

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

Prepared By

Dongguan New Testing Centre Co., Ltd.

Prepare by:

Alan Wang

Engineer: Alan Wang

Date: 2024-03-04

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

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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	3000		4048
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	136.3
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		29.7
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	5.62
			277V	9.91
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
			277V	0.961
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3465±245	3485
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.6
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		15
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%		-11%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	IES LM-79-2008	≥75%		74.0%
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	1.24
		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		0.248
(Goniophotometer – Section 4.2)		Non-Worst Case		0.110
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		29.7
(Goniophotometer – Section 4.2)		Non-Worst Case		29.3

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-01	C-SWISH2X4@30W3500K	240301001-S1
2	Goniophotometer Test	2024-03-01	C-SWISH2X4@30W3500K	240301001-S1
3	THD and PF Test	2024-03-01	C-SWISH2X4@30W3500K	240301001-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@30W3500K, 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@30W3500K	Sample ID	240301001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

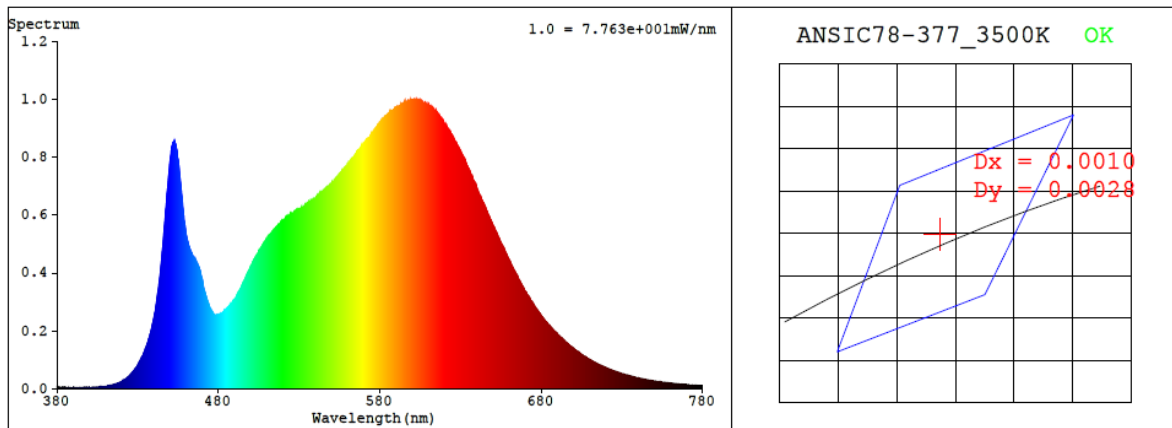
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25\pm 1^{\circ}\text{C}$.</p> <p>The sample measurements 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	0.248	29.7	0.997
277.0	60	0.110	29.3	0.961

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3485	84.6	15	0.0010	85	95	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4072$ $y = 0.3939$ / $u' = 0.2356$ $v' = 0.5129$ ($duv=9.81e-04$)

CCT= 3485K Prcp WL: Ld=580.5nm Purity=40.5%

Peak WL: Lp=601nm FWHM: =149.1nm Ratio:R=20.5% G=76.2% B=3.2%

Render Index: Ra = 84.6 AvgR = 78.8 TM30:Rf=85 Rg=95

EEL: 0.09527 A++ Highest

R1 =83 R2 =92 R3 =97 R4 =83 R5 =83 R6 =89 R7 =86
R8 =65 R9 =15 R10=80 R11=83 R12=67 R13=85 R14=99 R15=76

4.1 Integrating Sphere Test

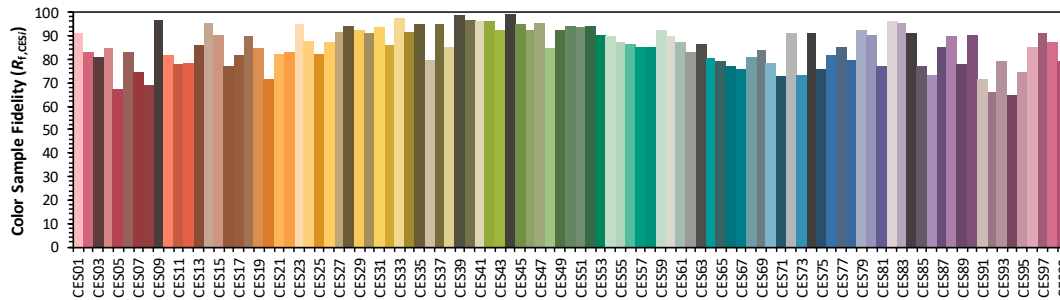
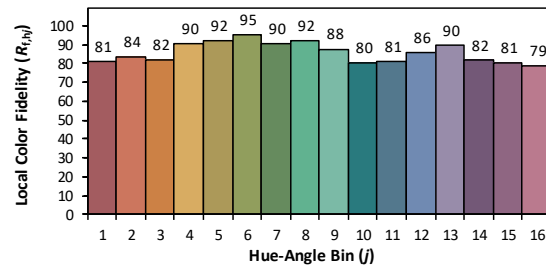
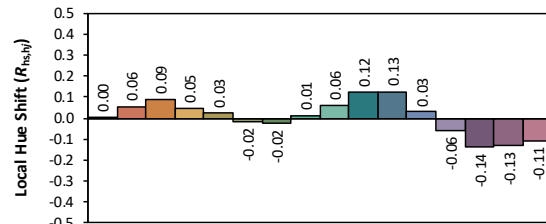
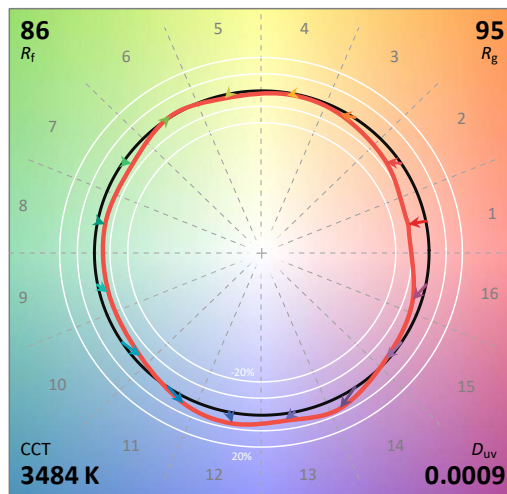
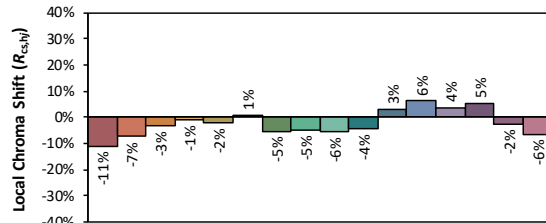
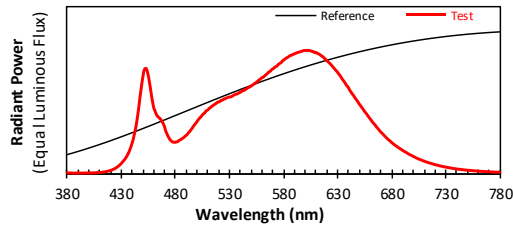
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/4

Model: C-SWISH2X4@30W3500K



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

x 0.4072
 y 0.3938
 u' 0.2357
 v' 0.5128

CIE 13.3-1995
(CRI)

R_a 85
 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	7.30E-06	447	6.03E-04	514	5.47E-04	581	9.26E-04	648	5.92E-04	715	8.57E-05
381	3.50E-06	448	6.68E-04	515	5.53E-04	582	9.33E-04	649	5.79E-04	716	8.31E-05
382	4.20E-06	449	7.34E-04	516	5.59E-04	583	9.39E-04	650	5.65E-04	717	8.09E-05
383	5.30E-06	450	7.89E-04	517	5.67E-04	584	9.43E-04	651	5.55E-04	718	7.78E-05
384	4.50E-06	451	8.36E-04	518	5.70E-04	585	9.49E-04	652	5.41E-04	719	7.56E-05
385	4.00E-06	452	8.51E-04	519	5.80E-04	586	9.56E-04	653	5.30E-04	720	7.30E-05
386	2.90E-06	453	8.52E-04	520	5.81E-04	587	9.59E-04	654	5.17E-04	721	7.03E-05
387	4.30E-06	454	8.28E-04	521	5.83E-04	588	9.62E-04	655	5.04E-04	722	6.84E-05
388	3.80E-06	455	7.90E-04	522	5.93E-04	589	9.67E-04	656	4.93E-04	723	6.62E-05
389	2.30E-06	456	7.39E-04	523	5.94E-04	590	9.70E-04	657	4.82E-04	724	6.37E-05
390	5.30E-06	457	6.84E-04	524	5.99E-04	591	9.75E-04	658	4.69E-04	725	6.14E-05
391	3.40E-06	458	6.26E-04	525	6.06E-04	592	9.77E-04	659	4.57E-04	726	5.98E-05
392	3.80E-06	459	5.76E-04	526	6.06E-04	593	9.83E-04	660	4.46E-04	727	5.81E-05
393	3.20E-06	460	5.32E-04	527	6.12E-04	594	9.83E-04	661	4.34E-04	728	5.61E-05
394	3.70E-06	461	5.11E-04	528	6.15E-04	595	9.86E-04	662	4.21E-04	729	5.40E-05
395	3.80E-06	462	4.87E-04	529	6.18E-04	596	9.90E-04	663	4.11E-04	730	5.19E-05
396	4.10E-06	463	4.71E-04	530	6.21E-04	597	9.92E-04	664	4.01E-04	731	5.11E-05
397	5.10E-06	464	4.60E-04	531	6.21E-04	598	9.95E-04	665	3.91E-04	732	4.88E-05
398	4.70E-06	465	4.52E-04	532	6.26E-04	599	9.98E-04	666	3.78E-04	733	4.77E-05
399	4.70E-06	466	4.44E-04	533	6.29E-04	600	9.98E-04	667	3.69E-04	734	4.62E-05
400	6.00E-06	467	4.30E-04	534	6.36E-04	601	9.97E-04	668	3.58E-04	735	4.44E-05
401	4.30E-06	468	4.17E-04	535	6.39E-04	602	9.99E-04	669	3.47E-04	736	4.28E-05
402	5.20E-06	469	3.99E-04	536	6.45E-04	603	9.99E-04	670	3.37E-04	737	4.14E-05
403	5.30E-06	470	3.79E-04	537	6.45E-04	604	9.97E-04	671	3.29E-04	738	3.98E-05
404	5.60E-06	471	3.46E-04	538	6.49E-04	605	9.95E-04	672	3.20E-04	739	3.90E-05
405	5.80E-06	472	3.26E-04	539	6.56E-04	606	9.93E-04	673	3.10E-04	740	3.77E-05
406	6.10E-06	473	3.06E-04	540	6.58E-04	607	9.88E-04	674	3.01E-04	741	3.58E-05
407	7.50E-06	474	2.90E-04	541	6.65E-04	608	9.88E-04	675	2.92E-04	742	3.52E-05
408	7.60E-06	475	2.75E-04	542	6.69E-04	609	9.80E-04	676	2.83E-04	743	3.41E-05
409	8.00E-06	476	2.66E-04	543	6.78E-04	610	9.84E-04	677	2.75E-04	744	3.31E-05
410	8.70E-06	477	2.58E-04	544	6.76E-04	611	9.76E-04	678	2.68E-04	745	3.22E-05
411	9.50E-06	478	2.55E-04	545	6.83E-04	612	9.73E-04	679	2.61E-04	746	3.10E-05
412	1.00E-05	479	2.55E-04	546	6.89E-04	613	9.68E-04	680	2.52E-04	747	2.99E-05
413	1.17E-05	480	2.53E-04	547	6.96E-04	614	9.62E-04	681	2.46E-04	748	2.87E-05
414	1.24E-05	481	2.57E-04	548	6.98E-04	615	9.56E-04	682	2.38E-04	749	2.81E-05
415	1.43E-05	482	2.58E-04	549	7.04E-04	616	9.50E-04	683	2.31E-04	750	2.70E-05
416	1.62E-05	483	2.65E-04	550	7.09E-04	617	9.43E-04	684	2.25E-04	751	2.62E-05
417	1.77E-05	484	2.72E-04	551	7.16E-04	618	9.33E-04	685	2.19E-04	752	2.54E-05
418	2.00E-05	485	2.76E-04	552	7.21E-04	619	9.27E-04	686	2.12E-04	753	2.46E-05
419	2.25E-05	486	2.82E-04	553	7.29E-04	620	9.15E-04	687	2.07E-04	754	2.40E-05
420	2.52E-05	487	2.88E-04	554	7.33E-04	621	9.09E-04	688	2.01E-04	755	2.31E-05
421	2.83E-05	488	2.94E-04	555	7.42E-04	622	9.00E-04	689	1.95E-04	756	2.25E-05
422	3.27E-05	489	3.03E-04	556	7.48E-04	623	8.92E-04	690	1.89E-04	757	2.19E-05
423	3.60E-05	490	3.10E-04	557	7.56E-04	624	8.82E-04	691	1.84E-04	758	2.09E-05
424	4.06E-05	491	3.17E-04	558	7.63E-04	625	8.73E-04	692	1.78E-04	759	2.05E-05
425	4.58E-05	492	3.29E-04	559	7.68E-04	626	8.61E-04	693	1.73E-04	760	1.96E-05
426	5.22E-05	493	3.39E-04	560	7.78E-04	627	8.52E-04	694	1.68E-04	761	1.90E-05
427	5.81E-05	494	3.50E-04	561	7.80E-04	628	8.41E-04	695	1.62E-04	762	1.83E-05
428	6.59E-05	495	3.62E-04	562	7.87E-04	629	8.32E-04	696	1.58E-04	763	1.78E-05
429	7.29E-05	496	3.74E-04	563	7.96E-04	630	8.22E-04	697	1.53E-04	764	1.72E-05
430	8.22E-05	497	3.87E-04	564	8.03E-04	631	8.09E-04	698	1.48E-04	765	1.68E-05
431	9.29E-05	498	3.99E-04	565	8.10E-04	632	7.98E-04	699	1.44E-04	766	1.61E-05
432	1.03E-04	499	4.09E-04	566	8.21E-04	633	7.87E-04	700	1.40E-04	767	1.57E-05
433	1.13E-04	500	4.22E-04	567	8.25E-04	634	7.71E-04	701	1.35E-04	768	1.51E-05
434	1.26E-04	501	4.34E-04	568	8.31E-04	635	7.59E-04	702	1.31E-04	769	1.48E-05
435	1.40E-04	502	4.46E-04	569	8.42E-04	636	7.47E-04	703	1.25E-04	770	1.41E-05
436	1.56E-04	503	4.55E-04	570	8.48E-04	637	7.34E-04	704	1.23E-04	771	1.39E-05
437	1.74E-04	504	4.64E-04	571	8.55E-04	638	7.19E-04	705	1.18E-04	772	1.31E-05
438	1.97E-04	505	4.76E-04	572	8.62E-04	639	7.09E-04	706	1.15E-04	773	1.29E-05
439	2.21E-04	506	4.84E-04	573	8.67E-04	640	6.98E-04	707	1.12E-04	774	1.25E-05
440	2.48E-04	507	4.91E-04	574	8.73E-04	641	6.80E-04	708	1.08E-04	775	1.19E-05
441	2.78E-04	508	5.04E-04	575	8.82E-04	642	6.66E-04	709	1.04E-04	776	1.19E-05
442	3.18E-04	509	5.10E-04	576	8.90E-04	643	6.54E-04	710	1.01E-04	777	1.13E-05
443	3.57E-04	510	5.16E-04	577	8.95E-04	644	6.42E-04	711	9.79E-05	778	1.10E-05
444	4.06E-04	511	5.26E-04	578	9.01E-04	645	6.30E-04	712	9.43E-05	779	1.10E-05
445	4.64E-04	512	5.33E-04	579	9.13E-04	646	6.16E-04	713	9.17E-05	780	1.11E-05
446	5.29E-04	513	5.40E-04	580	9.19E-04	647	6.04E-04	714	8.87E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X4@30W3500K	Sample ID	240301001-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	0.248	29.7	0.997
NON-WORST CASE	277.0	60	0.110	29.3	0.961

Test Result

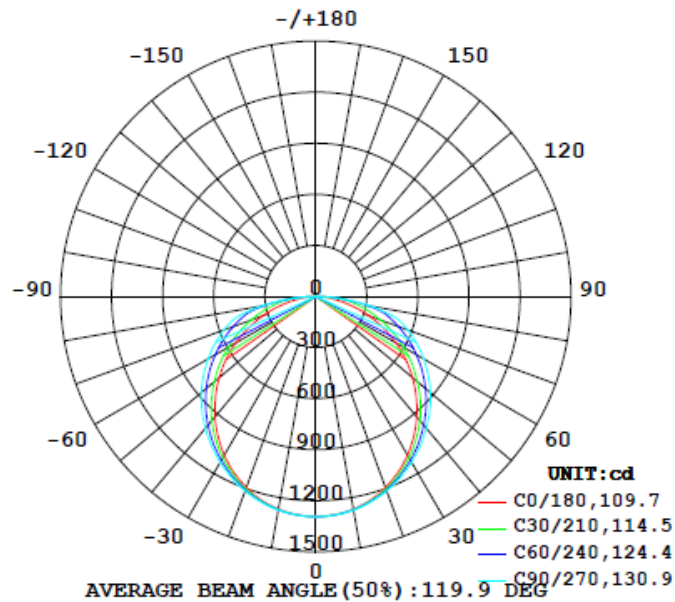
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
4048	161.1	170.5	109.8	130.9	136.3	74.0%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
18.1	21.3	1.24	1.30

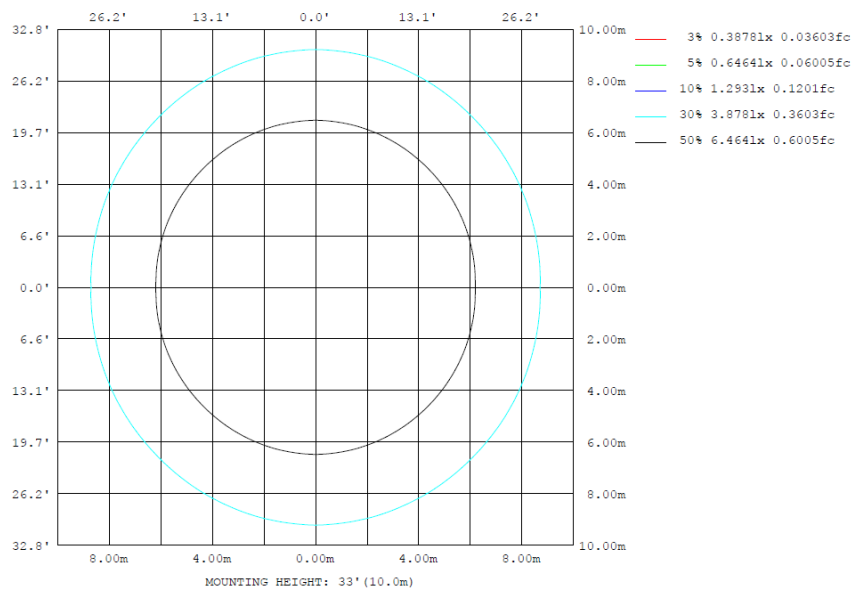
4.2 Goniophotometer Test

Lighting Distribution Curve

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	%lum, lamp
10	1268	1271	1274	1271	1268	1271	1274	1271	0- 10	122.4	122.4	3.02,3.02
20	1195	1206	1216	1206	1195	1206	1216	1206	10- 20	351.2	473.6	11.7,11.7
30	1076	1102	1125	1102	1076	1102	1125	1102	20- 30	534.1	1008	24.9,24.9
40	922.4	966.6	1011	966.6	922.4	966.6	1011	966.6	30- 40	649.9	1658	40.9,40.9
50	741.3	808.2	877.8	808.2	741.3	808.2	877.8	808.2	40- 50	688.0	2346	57.9,57.9
60	542.0	638.1	731.3	638.1	542.0	638.1	731.3	638.1	50- 60	648.9	2994	74,74
70	331.2	463.7	574.8	463.7	331.2	463.7	574.8	463.7	60- 70	543.2	3538	87.4,87.4
80	127.9	281.7	326.0	281.7	127.9	281.7	326.0	281.7	70- 80	384.2	3922	96.9,96.9
90	0	0	0	0	0	0	0	0	80- 90	126.0	4048	100,100
100	0	0	0	0	0	0	0	0	90-100	0	4048	100,100
110	0	0	0	0	0	0	0	0	100-110	0	4048	100,100
120	0	0	0	0	0	0	0	0	110-120	0	4048	100,100
130	0	0	0	0	0	0	0	0	120-130	0	4048	100,100
140	0	0	0	0	0	0	0	0	130-140	0	4048	100,100
150	0	0	0	0	0	0	0	0	140-150	0	4048	100,100
160	0	0	0	0	0	0	0	0	150-160	0	4048	100,100
170	0	0	0	0	0	0	0	0	160-170	0	4048	100,100
180	0	0	0	0	0	0	0	0	170-180	0	4048	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	122.40	0-10	122.40	3.02%
10-20	351.16	0-20	473.56	11.70%
20-30	534.14	0-30	1007.70	24.89%
30-40	649.91	0-40	1657.61	40.95%
40-50	687.99	0-50	2345.60	57.95%
50-60	648.90	0-60	2994.50	73.98%
60-70	543.23	0-70	3537.73	87.40%
70-80	384.23	0-80	3921.96	96.89%
80-90	126.00	0-90	4047.96	100.00%
90-100	0.00	0-100	4047.96	100.00%
100-110	0.00	0-110	4047.96	100.00%
110-120	0.00	0-120	4047.96	100.00%
120-130	0.00	0-130	4047.96	100.00%
130-140	0.00	0-140	4047.96	100.00%
140-150	0.00	0-150	4047.96	100.00%
150-160	0.00	0-160	4047.96	100.00%
160-170	0.00	0-170	4047.96	100.00%
170-180	0.00	0-180	4047.96	100.00%

4.2 Goniophotometer Test

UGR – Uncorrected Table:

UGR TABLE - UNCORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
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	8.6	10.3	8.9	10.6	10.9	9.9	11.6	10.3	11.9	12.2
	3H	10.4	11.9	10.7	12.2	12.6	12.5	14.1	12.9	14.4	14.7
	4H	11.0	12.5	11.4	12.8	13.2	13.8	15.2	14.2	15.6	15.9
	6H	11.5	12.8	11.9	13.2	13.6	14.8	16.1	15.2	16.5	16.9
	8H	11.6	12.9	12.0	13.3	13.7	15.1	16.4	15.5	16.8	17.2
	12H	11.7	12.9	12.1	13.3	13.7	15.3	16.6	15.7	16.9	17.4
4H	2H	9.5	11.0	9.9	11.3	11.7	10.5	12.0	10.9	12.3	12.7
	3H	11.6	12.8	12.0	13.2	13.6	13.4	14.6	13.8	15.0	15.4
	4H	12.4	13.5	12.8	13.9	14.4	14.8	16.0	15.2	16.4	16.8
	6H	13.0	14.0	13.5	14.4	14.9	16.0	17.0	16.5	17.4	17.9
	8H	13.2	14.1	13.6	14.6	15.0	16.4	17.4	16.9	17.8	18.3
8H	2H	13.3	14.1	13.8	14.6	15.1	16.7	17.5	17.2	18.0	18.5
	4H	13.2	14.1	13.6	14.5	15.0	15.2	16.1	15.6	16.6	17.0
	6H	14.0	14.8	14.5	15.3	15.7	16.6	17.3	17.0	17.8	18.3
	8H	14.3	15.0	14.8	15.5	16.0	17.1	17.8	17.6	18.3	18.8
	12H	14.5	15.1	15.0	15.6	16.2	17.5	18.1	18.0	18.6	19.1
12H	4H	13.3	14.2	13.8	14.6	15.1	15.2	16.1	15.7	16.5	17.0
	6H	14.3	15.0	14.8	15.4	16.0	16.7	17.4	17.2	17.8	18.4
	8H	14.7	15.3	15.2	15.8	16.3	17.2	17.9	17.7	18.3	18.9

Maximum UGR = 19.1

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
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	13.5	15.2	13.8	15.5	15.8	14.8	16.5	15.2	16.8	17.1
	3H	15.3	16.8	15.6	17.1	17.5	17.4	19.0	17.8	19.3	19.6
	4H	15.9	17.4	16.3	17.7	18.1	18.7	20.1	19.1	20.5	20.8
	6H	16.4	17.7	16.8	18.1	18.5	19.7	21.0	20.1	21.4	21.8
	8H	16.5	17.8	16.9	18.2	18.6	20.0	21.3	20.4	21.7	22.1
	12H	16.6	17.8	17.0	18.2	18.6	20.2	21.5	20.6	21.8	22.3
4H	2H	14.4	15.9	14.8	16.2	16.6	15.4	16.9	15.8	17.2	17.6
	3H	16.5	17.7	16.9	18.1	18.5	18.3	19.5	18.7	19.9	20.3
	4H	17.3	18.4	17.7	18.8	19.3	19.7	20.9	20.1	21.3	21.7
	6H	17.9	18.9	18.4	19.3	19.8	20.9	21.9	21.4	22.3	22.8
	8H	18.1	19.0	18.5	19.5	19.9	21.3	22.3	21.8	22.7	23.2
8H	2H	18.2	19.0	18.7	19.5	20.0	21.6	22.4	22.1	22.9	23.4
	4H	18.1	19.0	18.5	19.4	19.9	20.1	21.0	20.5	21.5	21.9
	6H	18.9	19.7	19.4	20.2	20.6	21.5	22.2	21.9	22.7	23.2
	8H	19.2	19.9	19.7	20.4	20.9	22.0	22.7	22.5	23.2	23.7
	12H	19.4	20.0	19.9	20.5	21.1	22.4	23.0	22.9	23.5	24.0
12H	4H	18.2	19.1	18.7	19.5	20.0	20.1	21.0	20.6	21.4	21.9
	6H	19.2	19.9	19.7	20.3	20.9	21.6	22.3	22.1	22.7	23.3
	8H	19.6	20.2	20.1	20.7	21.2	22.1	22.8	22.6	23.2	23.8

Maximum UGR = 24.0

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) y	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1292	1294	1294	1293	1294	1294	1294	1294	1294	1293	1294	1294	1292	1294	1294	1293	1294	1294	1294
5	1287	1287	1288	1288	1288	1288	1289	1288	1288	1288	1288	1287	1287	1287	1288	1288	1288	1288	1289
10	1268	1270	1272	1271	1272	1272	1274	1272	1272	1271	1272	1270	1268	1270	1272	1271	1272	1272	1274
15	1238	1240	1243	1244	1246	1248	1249	1248	1246	1244	1243	1240	1238	1240	1243	1244	1246	1248	1249
20	1195	1199	1204	1206	1211	1213	1216	1213	1211	1206	1204	1199	1195	1199	1204	1206	1211	1213	1216
25	1141	1147	1154	1158	1165	1170	1174	1170	1165	1158	1154	1147	1141	1147	1154	1158	1165	1170	1174
30	1076	1086	1094	1102	1112	1120	1125	1120	1112	1102	1094	1086	1076	1086	1094	1102	1112	1120	1125
35	1003	1014	1026	1038	1052	1064	1070	1064	1052	1038	1026	1014	1003	1014	1026	1038	1052	1064	1070
40	922	935	951	967	987	1002	1011	1002	987	967	951	935	922	935	951	967	987	1002	1011
45	834	849	868	889	916	936	947	936	916	889	868	849	834	849	868	889	916	936	947
50	741	757	780	808	841	865	878	865	841	808	780	757	741	757	780	808	841	865	878
55	643	660	689	724	763	792	806	792	763	724	689	660	643	660	689	724	763	792	806
60	542	560	595	638	682	716	731	716	682	638	595	560	542	560	595	638	682	716	731
65	437	457	500	550	600	638	654	638	600	550	500	457	437	457	500	550	600	638	654
70	331	354	406	464	517	558	575	558	517	464	406	354	331	354	406	464	517	558	575
75	226	255	315	377	434	476	492	476	434	377	315	255	226	255	315	377	434	476	492
80	128	162	227	282	305	319	326	319	305	282	227	162	128	162	227	282	305	319	326
85	47.2	81.0	116	127	132	135	137	135	132	127	116	81.0	47.2	81.0	116	127	132	135	137
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	285	300	315	330	345														
0	1294	1294	1293	1294	1294														
5	1288	1288	1288	1288	1287														
10	1272	1272	1271	1272	1270														
15	1248	1246	1244	1243	1240														
20	1213	1211	1206	1204	1199														
25	1170	1165	1158	1154	1147														
30	1120	1112	1102	1094	1086														
35	1064	1052	1038	1026	1014														
40	1002	987	967	951	935														
45	936	916	889	868	849														
50	865	841	808	780	757														
55	792	763	724	689	660														
60	716	682	638	595	560														
65	638	600	550	500	457														
70	558	517	464	406	354														
75	476	434	377	315	255														
80	319	305	282	227	162														
85	135	132	127	116	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@30W3500K	Sample ID	240301001-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±1°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	0.248	29.7	0.997	5.62
277.0	60	0.110	29.3	0.961	9.91

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*****