

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

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Issue Date: 2024-01-30

Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	IES LM-79-2008	1500		4153
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	139.4
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		29.8
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.08
			277V	14.36
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
			277V	0.952
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	4860
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		83.7
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		16
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		96
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%		74.1%
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	1.26
		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		0.249
(Goniophotometer – Section 4.2)		Non-Worst Case		0.113
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		29.8
(Goniophotometer – Section 4.2)		Non-Worst Case		29.7

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-01-28	C-SWISH2X4@30W5000K	240119002-S1
2	Goniophotometer Test	2024-01-28	C-SWISH2X4@30W5000K	240119002-S1
3	THD and PF Test	2024-01-28	C-SWISH2X4@30W5000K	240119002-S1

Remark (If any)

1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. 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. C-SWISH2X4@30W5000K, 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.	C-SWISH2X4@30W5000K	Sample ID	240119002-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

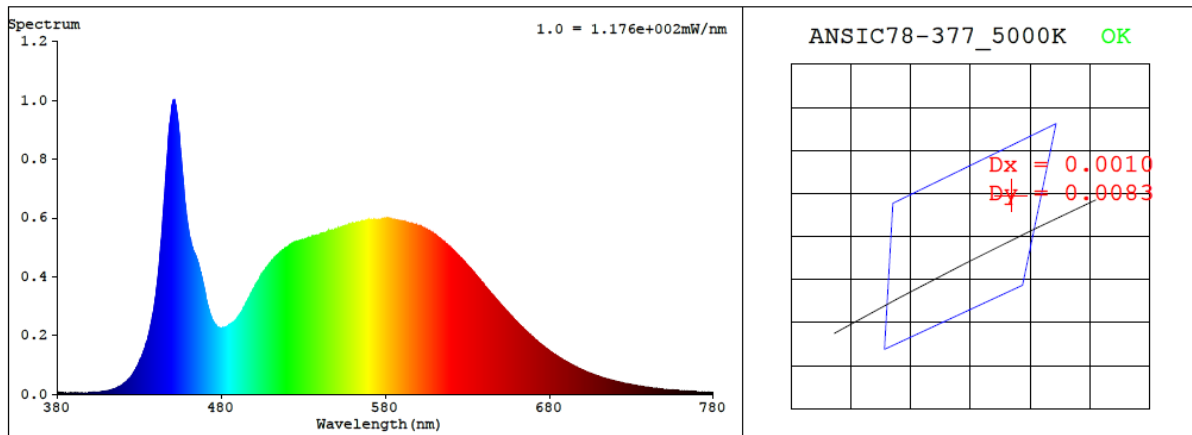
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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	0.249	29.8	0.997
277.0	60	0.113	29.7	0.952

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4860	83.7	16	0.0037	84	96	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3502$ $y = 0.3631$ / $u' = 0.2104$ $v' = 0.4909$ ($duv=3.69e-03$)

CCT= 4860K Prcp WL: $L_d=571.3nm$ Purity=14.1%

Peak WL: $L_p=452nm$ FWHM: $=19.4nm$ Ratio:R=16.0% G=79.7% B=4.3%

Render Index: $R_a = 83.7$ AvgR = 76.7 TM30:Rf=85 Rg=96

EEL: 0.09483 A++ Highest

R1 =82 R2 =88 R3 =93 R4 =83 R5 =81 R6 =83 R7 =89

R8 =70 R9 =16 R10=72 R11=81 R12=55 R13=83 R14=96 R15=77

4.1 Integrating Sphere Test

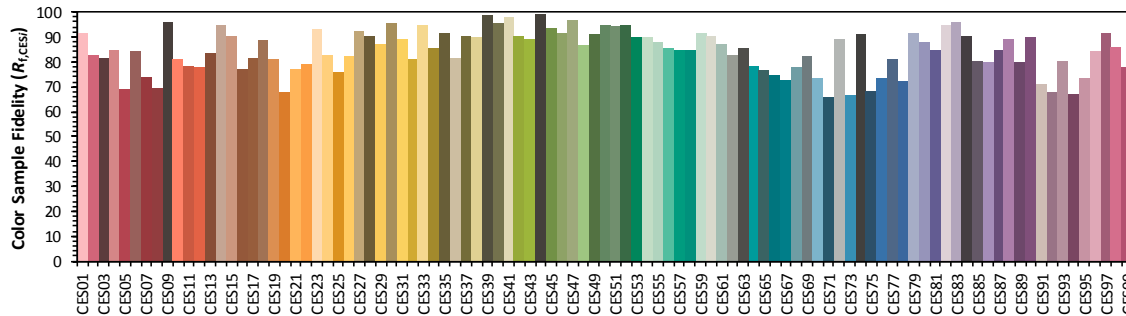
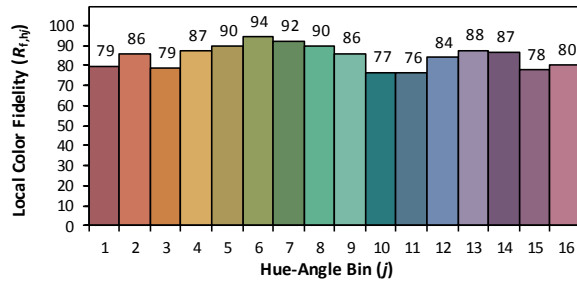
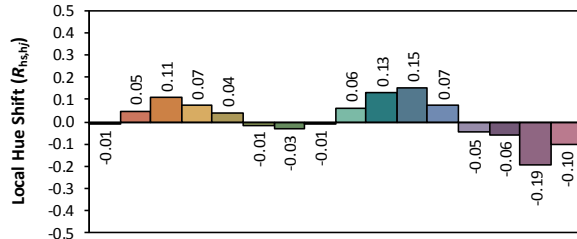
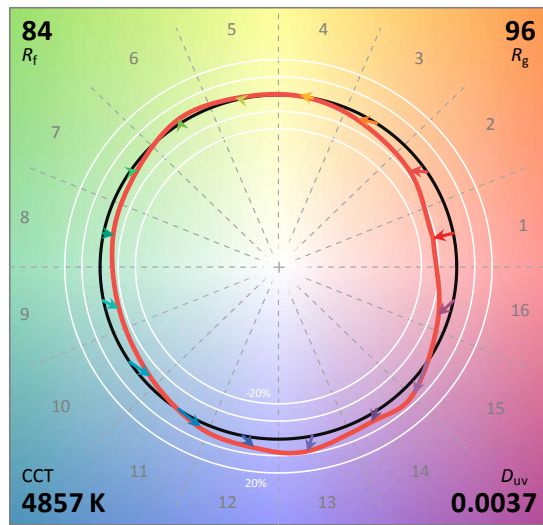
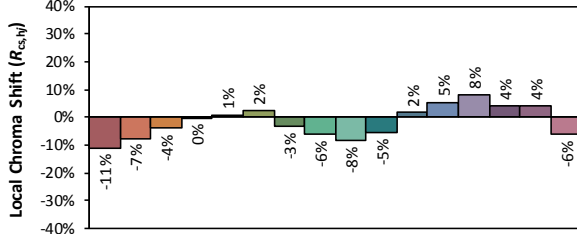
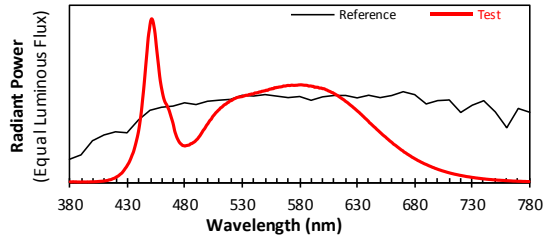
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/1/30

Model: C-SWISH2X4@30W5000K



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

x 0.3502
 y 0.3630
 u' 0.2104
 v' 0.4909

CIE 13.3-1995
(CRI)

R_a 84
 R_g 15

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	5.70E-06	447	8.03E-04	514	4.73E-04	581	5.97E-04	648	3.21E-04	715	5.22E-05
381	4.70E-06	448	8.84E-04	515	4.77E-04	582	5.96E-04	649	3.15E-04	716	5.09E-05
382	5.60E-06	449	9.33E-04	516	4.81E-04	583	5.95E-04	650	3.08E-04	717	4.94E-05
383	5.90E-06	450	9.81E-04	517	4.88E-04	584	5.94E-04	651	3.02E-04	718	4.80E-05
384	4.80E-06	451	9.99E-04	518	4.90E-04	585	5.94E-04	652	2.95E-04	719	4.63E-05
385	5.60E-06	452	9.87E-04	519	4.98E-04	586	5.94E-04	653	2.89E-04	720	4.49E-05
386	4.50E-06	453	9.53E-04	520	5.00E-04	587	5.92E-04	654	2.83E-04	721	4.38E-05
387	4.40E-06	454	9.07E-04	521	5.03E-04	588	5.89E-04	655	2.78E-04	722	4.24E-05
388	4.60E-06	455	8.38E-04	522	5.08E-04	589	5.90E-04	656	2.71E-04	723	4.11E-05
389	4.00E-06	456	7.74E-04	523	5.12E-04	590	5.89E-04	657	2.65E-04	724	3.98E-05
390	4.90E-06	457	7.12E-04	524	5.14E-04	591	5.87E-04	658	2.59E-04	725	3.83E-05
391	5.00E-06	458	6.48E-04	525	5.18E-04	592	5.87E-04	659	2.53E-04	726	3.72E-05
392	4.60E-06	459	6.00E-04	526	5.20E-04	593	5.82E-04	660	2.48E-04	727	3.62E-05
393	4.60E-06	460	5.63E-04	527	5.22E-04	594	5.83E-04	661	2.42E-04	728	3.53E-05
394	4.30E-06	461	5.29E-04	528	5.23E-04	595	5.81E-04	662	2.35E-04	729	3.39E-05
395	5.30E-06	462	5.04E-04	529	5.24E-04	596	5.82E-04	663	2.31E-04	730	3.29E-05
396	4.50E-06	463	4.87E-04	530	5.25E-04	597	5.77E-04	664	2.26E-04	731	3.18E-05
397	5.10E-06	464	4.76E-04	531	5.28E-04	598	5.77E-04	665	2.20E-04	732	3.11E-05
398	5.40E-06	465	4.60E-04	532	5.30E-04	599	5.77E-04	666	2.15E-04	733	2.98E-05
399	5.50E-06	466	4.45E-04	533	5.33E-04	600	5.73E-04	667	2.09E-04	734	2.89E-05
400	5.60E-06	467	4.23E-04	534	5.33E-04	601	5.73E-04	668	2.04E-04	735	2.82E-05
401	5.90E-06	468	4.00E-04	535	5.34E-04	602	5.71E-04	669	1.98E-04	736	2.70E-05
402	6.40E-06	469	3.77E-04	536	5.38E-04	603	5.67E-04	670	1.95E-04	737	2.65E-05
403	6.50E-06	470	3.51E-04	537	5.38E-04	604	5.64E-04	671	1.87E-04	738	2.54E-05
404	7.20E-06	471	3.18E-04	538	5.41E-04	605	5.60E-04	672	1.84E-04	739	2.48E-05
405	7.80E-06	472	2.95E-04	539	5.41E-04	606	5.57E-04	673	1.79E-04	740	2.37E-05
406	8.40E-06	473	2.76E-04	540	5.43E-04	607	5.54E-04	674	1.74E-04	741	2.32E-05
407	8.80E-06	474	2.61E-04	541	5.47E-04	608	5.50E-04	675	1.70E-04	742	2.23E-05
408	9.50E-06	475	2.48E-04	542	5.47E-04	609	5.49E-04	676	1.65E-04	743	2.14E-05
409	9.90E-06	476	2.40E-04	543	5.49E-04	610	5.43E-04	677	1.61E-04	744	2.09E-05
410	1.12E-05	477	2.33E-04	544	5.50E-04	611	5.40E-04	678	1.56E-04	745	2.01E-05
411	1.22E-05	478	2.27E-04	545	5.54E-04	612	5.35E-04	679	1.53E-04	746	1.96E-05
412	1.33E-05	479	2.26E-04	546	5.53E-04	613	5.32E-04	680	1.48E-04	747	1.92E-05
413	1.47E-05	480	2.24E-04	547	5.57E-04	614	5.26E-04	681	1.44E-04	748	1.84E-05
414	1.75E-05	481	2.26E-04	548	5.58E-04	615	5.22E-04	682	1.40E-04	749	1.78E-05
415	1.83E-05	482	2.27E-04	549	5.60E-04	616	5.17E-04	683	1.36E-04	750	1.75E-05
416	2.05E-05	483	2.29E-04	550	5.61E-04	617	5.12E-04	684	1.33E-04	751	1.70E-05
417	2.40E-05	484	2.31E-04	551	5.64E-04	618	5.08E-04	685	1.29E-04	752	1.62E-05
418	2.63E-05	485	2.38E-04	552	5.63E-04	619	5.03E-04	686	1.25E-04	753	1.56E-05
419	2.94E-05	486	2.39E-04	553	5.67E-04	620	4.96E-04	687	1.22E-04	754	1.54E-05
420	3.39E-05	487	2.44E-04	554	5.70E-04	621	4.92E-04	688	1.18E-04	755	1.49E-05
421	3.78E-05	488	2.48E-04	555	5.71E-04	622	4.87E-04	689	1.15E-04	756	1.44E-05
422	4.19E-05	489	2.53E-04	556	5.74E-04	623	4.81E-04	690	1.12E-04	757	1.40E-05
423	4.79E-05	490	2.61E-04	557	5.73E-04	624	4.75E-04	691	1.09E-04	758	1.38E-05
424	5.37E-05	491	2.67E-04	558	5.79E-04	625	4.69E-04	692	1.06E-04	759	1.31E-05
425	5.91E-05	492	2.77E-04	559	5.78E-04	626	4.64E-04	693	1.03E-04	760	1.27E-05
426	6.78E-05	493	2.86E-04	560	5.81E-04	627	4.58E-04	694	9.99E-05	761	1.24E-05
427	7.71E-05	494	2.97E-04	561	5.81E-04	628	4.52E-04	695	9.68E-05	762	1.20E-05
428	8.74E-05	495	3.08E-04	562	5.83E-04	629	4.46E-04	696	9.36E-05	763	1.16E-05
429	9.66E-05	496	3.20E-04	563	5.84E-04	630	4.40E-04	697	9.15E-05	764	1.13E-05
430	1.09E-04	497	3.28E-04	564	5.85E-04	631	4.33E-04	698	8.80E-05	765	1.08E-05
431	1.20E-04	498	3.39E-04	565	5.86E-04	632	4.28E-04	699	8.58E-05	766	1.02E-05
432	1.34E-04	499	3.51E-04	566	5.90E-04	633	4.21E-04	700	8.31E-05	767	1.00E-05
433	1.51E-04	500	3.60E-04	567	5.89E-04	634	4.15E-04	701	8.05E-05	768	1.00E-05
434	1.69E-04	501	3.71E-04	568	5.90E-04	635	4.07E-04	702	7.81E-05	769	9.60E-06
435	1.85E-04	502	3.81E-04	569	5.92E-04	636	4.01E-04	703	7.59E-05	770	9.10E-06
436	2.09E-04	503	3.88E-04	570	5.93E-04	637	3.94E-04	704	7.34E-05	771	8.90E-06
437	2.35E-04	504	4.01E-04	571	5.92E-04	638	3.88E-04	705	7.14E-05	772	8.80E-06
438	2.64E-04	505	4.10E-04	572	5.93E-04	639	3.81E-04	706	6.93E-05	773	8.60E-06
439	2.94E-04	506	4.18E-04	573	5.95E-04	640	3.74E-04	707	6.73E-05	774	8.20E-06
440	3.32E-04	507	4.27E-04	574	5.94E-04	641	3.65E-04	708	6.51E-05	775	7.80E-06
441	3.80E-04	508	4.33E-04	575	5.93E-04	642	3.60E-04	709	6.31E-05	776	7.80E-06
442	4.32E-04	509	4.41E-04	576	5.93E-04	643	3.53E-04	710	6.11E-05	777	7.60E-06
443	5.01E-04	510	4.47E-04	577	5.94E-04	644	3.47E-04	711	5.92E-05	778	7.00E-06
444	5.68E-04	511	4.56E-04	578	5.94E-04	645	3.40E-04	712	5.74E-05	779	7.00E-06
445	6.45E-04	512	4.60E-04	579	5.96E-04	646	3.35E-04	713	5.56E-05	780	7.00E-06
446	7.26E-04	513	4.66E-04	580	5.96E-04	647	3.27E-04	714	5.41E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X4@30W5000K	Sample ID	240119002-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	24.9	Humidity (%RH)	43.8

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	0.249	29.8	0.997
NON-WORST CASE	277.0	60	0.113	29.7	0.952

Test Result

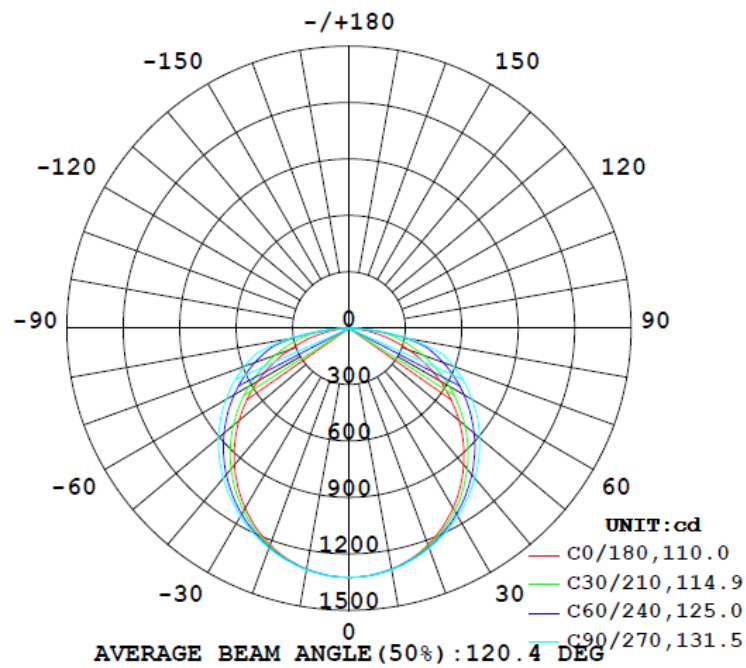
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
4153	160.8	169.8	110.1	131.4	139.4	74.1%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
18.2	21.3	1.26	1.30

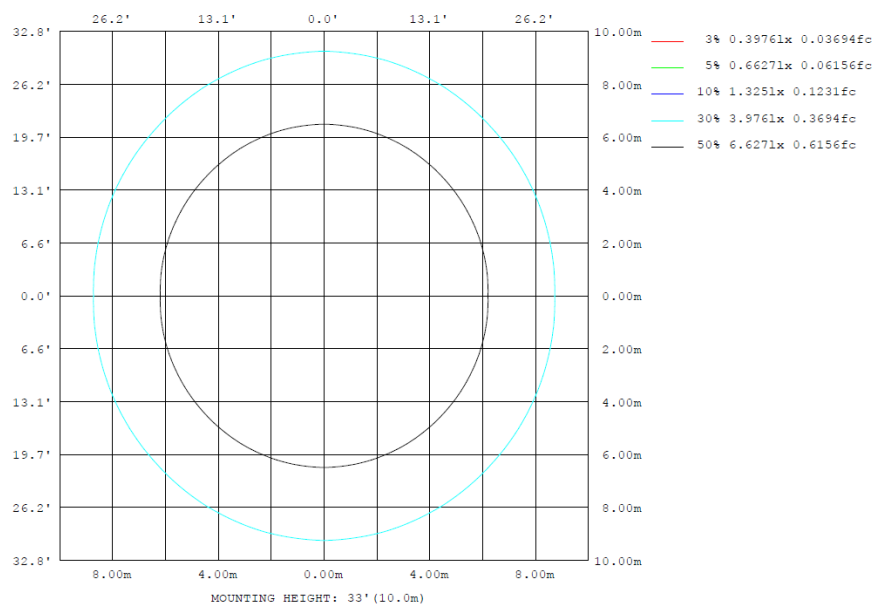
4.2 Goniophotometer Test

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	zone	total	lum, lamp
10	1300	1301	1303	1301	1300	1301	1303	1301	0- 10	125.3	125.3	3.02,3.02
20	1225	1235	1245	1235	1225	1235	1245	1235	10- 20	359.5	484.8	11.7,11.7
30	1105	1130	1155	1130	1105	1130	1155	1130	20- 30	547.6	1032	24.9,24.9
40	947.8	994.0	1040	994.0	947.8	994.0	1040	994.0	30- 40	667.7	1700	40.9,40.9
50	763.8	833.7	907.0	833.7	763.8	833.7	907.0	833.7	40- 50	708.5	2409	58,58
60	558.3	659.2	754.9	659.2	558.3	659.2	754.9	659.2	50- 60	669.5	3078	74.1,74.1
70	338.7	478.0	592.0	478.0	338.7	478.0	592.0	478.0	60- 70	560.2	3638	87.6,87.6
80	128.1	282.2	323.5	282.2	128.1	282.2	323.5	282.2	70- 80	392.6	4031	97.1,97.1
90	0	0	0	0	0	0	0	0	80- 90	121.8	4153	100,100
100	0	0	0	0	0	0	0	0	90-100	0	4153	100,100
110	0	0	0	0	0	0	0	0	100-110	0	4153	100,100
120	0	0	0	0	0	0	0	0	110-120	0	4153	100,100
130	0	0	0	0	0	0	0	0	120-130	0	4153	100,100
140	0	0	0	0	0	0	0	0	130-140	0	4153	100,100
150	0	0	0	0	0	0	0	0	140-150	0	4153	100,100
160	0	0	0	0	0	0	0	0	150-160	0	4153	100,100
170	0	0	0	0	0	0	0	0	160-170	0	4153	100,100
180	0	0	0	0	0	0	0	0	170-180	0	4153	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	125.30	0-10	125.30	3.02%
10-20	359.50	0-20	484.80	11.67%
20-30	547.57	0-30	1032.37	24.86%
30-40	667.69	0-40	1700.06	40.94%
40-50	708.49	0-50	2408.55	58.00%
50-60	669.51	0-60	3078.06	74.12%
60-70	560.20	0-70	3638.26	87.61%
70-80	392.59	0-80	4030.85	97.07%
80-90	121.84	0-90	4152.69	100.00%
90-100	0.00	0-100	4152.69	100.00%
100-110	0.00	0-110	4152.69	100.00%
110-120	0.00	0-120	4152.69	100.00%
120-130	0.00	0-130	4152.69	100.00%
130-140	0.00	0-140	4152.69	100.00%
140-150	0.00	0-150	4152.69	100.00%
150-160	0.00	0-160	4152.69	100.00%
160-170	0.00	0-170	4152.69	100.00%
170-180	0.00	0-180	4152.69	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			
		8.6	10.3	9.0	10.6	10.9	10.0	11.7	10.3	12.0
	3H	10.4	11.9	10.7	12.2	12.6	12.6	14.1	12.9	14.4
	4H	11.0	12.5	11.4	12.8	13.2	13.8	15.2	14.2	15.6
	6H	11.5	12.8	11.9	13.2	13.6	14.7	16.1	15.1	16.5
	8H	11.6	12.9	12.0	13.3	13.7	15.0	16.3	15.5	16.7
	12H	11.7	12.9	12.1	13.3	13.7	15.2	16.5	15.7	16.9
4H	2H	9.5	11.0	9.9	11.4	11.7	10.6	12.0	11.0	12.4
	3H	11.6	12.8	12.0	13.2	13.6	13.4	14.7	13.8	15.1
	4H	12.4	13.5	12.8	13.9	14.4	14.8	16.0	15.3	16.4
	6H	13.0	14.0	13.5	14.4	14.9	16.0	17.0	16.4	17.4
	8H	13.2	14.1	13.6	14.5	15.0	16.3	17.3	16.8	17.7
	12H	13.3	14.1	13.8	14.6	15.1	16.6	17.4	17.1	17.9
8H	4H	13.2	14.1	13.6	14.5	15.0	15.2	16.1	15.7	16.6
	6H	14.0	14.8	14.5	15.3	15.7	16.5	17.3	17.0	17.8
	8H	14.3	15.0	14.8	15.5	16.0	17.0	17.7	17.5	18.2
	12H	14.5	15.1	15.0	15.6	16.2	17.3	17.9	17.8	18.4
12H	4H	13.3	14.2	13.8	14.6	15.1	15.2	16.1	15.7	16.6
	6H	14.2	15.0	14.8	15.4	15.9	16.6	17.3	17.1	17.8
	8H	14.6	15.3	15.1	15.7	16.3	17.1	17.7	17.6	18.2

Maximum UGR = 19.0

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			
		13.6	15.3	14.0	15.6	15.9	15.0	16.7	15.3	17.0
	3H	15.4	16.9	15.7	17.2	17.6	17.6	19.1	17.9	19.4
	4H	16.0	17.5	16.4	17.8	18.2	18.8	20.2	19.2	20.6
	6H	16.5	17.8	16.9	18.2	18.6	19.7	21.1	20.1	21.5
	8H	16.6	17.9	17.0	18.3	18.7	20.0	21.3	20.5	21.7
	12H	16.7	17.9	17.1	18.3	18.7	20.2	21.5	20.7	21.9
4H	2H	14.5	16.0	14.9	16.4	16.7	15.6	17.0	16.0	17.4
	3H	16.6	17.8	17.0	18.2	18.6	18.4	19.7	18.8	20.1
	4H	17.4	18.5	17.8	18.9	19.4	19.8	21.0	20.3	21.4
	6H	18.0	19.0	18.5	19.4	19.9	21.0	22.0	21.4	22.4
	8H	18.2	19.1	18.6	19.5	20.0	21.3	22.3	21.8	22.7
	12H	18.3	19.1	18.8	19.6	20.1	21.6	22.4	22.1	22.9
8H	4H	18.2	19.1	18.6	19.5	20.0	20.2	21.1	20.7	21.6
	6H	19.0	19.8	19.5	20.3	20.7	21.5	22.3	22.0	22.8
	8H	19.3	20.0	19.8	20.5	21.0	22.0	22.7	22.5	23.2
	12H	19.5	20.1	20.0	20.6	21.2	22.3	22.9	22.8	23.4
12H	4H	18.3	19.2	18.8	19.6	20.1	20.2	21.1	20.7	21.6
	6H	19.2	20.0	19.8	20.4	20.9	21.6	22.3	22.1	22.8
	8H	19.6	20.3	20.1	20.7	21.3	22.1	22.7	22.6	23.2

Maximum UGR = 24.0

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	1325	1324	1325	1325	1325	1325	1324	1325	1325	1325	1325	1324	1325	1324	1325	1325	1325	1325	1324
5	1319	1319	1320	1319	1319	1318	1319	1318	1319	1319	1320	1319	1319	1319	1320	1319	1319	1318	1319
10	1300	1299	1301	1301	1301	1301	1303	1301	1301	1301	1301	1299	1300	1299	1301	1301	1301	1301	1303
15	1269	1270	1272	1273	1275	1277	1279	1277	1275	1273	1272	1270	1269	1270	1272	1273	1275	1277	1279
20	1225	1229	1232	1235	1239	1243	1245	1243	1239	1235	1232	1229	1225	1229	1232	1235	1239	1243	1245
25	1171	1176	1182	1188	1194	1200	1204	1200	1194	1188	1182	1176	1171	1176	1182	1188	1194	1200	1204
30	1105	1114	1122	1130	1141	1151	1155	1151	1141	1130	1122	1114	1105	1114	1122	1130	1141	1151	1155
35	1031	1041	1053	1066	1082	1094	1100	1094	1082	1066	1053	1041	1031	1041	1053	1066	1082	1094	1100
40	948	960	977	994	1016	1032	1040	1032	1016	994	977	960	948	960	977	994	1016	1032	1040
45	859	873	892	916	944	966	976	966	944	916	892	873	859	873	892	916	944	966	976
50	764	779	803	834	867	894	907	894	867	834	803	779	764	779	803	834	867	894	907
55	663	680	710	748	788	819	833	819	788	748	710	680	663	680	710	748	788	819	833
60	558	576	613	659	705	740	755	740	705	659	613	576	558	576	613	659	705	740	755
65	449	471	515	569	620	659	675	659	620	569	515	471	449	471	515	569	620	659	675
70	339	364	418	478	533	574	592	574	533	478	418	364	339	364	418	478	533	574	592
75	230	261	324	387	445	487	500	487	445	387	324	261	230	261	324	387	445	487	500
80	128	165	232	282	303	316	323	316	303	282	232	165	128	165	232	282	303	316	323
85	45.1	81.0	112	120	124	127	129	127	124	120	112	81.0	45.1	81.0	112	120	124	127	129
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	1325	1325	1325	1325	1324														
5	1318	1319	1319	1320	1319														
10	1301	1301	1301	1301	1299														
15	1277	1275	1273	1272	1270														
20	1243	1239	1235	1232	1229														
25	1200	1194	1188	1182	1176														
30	1151	1141	1130	1122	1114														
35	1094	1082	1066	1053	1041														
40	1032	1016	994	977	960														
45	966	944	916	892	873														
50	894	867	834	803	779														
55	819	788	748	710	680														
60	740	705	659	613	576														
65	659	620	569	515	471														
70	574	533	478	418	364														
75	487	445	387	324	261														
80	316	303	282	232	165														
85	127	124	120	112	81.0														
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.	C-SWISH2X4@30W5000K	Sample ID	240119002-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	0.249	29.8	0.997	7.08
277.0	60	0.113	29.7	0.952	14.36

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*****