

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

Issue Date: 2024-03-04

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		4711
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	133.5
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		35.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.04
			277V	13.26
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
			277V	0.974
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3465±245	3487
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.5
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		14
Minimum Rf (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥70		86
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	21.8
		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		0.295
(Goniophotometer – Section 4.2)		Non-Worst Case		0.129
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		35.3
(Goniophotometer – Section 4.2)		Non-Worst Case		34.9

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-01	C-SWISH2X4@36W3500K	240301001-S1
2	Goniophotometer Test	2024-03-01	C-SWISH2X4@36W3500K	240301001-S1
3	THD and PF Test	2024-03-01	C-SWISH2X4@36W3500K	240301001-S1

Remark (If any)

- The results contained in this report pertain only to the tested samples.
- This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
- 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@36W3500K, 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@36W3500K	Sample ID	240301001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

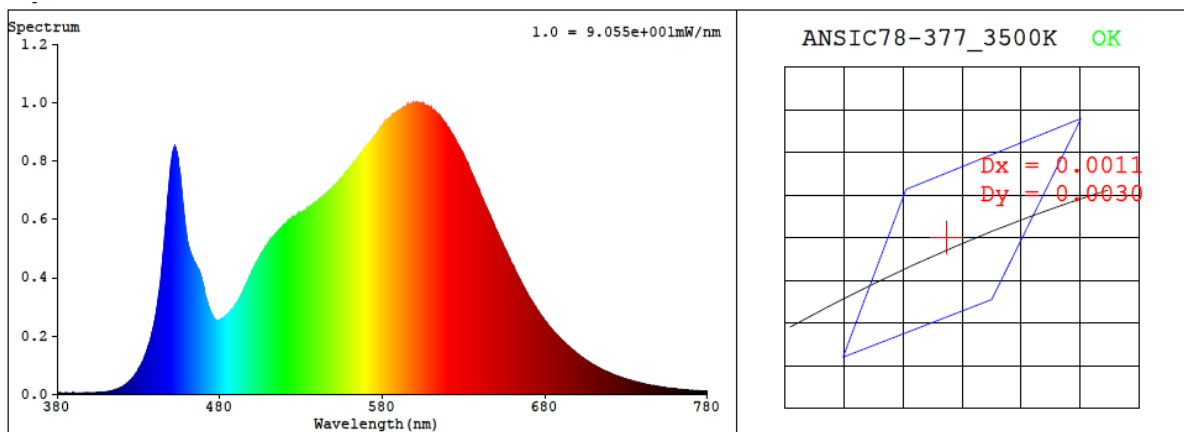
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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	0.295	35.3	0.997
277.0	60	0.129	34.9	0.974

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3487	84.5	14	0.0011	86	95	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4072$ $y = 0.3941$ / $u' = 0.2355$ $v' = 0.5130$ ($duv=1.07e-03$)

CCT= 3487K Prp WL: Ld=580.5nm Purity=40.5%

Peak WL: Lp=601nm FWHM: =149.0nm Ratio:R=20.5% G=76.3% B=3.2%

Render Index: Ra = 84.5 AvgR = 78.6 TM30:Rf=85 Rg=95

EEI: 0.09732 A++ Highest

R1 =83 R2 =91 R3 =97 R4 =83 R5 =83 R6 =89 R7 =86

R8 =64 R9 =14 R10=80 R11=82 R12=67 R13=85 R14=99 R15=76

4.1 Integrating Sphere Test

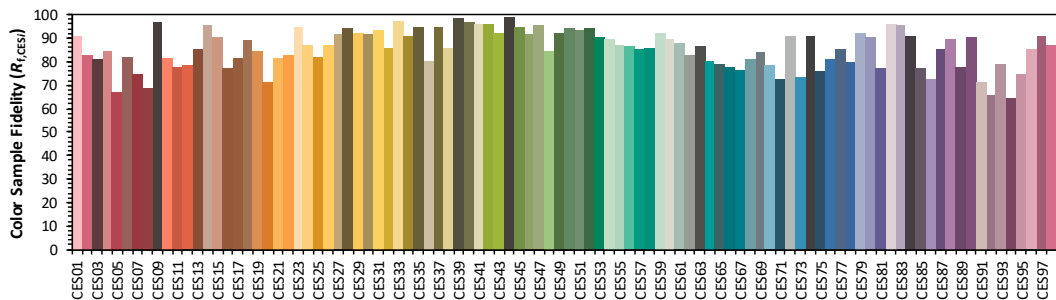
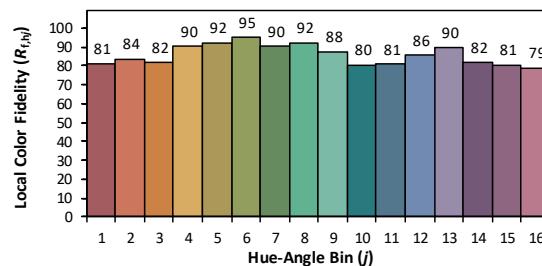
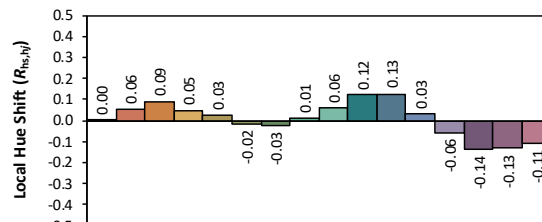
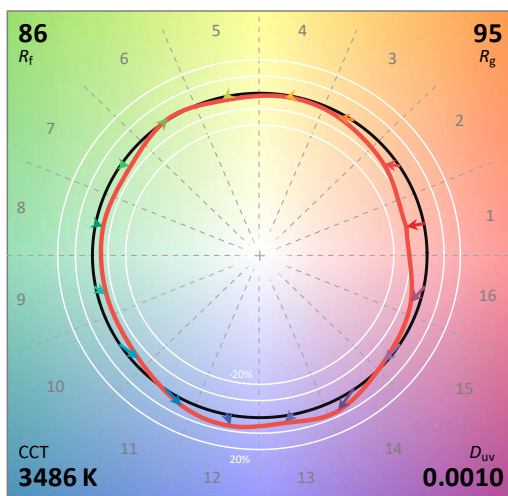
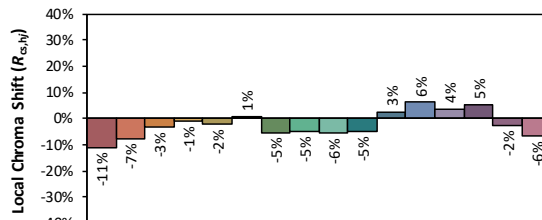
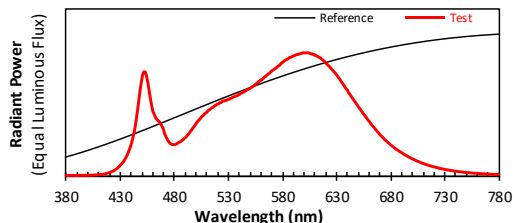
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/4

Model: C-SWISH2X4@36W3500K



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

x 0.4072
 y 0.3940
 u' 0.2356
 v' 0.5129

CIE 13.3-1995
(CRI)

R_a 85
 R_g 14

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	5.50E-06	447	6.07E-04	514	5.47E-04	581	9.26E-04	648	5.89E-04	715	8.53E-05
381	1.90E-06	448	6.75E-04	515	5.53E-04	582	9.35E-04	649	5.77E-04	716	8.25E-05
382	3.90E-06	449	7.38E-04	516	5.58E-04	583	9.40E-04	650	5.63E-04	717	7.99E-05
383	2.60E-06	450	7.90E-04	517	5.67E-04	584	9.45E-04	651	5.52E-04	718	7.80E-05
384	3.40E-06	451	8.31E-04	518	5.70E-04	585	9.48E-04	652	5.39E-04	719	7.49E-05
385	3.90E-06	452	8.44E-04	519	5.79E-04	586	9.57E-04	653	5.27E-04	720	7.28E-05
386	3.90E-06	453	8.41E-04	520	5.82E-04	587	9.61E-04	654	5.15E-04	721	7.13E-05
387	2.60E-06	454	8.18E-04	521	5.86E-04	588	9.63E-04	655	5.02E-04	722	6.79E-05
388	3.20E-06	455	7.75E-04	522	5.93E-04	589	9.69E-04	656	4.91E-04	723	6.61E-05
389	3.20E-06	456	7.28E-04	523	5.94E-04	590	9.72E-04	657	4.79E-04	724	6.41E-05
390	2.90E-06	457	6.70E-04	524	6.01E-04	591	9.75E-04	658	4.67E-04	725	6.18E-05
391	3.90E-06	458	6.16E-04	525	6.08E-04	592	9.80E-04	659	4.54E-04	726	5.94E-05
392	3.90E-06	459	5.68E-04	526	6.07E-04	593	9.84E-04	660	4.44E-04	727	5.80E-05
393	3.60E-06	460	5.26E-04	527	6.12E-04	594	9.85E-04	661	4.34E-04	728	5.62E-05
394	4.00E-06	461	5.07E-04	528	6.12E-04	595	9.87E-04	662	4.19E-04	729	5.41E-05
395	4.10E-06	462	4.84E-04	529	6.18E-04	596	9.90E-04	663	4.10E-04	730	5.24E-05
396	4.80E-06	463	4.68E-04	530	6.21E-04	597	9.93E-04	664	4.00E-04	731	5.09E-05
397	3.20E-06	464	4.56E-04	531	6.23E-04	598	9.95E-04	665	3.89E-04	732	4.92E-05
398	4.60E-06	465	4.47E-04	532	6.29E-04	599	9.99E-04	666	3.77E-04	733	4.73E-05
399	3.80E-06	466	4.39E-04	533	6.31E-04	600	9.98E-04	667	3.67E-04	734	4.59E-05
400	4.70E-06	467	4.26E-04	534	6.38E-04	601	9.98E-04	668	3.57E-04	735	4.40E-05
401	5.60E-06	468	4.11E-04	535	6.41E-04	602	9.98E-04	669	3.47E-04	736	4.29E-05
402	5.50E-06	469	3.94E-04	536	6.45E-04	603	9.99E-04	670	3.35E-04	737	4.15E-05
403	4.60E-06	470	3.73E-04	537	6.48E-04	604	9.98E-04	671	3.27E-04	738	4.03E-05
404	5.80E-06	471	3.41E-04	538	6.50E-04	605	9.95E-04	672	3.19E-04	739	3.90E-05
405	5.70E-06	472	3.22E-04	539	6.58E-04	606	9.92E-04	673	3.10E-04	740	3.77E-05
406	6.80E-06	473	3.02E-04	540	6.59E-04	607	9.88E-04	674	3.00E-04	741	3.61E-05
407	7.40E-06	474	2.87E-04	541	6.68E-04	608	9.89E-04	675	2.91E-04	742	3.50E-05
408	7.30E-06	475	2.74E-04	542	6.71E-04	609	9.81E-04	676	2.84E-04	743	3.44E-05
409	8.40E-06	476	2.65E-04	543	6.78E-04	610	9.83E-04	677	2.75E-04	744	3.29E-05
410	9.20E-06	477	2.58E-04	544	6.79E-04	611	9.75E-04	678	2.67E-04	745	3.19E-05
411	9.90E-06	478	2.53E-04	545	6.84E-04	612	9.73E-04	679	2.61E-04	746	3.10E-05
412	1.05E-05	479	2.52E-04	546	6.91E-04	613	9.67E-04	680	2.51E-04	747	3.00E-05
413	1.17E-05	480	2.52E-04	547	6.97E-04	614	9.61E-04	681	2.45E-04	748	2.87E-05
414	1.27E-05	481	2.55E-04	548	7.00E-04	615	9.58E-04	682	2.37E-04	749	2.82E-05
415	1.48E-05	482	2.59E-04	549	7.05E-04	616	9.49E-04	683	2.31E-04	750	2.71E-05
416	1.67E-05	483	2.65E-04	550	7.09E-04	617	9.42E-04	684	2.24E-04	751	2.61E-05
417	1.84E-05	484	2.71E-04	551	7.17E-04	618	9.34E-04	685	2.17E-04	752	2.53E-05
418	2.05E-05	485	2.75E-04	552	7.22E-04	619	9.27E-04	686	2.11E-04	753	2.46E-05
419	2.33E-05	486	2.80E-04	553	7.27E-04	620	9.14E-04	687	2.06E-04	754	2.40E-05
420	2.57E-05	487	2.88E-04	554	7.34E-04	621	9.08E-04	688	2.00E-04	755	2.29E-05
421	2.92E-05	488	2.92E-04	555	7.43E-04	622	8.99E-04	689	1.94E-04	756	2.22E-05
422	3.35E-05	489	3.03E-04	556	7.49E-04	623	8.91E-04	690	1.89E-04	757	2.13E-05
423	3.84E-05	490	3.10E-04	557	7.57E-04	624	8.82E-04	691	1.83E-04	758	2.08E-05
424	4.20E-05	491	3.17E-04	558	7.64E-04	625	8.70E-04	692	1.78E-04	759	2.01E-05
425	4.75E-05	492	3.29E-04	559	7.70E-04	626	8.60E-04	693	1.72E-04	760	1.95E-05
426	5.45E-05	493	3.38E-04	560	7.79E-04	627	8.52E-04	694	1.67E-04	761	1.88E-05
427	5.99E-05	494	3.50E-04	561	7.81E-04	628	8.41E-04	695	1.63E-04	762	1.83E-05
428	6.84E-05	495	3.62E-04	562	7.88E-04	629	8.31E-04	696	1.57E-04	763	1.80E-05
429	7.55E-05	496	3.74E-04	563	7.99E-04	630	8.20E-04	697	1.52E-04	764	1.73E-05
430	8.61E-05	497	3.86E-04	564	8.04E-04	631	8.07E-04	698	1.48E-04	765	1.65E-05
431	9.55E-05	498	3.98E-04	565	8.12E-04	632	7.96E-04	699	1.43E-04	766	1.61E-05
432	1.06E-04	499	4.09E-04	566	8.20E-04	633	7.85E-04	700	1.39E-04	767	1.59E-05
433	1.17E-04	500	4.24E-04	567	8.28E-04	634	7.70E-04	701	1.34E-04	768	1.55E-05
434	1.31E-04	501	4.35E-04	568	8.32E-04	635	7.57E-04	702	1.30E-04	769	1.45E-05
435	1.45E-04	502	4.46E-04	569	8.43E-04	636	7.44E-04	703	1.26E-04	770	1.41E-05
436	1.64E-04	503	4.55E-04	570	8.51E-04	637	7.32E-04	704	1.22E-04	771	1.39E-05
437	1.82E-04	504	4.65E-04	571	8.56E-04	638	7.17E-04	705	1.18E-04	772	1.32E-05
438	2.05E-04	505	4.78E-04	572	8.62E-04	639	7.06E-04	706	1.15E-04	773	1.29E-05
439	2.28E-04	506	4.86E-04	573	8.69E-04	640	6.96E-04	707	1.11E-04	774	1.25E-05
440	2.56E-04	507	4.92E-04	574	8.74E-04	641	6.77E-04	708	1.08E-04	775	1.23E-05
441	2.87E-04	508	5.04E-04	575	8.84E-04	642	6.65E-04	709	1.04E-04	776	1.18E-05
442	3.25E-04	509	5.10E-04	576	8.90E-04	643	6.53E-04	710	1.01E-04	777	1.15E-05
443	3.64E-04	510	5.15E-04	577	8.96E-04	644	6.40E-04	711	9.80E-05	778	1.11E-05
444	4.15E-04	511	5.28E-04	578	9.04E-04	645	6.27E-04	712	9.44E-05	779	1.10E-05
445	4.74E-04	512	5.34E-04	579	9.15E-04	646	6.14E-04	713	9.13E-05	780	1.10E-05
446	5.38E-04	513	5.41E-04	580	9.19E-04	647	6.02E-04	714	8.91E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X4@36W3500K	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	0.295	35.3	0.997
NON-WORST CASE	277.0	60	0.129	34.9	0.974

Test Result

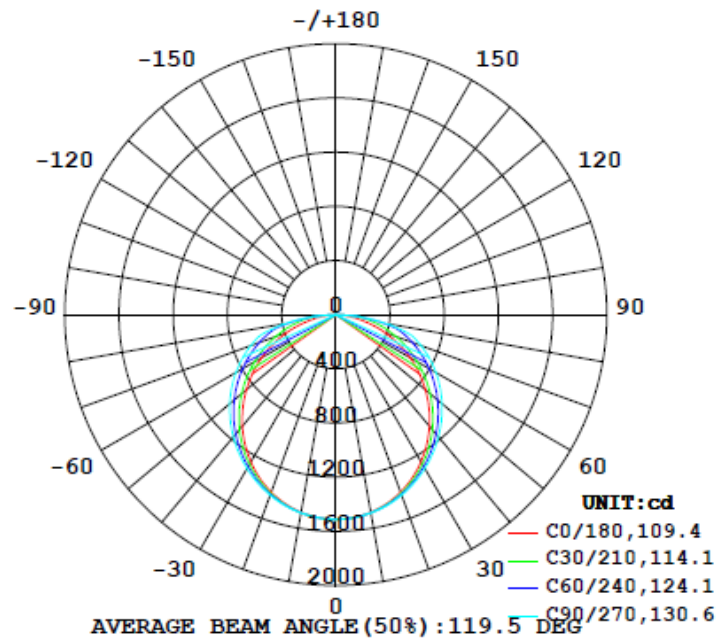
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
4711	160.5	170.1	109.4	130.6	133.5	74.1%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
18.5	21.8	1.24	1.30

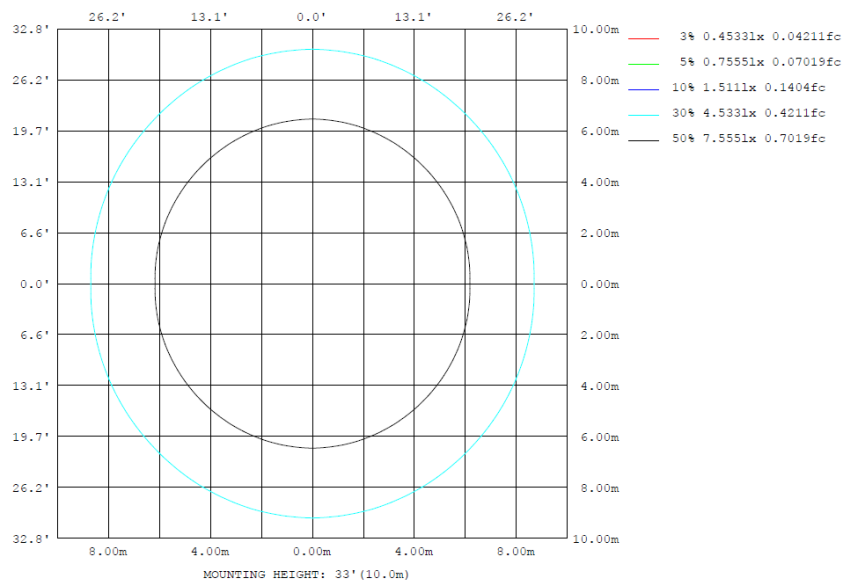
4.2 Goniophotometer Test

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	# zone	# total	%lum, lamp
10	1482	1485	1486	1485	1482	1485	1486	1485	0- 10	143.0	143.0	3.04, 3.04
20	1395	1409	1418	1409	1395	1409	1418	1409	10- 20	410.0	553.0	11.7, 11.7
30	1255	1287	1312	1287	1255	1287	1312	1287	20- 30	623.4	1176	25, 25
40	1075	1126	1178	1126	1075	1126	1178	1126	30- 40	757.9	1934	41.1, 41.1
50	862.6	942.0	1023	942.0	862.6	942.0	1023	942.0	40- 50	801.8	2736	58.1, 58.1
60	629.8	742.9	851.5	742.9	629.8	742.9	851.5	742.9	50- 60	755.6	3492	74.1, 74.1
70	382.7	539.3	668.9	539.3	382.7	539.3	668.9	539.3	60- 70	631.8	4124	87.5, 87.5
80	146.1	323.4	373.9	323.4	146.1	323.4	373.9	323.4	70- 80	445.2	4569	97, 97
90	0	0	0	0	0	0	0	0	80- 90	142.4	4711	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	4711	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4711	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4711	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4711	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4711	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4711	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4711	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4711	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4711	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	142.99	0-10	142.99	3.04%
10-20	410.02	0-20	553.01	11.74%
20-30	623.38	0-30	1176.39	24.97%
30-40	757.94	0-40	1934.33	41.06%
40-50	801.84	0-50	2736.17	58.08%
50-60	755.60	0-60	3491.77	74.12%
60-70	631.77	0-70	4123.54	87.53%
70-80	445.23	0-80	4568.77	96.98%
80-90	142.39	0-90	4711.16	100.00%
90-100	0.00	0-100	4711.16	100.00%
100-110	0.00	0-110	4711.16	100.00%
110-120	0.00	0-120	4711.16	100.00%
120-130	0.00	0-130	4711.16	100.00%
130-140	0.00	0-140	4711.16	100.00%
140-150	0.00	0-150	4711.16	100.00%
150-160	0.00	0-160	4711.16	100.00%
160-170	0.00	0-170	4711.16	100.00%
170-180	0.00	0-180	4711.16	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	10.3	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	15.1	16.5	16.8
	8H	11.6	12.9	12.0	13.2	13.6	15.1	16.4	15.5	16.8	17.1
	12H	11.6	12.9	12.1	13.3	13.7	15.3	16.5	15.7	16.9	17.3
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	14.3	14.8	15.9	15.2	16.4	16.8
	6H	13.0	14.0	13.4	14.4	14.8	16.0	17.0	16.4	17.4	17.9
	8H	13.1	14.1	13.6	14.5	15.0	16.4	17.3	16.8	17.8	18.2
	12H	13.3	14.1	13.7	14.6	15.0	16.6	17.5	17.1	18.0	18.4
8H	4H	13.1	14.1	13.6	14.5	15.0	15.2	16.1	15.6	16.6	17.0
	6H	14.0	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	16.0	17.0	17.7	17.5	18.2	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	17.1	17.8	18.3
	8H	14.6	15.2	15.1	15.7	16.3	17.2	17.8	17.7	18.3	18.8

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	14.0	15.7	14.3	16.0	16.3	15.3	17.0	15.7	17.3	17.6
	3H	15.7	17.3	16.1	17.6	18.0	17.9	19.5	18.3	19.8	20.1
	4H	16.4	17.8	16.8	18.2	18.6	19.2	20.6	19.6	21.0	21.3
	6H	16.8	18.2	17.2	18.5	18.9	20.1	21.5	20.5	21.9	22.2
	8H	17.0	18.3	17.4	18.6	19.0	20.5	21.8	20.9	22.2	22.5
	12H	17.0	18.3	17.5	18.7	19.1	20.7	21.9	21.1	22.3	22.7
4H	2H	14.9	16.4	15.3	16.7	17.1	15.9	17.4	16.3	17.7	18.1
	3H	17.0	18.2	17.4	18.6	19.0	18.8	20.0	19.2	20.4	20.8
	4H	17.8	18.9	18.2	19.3	19.7	20.2	21.3	20.6	21.8	22.2
	6H	18.4	19.4	18.8	19.8	20.2	21.4	22.4	21.8	22.8	23.3
	8H	18.5	19.5	19.0	19.9	20.4	21.8	22.7	22.2	23.2	23.6
	12H	18.7	19.5	19.1	20.0	20.4	22.0	22.9	22.5	23.4	23.8
8H	4H	18.5	19.5	19.0	19.9	20.4	20.6	21.5	21.0	22.0	22.4
	6H	19.4	20.1	19.8	20.6	21.1	21.9	22.7	22.4	23.2	23.7
	8H	19.7	20.4	20.2	20.9	21.4	22.4	23.1	22.9	23.6	24.1
	12H	19.9	20.5	20.4	21.0	21.5	22.8	23.4	23.3	23.9	24.5
12H	4H	18.7	19.5	19.2	20.0	20.5	20.6	21.5	21.1	21.9	22.4
	6H	19.6	20.3	20.1	20.8	21.3	22.0	22.7	22.5	23.2	23.7
	8H	20.0	20.6	20.5	21.1	21.7	22.6	23.2	23.1	23.7	24.2

Maximum UGR = 24.5

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
γ (DEG)	0	1511	1511	1512	1512	1511	1511	1511	1511	1512	1512	1511	1511	1511	1512	1512	1511	1511	1511
5	1503	1504	1505	1505	1504	1505	1504	1505	1504	1505	1505	1504	1503	1504	1505	1505	1504	1505	1504
10	1482	1483	1485	1485	1486	1486	1486	1486	1486	1485	1485	1483	1482	1483	1485	1485	1486	1486	1486
15	1445	1449	1451	1453	1455	1457	1458	1457	1455	1453	1451	1449	1445	1449	1451	1453	1455	1457	1458
20	1395	1401	1405	1409	1412	1417	1418	1417	1412	1409	1405	1401	1395	1401	1405	1409	1412	1417	1418
25	1331	1340	1346	1353	1359	1366	1369	1366	1359	1353	1346	1340	1331	1340	1346	1353	1359	1366	1369
30	1255	1267	1276	1287	1297	1307	1312	1307	1297	1287	1276	1267	1255	1267	1276	1287	1297	1307	1312
35	1169	1183	1197	1211	1227	1241	1248	1241	1227	1211	1197	1183	1169	1183	1197	1211	1227	1241	1248
40	1075	1090	1108	1126	1150	1169	1178	1169	1150	1126	1108	1090	1075	1090	1108	1126	1150	1169	1178
45	972	990	1011	1037	1067	1091	1102	1091	1067	1037	1011	990	972	990	1011	1037	1067	1091	1102
50	863	883	909	942	980	1009	1023	1009	980	942	909	883	863	883	909	942	980	1009	1023
55	748	769	802	844	889	923	939	923	889	844	802	769	748	769	802	844	889	923	939
60	630	651	692	743	795	834	852	834	795	743	692	651	630	651	692	743	795	834	852
65	507	531	581	641	699	742	761	742	699	641	581	531	507	531	581	641	699	742	761
70	393	410	471	539	602	649	669	649	602	539	471	410	393	410	471	539	602	649	669
75	260	294	365	438	505	554	569	554	505	438	365	294	260	294	365	438	505	554	569
80	146	187	263	323	350	367	374	367	350	323	263	187	146	187	263	323	350	367	374
85	52.8	92.5	131	143	148	151	152	151	148	143	131	92.5	52.8	92.5	131	143	148	151	152
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														
γ (DEG)	0	1511	1511	1512	1512	1511													
5	1505	1504	1505	1505	1504														
10	1486	1486	1485	1485	1483														
15	1457	1455	1453	1451	1449														
20	1417	1412	1409	1405	1401														
25	1366	1359	1353	1346	1340														
30	1307	1297	1287	1276	1267														
35	1241	1227	1211	1197	1183														
40	1169	1150	1126	1108	1090														
45	1091	1067	1037	1011	990														
50	1009	980	942	909	883														
55	923	889	844	802	769														
60	834	795	743	692	651														
65	742	699	641	581	531														
70	649	602	539	471	410														
75	554	505	438	365	294														
80	367	350	323	263	187														
85	151	148	143	131	92.5														
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@36W3500K	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	0.295	35.3	0.997	7.04
277.0	60	0.129	34.9	0.974	13.26

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*****