

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

Prepared By

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Issue Date: 2024-03-13

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		2529
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	133.1
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		19.0
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.75
			277V	11.53
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.979
			277V	0.932
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3465±245	3495
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		83.5
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		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%		77.5%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	20.2
		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		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.074
(Goniophotometer – Section 4.2)		Non-Worst Case		0.157
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		19.0
(Goniophotometer – Section 4.2)		Non-Worst Case		18.4

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-12	RPLED1X4 @18W3500K	240306004-S1
2	Goniophotometer Test	2024-03-12	RPLED1X4 @18W3500K	240306004-S1
3	THD and PF Test	2024-03-12	RPLED1X4 @18W3500K	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 @18W3500K, 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 @18W3500K	Sample ID	240306004-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

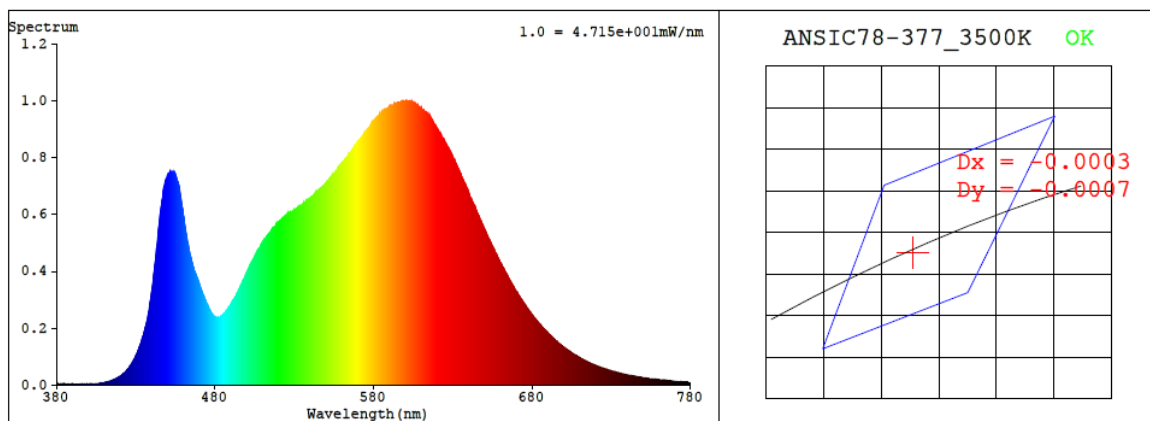
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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.</p> <p>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	0.157	18.4	0.979
277.0	60	0.074	19.0	0.932

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3495	83.5	10	-0.0003	85	95	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4053$ $y = 0.3902$ / $u' = 0.2360$ $v' = 0.5110$ ($duv = -2.55e-04$)

CCT= 3495K Prcp WL: Ld=581.0nm Purity=38.8%

Peak WL: Lp=601nm FWHM: =144.6nm Ratio:R=20.4% G=76.5% B=3.1%

Render Index: Ra = 83.5 AvgR = 77.4 TM30:Rf=84 Rg=96

EEl: 0.09848 A++ Highest

R1 =82 R2 =91 R3 =96 R4 =82 R5 =82 R6 =87 R7 =85

R8 =63 R9 =10 R10=78 R11=81 R12=66 R13=84 R14=98 R15=75

4.1 Integrating Sphere Test

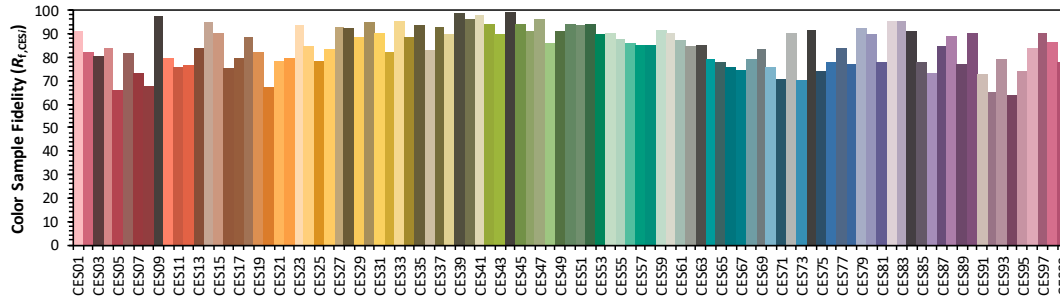
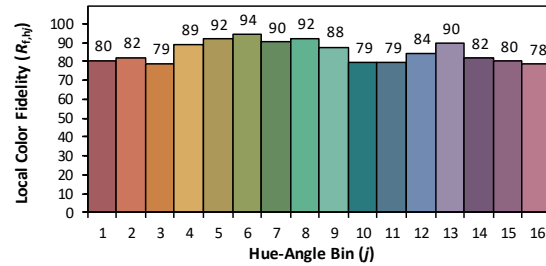
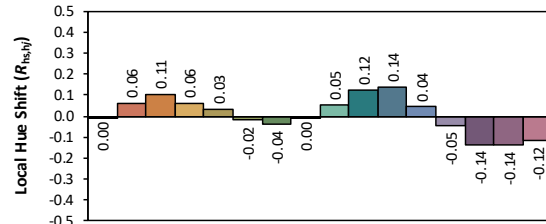
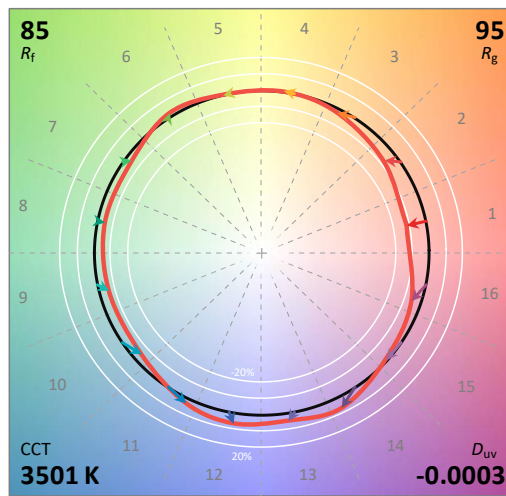
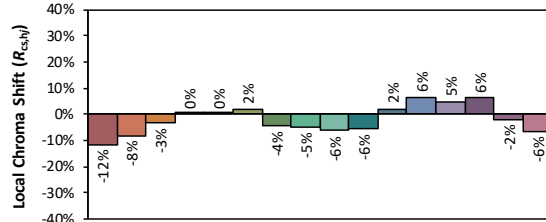
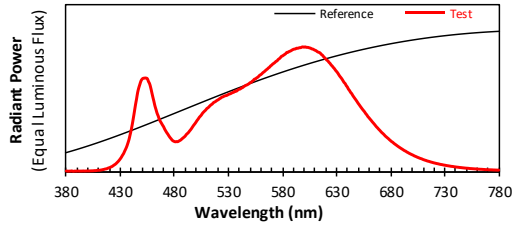
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/13

Model: RPLED1X4 @18W3500K



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

x 0.4050
 y 0.3900
 u' 0.2358
 v' 0.5109

CIE 13.3-1995
(CRI)

R_a 84
 R_g 11

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	3.10E-06	447	6.70E-04	514	5.35E-04	581	9.33E-04	648	5.73E-04	715	8.15E-05
381	2.60E-06	448	6.98E-04	515	5.41E-04	582	9.39E-04	649	5.60E-04	716	7.91E-05
382	1.60E-06	449	7.24E-04	516	5.51E-04	583	9.45E-04	650	5.47E-04	717	7.61E-05
383	2.40E-06	450	7.40E-04	517	5.56E-04	584	9.55E-04	651	5.35E-04	718	7.38E-05
384	2.50E-06	451	7.47E-04	518	5.61E-04	585	9.56E-04	652	5.22E-04	719	7.13E-05
385	4.00E-06	452	7.48E-04	519	5.68E-04	586	9.62E-04	653	5.11E-04	720	6.89E-05
386	1.60E-06	453	7.50E-04	520	5.73E-04	587	9.65E-04	654	4.99E-04	721	6.68E-05
387	1.20E-06	454	7.48E-04	521	5.78E-04	588	9.70E-04	655	4.88E-04	722	6.46E-05
388	2.90E-06	455	7.44E-04	522	5.85E-04	589	9.75E-04	656	4.78E-04	723	6.27E-05
389	2.00E-06	456	7.22E-04	523	5.90E-04	590	9.79E-04	657	4.64E-04	724	6.10E-05
390	2.90E-06	457	7.05E-04	524	5.97E-04	591	9.82E-04	658	4.54E-04	725	5.87E-05
391	3.30E-06	458	6.75E-04	525	5.99E-04	592	9.83E-04	659	4.40E-04	726	5.66E-05
392	2.30E-06	459	6.37E-04	526	6.04E-04	593	9.89E-04	660	4.31E-04	727	5.51E-05
393	2.60E-06	460	5.99E-04	527	6.07E-04	594	9.88E-04	661	4.20E-04	728	5.36E-05
394	2.70E-06	461	5.63E-04	528	6.09E-04	595	9.91E-04	662	4.10E-04	729	5.14E-05
395	3.00E-06	462	5.25E-04	529	6.13E-04	596	9.93E-04	663	3.99E-04	730	5.01E-05
396	3.60E-06	463	4.97E-04	530	6.18E-04	597	9.94E-04	664	3.89E-04	731	4.84E-05
397	2.70E-06	464	4.66E-04	531	6.22E-04	598	9.98E-04	665	3.79E-04	732	4.67E-05
398	3.20E-06	465	4.45E-04	532	6.24E-04	599	9.99E-04	666	3.68E-04	733	4.54E-05
399	3.80E-06	466	4.19E-04	533	6.29E-04	600	9.97E-04	667	3.57E-04	734	4.40E-05
400	3.80E-06	467	4.02E-04	534	6.33E-04	601	1.00E-03	668	3.49E-04	735	4.25E-05
401	3.60E-06	468	3.87E-04	535	6.36E-04	602	9.96E-04	669	3.39E-04	736	4.07E-05
402	3.80E-06	469	3.72E-04	536	6.45E-04	603	9.96E-04	670	3.30E-04	737	4.00E-05
403	4.50E-06	470	3.59E-04	537	6.43E-04	604	9.95E-04	671	3.20E-04	738	3.88E-05
404	4.60E-06	471	3.40E-04	538	6.48E-04	605	9.91E-04	672	3.11E-04	739	3.71E-05
405	5.10E-06	472	3.24E-04	539	6.56E-04	606	9.90E-04	673	3.04E-04	740	3.61E-05
406	6.20E-06	473	3.10E-04	540	6.60E-04	607	9.84E-04	674	2.95E-04	741	3.48E-05
407	6.20E-06	474	2.98E-04	541	6.62E-04	608	9.82E-04	675	2.85E-04	742	3.38E-05
408	7.30E-06	475	2.84E-04	542	6.69E-04	609	9.78E-04	676	2.78E-04	743	3.27E-05
409	8.30E-06	476	2.72E-04	543	6.73E-04	610	9.73E-04	677	2.70E-04	744	3.14E-05
410	8.90E-06	477	2.61E-04	544	6.79E-04	611	9.69E-04	678	2.63E-04	745	3.08E-05
411	9.50E-06	478	2.50E-04	545	6.85E-04	612	9.63E-04	679	2.54E-04	746	2.97E-05
412	1.11E-05	479	2.44E-04	546	6.90E-04	613	9.58E-04	680	2.47E-04	747	2.87E-05
413	1.25E-05	480	2.40E-04	547	6.94E-04	614	9.55E-04	681	2.39E-04	748	2.78E-05
414	1.48E-05	481	2.38E-04	548	6.99E-04	615	9.49E-04	682	2.34E-04	749	2.68E-05
415	1.66E-05	482	2.40E-04	549	7.04E-04	616	9.39E-04	683	2.26E-04	750	2.60E-05
416	1.93E-05	483	2.38E-04	550	7.12E-04	617	9.32E-04	684	2.19E-04	751	2.54E-05
417	2.05E-05	484	2.43E-04	551	7.15E-04	618	9.21E-04	685	2.13E-04	752	2.47E-05
418	2.37E-05	485	2.48E-04	552	7.24E-04	619	9.12E-04	686	2.07E-04	753	2.35E-05
419	2.78E-05	486	2.53E-04	553	7.30E-04	620	9.03E-04	687	2.00E-04	754	2.26E-05
420	2.99E-05	487	2.61E-04	554	7.40E-04	621	8.94E-04	688	1.94E-04	755	2.22E-05
421	3.46E-05	488	2.69E-04	555	7.42E-04	622	8.87E-04	689	1.89E-04	756	2.14E-05
422	3.82E-05	489	2.76E-04	556	7.50E-04	623	8.76E-04	690	1.83E-04	757	2.09E-05
423	4.34E-05	490	2.84E-04	557	7.55E-04	624	8.67E-04	691	1.78E-04	758	2.02E-05
424	5.01E-05	491	2.96E-04	558	7.63E-04	625	8.55E-04	692	1.72E-04	759	1.98E-05
425	5.55E-05	492	3.04E-04	559	7.73E-04	626	8.46E-04	693	1.66E-04	760	1.89E-05
426	6.25E-05	493	3.12E-04	560	7.77E-04	627	8.35E-04	694	1.62E-04	761	1.82E-05
427	7.14E-05	494	3.24E-04	561	7.85E-04	628	8.25E-04	695	1.56E-04	762	1.78E-05
428	8.00E-05	495	3.34E-04	562	7.94E-04	629	8.13E-04	696	1.52E-04	763	1.71E-05
429	9.05E-05	496	3.46E-04	563	7.99E-04	630	8.02E-04	697	1.46E-04	764	1.70E-05
430	1.02E-04	497	3.60E-04	564	8.07E-04	631	7.92E-04	698	1.42E-04	765	1.63E-05
431	1.15E-04	498	3.72E-04	565	8.15E-04	632	7.78E-04	699	1.38E-04	766	1.58E-05
432	1.30E-04	499	3.83E-04	566	8.22E-04	633	7.64E-04	700	1.34E-04	767	1.53E-05
433	1.44E-04	500	3.96E-04	567	8.31E-04	634	7.54E-04	701	1.29E-04	768	1.42E-05
434	1.63E-04	501	4.09E-04	568	8.37E-04	635	7.42E-04	702	1.24E-04	769	1.42E-05
435	1.81E-04	502	4.20E-04	569	8.47E-04	636	7.28E-04	703	1.21E-04	770	1.36E-05
436	2.02E-04	503	4.34E-04	570	8.53E-04	637	7.14E-04	704	1.17E-04	771	1.31E-05
437	2.28E-04	504	4.43E-04	571	8.62E-04	638	7.05E-04	705	1.13E-04	772	1.30E-05
438	2.56E-04	505	4.53E-04	572	8.68E-04	639	6.89E-04	706	1.10E-04	773	1.26E-05
439	2.93E-04	506	4.67E-04	573	8.75E-04	640	6.78E-04	707	1.06E-04	774	1.24E-05
440	3.31E-04	507	4.76E-04	574	8.83E-04	641	6.61E-04	708	1.03E-04	775	1.16E-05
441	3.76E-04	508	4.85E-04	575	8.88E-04	642	6.50E-04	709	1.00E-04	776	1.15E-05
442	4.27E-04	509	4.93E-04	576	8.98E-04	643	6.35E-04	710	9.58E-05	777	1.10E-05
443	4.80E-04	510	5.05E-04	577	9.04E-04	644	6.25E-04	711	9.27E-05	778	1.07E-05
444	5.35E-04	511	5.10E-04	578	9.13E-04	645	6.10E-04	712	8.98E-05	779	1.03E-05
445	5.82E-04	512	5.18E-04	579	9.23E-04	646	5.97E-04	713	8.72E-05	780	1.03E-05
446	6.34E-04	513	5.28E-04	580	9.27E-04	647	5.85E-04	714	8.36E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	RPLED1X4 @18W3500K	Sample ID	240306004-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	24.8	Humidity (%RH)	42.2

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	277.0	60	0.074	19.0	0.932
NON-WORST CASE	120.0	60	0.157	18.4	0.979

Test Result

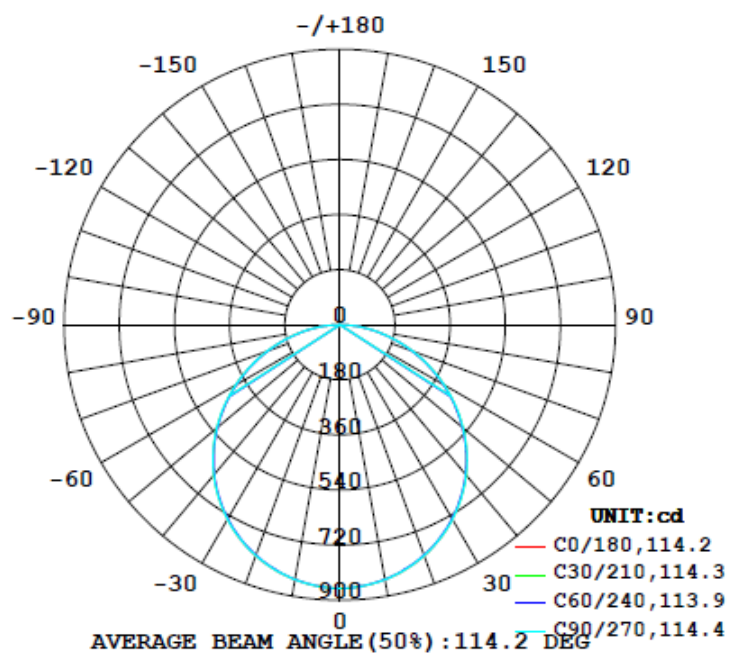
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
2529	165.0	164.8	114.0	114.3	133.1	77.5%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
20.2	20.2	1.28	1.28

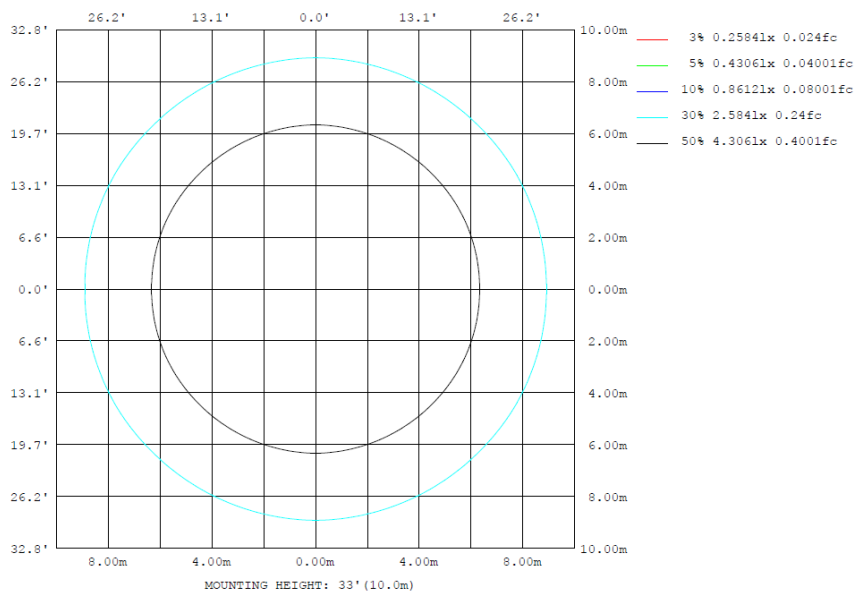
4.2 Goniophotometer Test

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	%lum, lamp
10	845.7	843.8	845.7	843.8	845.7	843.8	845.7	843.8	0- 10	81.40	81.40	3.22,3.22
20	803.0	800.8	803.2	800.8	803.0	800.8	803.2	800.8	10- 20	233.4	314.8	12.4,12.4
30	733.9	732.0	734.2	732.0	733.9	732.0	734.2	732.0	20- 30	355.4	670.2	26.5,26.5
40	639.1	638.1	640.5	638.1	639.1	638.1	640.5	638.1	30- 40	431.1	1101	43.5,43.5
50	522.6	521.7	524.9	521.7	522.6	521.7	524.9	521.7	40- 50	449.9	1551	61.3,61.3
60	391.5	389.5	392.7	389.5	391.5	389.5	392.7	389.5	50- 60	409.7	1961	77.5,77.5
70	252.5	249.8	252.2	249.8	252.5	249.8	252.2	249.8	60- 70	317.9	2279	90.1,90.1
80	116.6	113.9	115.0	113.9	116.6	113.9	115.0	113.9	70- 80	191.9	2471	97.7,97.7
90	0	0	0	0	0	0	0	0	80- 90	58.57	2529	100,100
100	0	0	0	0	0	0	0	0	90-100	0	2529	100,100
110	0	0	0	0	0	0	0	0	100-110	0	2529	100,100
120	0	0	0	0	0	0	0	0	110-120	0	2529	100,100
130	0	0	0	0	0	0	0	0	120-130	0	2529	100,100
140	0	0	0	0	0	0	0	0	130-140	0	2529	100,100
150	0	0	0	0	0	0	0	0	140-150	0	2529	100,100
160	0	0	0	0	0	0	0	0	150-160	0	2529	100,100
170	0	0	0	0	0	0	0	0	160-170	0	2529	100,100
180	0	0	0	0	0	0	0	0	170-180	0	2529	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	81.40	0-10	81.40	3.22%
10-20	233.44	0-20	314.84	12.45%
20-30	355.35	0-30	670.19	26.50%
30-40	431.09	0-40	1101.28	43.54%
40-50	449.93	0-50	1551.21	61.33%
50-60	409.68	0-60	1960.89	77.53%
60-70	317.91	0-70	2278.80	90.10%
70-80	191.89	0-80	2470.69	97.68%
80-90	58.57	0-90	2529.26	100.00%
90-100	0.00	0-100	2529.26	100.00%
100-110	0.00	0-110	2529.26	100.00%
110-120	0.00	0-120	2529.26	100.00%
120-130	0.00	0-130	2529.26	100.00%
130-140	0.00	0-140	2529.26	100.00%
140-150	0.00	0-150	2529.26	100.00%
150-160	0.00	0-160	2529.26	100.00%
160-170	0.00	0-170	2529.26	100.00%
170-180	0.00	0-180	2529.26	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			
		12.4	14.0	12.7	14.4	14.7	12.3	14.0	12.7	14.3
	3H	14.3	15.8	14.7	16.1	16.5	14.2	15.7	14.6	16.1
	4H	15.0	16.4	15.4	16.8	17.2	15.0	16.4	15.4	16.7
	6H	15.6	16.9	16.0	17.3	17.7	15.6	16.9	16.0	17.2
	8H	15.8	17.1	16.2	17.5	17.9	15.8	17.0	16.2	17.4
	12H	16.0	17.2	16.4	17.6	18.0	15.9	17.1	16.3	17.5
4H	2H	13.0	14.4	13.4	14.8	15.2	13.0	14.4	13.4	14.8
	3H	15.2	16.4	15.6	16.8	17.2	15.1	16.3	15.5	16.7
	4H	16.1	17.1	16.5	17.5	18.0	16.0	17.1	16.4	17.5
	6H	16.8	17.7	17.2	18.2	18.6	16.7	17.7	17.2	18.1
	8H	17.0	17.9	17.5	18.4	18.8	17.0	17.9	17.4	18.3
	12H	17.2	18.1	17.7	18.5	19.0	17.2	18.0	17.6	18.4
8H	4H	16.4	17.3	16.8	17.7	18.2	16.3	17.2	16.8	17.7
	6H	17.3	18.0	17.8	18.5	19.0	17.2	17.9	17.7	18.4
	8H	17.6	18.3	18.1	18.8	19.3	17.5	18.2	18.1	18.7
	12H	17.9	18.5	18.4	19.0	19.5	17.8	18.4	18.3	18.9
12H	4H	16.4	17.2	16.9	17.7	18.2	16.4	17.2	16.9	17.7
	6H	17.4	18.0	17.9	18.5	19.0	17.3	18.0	17.8	18.4
	8H	17.8	18.3	18.3	18.8	19.4	17.7	18.3	18.2	18.8

Maximum UGR = 19.5

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			
		15.6	17.2	15.9	17.6	17.9	15.5	17.2	15.9	17.5
	3H	17.5	19.0	17.9	19.3	19.7	17.4	18.9	17.8	19.3
	4H	18.2	19.6	18.6	20.0	20.4	18.2	19.6	18.6	19.9
	6H	18.8	20.1	19.2	20.5	20.9	18.8	20.1	19.2	20.4
	8H	19.0	20.3	19.4	20.7	21.1	19.0	20.2	19.4	20.6
	12H	19.2	20.4	19.6	20.8	21.2	19.1	20.3	19.5	20.7
4H	2H	16.2	17.6	16.6	18.0	18.4	16.2	17.6	16.6	18.0
	3H	18.4	19.6	18.8	20.0	20.4	18.3	19.5	18.7	19.9
	4H	19.3	20.3	19.7	20.7	21.2	19.2	20.3	19.6	20.7
	6H	20.0	20.9	20.4	21.4	21.8	19.9	20.9	20.4	21.3
	8H	20.2	21.1	20.7	21.6	22.0	20.2	21.1	20.6	21.5
	12H	20.4	21.3	20.9	21.7	22.2	20.4	21.2	20.8	21.6
8H	4H	19.6	20.5	20.0	20.9	21.4	19.5	20.4	20.0	20.9
	6H	20.5	21.2	21.0	21.7	22.2	20.4	21.1	20.9	21.6
	8H	20.8	21.5	21.3	22.0	22.5	20.7	21.4	21.3	21.9
	12H	21.1	21.7	21.6	22.2	22.7	21.0	21.6	21.5	22.1
12H	4H	19.6	20.4	20.1	20.9	21.4	19.6	20.4	20.1	20.9
	6H	20.6	21.2	21.1	21.7	22.2	20.5	21.2	21.0	21.6
	8H	21.0	21.5	21.5	22.0	22.6	20.9	21.5	21.4	22.0

Maximum UGR = 22.7

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	861	861	862	861	861	862	862	862	861	861	862	861	861	861	862	861	861	862	862
5	857	857	857	857	856	857	857	857	856	857	857	857	857	857	857	857	856	857	857
10	846	846	845	844	845	844	846	844	845	844	845	846	846	846	845	844	845	844	846
15	828	829	828	825	826	826	828	826	826	825	828	829	828	829	828	825	826	826	828
20	803	804	803	801	801	801	803	801	801	801	803	804	803	804	803	801	801	801	803
25	772	773	772	770	769	770	772	770	769	770	772	773	772	773	772	770	769	770	772
30	734	735	734	732	732	732	734	732	732	732	734	735	734	735	734	732	732	732	734
35	690	691	691	688	687	688	691	688	687	688	691	691	690	691	691	688	687	688	691
40	639	640	641	638	638	638	641	638	638	638	641	640	639	640	641	638	638	638	641
45	583	585	585	582	582	582	585	582	582	582	585	585	583	585	585	582	582	582	585
50	523	524	525	522	521	522	525	522	521	522	525	524	523	524	525	522	521	522	525
55	458	460	460	457	457	457	460	457	457	457	460	460	458	460	460	457	457	457	460
60	391	392	392	389	389	390	393	390	389	389	392	392	391	392	392	389	389	390	393
65	322	323	322	320	320	320	323	320	320	320	322	323	322	323	322	320	320	320	323
70	253	253	252	250	249	249	252	249	250	252	253	253	253	252	250	249	249	252	252
75	183	183	182	180	180	180	182	180	180	180	182	183	183	183	182	180	180	180	182
80	117	116	115	114	114	114	115	114	114	114	115	116	117	116	115	114	114	114	115
85	54.1	53.4	52.7	51.7	51.4	51.6	52.2	51.6	51.4	51.7	52.7	53.4	54.1	53.4	52.7	51.7	51.4	51.6	52.2
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	862	861	861	862	861														
5	857	856	857	857	857														
10	844	845	844	845	846														
15	826	826	825	828	829														
20	801	801	801	803	804														
25	770	769	770	772	773														
30	732	732	732	734	735														
35	688	687	688	691	691														
40	638	638	638	641	640														
45	582	582	582	585	585														
50	522	521	522	525	524														
55	457	457	457	460	460														
60	390	389	389	392	392														
65	320	320	320	322	323														
70	249	249	250	252	253														
75	180	180	180	182	183														
80	114	114	114	115	116														
85	51.6	51.4	51.7	52.7	53.4														
90	0.00	0.00	0.00	0.00	0.00														
95	0.00	0.00	0.00	0.00	0.00														
100	0.00	0.00	0.00	0.00	0.00														
105	0.00	0.00	0.00	0.00	0.00														
110	0.00	0.00	0.00	0.00	0.00														
115	0.00	0.00	0.00	0.00	0.00														
120	0.00	0.00	0.00	0.00	0.00														
125	0.00	0.00	0.00	0.00	0.00														
130	0.00	0.00	0.00	0.00	0.00														
135	0.00	0.00	0.00	0.00	0.00														
140	0.00	0.00	0.00	0.00	0.00														
145	0.00	0.00	0.00	0.00	0.00														
150	0.00	0.00	0.00	0.00	0.00														
155	0.00	0.00	0.00	0.00	0.00														
160	0.00	0.00	0.00	0.00	0.00														
165	0.00	0.00	0.00	0.00	0.00														
170	0.00	0.00	0.00	0.00	0.00														
175	0.00	0.00	0.00	0.00	0.00														
180	0.00	0.00	0.00	0.00	0.00														

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	RPLED1X4 @18W3500K	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	0.157	18.4	0.979	7.75
277.0	60	0.074	19.0	0.932	11.53

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*****