

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

Prepared By

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Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

2x2 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		3200
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	131.7
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.86
			277V	13.34
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.996
			277V	0.935
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3465±245	3417
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		83.3
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		12
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		97
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%		74.5%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	22.7
		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	1.32
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		0.094
(Goniophotometer – Section 4.2)		Non-Worst Case		0.202
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		24.3
(Goniophotometer – Section 4.2)		Non-Worst Case		24.2

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-01-25	C-SWISH2X2@25W3500K	240119001-S1
2	Goniophotometer Test	2024-01-25	C-SWISH2X2@25W3500K	240119001-S1
3	THD and PF Test	2024-01-25	C-SWISH2X2@25W3500K	240119001-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-SWISH2X2@25W3500K, color tunable from 3500K, 4000K and 5000K.

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

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	C-SWISH2X2@25W3500K	Sample ID	240119001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

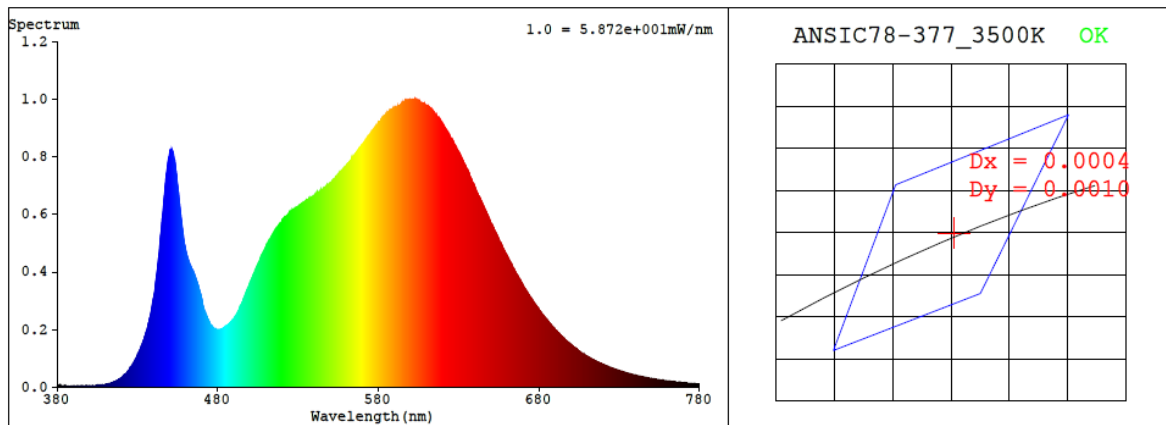
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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	0.202	24.2	0.996
277.0	60	0.094	24.3	0.935

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3417	83.3	12	0.0003	84	97	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4105$ $y = 0.3940$ / $u' = 0.2377$ $v' = 0.5134$ ($duv=3.41e-04$)

CCT= 3417K Prcp WL: $L_d=581.0nm$ Purity=41.5%

Peak WL: $L_p=603nm$ FWHM: $=145.6nm$ Ratio:R=20.7% G=76.5% B=2.8%

Render Index: $R_a = 83.3$ AvgR = 77.0 TM30:Rf=84 Rg=97

EEL: 0.10538 A++ Highest

R1 =82 R2 =89 R3 =95 R4 =82 R5 =82 R6 =86 R7 =86

R8 =64 R9 =12 R10=75 R11=82 R12=64 R13=84 R14=97 R15=75

4.1 Integrating Sphere Test

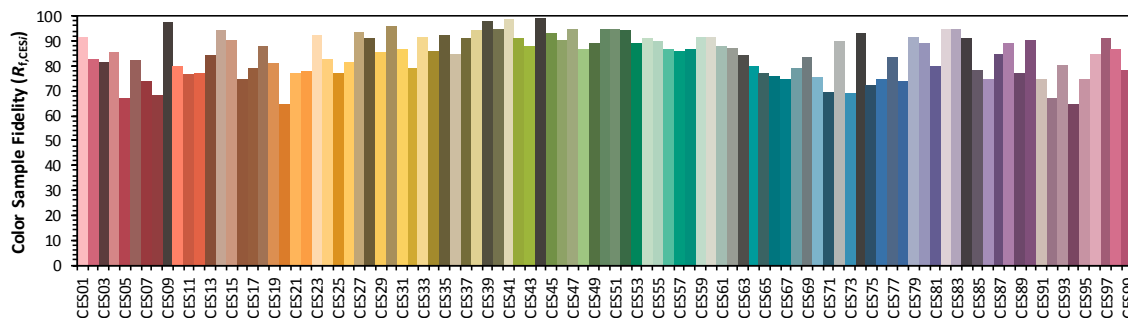
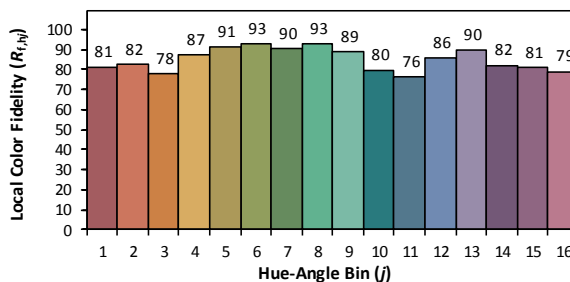
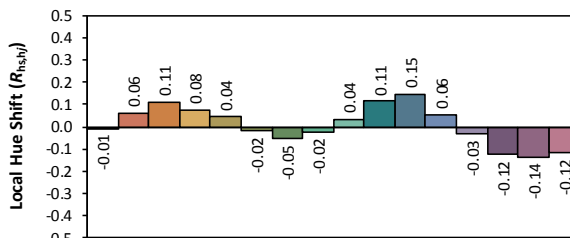
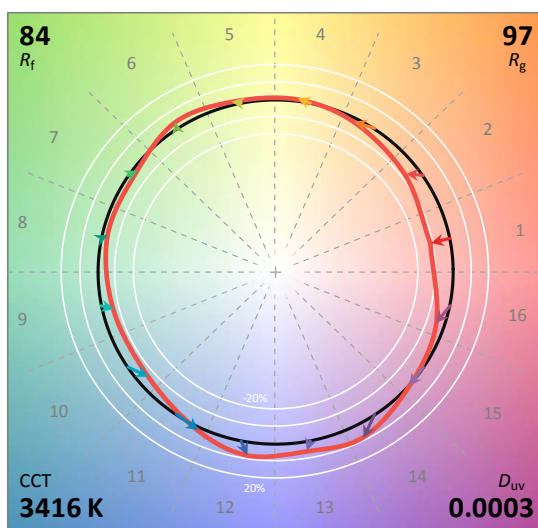
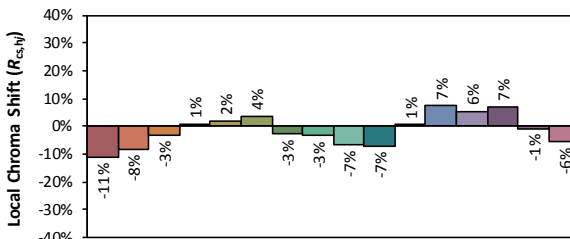
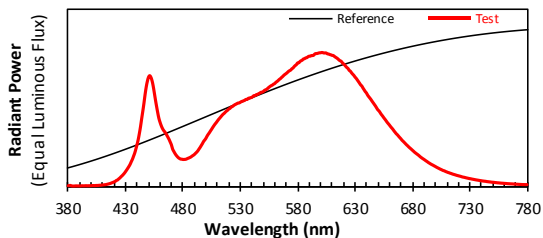
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/1/30

Model: C-SWISH2X2@25W3500K



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

x 0.4104
 y 0.3939
 u' 0.2377
 v' 0.5133

CIE 13.3-1995
(CRI)

R_a 83
 R_g 12

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	4.30E-06	447	6.85E-04	514	5.29E-04	581	9.22E-04	648	5.98E-04	715	9.17E-05
381	6.00E-06	448	7.41E-04	515	5.38E-04	582	9.31E-04	649	5.84E-04	716	8.91E-05
382	6.10E-06	449	7.84E-04	516	5.45E-04	583	9.38E-04	650	5.71E-04	717	8.66E-05
383	2.90E-06	450	8.14E-04	517	5.54E-04	584	9.41E-04	651	5.62E-04	718	8.38E-05
384	2.20E-06	451	8.26E-04	518	5.62E-04	585	9.50E-04	652	5.49E-04	719	8.12E-05
385	1.80E-06	452	8.15E-04	519	5.68E-04	586	9.52E-04	653	5.36E-04	720	7.90E-05
386	2.80E-06	453	7.91E-04	520	5.77E-04	587	9.59E-04	654	5.26E-04	721	7.66E-05
387	3.20E-06	454	7.52E-04	521	5.82E-04	588	9.60E-04	655	5.13E-04	722	7.45E-05
388	2.70E-06	455	7.01E-04	522	5.91E-04	589	9.67E-04	656	5.02E-04	723	7.16E-05
389	3.10E-06	456	6.47E-04	523	5.95E-04	590	9.71E-04	657	4.91E-04	724	6.91E-05
390	2.40E-06	457	5.98E-04	524	6.01E-04	591	9.72E-04	658	4.79E-04	725	6.75E-05
391	2.90E-06	458	5.51E-04	525	6.08E-04	592	9.76E-04	659	4.68E-04	726	6.55E-05
392	4.00E-06	459	5.09E-04	526	6.12E-04	593	9.76E-04	660	4.58E-04	727	6.31E-05
393	3.60E-06	460	4.80E-04	527	6.17E-04	594	9.79E-04	661	4.46E-04	728	6.13E-05
394	3.50E-06	461	4.55E-04	528	6.21E-04	595	9.88E-04	662	4.36E-04	729	5.92E-05
395	4.30E-06	462	4.35E-04	529	6.22E-04	596	9.91E-04	663	4.26E-04	730	5.75E-05
396	4.20E-06	463	4.19E-04	530	6.27E-04	597	9.91E-04	664	4.14E-04	731	5.59E-05
397	3.90E-06	464	4.08E-04	531	6.32E-04	598	9.94E-04	665	4.03E-04	732	5.40E-05
398	4.30E-06	465	3.96E-04	532	6.35E-04	599	9.96E-04	666	3.93E-04	733	5.23E-05
399	4.10E-06	466	3.81E-04	533	6.39E-04	600	9.97E-04	667	3.85E-04	734	5.07E-05
400	4.80E-06	467	3.65E-04	534	6.43E-04	601	9.99E-04	668	3.74E-04	735	4.90E-05
401	5.20E-06	468	3.49E-04	535	6.49E-04	602	9.98E-04	669	3.64E-04	736	4.74E-05
402	5.80E-06	469	3.29E-04	536	6.48E-04	603	9.95E-04	670	3.55E-04	737	4.60E-05
403	5.00E-06	470	3.08E-04	537	6.57E-04	604	9.96E-04	671	3.44E-04	738	4.45E-05
404	6.00E-06	471	2.78E-04	538	6.59E-04	605	9.95E-04	672	3.36E-04	739	4.30E-05
405	6.30E-06	472	2.62E-04	539	6.62E-04	606	9.89E-04	673	3.27E-04	740	4.17E-05
406	6.50E-06	473	2.46E-04	540	6.64E-04	607	9.88E-04	674	3.18E-04	741	4.02E-05
407	7.70E-06	474	2.33E-04	541	6.71E-04	608	9.84E-04	675	3.10E-04	742	3.90E-05
408	8.00E-06	475	2.23E-04	542	6.77E-04	609	9.82E-04	676	3.02E-04	743	3.79E-05
409	8.70E-06	476	2.14E-04	543	6.77E-04	610	9.78E-04	677	2.93E-04	744	3.70E-05
410	9.80E-06	477	2.08E-04	544	6.84E-04	611	9.77E-04	678	2.85E-04	745	3.53E-05
411	1.07E-05	478	2.03E-04	545	6.86E-04	612	9.70E-04	679	2.78E-04	746	3.43E-05
412	1.18E-05	479	2.03E-04	546	6.91E-04	613	9.64E-04	680	2.70E-04	747	3.32E-05
413	1.30E-05	480	2.00E-04	547	6.96E-04	614	9.59E-04	681	2.62E-04	748	3.23E-05
414	1.52E-05	481	2.01E-04	548	7.02E-04	615	9.52E-04	682	2.54E-04	749	3.10E-05
415	1.74E-05	482	2.01E-04	549	7.03E-04	616	9.44E-04	683	2.48E-04	750	3.02E-05
416	1.96E-05	483	2.03E-04	550	7.07E-04	617	9.37E-04	684	2.41E-04	751	2.96E-05
417	2.24E-05	484	2.08E-04	551	7.15E-04	618	9.33E-04	685	2.35E-04	752	2.82E-05
418	2.61E-05	485	2.11E-04	552	7.20E-04	619	9.22E-04	686	2.28E-04	753	2.75E-05
419	2.91E-05	486	2.15E-04	553	7.24E-04	620	9.14E-04	687	2.20E-04	754	2.63E-05
420	3.30E-05	487	2.19E-04	554	7.32E-04	621	9.05E-04	688	2.14E-04	755	2.57E-05
421	3.71E-05	488	2.26E-04	555	7.39E-04	622	8.95E-04	689	2.07E-04	756	2.48E-05
422	4.37E-05	489	2.31E-04	556	7.46E-04	623	8.86E-04	690	2.02E-04	757	2.40E-05
423	4.74E-05	490	2.38E-04	557	7.51E-04	624	8.79E-04	691	1.96E-04	758	2.33E-05
424	5.53E-05	491	2.47E-04	558	7.56E-04	625	8.66E-04	692	1.90E-04	759	2.28E-05
425	6.22E-05	492	2.55E-04	559	7.63E-04	626	8.59E-04	693	1.84E-04	760	2.19E-05
426	7.13E-05	493	2.65E-04	560	7.67E-04	627	8.47E-04	694	1.78E-04	761	2.14E-05
427	7.91E-05	494	2.78E-04	561	7.76E-04	628	8.37E-04	695	1.72E-04	762	2.07E-05
428	8.84E-05	495	2.91E-04	562	7.82E-04	629	8.28E-04	696	1.67E-04	763	1.98E-05
429	9.84E-05	496	3.05E-04	563	7.89E-04	630	8.16E-04	697	1.62E-04	764	1.94E-05
430	1.10E-04	497	3.19E-04	564	7.98E-04	631	8.07E-04	698	1.58E-04	765	1.88E-05
431	1.23E-04	498	3.35E-04	565	8.04E-04	632	7.95E-04	699	1.53E-04	766	1.82E-05
432	1.36E-04	499	3.46E-04	566	8.13E-04	633	7.82E-04	700	1.48E-04	767	1.79E-05
433	1.50E-04	500	3.58E-04	567	8.20E-04	634	7.70E-04	701	1.43E-04	768	1.73E-05
434	1.65E-04	501	3.74E-04	568	8.29E-04	635	7.57E-04	702	1.38E-04	769	1.64E-05
435	1.84E-04	502	3.88E-04	569	8.36E-04	636	7.48E-04	703	1.34E-04	770	1.59E-05
436	2.03E-04	503	3.99E-04	570	8.42E-04	637	7.33E-04	704	1.30E-04	771	1.56E-05
437	2.26E-04	504	4.13E-04	571	8.49E-04	638	7.20E-04	705	1.26E-04	772	1.52E-05
438	2.49E-04	505	4.26E-04	572	8.57E-04	639	7.07E-04	706	1.22E-04	773	1.45E-05
439	2.79E-04	506	4.40E-04	573	8.63E-04	640	6.97E-04	707	1.18E-04	774	1.41E-05
440	3.12E-04	507	4.52E-04	574	8.68E-04	641	6.81E-04	708	1.15E-04	775	1.36E-05
441	3.49E-04	508	4.64E-04	575	8.78E-04	642	6.69E-04	709	1.11E-04	776	1.31E-05
442	3.94E-04	509	4.75E-04	576	8.83E-04	643	6.59E-04	710	1.08E-04	777	1.29E-05
443	4.44E-04	510	4.87E-04	577	8.94E-04	644	6.47E-04	711	1.04E-04	778	1.26E-05
444	5.03E-04	511	4.98E-04	578	9.02E-04	645	6.34E-04	712	1.01E-04	779	1.27E-05
445	5.60E-04	512	5.08E-04	579	9.09E-04	646	6.22E-04	713	9.77E-05	780	1.27E-05
446	6.19E-04	513	5.18E-04	580	9.21E-04	647	6.10E-04	714	9.52E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X2@25W3500K	Sample ID	240119001-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	0.094	24.3	0.935
NON-WORST CASE	120.0	60	0.202	24.2	0.996

Test Result

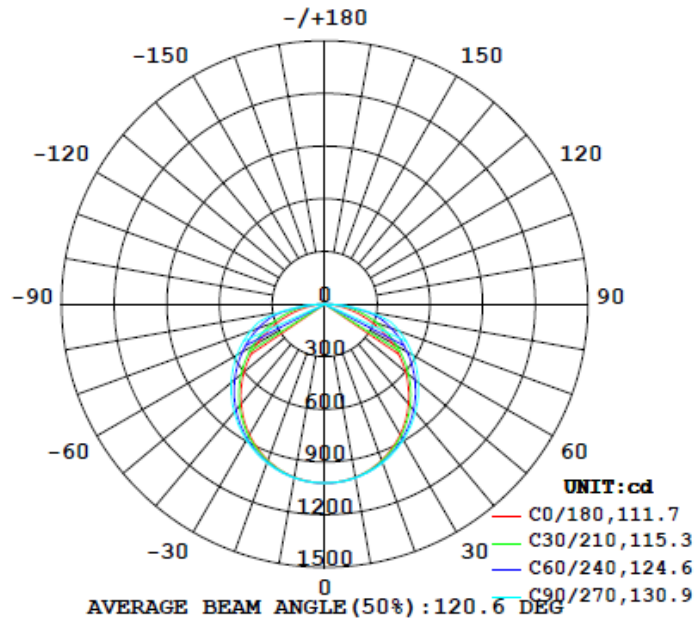
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
3200	161.1	170.0	111.6	130.8	131.7	74.5%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
19.5	22.7	1.26	1.32

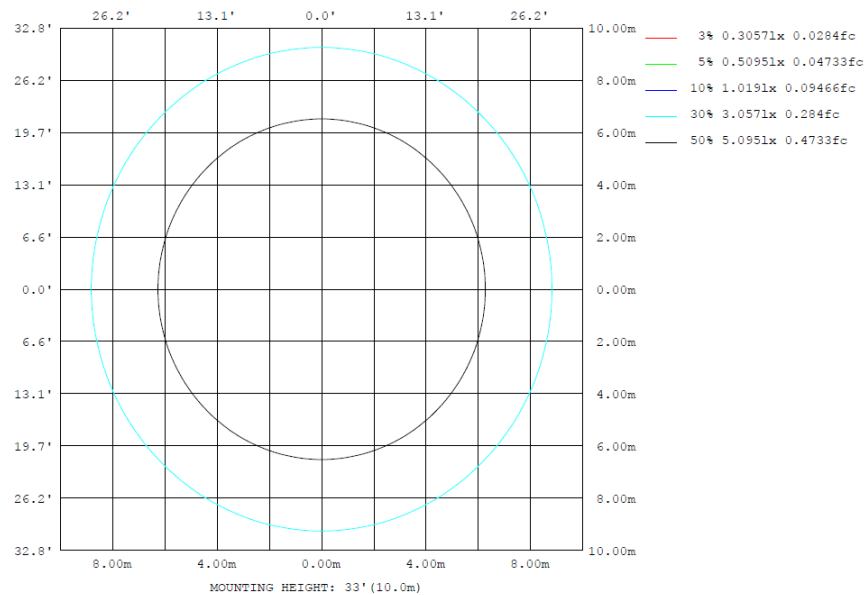
4.2 Goniophotometer Test

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	1001	1003	1005	1003	1001	1003	1005	1003	0- 10	96.53	96.53	3.02,3.02
20	947.1	954.9	961.9	954.9	947.1	954.9	961.9	954.9	10- 20	277.5	374.0	11.7,11.7
30	859.5	876.0	893.9	876.0	859.5	876.0	893.9	876.0	20- 30	423.7	797.8	24.9,24.9
40	742.6	771.0	803.2	771.0	742.6	771.0	803.2	771.0	30- 40	517.7	1316	41.1,41.1
50	601.0	645.6	696.9	645.6	601.0	645.6	696.9	645.6	40- 50	549.5	1865	58.3,58.3
60	440.7	506.8	578.1	506.8	440.7	506.8	578.1	506.8	50- 60	518.0	2383	74.5,74.5
70	268.4	361.0	451.5	361.0	268.4	361.0	451.5	361.0	60- 70	430.2	2813	87.9,87.9
80	102.4	205.3	253.4	205.3	102.4	205.3	253.4	205.3	70- 80	296.8	3110	97.2,97.2
90	0	0	0	0	0	0	0	0	80- 90	89.50	3199	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3199	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3199	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3199	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3199	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3199	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3199	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3199	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3199	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3199	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	96.53	0-10	96.53	3.02%
10-20	277.51	0-20	374.04	11.69%
20-30	423.75	0-30	797.79	24.93%
30-40	517.71	0-40	1315.50	41.12%
40-50	549.47	0-50	1864.97	58.29%
50-60	517.97	0-60	2382.94	74.48%
60-70	430.24	0-70	2813.18	87.93%
70-80	296.82	0-80	3110.00	97.20%
80-90	89.50	0-90	3199.50	100.00%
90-100	0.00	0-100	3199.50	100.00%
100-110	0.00	0-110	3199.50	100.00%
110-120	0.00	0-120	3199.50	100.00%
120-130	0.00	0-130	3199.50	100.00%
130-140	0.00	0-140	3199.50	100.00%
140-150	0.00	0-150	3199.50	100.00%
150-160	0.00	0-160	3199.50	100.00%
160-170	0.00	0-170	3199.50	100.00%
170-180	0.00	0-180	3199.50	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	11.1	12.8	11.4	13.1	13.4	12.3	14.0	12.7	14.4	14.7
	3H	12.9	14.4	13.2	14.7	15.1	14.9	16.4	15.3	16.8	17.1
	4H	13.5	15.0	13.9	15.3	15.7	16.1	17.6	16.5	17.9	18.3
	6H	13.9	15.3	14.3	15.7	16.0	17.1	18.5	17.5	18.8	19.2
	8H	14.1	15.4	14.5	15.7	16.1	17.4	18.7	17.8	19.1	19.5
	12H	14.1	15.4	14.6	15.8	16.2	17.6	18.9	18.1	19.3	19.7
4H	2H	12.0	13.4	12.4	13.8	14.2	13.0	14.4	13.4	14.8	15.1
	3H	14.0	15.3	14.4	15.7	16.1	15.8	17.0	16.2	17.4	17.8
	4H	14.8	15.9	15.3	16.4	16.8	17.2	18.3	17.6	18.7	19.1
	6H	15.4	16.4	15.8	16.8	17.3	18.3	19.3	18.8	19.8	20.2
	8H	15.5	16.5	16.0	16.9	17.4	18.7	19.6	19.2	20.1	20.6
	12H	15.7	16.5	16.1	17.0	17.4	19.0	19.8	19.5	20.3	20.8
8H	4H	15.5	16.4	16.0	16.9	17.3	17.5	18.4	18.0	18.9	19.3
	6H	16.3	17.1	16.8	17.6	18.0	18.8	19.6	19.3	20.1	20.6
	8H	16.5	17.3	17.1	17.8	18.2	19.3	20.0	19.8	20.5	21.0
	12H	16.7	17.3	17.2	17.8	18.4	19.7	20.3	20.2	20.8	21.3
12H	4H	15.7	16.5	16.2	17.0	17.5	17.6	18.4	18.0	18.9	19.3
	6H	16.5	17.2	17.0	17.7	18.2	18.9	19.6	19.4	20.1	20.6
	8H	16.9	17.5	17.4	18.0	18.5	19.5	20.1	20.0	20.6	21.1

Maximum UGR = 21.3

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	15.1	16.8	15.4	17.1	17.4	16.3	18.0	16.7	18.4	18.7
	3H	16.9	18.4	17.2	18.7	19.1	18.9	20.4	19.3	20.8	21.1
	4H	17.5	19.0	17.9	19.3	19.7	20.1	21.6	20.5	21.9	22.3
	6H	17.9	19.3	18.3	19.7	20.0	21.1	22.5	21.5	22.8	23.2
	8H	18.1	19.4	18.5	19.7	20.1	21.4	22.7	21.8	23.1	23.5
	12H	18.1	19.4	18.6	19.8	20.2	21.6	22.9	22.1	23.3	23.7
4H	2H	16.0	17.4	16.4	17.8	18.2	17.0	18.4	17.4	18.8	19.1
	3H	18.0	19.3	18.4	19.7	20.1	19.8	21.0	20.2	21.4	21.8
	4H	18.8	19.9	19.3	20.4	20.8	21.2	22.3	21.6	22.7	23.1
	6H	19.4	20.4	19.8	20.8	21.3	22.3	23.3	22.8	23.8	24.2
	8H	19.5	20.5	20.0	20.9	21.4	22.7	23.6	23.2	24.1	24.6
	12H	19.7	20.5	20.1	21.0	21.4	23.0	23.8	23.5	24.3	24.8
8H	4H	19.5	20.4	20.0	20.9	21.3	21.5	22.4	22.0	22.9	23.3
	6H	20.3	21.1	20.8	21.6	22.0	22.8	23.6	23.3	24.1	24.6
	8H	20.5	21.3	21.1	21.8	22.2	23.3	24.0	23.8	24.5	25.0
	12H	20.7	21.3	21.2	21.8	22.4	23.7	24.3	24.2	24.8	25.3
12H	4H	19.7	20.5	20.2	21.0	21.5	21.6	22.4	22.0	22.9	23.3
	6H	20.5	21.2	21.0	21.7	22.2	22.9	23.6	23.4	24.1	24.6
	8H	20.9	21.5	21.4	22.0	22.5	23.5	24.1	24.0	24.6	25.1

Maximum UGR = 25.3

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
y (DEG)	0	1019	1019	1019	1019	1019	1018	1019	1018	1019	1019	1019	1019	1019	1019	1019	1019	1018	1019
5	1015	1015	1016	1015	1016	1015	1016	1015	1016	1015	1016	1015	1015	1015	1016	1015	1016	1015	1016
10	1001	1001	1003	1003	1005	1004	1005	1004	1005	1003	1003	1001	1001	1001	1003	1003	1005	1004	1005
15	980	980	981	983	986	986	986	986	986	983	981	980	980	980	981	983	986	986	986
20	947	948	951	955	958	961	962	961	958	955	951	948	947	948	951	955	958	961	962
25	906	909	914	919	925	929	931	929	925	919	914	909	906	909	914	919	925	929	931
30	859	862	868	876	886	891	894	891	886	876	868	862	859	862	868	876	886	891	894
35	804	807	816	827	839	848	851	848	839	827	816	807	804	807	816	827	839	848	851
40	743	746	757	771	787	799	803	799	787	771	757	746	743	746	757	771	787	799	803
45	674	679	692	711	731	746	752	746	731	711	692	679	674	679	692	711	731	746	752
50	601	607	623	646	671	690	697	690	671	646	623	607	601	607	623	646	671	690	697
55	523	530	550	578	607	626	638	626	607	578	550	530	523	530	550	578	607	626	638
60	441	449	474	507	542	568	578	568	542	507	474	449	441	449	474	507	542	568	578
65	355	366	396	435	473	503	516	503	473	435	396	366	355	366	396	435	473	503	516
70	268	282	317	361	404	437	452	437	404	361	317	282	268	282	317	361	404	437	452
75	182	199	240	288	333	369	385	369	333	288	240	199	182	199	240	288	333	369	385
80	102	122	163	205	228	244	253	244	228	205	163	122	102	122	163	205	228	244	253
85	37.4	50.0	73.3	85.9	93.1	98.1	102	98.1	93.1	85.9	73.3	50.0	37.4	50.0	73.3	85.9	93.1	98.1	102
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)	285	300	315	330	345														
y (DEG)	0	1018	1019	1019	1019														
5	1015	1016	1015	1016	1015														
10	1004	1005	1003	1003	1001														
15	986	986	983	981	980														
20	961	958	955	951	948														
25	929	925	919	914	909														
30	891	886	876	868	862														
35	848	839	827	816	807														
40	799	787	771	757	746														
45	746	731	711	692	679														
50	690	671	646	623	607														
55	626	607	578	550	530														
60	568	542	507	474	449														
65	503	473	435	396	366														
70	437	404	361	317	282														
75	369	333	288	240	199														
80	244	228	205	163	122														
85	98.1	93.1	85.9	73.3	50.0														
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-SWISH2X2@25W3500K	Sample ID	240119001-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	0.202	24.2	0.996	7.86
277.0	60	0.094	24.3	0.935	13.34

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*****