	21.5	22.3	22.0	22.8	23.2	21.4	22.2	21.9	22.7	23.2
8H	4H	20.6	21.5	21.1	21.9	22.4	20.6	21.5	21.0	21.9	22.4
	6H	21.5	22.2	22.0	22.7	23.2	21.4	22.2	21.9	22.7	23.1
	8H	21.9	22.5	22.4	23.0	23.5	21.8	22.4	22.3	23.0	23.4
	12H	22.2	22.8	22.7	23.2	23.8	22.1	22.7	22.6	23.2	23.7
12H	4H	20.7	21.5	21.1	21.9	22.4	20.6	21.4	21.1	21.9	22.4
	6H	21.6	22.3	22.1	22.7	23.3	21.5	22.2	22.1	22.7	23.2
	8H	22.0	22.6	22.5	23.1	23.6	21.9	22.5	22.4	23.0	23.6

Maximum UGR = 23.8

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	1130	1129	1129	1129	1130	1130	1129	1130	1130	1129	1129	1129	1130	1129	1129	1129	1130	1130	1129
5	1124	1122	1123	1123	1123	1123	1122	1123	1123	1123	1123	1122	1124	1122	1123	1123	1123	1123	1122
10	1110	1108	1108	1107	1107	1108	1108	1108	1107	1107	1108	1108	1110	1108	1108	1107	1107	1108	1108
15	1086	1086	1086	1083	1082	1084	1084	1084	1082	1083	1086	1086	1086	1086	1086	1083	1082	1084	1084
20	1055	1055	1053	1051	1051	1052	1053	1052	1051	1051	1053	1055	1055	1055	1053	1051	1051	1052	1053
25	1014	1014	1013	1009	1010	1010	1012	1010	1010	1009	1013	1014	1014	1014	1013	1009	1010	1010	1012
30	964	964	964	961	960	961	963	961	960	961	964	964	964	964	964	961	960	961	963
35	906	907	907	903	903	903	905	903	903	903	907	907	906	907	907	903	903	903	905
40	840	841	842	839	837	838	841	838	837	839	842	841	840	841	842	839	837	838	841
45	767	768	769	765	764	766	768	766	764	765	769	768	767	768	769	765	764	766	768
50	687	689	690	686	686	687	689	687	686	686	690	689	687	689	690	686	686	687	689
55	603	604	605	602	601	602	605	602	601	602	605	604	603	604	605	602	601	602	605
60	515	517	517	513	513	514	517	514	513	513	517	517	515	517	517	513	513	514	517
65	425	426	425	422	421	422	425	422	421	422	425	426	425	426	425	422	421	422	425
70	333	333	333	330	329	330	333	330	329	330	333	333	333	333	333	330	329	330	333
75	242	242	241	239	238	239	241	239	238	239	241	242	242	242	241	239	238	239	241
80	155	155	153	151	151	151	153	151	151	151	153	155	155	155	153	151	151	151	153
85	73.0	72.1	70.9	69.7	69.2	69.6	70.3	69.6	69.2	69.7	70.9	72.1	73.0	72.1	70.9	69.7	69.2	69.6	70.3
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	1130	1130	1129	1129	1129														
5	1123	1123	1123	1123	1122														
10	1108	1107	1107	1108	1108														
15	1084	1082	1083	1086	1086														
20	1052	1051	1051	1053	1055														
25	1010	1010	1009	1013	1014														
30	961	960	961	964	964														
35	903	903	903	907	907														
40	838	837	839	842	841														
45	766	764	765	769	768														
50	687	686	686	690	689														
55	602	601	602	605	604														
60	514	513	513	517	517														
65	422	421	422	425	426														
70	330	329	330	333	333														
75	239	238	239	241	242														
80	151	151	151	153	155														
85	69.6	69.2	69.7	70.9	72.1														
90	0.00	0.00	0.00	0.00	0.00														
95	0.00	0.00	0.00	0.00	0.00														
100	0.00	0.00	0.00	0.00	0.00														
105	0.00	0.00	0.00	0.00	0.00														
110	0.00	0.00	0.00	0.00	0.00														
115	0.00	0.00	0.00	0.00	0.00														
120	0.00	0.00	0.00	0.00	0.00														
125	0.00	0.00	0.00	0.00	0.00														
130	0.00	0.00	0.00	0.00	0.00														
135	0.00	0.00	0.00	0.00	0.00														
140	0.00	0.00	0.00	0.00	0.00														
145	0.00	0.00	0.00	0.00	0.00														
150	0.00	0.00	0.00	0.00	0.00														
155	0.00	0.00	0.00	0.00	0.00														
160	0.00	0.00	0.00	0.00	0.00														
165	0.00	0.00	0.00	0.00	0.00														
170	0.00	0.00	0.00	0.00	0.00														
175	0.00	0.00	0.00	0.00	0.00														
180	0.00	0.00	0.00	0.00	0.00														

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	RPLED1X4 @25W3500K	Sample ID	240306004-S1
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The samples were tested according to the ANSI C82.77:2014</p> <p>The total harmonic distortion shall be measured to the 40th order.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^{\circ}\text{C}$. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion was calculated.</p>

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	iTHD(%)
120.0	60	0.214	25.5	0.995	18.63
277.0	60	0.097	25.4	0.950	11.10

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*****