

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

Prepared By

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Date: 2024-03-04

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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		4884
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	142.4
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		34.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	6.86
			277V	12.76
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
			277V	0.972
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3985±275	4156
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		85.7
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		21
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%		74.1%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	21.9
		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		0.287
(Goniophotometer – Section 4.2)		Non-Worst Case		0.126
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		34.3
(Goniophotometer – Section 4.2)		Non-Worst Case		33.9

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-01	C-SWISH2X4@36W4000K	240301001-S1
2	Goniophotometer Test	2024-03-01	C-SWISH2X4@36W4000K	240301001-S1
3	THD and PF Test	2024-03-01	C-SWISH2X4@36W4000K	240301001-S1

Remark (If any)

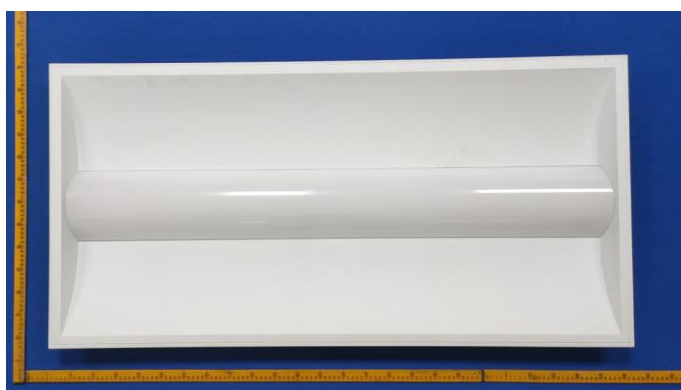
1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

3.0 Product Description

Luminaire Description: Model No. C-SWISH2X4@36W4000K, 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@36W4000K	Sample ID	240301001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

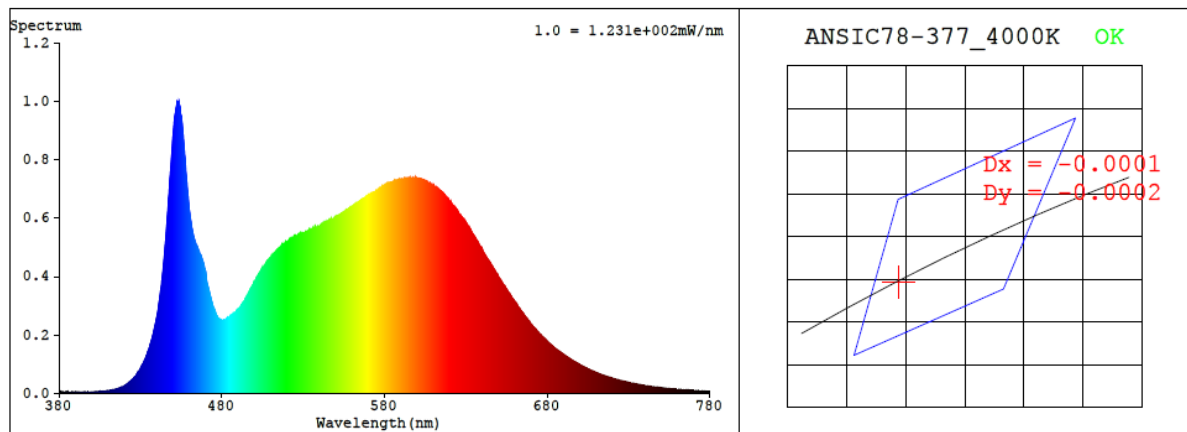
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25 \pm 1^{\circ}\text{C}$.</p> <p>The sample measurements 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	0.287	34.3	0.997
277.0	60	0.126	33.9	0.972

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4156	85.7	21	-0.0001	85	95	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3737$ $y = 0.3723$ / $u' = 0.2225$ $v' = 0.4986$ ($duv = -8.50e-05$)

CCT= 4156K Prcp WL: Ld=578.5nm Purity=23.9%

Peak WL: Lp=453nm FWHM: =19.5nm Ratio:R=18.3% G=77.7% B=4.1%

Render Index: Ra = 85.7 AvgR = 79.8 TM30:Rf=85 Rg=96

EEL: 0.09131 A++ Highest

R1 =85	R2 =92	R3 =96	R4 =84	R5 =84	R6 =88	R7 =87
R8 =69	R9 =21	R10=80	R11=83	R12=62	R13=87	R14=98 R15=79

4.1 Integrating Sphere Test

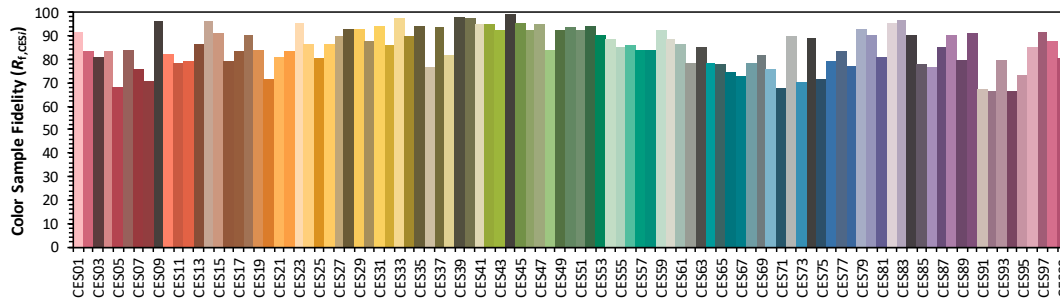
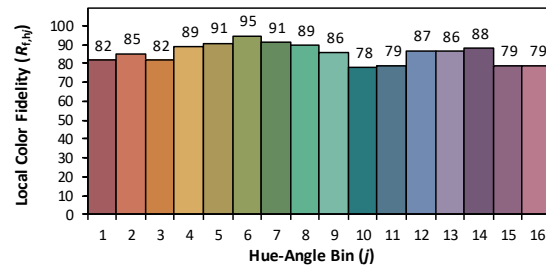
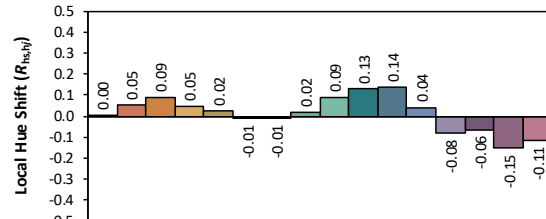
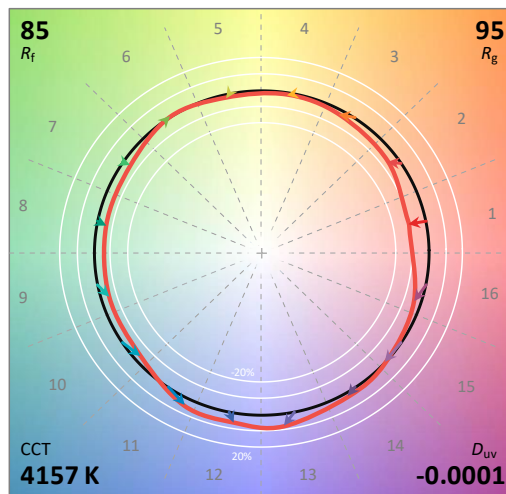
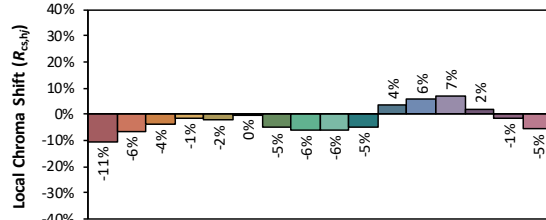
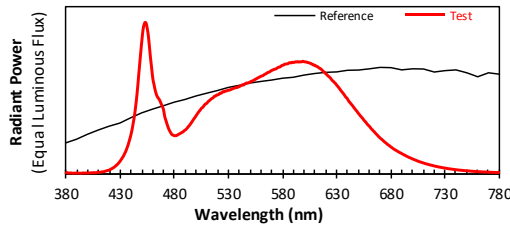
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/4

Model: C-SWISH2X4@36W4000K



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

x 0.3737
 y 0.3722
 u' 0.2225
 v' 0.4985

CIE 13.3-1995
(CRI)

R_a 86
 R_g 21

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	5.30E-06	447	6.51E-04	514	4.92E-04	581	7.16E-04	648	4.18E-04	715	6.08E-05
381	7.30E-06	448	7.30E-04	515	4.96E-04	582	7.21E-04	649	4.10E-04	716	5.90E-05
382	4.20E-06	449	8.09E-04	516	5.01E-04	583	7.21E-04	650	3.99E-04	717	5.72E-05
383	4.10E-06	450	8.84E-04	517	5.09E-04	584	7.23E-04	651	3.91E-04	718	5.55E-05
384	5.20E-06	451	9.48E-04	518	5.11E-04	585	7.24E-04	652	3.81E-04	719	5.40E-05
385	4.50E-06	452	9.81E-04	519	5.18E-04	586	7.29E-04	653	3.74E-04	720	5.17E-05
386	3.10E-06	453	9.96E-04	520	5.19E-04	587	7.30E-04	654	3.65E-04	721	5.04E-05
387	3.60E-06	454	9.86E-04	521	5.21E-04	588	7.29E-04	655	3.56E-04	722	4.84E-05
388	4.50E-06	455	9.50E-04	522	5.29E-04	589	7.34E-04	656	3.47E-04	723	4.72E-05
389	3.80E-06	456	9.01E-04	523	5.29E-04	590	7.32E-04	657	3.40E-04	724	4.54E-05
390	4.70E-06	457	8.28E-04	524	5.34E-04	591	7.33E-04	658	3.30E-04	725	4.39E-05
391	3.70E-06	458	7.55E-04	525	5.40E-04	592	7.36E-04	659	3.22E-04	726	4.26E-05
392	3.90E-06	459	6.92E-04	526	5.39E-04	593	7.35E-04	660	3.15E-04	727	4.13E-05
393	3.10E-06	460	6.28E-04	527	5.44E-04	594	7.37E-04	661	3.07E-04	728	4.00E-05
394	3.30E-06	461	5.92E-04	528	5.44E-04	595	7.35E-04	662	2.97E-04	729	3.89E-05
395	4.80E-06	462	5.57E-04	529	5.47E-04	596	7.36E-04	663	2.90E-04	730	3.75E-05
396	4.90E-06	463	5.29E-04	530	5.50E-04	597	7.36E-04	664	2.82E-04	731	3.65E-05
397	4.20E-06	464	5.10E-04	531	5.50E-04	598	7.37E-04	665	2.75E-04	732	3.51E-05
398	5.00E-06	465	4.98E-04	532	5.54E-04	599	7.40E-04	666	2.67E-04	733	3.40E-05
399	4.90E-06	466	4.88E-04	533	5.56E-04	600	7.37E-04	667	2.59E-04	734	3.27E-05
400	4.60E-06	467	4.74E-04	534	5.60E-04	601	7.36E-04	668	2.52E-04	735	3.18E-05
401	5.40E-06	468	4.56E-04	535	5.62E-04	602	7.35E-04	669	2.44E-04	736	3.08E-05
402	5.30E-06	469	4.40E-04	536	5.65E-04	603	7.32E-04	670	2.37E-04	737	2.97E-05
403	5.90E-06	470	4.20E-04	537	5.67E-04	604	7.31E-04	671	2.31E-04	738	2.88E-05
404	6.10E-06	471	3.78E-04	538	5.67E-04	605	7.28E-04	672	2.25E-04	739	2.78E-05
405	7.10E-06	472	3.54E-04	539	5.72E-04	606	7.26E-04	673	2.19E-04	740	2.71E-05
406	6.70E-06	473	3.31E-04	540	5.73E-04	607	7.21E-04	674	2.12E-04	741	2.61E-05
407	6.70E-06	474	3.09E-04	541	5.78E-04	608	7.20E-04	675	2.06E-04	742	2.52E-05
408	7.40E-06	475	2.91E-04	542	5.81E-04	609	7.13E-04	676	2.01E-04	743	2.43E-05
409	8.90E-06	476	2.77E-04	543	5.86E-04	610	7.14E-04	677	1.94E-04	744	2.36E-05
410	9.40E-06	477	2.65E-04	544	5.83E-04	611	7.08E-04	678	1.89E-04	745	2.31E-05
411	9.90E-06	478	2.57E-04	545	5.89E-04	612	7.06E-04	679	1.84E-04	746	2.21E-05
412	1.06E-05	479	2.54E-04	546	5.94E-04	613	7.01E-04	680	1.78E-04	747	2.13E-05
413	1.20E-05	480	2.50E-04	547	5.97E-04	614	6.95E-04	681	1.73E-04	748	2.09E-05
414	1.29E-05	481	2.51E-04	548	5.97E-04	615	6.91E-04	682	1.68E-04	749	1.99E-05
415	1.44E-05	482	2.51E-04	549	6.00E-04	616	6.86E-04	683	1.63E-04	750	1.95E-05
416	1.64E-05	483	2.56E-04	550	6.03E-04	617	6.79E-04	684	1.58E-04	751	1.89E-05
417	1.84E-05	484	2.60E-04	551	6.08E-04	618	6.71E-04	685	1.54E-04	752	1.85E-05
418	2.12E-05	485	2.63E-04	552	6.10E-04	619	6.67E-04	686	1.50E-04	753	1.77E-05
419	2.24E-05	486	2.68E-04	553	6.14E-04	620	6.58E-04	687	1.46E-04	754	1.71E-05
420	2.54E-05	487	2.72E-04	554	6.17E-04	621	6.53E-04	688	1.41E-04	755	1.65E-05
421	2.94E-05	488	2.76E-04	555	6.22E-04	622	6.44E-04	689	1.38E-04	756	1.60E-05
422	3.32E-05	489	2.83E-04	556	6.25E-04	623	6.39E-04	690	1.34E-04	757	1.55E-05
423	3.75E-05	490	2.88E-04	557	6.30E-04	624	6.32E-04	691	1.30E-04	758	1.51E-05
424	4.15E-05	491	2.93E-04	558	6.33E-04	625	6.24E-04	692	1.26E-04	759	1.47E-05
425	4.70E-05	492	3.02E-04	559	6.37E-04	626	6.14E-04	693	1.22E-04	760	1.40E-05
426	5.37E-05	493	3.11E-04	560	6.41E-04	627	6.08E-04	694	1.19E-04	761	1.36E-05
427	5.96E-05	494	3.19E-04	561	6.43E-04	628	6.00E-04	695	1.15E-04	762	1.34E-05
428	6.74E-05	495	3.29E-04	562	6.46E-04	629	5.94E-04	696	1.12E-04	763	1.28E-05
429	7.54E-05	496	3.39E-04	563	6.52E-04	630	5.84E-04	697	1.08E-04	764	1.25E-05
430	8.51E-05	497	3.50E-04	564	6.55E-04	631	5.76E-04	698	1.05E-04	765	1.21E-05
431	9.56E-05	498	3.61E-04	565	6.59E-04	632	5.68E-04	699	1.02E-04	766	1.16E-05
432	1.06E-04	499	3.70E-04	566	6.64E-04	633	5.58E-04	700	9.84E-05	767	1.15E-05
433	1.18E-04	500	3.81E-04	567	6.67E-04	634	5.48E-04	701	9.53E-05	768	1.11E-05
434	1.33E-04	501	3.92E-04	568	6.70E-04	635	5.39E-04	702	9.24E-05	769	1.06E-05
435	1.47E-04	502	4.02E-04	569	6.75E-04	636	5.30E-04	703	8.98E-05	770	1.03E-05
436	1.67E-04	503	4.11E-04	570	6.80E-04	637	5.21E-04	704	8.69E-05	771	1.01E-05
437	1.86E-04	504	4.20E-04	571	6.82E-04	638	5.10E-04	705	8.37E-05	772	9.70E-06
438	2.10E-04	505	4.30E-04	572	6.86E-04	639	5.01E-04	706	8.13E-05	773	9.50E-06
439	2.35E-04	506	4.36E-04	573	6.88E-04	640	4.94E-04	707	7.84E-05	774	9.20E-06
440	2.63E-04	507	4.44E-04	574	6.90E-04	641	4.81E-04	708	7.61E-05	775	9.00E-06
441	2.97E-04	508	4.54E-04	575	6.95E-04	642	4.72E-04	709	7.42E-05	776	8.70E-06
442	3.37E-04	509	4.60E-04	576	6.99E-04	643	4.63E-04	710	7.14E-05	777	8.40E-06
443	3.79E-04	510	4.64E-04	577	7.02E-04	644	4.55E-04	711	6.95E-05	778	8.00E-06
444	4.34E-04	511	4.73E-04	578	7.04E-04	645	4.46E-04	712	6.69E-05	779	8.00E-06
445	4.96E-04	512	4.79E-04	579	7.10E-04	646	4.36E-04	713	6.45E-05	780	8.00E-06
446	5.68E-04	513	4.85E-04	580	7.13E-04	647	4.27E-04	714	6.33E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X4@36W4000K	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	0.287	34.3	0.997
NON-WORST CASE	277.0	60	0.126	33.9	0.972

Test Result

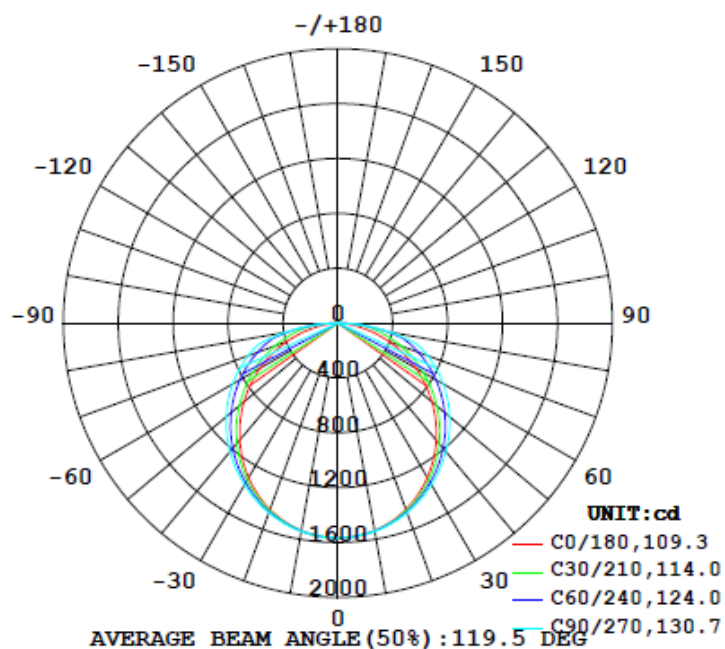
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
4884	160.5	170.4	109.3	130.7	142.4	74.1%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
18.6	21.9	1.24	1.30

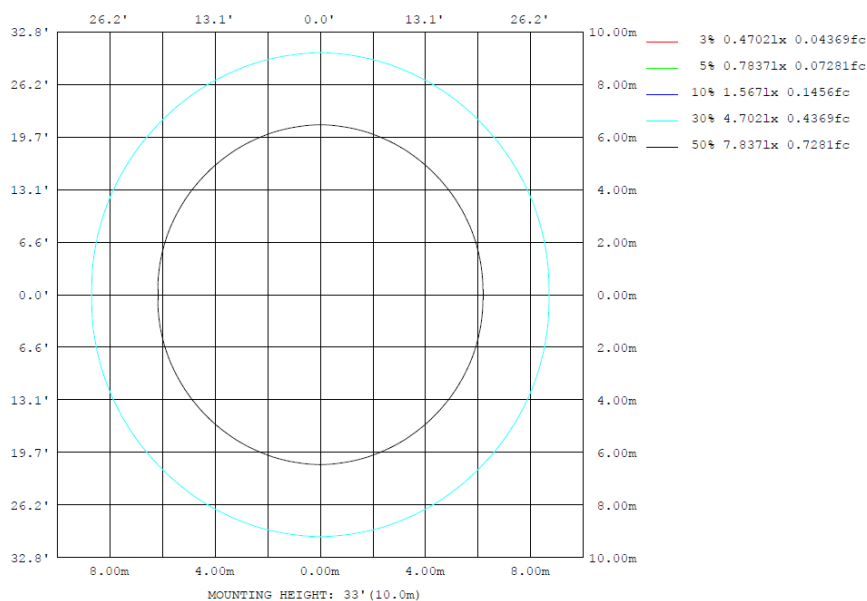
4.2 Goniophotometer Test

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	1538	1539	1543	1539	1538	1539	1543	1539	0- 10	148.2	148.2	3.04,3.04
20	1446	1459	1472	1459	1446	1459	1472	1459	10- 20	425.0	573.2	11.7,11.7
30	1302	1332	1361	1332	1302	1332	1361	1332	20- 30	646.2	1219	25,25
40	1114	1167	1223	1167	1114	1167	1223	1167	30- 40	785.5	2005	41,41
50	894.3	975.8	1063	975.8	894.3	975.8	1063	975.8	40- 50	830.9	2836	58.1,58.1
60	652.8	769.2	884.3	769.2	652.8	769.2	884.3	769.2	50- 60	783.0	3619	74.1,74.1
70	397.5	558.1	695.4	558.1	397.5	558.1	695.4	558.1	60- 70	654.7	4274	87.5,87.5
80	151.6	336.3	391.4	336.3	151.6	336.3	391.4	336.3	70- 80	461.7	4735	96.9,96.9
90	0	0	0	0	0	0	0	0	80- 90	149.1	4884	100,100
100	0	0	0	0	0	0	0	0	90-100	0	4884	100,100
110	0	0	0	0	0	0	0	0	100-110	0	4884	100,100
120	0	0	0	0	0	0	0	0	110-120	0	4884	100,100
130	0	0	0	0	0	0	0	0	120-130	0	4884	100,100
140	0	0	0	0	0	0	0	0	130-140	0	4884	100,100
150	0	0	0	0	0	0	0	0	140-150	0	4884	100,100
160	0	0	0	0	0	0	0	0	150-160	0	4884	100,100
170	0	0	0	0	0	0	0	0	160-170	0	4884	100,100
180	0	0	0	0	0	0	0	0	170-180	0	4884	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	148.25	0-10	148.25	3.04%
10-20	424.98	0-20	573.23	11.74%
20-30	646.17	0-30	1219.40	24.97%
30-40	785.54	0-40	2004.94	41.05%
40-50	830.91	0-50	2835.85	58.06%
50-60	783.01	0-60	3618.86	74.09%
60-70	654.69	0-70	4273.55	87.50%
70-80	461.71	0-80	4735.26	96.95%
80-90	149.07	0-90	4884.33	100.00%
90-100	0.00	0-100	4884.33	100.00%
100-110	0.00	0-110	4884.33	100.00%
110-120	0.00	0-120	4884.33	100.00%
120-130	0.00	0-130	4884.33	100.00%
130-140	0.00	0-140	4884.33	100.00%
140-150	0.00	0-150	4884.33	100.00%
150-160	0.00	0-160	4884.33	100.00%
160-170	0.00	0-170	4884.33	100.00%
170-180	0.00	0-180	4884.33	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		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	10.3	11.9	10.7	12.2	12.6	12.5	14.1	12.9	14.4	14.7
	4H	11.0	12.4	11.4	12.8	13.2	13.8	15.2	14.2	15.6	15.9
	6H	11.4	12.8	11.8	13.1	13.5	14.7	16.1	15.2	16.5	16.9
	8H	11.6	12.9	12.0	13.2	13.6	15.1	16.4	15.5	16.8	17.2
	12H	11.6	12.9	12.1	13.3	13.7	15.3	16.5	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	11.5	12.8	12.0	13.2	13.6	13.4	14.6	13.8	15.0	15.4
	4H	12.3	13.5	12.8	13.9	14.3	14.8	15.9	15.2	16.4	16.8
	6H	13.0	13.9	13.4	14.4	14.8	16.0	17.0	16.5	17.4	17.9
	8H	13.1	14.1	13.6	14.5	15.0	16.4	17.3	16.9	17.8	18.2
	12H	13.2	14.1	13.7	14.6	15.0	16.7	17.5	17.1	18.0	18.5
8H	4H	13.1	14.1	13.6	14.5	15.0	15.2	16.1	15.6	16.6	17.0
	6H	13.9	14.7	14.4	15.2	15.7	16.5	17.3	17.0	17.8	18.3
	8H	14.3	15.0	14.8	15.5	15.9	17.0	17.8	17.6	18.3	18.7
	12H	14.5	15.1	15.0	15.6	16.1	17.4	18.0	17.9	18.5	19.1
12H	4H	13.3	14.1	13.8	14.6	15.1	15.2	16.1	15.7	16.5	17.0
	6H	14.2	14.9	14.7	15.4	15.9	16.6	17.3	17.2	17.8	18.3
	8H	14.6	15.2	15.1	15.7	16.3	17.2	17.8	17.7	18.3	18.9

Maximum UGR = 19.1

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		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.1	15.8	14.4	16.1	16.4	15.4	17.1	15.8	17.4	17.7
	3H	15.8	17.4	16.2	17.7	18.1	18.0	19.6	18.4	19.9	20.2
	4H	16.5	17.9	16.9	18.3	18.7	19.3	20.7	19.7	21.1	21.4
	6H	16.9	18.3	17.3	18.6	19.0	20.2	21.6	20.7	22.0	22.4
	8H	17.1	18.4	17.5	18.7	19.1	20.6	21.9	21.0	22.3	22.7
	12H	17.1	18.4	17.6	18.8	19.2	20.8	22.0	21.2	22.4	22.9
4H	2H	15.0	16.5	15.4	16.8	17.2	16.0	17.5	16.4	17.8	18.2
	3H	17.0	18.3	17.5	18.7	19.1	18.9	20.1	19.3	20.5	20.9
	4H	17.8	19.0	18.3	19.4	19.8	20.3	21.4	20.7	21.9	22.3
	6H	18.5	19.4	18.9	19.9	20.3	21.5	22.5	22.0	22.9	23.4
	8H	18.6	19.6	19.1	20.0	20.5	21.9	22.8	22.4	23.3	23.7
	12H	18.7	19.6	19.2	20.1	20.5	22.2	23.0	22.6	23.5	24.0
8H	4H	18.6	19.6	19.1	20.0	20.5	20.7	21.6	21.1	22.1	22.5
	6H	19.4	20.2	19.9	20.7	21.2	22.0	22.8	22.5	23.3	23.8
	8H	19.8	20.5	20.3	21.0	21.4	22.5	23.3	23.1	23.8	24.2
	12H	20.0	20.6	20.5	21.1	21.6	22.9	23.5	23.4	24.0	24.6
12H	4H	18.8	19.6	19.3	20.1	20.6	20.7	21.6	21.2	22.0	22.5
	6H	19.7	20.4	20.2	20.9	21.4	22.1	22.8	22.7	23.3	23.8
	8H	20.1	20.7	20.6	21.2	21.8	22.7	23.3	23.2	23.8	24.4

Maximum UGR = 24.6

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1567	1567	1567	1568	1567	1566	1568	1566	1567	1568	1567	1567	1567	1567	1567	1568	1567	1566	1568
5	1560	1560	1559	1560	1560	1559	1561	1559	1560	1560	1559	1560	1560	1559	1560	1559	1560	1559	1561
10	1538	1538	1539	1539	1540	1540	1543	1540	1540	1539	1539	1538	1538	1539	1539	1539	1540	1540	1543
15	1499	1503	1504	1505	1509	1510	1513	1510	1509	1505	1504	1503	1499	1503	1504	1505	1509	1510	1513
20	1446	1452	1455	1459	1464	1468	1472	1468	1464	1459	1455	1452	1446	1452	1455	1459	1464	1468	1472
25	1381	1389	1395	1402	1409	1416	1421	1416	1409	1402	1395	1389	1381	1389	1395	1402	1409	1416	1421
30	1302	1313	1322	1332	1345	1355	1361	1355	1345	1332	1322	1313	1302	1313	1322	1332	1345	1355	1361
35	1213	1226	1239	1254	1271	1286	1296	1286	1271	1254	1239	1226	1213	1226	1239	1254	1271	1286	1296
40	1114	1129	1147	1167	1193	1212	1223	1212	1193	1167	1147	1129	1114	1129	1147	1167	1193	1212	1223
45	1008	1025	1047	1074	1106	1131	1145	1131	1106	1074	1047	1025	1008	1025	1047	1074	1106	1131	1145
50	894	913	940	976	1015	1047	1063	1047	1015	976	940	913	894	913	940	976	1015	1047	1063
55	775	796	829	874	920	958	975	958	920	874	829	796	775	796	829	874	920	958	975
60	653	675	715	769	823	866	884	866	823	769	715	675	653	675	715	769	823	866	884
65	526	550	601	664	724	771	791	771	724	664	601	550	526	550	601	664	724	771	791
70	398	425	487	558	623	674	695	674	623	558	487	425	398	425	487	558	623	674	695
75	270	304	377	454	522	574	593	574	522	454	377	304	270	304	377	454	522	574	593
80	152	193	272	336	365	383	391	383	365	336	272	193	152	193	272	336	365	383	391
85	54.6	95.6	136	149	156	160	163	160	156	149	136	95.6	54.6	95.6	136	149	156	160	163
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) γ (DEG)	285	300	315	330	345														
0	1566	1567	1568	1567	1567														
5	1559	1560	1560	1559	1560														
10	1540	1540	1539	1539	1538														
15	1510	1509	1505	1504	1503														
20	1468	1464	1459	1455	1452														
25	1416	1409	1402	1395	1389														
30	1355	1345	1332	1322	1313														
35	1286	1271	1254	1239	1226														
40	1212	1193	1167	1147	1129														
45	1131	1106	1074	1047	1025														
50	1047	1015	976	940	913														
55	958	920	874	829	796														
60	866	823	769	715	675														
65	771	724	664	601	550														
70	674	623	558	487	425														
75	574	522	454	377	304														
80	383	365	336	272	193														
85	160	156	149	136	95.6														
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@36W4000K	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 $25 \pm 1^{\circ}\text{C}$. 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	0.287	34.3	0.997	6.86
277.0	60	0.126	33.9	0.972	12.76

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*****