

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

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Issue Date: 2024-01-29

Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

1x4 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		3343
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	134.3
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.9
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	8.08
			277V	14.22
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.996
			277V	0.974
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	4922
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.1
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		17
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%		-11%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	IES LM-79-2008	≥75%		78.1%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	20.6
		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		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.092
(Goniophotometer – Section 4.2)		Non-Worst Case		0.207
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.9
(Goniophotometer – Section 4.2)		Non-Worst Case		24.8

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-01-26	C-SWISH1X4@25W5000K	240119003-S1
2	Goniophotometer Test	2024-01-26	C-SWISH1X4@25W5000K	240119003-S1
3	THD and PF Test	2024-01-26	C-SWISH1X4@25W5000K	240119003-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-SWISH1X4@25W5000K, color tunable from 3500K, 4000K and 5000K.

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

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	C-SWISH1X4@25W5000K	Sample ID	240119003-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

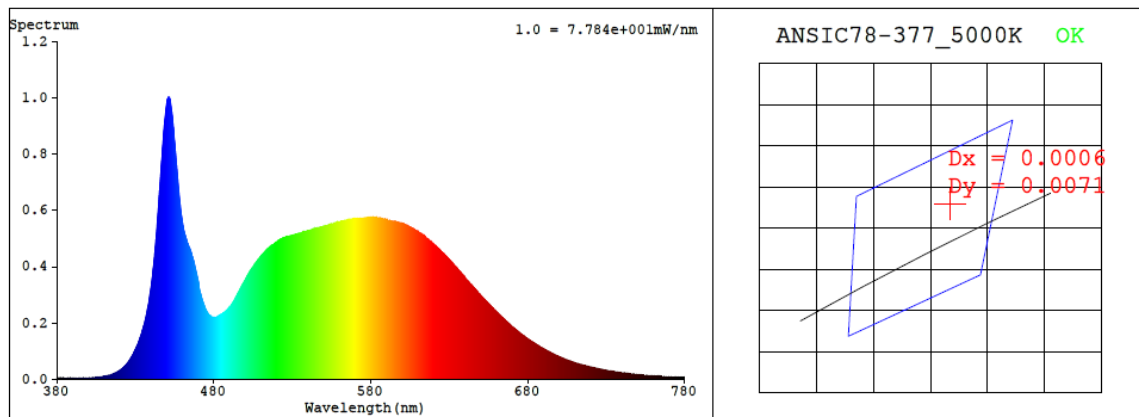
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25 \pm 1^\circ\text{C}$.</p> <p>The sample measurements 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	0.207	24.8	0.996
277.0	60	0.092	24.9	0.974

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4922	84.1	17	0.0033	85	96	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3480$ $y = 0.3605$ / $u' = 0.2099$ $v' = 0.4894$ ($duv=3.27e-03$)

CCT= 4922K Prcp WL: Ld=570.8nm Purity=12.6%

Peak WL: Lp=451nm FWHM: =19.1nm Ratio:R=16.0% G=79.6% B=4.4%

Render Index: Ra = 84.1 AvgR = 77.2 TM30:Rf=85 Rg=96

EEL: 0.11782 A+

R1 =82 R2 =89 R3 =93 R4 =83 R5 =82 R6 =84 R7 =89

R8 =71 R9 =17 R10=73 R11=82 R12=56 R13=84 R14=96 R15=77

4.1 Integrating Sphere Test

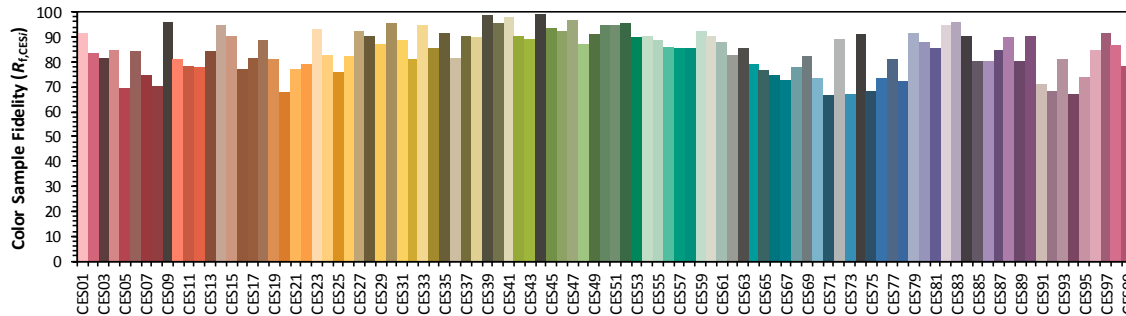
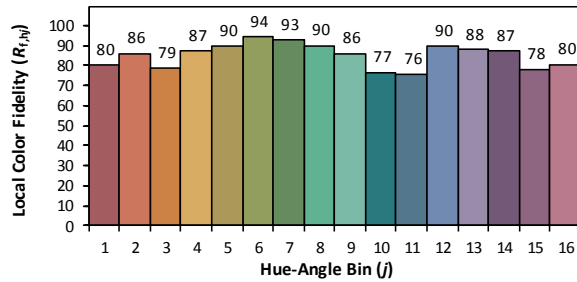
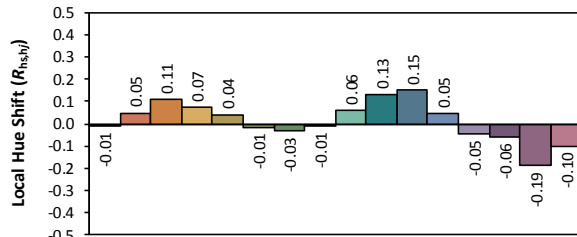
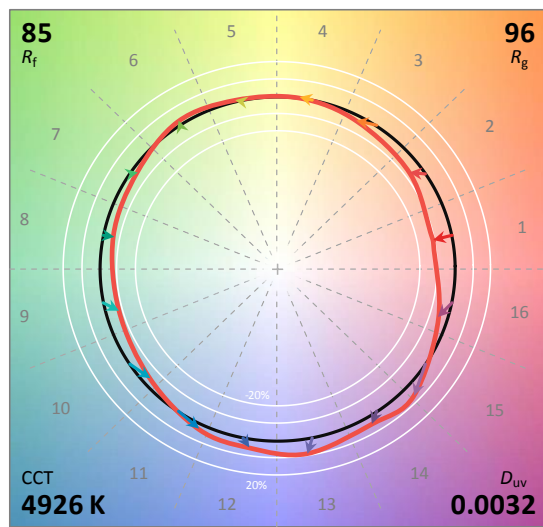
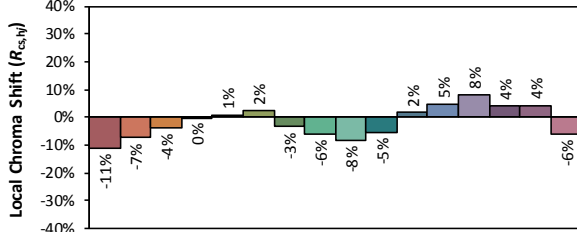
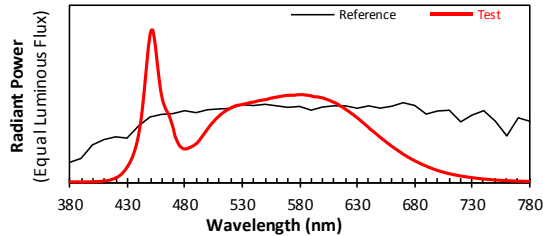
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/1/29

Model: C-SWISH1X4@25W5000K



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

x 0.3479
 y 0.3604
 u' 0.2100
 v' 0.4893

CIE 13.3-1995
(CRI)

R_a 84
 R_9 17

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	4.00E-06	447	7.98E-04	514	4.61E-04	581	5.75E-04	648	3.10E-04	715	5.02E-05
381	3.80E-06	448	8.75E-04	515	4.66E-04	582	5.75E-04	649	3.04E-04	716	4.90E-05
382	4.80E-06	449	9.35E-04	516	4.72E-04	583	5.75E-04	650	2.98E-04	717	4.74E-05
383	3.50E-06	450	9.82E-04	517	4.75E-04	584	5.73E-04	651	2.92E-04	718	4.62E-05
384	3.80E-06	451	9.99E-04	518	4.79E-04	585	5.72E-04	652	2.85E-04	719	4.45E-05
385	4.00E-06	452	9.95E-04	519	4.84E-04	586	5.72E-04	653	2.80E-04	720	4.34E-05
386	4.00E-06	453	9.57E-04	520	4.87E-04	587	5.71E-04	654	2.74E-04	721	4.19E-05
387	4.50E-06	454	9.07E-04	521	4.92E-04	588	5.69E-04	655	2.68E-04	722	4.07E-05
388	3.00E-06	455	8.42E-04	522	4.95E-04	589	5.69E-04	656	2.62E-04	723	3.96E-05
389	3.00E-06	456	7.73E-04	523	4.98E-04	590	5.67E-04	657	2.56E-04	724	3.86E-05
390	3.20E-06	457	7.09E-04	524	5.02E-04	591	5.63E-04	658	2.51E-04	725	3.72E-05
391	3.80E-06	458	6.48E-04	525	5.03E-04	592	5.64E-04	659	2.45E-04	726	3.62E-05
392	3.40E-06	459	5.96E-04	526	5.05E-04	593	5.60E-04	660	2.39E-04	727	3.49E-05
393	3.70E-06	460	5.58E-04	527	5.07E-04	594	5.61E-04	661	2.34E-04	728	3.38E-05
394	4.00E-06	461	5.25E-04	528	5.07E-04	595	5.61E-04	662	2.28E-04	729	3.27E-05
395	3.80E-06	462	5.05E-04	529	5.09E-04	596	5.60E-04	663	2.23E-04	730	3.18E-05
396	3.60E-06	463	4.85E-04	530	5.11E-04	597	5.58E-04	664	2.18E-04	731	3.11E-05
397	4.90E-06	464	4.70E-04	531	5.12E-04	598	5.56E-04	665	2.13E-04	732	2.99E-05
398	4.30E-06	465	4.57E-04	532	5.14E-04	599	5.56E-04	666	2.08E-04	733	2.91E-05
399	4.50E-06	466	4.41E-04	533	5.16E-04	600	5.53E-04	667	2.02E-04	734	2.82E-05
400	4.40E-06	467	4.21E-04	534	5.18E-04	601	5.52E-04	668	1.98E-04	735	2.70E-05
401	5.10E-06	468	3.99E-04	535	5.19E-04	602	5.48E-04	669	1.92E-04	736	2.61E-05
402	5.40E-06	469	3.75E-04	536	5.20E-04	603	5.46E-04	670	1.87E-04	737	2.55E-05
403	6.00E-06	470	3.49E-04	537	5.24E-04	604	5.43E-04	671	1.82E-04	738	2.47E-05
404	6.10E-06	471	3.14E-04	538	5.24E-04	605	5.40E-04	672	1.78E-04	739	2.40E-05
405	6.50E-06	472	2.93E-04	539	5.25E-04	606	5.38E-04	673	1.73E-04	740	2.30E-05
406	7.30E-06	473	2.74E-04	540	5.27E-04	607	5.35E-04	674	1.69E-04	741	2.24E-05
407	7.60E-06	474	2.58E-04	541	5.28E-04	608	5.31E-04	675	1.64E-04	742	2.19E-05
408	8.40E-06	475	2.44E-04	542	5.30E-04	609	5.27E-04	676	1.60E-04	743	2.11E-05
409	9.10E-06	476	2.35E-04	543	5.33E-04	610	5.25E-04	677	1.56E-04	744	2.05E-05
410	1.03E-05	477	2.28E-04	544	5.35E-04	611	5.20E-04	678	1.51E-04	745	1.97E-05
411	1.10E-05	478	2.24E-04	545	5.36E-04	612	5.18E-04	679	1.48E-04	746	1.91E-05
412	1.20E-05	479	2.20E-04	546	5.37E-04	613	5.13E-04	680	1.44E-04	747	1.84E-05
413	1.37E-05	480	2.19E-04	547	5.38E-04	614	5.10E-04	681	1.39E-04	748	1.79E-05
414	1.50E-05	481	2.21E-04	548	5.40E-04	615	5.02E-04	682	1.36E-04	749	1.74E-05
415	1.67E-05	482	2.21E-04	549	5.41E-04	616	4.99E-04	683	1.32E-04	750	1.68E-05
416	1.90E-05	483	2.25E-04	550	5.42E-04	617	4.95E-04	684	1.29E-04	751	1.62E-05
417	2.19E-05	484	2.29E-04	551	5.43E-04	618	4.90E-04	685	1.25E-04	752	1.58E-05
418	2.46E-05	485	2.31E-04	552	5.45E-04	619	4.85E-04	686	1.21E-04	753	1.50E-05
419	2.73E-05	486	2.36E-04	553	5.47E-04	620	4.80E-04	687	1.18E-04	754	1.48E-05
420	3.12E-05	487	2.38E-04	554	5.50E-04	621	4.74E-04	688	1.15E-04	755	1.43E-05
421	3.48E-05	488	2.44E-04	555	5.52E-04	622	4.69E-04	689	1.12E-04	756	1.39E-05
422	3.91E-05	489	2.49E-04	556	5.52E-04	623	4.64E-04	690	1.09E-04	757	1.36E-05
423	4.48E-05	490	2.55E-04	557	5.55E-04	624	4.59E-04	691	1.05E-04	758	1.31E-05
424	5.01E-05	491	2.62E-04	558	5.57E-04	625	4.53E-04	692	1.02E-04	759	1.27E-05
425	5.68E-05	492	2.71E-04	559	5.58E-04	626	4.47E-04	693	9.88E-05	760	1.21E-05
426	6.52E-05	493	2.79E-04	560	5.57E-04	627	4.42E-04	694	9.68E-05	761	1.19E-05
427	7.35E-05	494	2.91E-04	561	5.61E-04	628	4.37E-04	695	9.32E-05	762	1.17E-05
428	8.30E-05	495	3.01E-04	562	5.62E-04	629	4.30E-04	696	9.02E-05	763	1.13E-05
429	9.34E-05	496	3.11E-04	563	5.63E-04	630	4.24E-04	697	8.74E-05	764	1.09E-05
430	1.05E-04	497	3.21E-04	564	5.64E-04	631	4.19E-04	698	8.49E-05	765	1.05E-05
431	1.17E-04	498	3.32E-04	565	5.65E-04	632	4.12E-04	699	8.20E-05	766	1.02E-05
432	1.30E-04	499	3.42E-04	566	5.67E-04	633	4.06E-04	700	7.95E-05	767	9.80E-06
433	1.46E-04	500	3.52E-04	567	5.68E-04	634	3.99E-04	701	7.75E-05	768	9.70E-06
434	1.62E-04	501	3.63E-04	568	5.69E-04	635	3.94E-04	702	7.50E-05	769	9.20E-06
435	1.82E-04	502	3.73E-04	569	5.70E-04	636	3.87E-04	703	7.28E-05	770	9.10E-06
436	2.04E-04	503	3.83E-04	570	5.71E-04	637	3.81E-04	704	7.03E-05	771	8.80E-06
437	2.29E-04	504	3.90E-04	571	5.70E-04	638	3.74E-04	705	6.84E-05	772	8.40E-06
438	2.58E-04	505	3.98E-04	572	5.71E-04	639	3.68E-04	706	6.64E-05	773	8.20E-06
439	2.90E-04	506	4.07E-04	573	5.71E-04	640	3.62E-04	707	6.44E-05	774	8.00E-06
440	3.29E-04	507	4.15E-04	574	5.70E-04	641	3.53E-04	708	6.22E-05	775	7.80E-06
441	3.76E-04	508	4.23E-04	575	5.71E-04	642	3.47E-04	709	6.00E-05	776	7.50E-06
442	4.27E-04	509	4.29E-04	576	5.72E-04	643	3.41E-04	710	5.83E-05	777	7.30E-06
443	4.90E-04	510	4.37E-04	577	5.73E-04	644	3.36E-04	711	5.67E-05	778	7.10E-06
444	5.62E-04	511	4.43E-04	578	5.74E-04	645	3.29E-04	712	5.51E-05	779	7.00E-06
445	6.38E-04	512	4.49E-04	579	5.75E-04	646	3.23E-04	713	5.32E-05	780	7.00E-06
446	7.19E-04	513	4.55E-04	580	5.75E-04	647	3.17E-04	714	5.17E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH1X4@25W5000K	Sample ID	240119003-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	42.1

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	0.092	24.9	0.974
NON-WORST CASE	120.0	60	0.207	24.8	0.996

Test Result

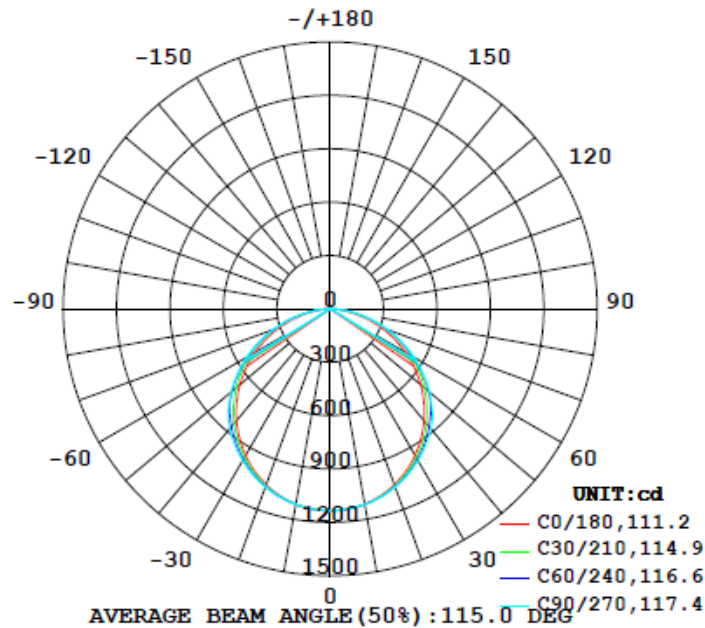
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
3343	161.1	163.6	111.2	117.1	134.3	78.1%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
20.1	20.6	1.26	1.30

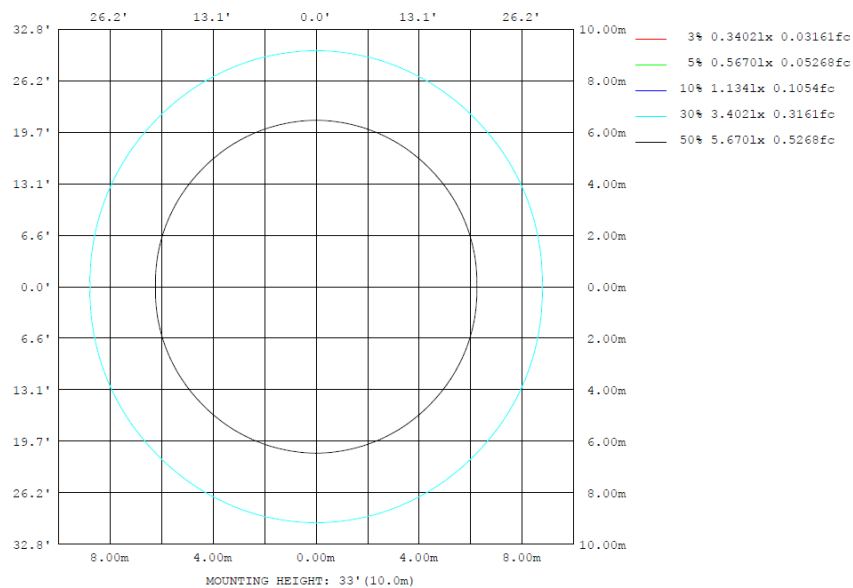
4.2 Goniophotometer Test

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	Φ zone	Φ total	lum, lamp
10	1114	1116	1116	1116	1114	1116	1116	1116	0- 10	107.4	107.4	3.21,3.21
20	1052	1061	1066	1061	1052	1061	1066	1061	10- 20	308.5	415.9	12.4,12.4
30	951.6	971.0	985.8	971.0	951.6	971.0	985.8	971.0	20- 30	470.0	885.9	26.5,26.5
40	819.3	851.2	880.9	851.2	819.3	851.2	880.9	851.2	30- 40	572.3	1458	43.6,43.6
50	663.1	708.2	727.3	708.2	663.1	708.2	727.3	708.2	40- 50	602.7	2061	61.6,61.6
60	488.9	530.4	540.4	530.4	488.9	530.4	540.4	530.4	50- 60	550.0	2611	78.1,78.1
70	300.2	333.7	339.6	333.7	300.2	333.7	339.6	333.7	60- 70	422.7	3033	90.7,90.7
80	114.2	141.9	145.0	141.9	114.2	141.9	145.0	141.9	70- 80	245.4	3279	98.1,98.1
90	0	0	0	0	0	0	0	0	80- 90	64.06	3343	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3343	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3343	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3343	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3343	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3343	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3343	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3343	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3343	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3343	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	107.39	0-10	107.39	3.21%
10-20	308.47	0-20	415.86	12.44%
20-30	470.03	0-30	885.89	26.50%
30-40	572.27	0-40	1458.16	43.62%
40-50	602.65	0-50	2060.81	61.65%
50-60	549.98	0-60	2610.79	78.10%
60-70	422.65	0-70	3033.44	90.74%
70-80	245.37	0-80	3278.81	98.08%
80-90	64.06	0-90	3342.87	100.00%
90-100	0.00	0-100	3342.87	100.00%
100-110	0.00	0-110	3342.87	100.00%
110-120	0.00	0-120	3342.87	100.00%
120-130	0.00	0-130	3342.87	100.00%
130-140	0.00	0-140	3342.87	100.00%
140-150	0.00	0-150	3342.87	100.00%
150-160	0.00	0-160	3342.87	100.00%
160-170	0.00	0-170	3342.87	100.00%
170-180	0.00	0-180	3342.87	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				
		11.6	13.2	11.9	13.5	13.9	12.0	13.7	12.4	14.0	14.3
	3H	13.4	14.9	13.7	15.2	15.6	13.8	15.3	14.2	15.7	16.0
	4H	14.0	15.4	14.4	15.8	16.2	14.5	16.0	14.9	16.3	16.7
	6H	14.5	15.8	14.9	16.1	16.5	15.1	16.4	15.5	16.7	17.1
	8H	14.6	15.8	15.0	16.2	16.6	15.2	16.5	15.7	16.9	17.3
	12H	14.6	15.8	15.1	16.2	16.7	15.3	16.5	15.7	16.9	17.3
4H	2H	12.3	13.7	12.7	14.1	14.4	12.6	14.0	13.0	14.4	14.8
	3H	14.3	15.5	14.8	15.9	16.3	14.7	15.9	15.1	16.3	16.7
	4H	15.1	16.2	15.6	16.6	17.1	15.5	16.6	16.0	17.0	17.5
	6H	15.7	16.7	16.2	17.1	17.5	16.2	17.1	16.6	17.6	18.0
	8H	15.9	16.8	16.3	17.2	17.7	16.4	17.3	16.9	17.7	18.2
	12H	16.0	16.8	16.5	17.2	17.7	16.5	17.3	17.0	17.8	18.3
8H	4H	15.5	16.4	16.0	16.8	17.3	15.9	16.7	16.3	17.2	17.6
	6H	16.2	16.9	16.7	17.4	17.9	16.6	17.4	17.1	17.8	18.3
	8H	16.4	17.1	17.0	17.6	18.1	16.9	17.6	17.4	18.1	18.5
	12H	16.6	17.2	17.1	17.7	18.2	17.1	17.7	17.6	18.2	18.7
12H	4H	15.5	16.3	16.0	16.8	17.3	15.9	16.7	16.4	17.1	17.6
	6H	16.3	17.0	16.8	17.4	18.0	16.7	17.3	17.2	17.8	18.3
	8H	16.6	17.2	17.1	17.7	18.2	17.0	17.6	17.5	18.1	18.6

Maximum UGR = 18.7

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size											
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
		15.8	17.4	16.1	17.7	18.1	16.2	17.9	16.6	18.2	18.5
	3H	17.6	19.1	17.9	19.4	19.8	18.0	19.5	18.4	19.9	20.2
	4H	18.2	19.6	18.6	20.0	20.4	18.7	20.2	19.1	20.5	20.9
	6H	18.7	20.0	19.1	20.3	20.7	19.3	20.6	19.7	20.9	21.3
	8H	18.8	20.0	19.2	20.4	20.8	19.4	20.7	19.9	21.1	21.5
	12H	18.8	20.0	19.3	20.4	20.9	19.5	20.7	19.9	21.1	21.5
4H	2H	16.5	17.9	16.9	18.3	18.6	16.8	18.2	17.2	18.6	19.0
	3H	18.5	19.7	19.0	20.1	20.5	18.9	20.1	19.3	20.5	20.9
	4H	19.3	20.4	19.8	20.8	21.3	19.7	20.8	20.2	21.2	21.7
	6H	19.9	20.9	20.4	21.3	21.7	20.4	21.3	20.8	21.8	22.2
	8H	20.1	21.0	20.5	21.4	21.9	20.6	21.5	21.1	21.9	22.4
	12H	20.2	21.0	20.7	21.4	21.9	20.7	21.5	21.2	22.0	22.5
8H	4H	19.7	20.6	20.2	21.0	21.5	20.1	20.9	20.5	21.4	21.8
	6H	20.4	21.1	20.9	21.6	22.1	20.8	21.6	21.3	22.0	22.5
	8H	20.6	21.3	21.2	21.8	22.3	21.1	21.8	21.6	22.3	22.7
	12H	20.8	21.4	21.3	21.9	22.4	21.3	21.9	21.8	22.4	22.9
12H	4H	19.7	20.5	20.2	21.0	21.5	20.1	20.9	20.6	21.3	21.8
	6H	20.5	21.2	21.0	21.6	22.2	20.9	21.5	21.4	22.0	22.5
	8H	20.8	21.4	21.3	21.9	22.4	21.2	21.8	21.7	22.3	22.8

Maximum UGR = 22.9

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	1134	1133	1134	1134	1135	1134	1133	1134	1135	1134	1134	1133	1134	1133	1134	1134	1135	1134	1133
5	1130	1129	1130	1130	1130	1130	1130	1130	1130	1130	1130	1129	1130	1129	1130	1130	1130	1130	1130
10	1114	1115	1116	1116	1116	1117	1116	1117	1116	1116	1116	1115	1114	1115	1116	1116	1116	1116	1116
15	1088	1091	1092	1093	1094	1095	1096	1095	1094	1093	1092	1091	1088	1091	1092	1093	1094	1095	1096
20	1052	1056	1059	1061	1063	1065	1066	1065	1063	1061	1059	1056	1052	1059	1061	1063	1065	1066	1066
25	1006	1012	1017	1020	1024	1028	1029	1028	1024	1020	1017	1012	1006	1012	1017	1020	1024	1028	1029
30	952	959	965	971	978	982	986	982	978	971	965	959	952	959	965	971	978	982	986
35	888	898	906	913	925	932	936	932	925	913	906	898	888	898	906	913	925	932	936
40	819	830	840	851	865	876	881	876	865	851	840	830	819	830	840	851	865	876	881
45	744	755	768	782	800	810	811	810	800	782	768	755	744	755	768	782	800	810	811
50	663	675	690	708	720	725	727	725	720	708	690	675	663	675	690	708	720	725	727
55	578	590	608	625	629	633	636	633	629	625	608	590	578	590	608	625	629	633	636
60	489	502	524	530	534	538	540	538	534	530	524	502	489	502	524	530	534	538	540
65	396	410	429	433	436	439	441	439	436	433	429	410	396	410	429	433	436	439	441
70	300	317	331	334	336	338	340	338	336	334	331	317	300	317	331	334	336	338	340
75	205	225	233	235	237	239	241	239	237	235	233	225	205	225	233	235	237	239	241
80	114	132	140	142	143	144	145	144	143	142	140	132	114	132	140	142	143	144	145
85	40.2	52.4	56.2	56.2	54.7	53.9	53.7	53.9	54.7	56.2	56.2	52.4	40.2	52.4	56.2	56.2	54.7	53.9	53.7
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	1134	1135	1134	1134	1133														
5	1130	1130	1130	1130	1129														
10	1117	1116	1116	1116	1115														
15	1095	1094	1093	1092	1091														
20	1065	1063	1061	1059	1056														
25	1028	1024	1020	1017	1012														
30	982	978	971	965	959														
35	932	925	913	906	898														
40	876	865	851	840	830														
45	810	800	782	768	755														
50	725	720	708	690	675														
55	633	629	625	608	590														
60	538	534	530	524	502														
65	439	436	433	429	410														
70	338	336	334	331	317														
75	239	237	235	233	225														
80	144	143	142	140	132														
85	53.9	54.7	56.2	56.2	52.4														
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.	C-SWISH1X4@25W5000K	Sample ID	240119003-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	0.207	24.8	0.996	8.08
277.0	60	0.092	24.9	0.974	14.22

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*****