

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

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		4829
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	136.4
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		35.4
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	6.43
			277V	12.98
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
			277V	0.973
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	5029±283	5026
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		84.7
Minimum R9 (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥0		16
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		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%		74.0%
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		0.296
(Goniophotometer – Section 4.2)		Non-Worst Case		0.128
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		35.4
(Goniophotometer – Section 4.2)		Non-Worst Case		34.6

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-03-01	C-SWISH2X4@36W5000K	240301001-S1
2	Goniophotometer Test	2024-03-01	C-SWISH2X4@36W5000K	240301001-S1
3	THD and PF Test	2024-03-01	C-SWISH2X4@36W5000K	240301001-S1

Remark (If any)

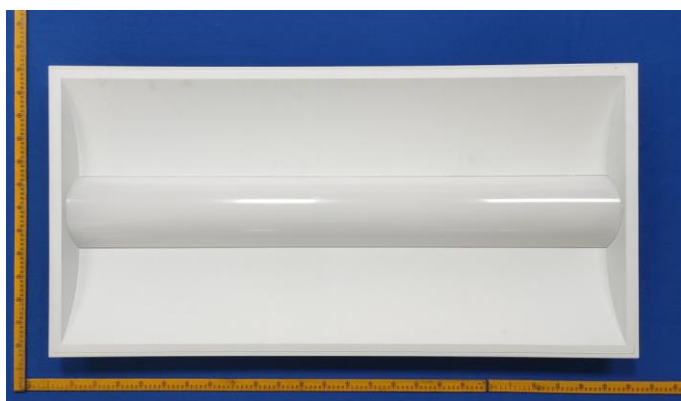
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3.0 Product Description

Luminaire Description: Model No. C-SWISH2X4@36W5000K, 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@36W5000K	Sample ID	240301001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

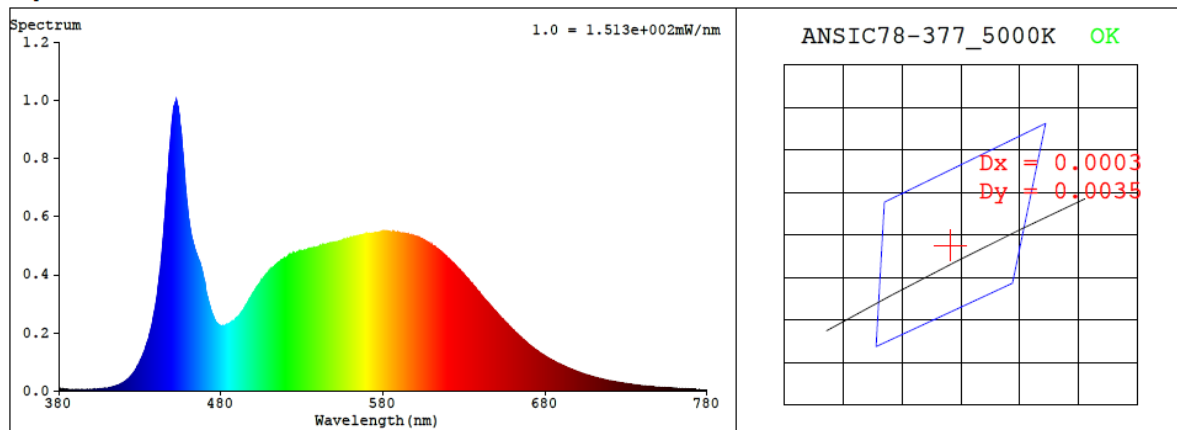
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25\pm 1^{\circ}\text{C}$.</p> <p>The sample measurements 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	0.296	35.4	0.997
277.0	60	0.128	34.6	0.973

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
5026	84.7	16	0.0017	84	96	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3447$ $y = 0.3546$ / $u' = 0.2100$ $v' = 0.4860$ ($duv=1.65e-03$)

CCT= 5026K Prop WL: $L_d=570.7nm$ Purity=9.8%

Peak WL: $L_p=453nm$ FWHM: $=19.3nm$ Ratio: $R=16.0\%$ $G=79.4\%$ $B=4.7\%$

Render Index: $R_a = 84.7$ $AvgR = 78.4$ $TM30:R_f=85$ $R_g=96$

EEL: 0.09535 A++ Highest

$R_1 = 83$ $R_2 = 90$ $R_3 = 93$ $R_4 = 84$ $R_5 = 84$ $R_6 = 85$ $R_7 = 88$

$R_8 = 70$ $R_9 = 16$ $R_{10} = 75$ $R_{11} = 84$ $R_{12} = 62$ $R_{13} = 85$ $R_{14} = 97$ $R_{15} = 79$

4.1 Integrating Sphere Test

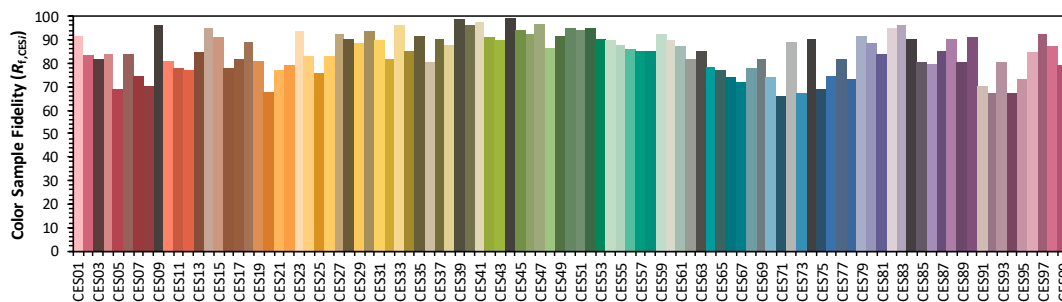
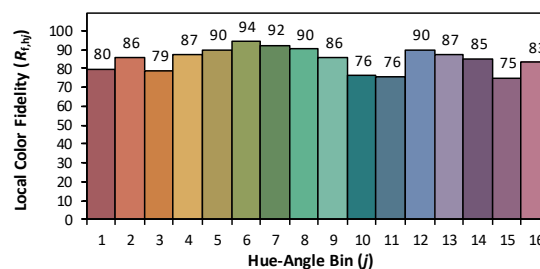
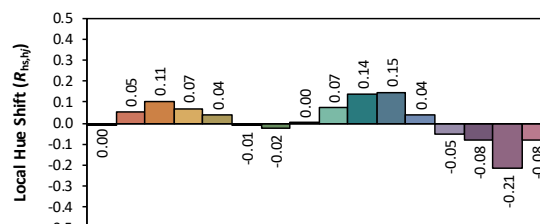
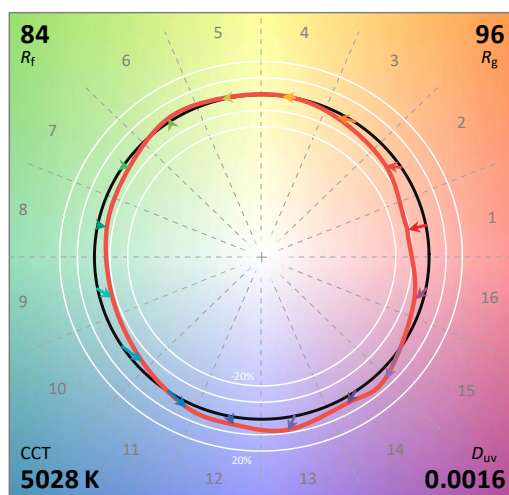
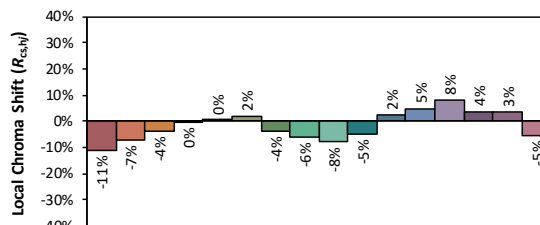
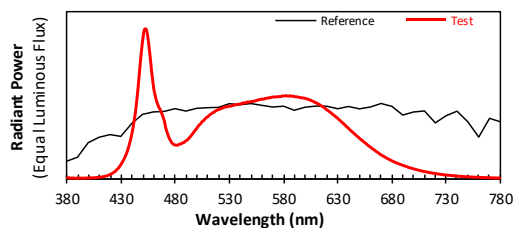
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/3/4

Model: C-SWISH2X4@36W5000K



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

x 0.3446
 y 0.3544
 u' 0.2100
 v' 0.4860

CIE 13.3-1995
(CRI)

R_a 85
 R_g 16

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength											
WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)
380	7.30E-06	447	7.25E-04	514	4.34E-04	581	5.49E-04	648	2.83E-04	715	4.11E-05
381	7.00E-06	448	8.04E-04	515	4.39E-04	582	5.50E-04	649	2.77E-04	716	3.99E-05
382	6.40E-06	449	8.73E-04	516	4.42E-04	583	5.50E-04	650	2.71E-04	717	3.90E-05
383	4.60E-06	450	9.31E-04	517	4.49E-04	584	5.48E-04	651	2.64E-04	718	3.76E-05
384	4.90E-06	451	9.80E-04	518	4.52E-04	585	5.47E-04	652	2.58E-04	719	3.65E-05
385	5.90E-06	452	9.93E-04	519	4.57E-04	586	5.49E-04	653	2.52E-04	720	3.56E-05
386	5.00E-06	453	9.90E-04	520	4.58E-04	587	5.48E-04	654	2.47E-04	721	3.45E-05
387	3.60E-06	454	9.59E-04	521	4.60E-04	588	5.46E-04	655	2.40E-04	722	3.30E-05
388	4.60E-06	455	9.11E-04	522	4.67E-04	589	5.47E-04	656	2.35E-04	723	3.20E-05
389	4.10E-06	456	8.50E-04	523	4.66E-04	590	5.44E-04	657	2.30E-04	724	3.10E-05
390	4.30E-06	457	7.83E-04	524	4.70E-04	591	5.43E-04	658	2.22E-04	725	2.98E-05
391	4.70E-06	458	7.11E-04	525	4.75E-04	592	5.43E-04	659	2.18E-04	726	2.91E-05
392	4.20E-06	459	6.53E-04	526	4.73E-04	593	5.42E-04	660	2.12E-04	727	2.83E-05
393	4.60E-06	460	5.95E-04	527	4.77E-04	594	5.40E-04	661	2.07E-04	728	2.71E-05
394	4.60E-06	461	5.62E-04	528	4.77E-04	595	5.38E-04	662	2.01E-04	729	2.63E-05
395	4.20E-06	462	5.29E-04	529	4.80E-04	596	5.38E-04	663	1.96E-04	730	2.57E-05
396	4.10E-06	463	5.05E-04	530	4.82E-04	597	5.35E-04	664	1.91E-04	731	2.48E-05
397	5.00E-06	464	4.86E-04	531	4.80E-04	598	5.35E-04	665	1.86E-04	732	2.41E-05
398	5.40E-06	465	4.70E-04	532	4.83E-04	599	5.34E-04	666	1.80E-04	733	2.36E-05
399	5.70E-06	466	4.57E-04	533	4.85E-04	600	5.32E-04	667	1.76E-04	734	2.25E-05
400	5.90E-06	467	4.40E-04	534	4.88E-04	601	5.30E-04	668	1.71E-04	735	2.19E-05
401	5.60E-06	468	4.20E-04	535	4.90E-04	602	5.29E-04	669	1.64E-04	736	2.14E-05
402	7.10E-06	469	4.00E-04	536	4.90E-04	603	5.26E-04	670	1.60E-04	737	2.02E-05
403	6.00E-06	470	3.76E-04	537	4.91E-04	604	5.23E-04	671	1.56E-04	738	1.97E-05
404	6.70E-06	471	3.39E-04	538	4.92E-04	605	5.20E-04	672	1.51E-04	739	1.92E-05
405	7.50E-06	472	3.15E-04	539	4.94E-04	606	5.17E-04	673	1.47E-04	740	1.84E-05
406	7.60E-06	473	2.93E-04	540	4.94E-04	607	5.13E-04	674	1.43E-04	741	1.79E-05
407	8.20E-06	474	2.74E-04	541	4.98E-04	608	5.11E-04	675	1.39E-04	742	1.73E-05
408	9.30E-06	475	2.59E-04	542	4.99E-04	609	5.05E-04	676	1.35E-04	743	1.67E-05
409	9.50E-06	476	2.46E-04	543	5.03E-04	610	5.05E-04	677	1.31E-04	744	1.64E-05
410	1.00E-05	477	2.36E-04	544	5.02E-04	611	4.99E-04	678	1.27E-04	745	1.57E-05
411	1.16E-05	478	2.30E-04	545	5.03E-04	612	4.97E-04	679	1.24E-04	746	1.52E-05
412	1.20E-05	479	2.26E-04	546	5.06E-04	613	4.92E-04	680	1.20E-04	747	1.48E-05
413	1.40E-05	480	2.23E-04	547	5.09E-04	614	4.88E-04	681	1.17E-04	748	1.41E-05
414	1.48E-05	481	2.23E-04	548	5.08E-04	615	4.83E-04	682	1.13E-04	749	1.39E-05
415	1.71E-05	482	2.23E-04	549	5.10E-04	616	4.79E-04	683	1.10E-04	750	1.35E-05
416	1.89E-05	483	2.26E-04	550	5.10E-04	617	4.74E-04	684	1.07E-04	751	1.30E-05
417	2.07E-05	484	2.30E-04	551	5.12E-04	618	4.69E-04	685	1.05E-04	752	1.26E-05
418	2.37E-05	485	2.31E-04	552	5.12E-04	619	4.64E-04	686	1.01E-04	753	1.21E-05
419	2.66E-05	486	2.35E-04	553	5.15E-04	620	4.57E-04	687	9.84E-05	754	1.19E-05
420	2.95E-05	487	2.39E-04	554	5.16E-04	621	4.53E-04	688	9.52E-05	755	1.15E-05
421	3.39E-05	488	2.41E-04	555	5.19E-04	622	4.47E-04	689	9.32E-05	756	1.12E-05
422	3.80E-05	489	2.47E-04	556	5.20E-04	623	4.42E-04	690	9.02E-05	757	1.09E-05
423	4.29E-05	490	2.53E-04	557	5.23E-04	624	4.36E-04	691	8.76E-05	758	1.04E-05
424	4.78E-05	491	2.57E-04	558	5.25E-04	625	4.30E-04	692	8.54E-05	759	1.00E-05
425	5.42E-05	492	2.65E-04	559	5.25E-04	626	4.24E-04	693	8.27E-05	760	9.80E-06
426	6.17E-05	493	2.73E-04	560	5.28E-04	627	4.19E-04	694	8.05E-05	761	9.50E-06
427	6.91E-05	494	2.80E-04	561	5.27E-04	628	4.13E-04	695	7.75E-05	762	9.30E-06
428	7.77E-05	495	2.90E-04	562	5.28E-04	629	4.07E-04	696	7.52E-05	763	8.90E-06
429	8.80E-05	496	2.99E-04	563	5.32E-04	630	4.01E-04	697	7.29E-05	764	8.60E-06
430	9.98E-05	497	3.08E-04	564	5.32E-04	631	3.94E-04	698	7.10E-05	765	8.30E-06
431	1.12E-04	498	3.19E-04	565	5.33E-04	632	3.88E-04	699	6.89E-05	766	7.90E-06
432	1.25E-04	499	3.27E-04	566	5.36E-04	633	3.82E-04	700	6.67E-05	767	7.90E-06
433	1.38E-04	500	3.37E-04	567	5.36E-04	634	3.74E-04	701	6.46E-05	768	7.80E-06
434	1.56E-04	501	3.47E-04	568	5.38E-04	635	3.69E-04	702	6.25E-05	769	7.40E-06
435	1.72E-04	502	3.56E-04	569	5.39E-04	636	3.62E-04	703	6.06E-05	770	7.20E-06
436	1.94E-04	503	3.62E-04	570	5.41E-04	637	3.55E-04	704	5.88E-05	771	7.20E-06
437	2.17E-04	504	3.71E-04	571	5.41E-04	638	3.47E-04	705	5.68E-05	772	6.80E-06
438	2.45E-04	505	3.81E-04	572	5.42E-04	639	3.41E-04	706	5.51E-05	773	6.60E-06
439	2.74E-04	506	3.85E-04	573	5.42E-04	640	3.35E-04	707	5.34E-05	774	6.30E-06
440	3.07E-04	507	3.92E-04	574	5.42E-04	641	3.27E-04	708	5.17E-05	775	6.10E-06
441	3.47E-04	508	4.01E-04	575	5.44E-04	642	3.21E-04	709	5.00E-05	776	6.00E-06
442	3.93E-04	509	4.06E-04	576	5.44E-04	643	3.14E-04	710	4.87E-05	777	5.70E-06
443	4.39E-04	510	4.10E-04	577	5.45E-04	644	3.08E-04	711	4.71E-05	778	5.60E-06
444	5.01E-04	511	4.19E-04	578	5.45E-04	645	3.02E-04	712	4.57E-05	779	5.60E-06
445	5.69E-04	512	4.24E-04	579	5.48E-04	646	2.95E-04	713	4.40E-05	780	5.60E-06
446	6.45E-04	513	4.29E-04	580	5.48E-04	647	2.89E-04	714	4.32E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X4@36W5000K	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	0.296	35.4	0.997
NON-WORST CASE	277.0	60	0.128	34.6	0.973

Test Result

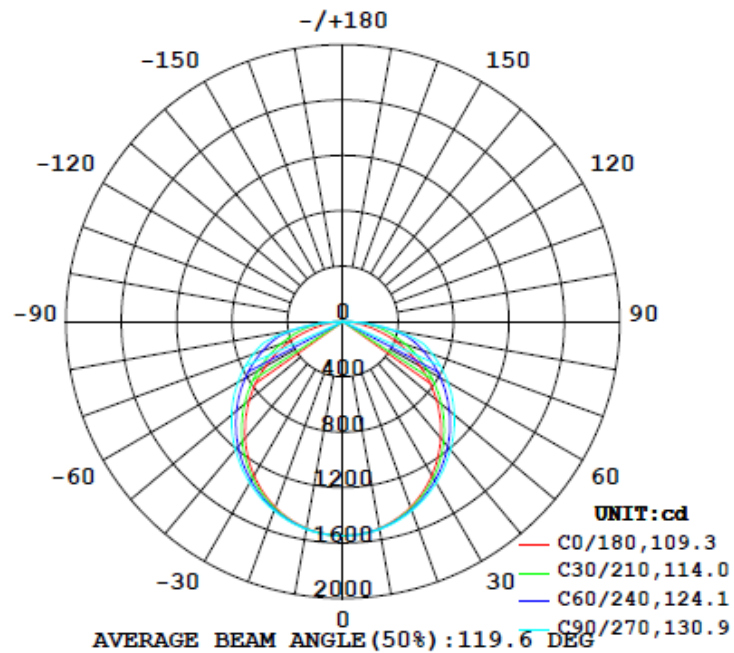
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
4829	160.6	170.6	109.3	130.9	136.4	74.0%

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

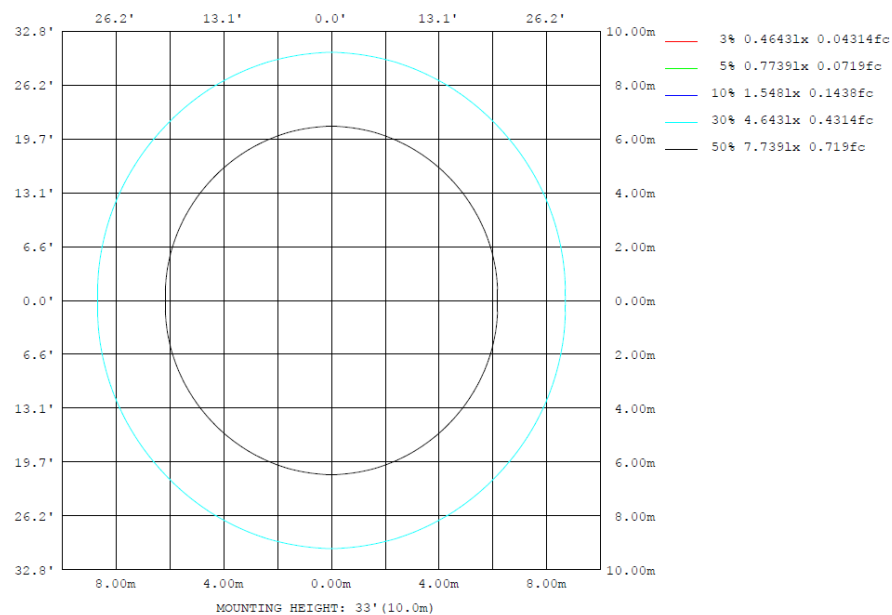
4.2 Goniophotometer Test

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	zone	total	lum, lamp
10	1517	1520	1523	1520	1517	1520	1523	1520	0- 10	146.4	146.4	3.03,3.03
20	1428	1442	1454	1442	1428	1442	1454	1442	10- 20	419.8	566.3	11.7,11.7
30	1284	1316	1346	1316	1284	1316	1346	1316	20- 30	638.3	1205	24.9,24.9
40	1099	1152	1209	1152	1099	1152	1209	1152	30- 40	775.9	1980	41,41
50	882.6	963.7	1050	963.7	882.6	963.7	1050	963.7	40- 50	820.9	2801	58,58
60	645.0	759.8	875.3	759.8	645.0	759.8	875.3	759.8	50- 60	773.7	3575	74,74
70	393.3	551.4	688.4	551.4	393.3	551.4	688.4	551.4	60- 70	647.1	4222	87.4,87.4
80	151.0	333.9	390.8	333.9	151.0	333.9	390.8	333.9	70- 80	457.0	4679	96.9,96.9
90	0	0	0	0	0	0	0	0	80- 90	149.7	4829	100,100
100	0	0	0	0	0	0	0	0	90-100	0	4829	100,100
110	0	0	0	0	0	0	0	0	100-110	0	4829	100,100
120	0	0	0	0	0	0	0	0	110-120	0	4829	100,100
130	0	0	0	0	0	0	0	0	120-130	0	4829	100,100
140	0	0	0	0	0	0	0	0	130-140	0	4829	100,100
150	0	0	0	0	0	0	0	0	140-150	0	4829	100,100
160	0	0	0	0	0	0	0	0	150-160	0	4829	100,100
170	0	0	0	0	0	0	0	0	160-170	0	4829	100,100
180	0	0	0	0	0	0	0	0	170-180	0	4829	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	146.42	0-10	146.42	3.03%
10-20	419.84	0-20	566.26	11.73%
20-30	638.25	0-30	1204.51	24.94%
30-40	775.90	0-40	1980.41	41.01%
40-50	820.88	0-50	2801.29	58.01%
50-60	773.72	0-60	3575.01	74.03%
60-70	647.12	0-70	4222.13	87.43%
70-80	457.05	0-80	4679.18	96.90%
80-90	149.72	0-90	4828.90	100.00%
90-100	0.00	0-100	4828.90	100.00%
100-110	0.00	0-110	4828.90	100.00%
110-120	0.00	0-120	4828.90	100.00%
120-130	0.00	0-130	4828.90	100.00%
130-140	0.00	0-140	4828.90	100.00%
140-150	0.00	0-150	4828.90	100.00%
150-160	0.00	0-160	4828.90	100.00%
160-170	0.00	0-170	4828.90	100.00%
170-180	0.00	0-180	4828.90	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	12.3
	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	14.8	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	16.6	15.8	17.0	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	16.0	15.3	16.4	16.8
	6H	13.0	14.0	13.4	14.4	14.8	16.0	17.0	16.5	17.5	17.9
	8H	13.1	14.1	13.6	14.5	15.0	16.4	17.4	16.9	17.8	18.3
	12H	13.3	14.1	13.7	14.6	15.0	16.7	17.5	17.2	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	14.0	14.7	14.4	15.2	15.7	16.6	17.3	17.0	17.8	18.3
	8H	14.3	15.0	14.8	15.5	16.0	17.1	17.8	17.6	18.3	18.8
	12H	14.5	15.1	15.0	15.6	16.2	17.5	18.1	18.0	18.6	19.1
12H	4H	13.3	14.1	13.8	14.6	15.1	15.2	16.1	15.7	16.5	17.0
	6H	14.2	14.9	14.8	15.4	15.9	16.7	17.4	17.2	17.8	18.4
	8H	14.6	15.3	15.1	15.7	16.3	17.2	17.9	17.7	18.3	18.9

Maximum UGR = 19.1

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.1	15.8	14.4	16.1	16.4	15.4	17.1	15.8	17.4	17.8
	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	20.3	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	22.1	21.3	22.5	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	21.5	20.8	21.9	22.3
	6H	18.5	19.5	18.9	19.9	20.3	21.5	22.5	22.0	23.0	23.4
	8H	18.6	19.6	19.1	20.0	20.5	21.9	22.9	22.4	23.3	23.8
	12H	18.8	19.6	19.2	20.1	20.5	22.2	23.0	22.7	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	19.5	20.2	19.9	20.7	21.2	22.1	22.8	22.5	23.3	23.8
	8H	19.8	20.5	20.3	21.0	21.5	22.6	23.3	23.1	23.8	24.3
	12H	20.0	20.6	20.5	21.1	21.7	23.0	23.6	23.5	24.1	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	20.3	20.9	21.4	22.2	22.9	22.7	23.3	23.9
	8H	20.1	20.8	20.6	21.2	21.8	22.7	23.4	23.2	23.8	24.4

Maximum UGR = 24.6

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1 UNIT: cd

C (DEG) y	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1548	1548	1548	1549	1548	1548	1548	1548	1548	1549	1548	1548	1548	1548	1548	1549	1548	1548	1548
5	1539	1541	1541	1541	1541	1541	1542	1541	1541	1541	1541	1541	1539	1541	1541	1541	1541	1541	1542
10	1517	1519	1519	1520	1521	1522	1523	1522	1521	1520	1519	1519	1517	1519	1519	1520	1521	1522	1523
15	1479	1483	1485	1487	1489	1492	1495	1492	1489	1487	1485	1483	1479	1483	1485	1487	1489	1492	1495
20	1428	1433	1438	1442	1447	1451	1454	1451	1447	1442	1438	1433	1428	1433	1438	1442	1447	1451	1454
25	1362	1372	1377	1385	1393	1400	1405	1400	1393	1385	1377	1372	1362	1372	1377	1385	1393	1400	1405
30	1284	1296	1305	1316	1329	1340	1346	1340	1329	1316	1305	1296	1284	1296	1305	1316	1329	1340	1346
35	1196	1210	1223	1239	1257	1273	1280	1273	1257	1239	1223	1210	1196	1210	1223	1239	1257	1273	1280
40	1099	1114	1133	1152	1178	1198	1209	1198	1178	1152	1133	1114	1099	1114	1133	1152	1178	1198	1209
45	994	1012	1034	1061	1093	1119	1132	1119	1093	1061	1034	1012	994	1012	1034	1061	1093	1119	1132
50	883	902	928	964	1003	1035	1050	1035	1003	964	928	902	883	902	928	964	1003	1035	1050
55	766	786	819	863	910	947	964	947	910	863	819	786	766	786	819	863	910	947	964
60	645	666	707	760	813	856	875	856	813	760	707	666	645	666	707	760	813	856	875
65	520	543	593	656	715	762	782	762	715	656	593	543	520	543	593	656	715	762	782
70	393	420	481	551	616	666	688	666	616	551	481	420	393	420	481	551	616	666	688
75	268	302	373	448	517	568	589	568	517	448	373	302	268	302	373	448	517	568	589
80	151	192	269	334	362	380	391	380	362	334	269	192	151	192	269	334	362	380	391
85	54.7	95.9	137	151	157	161	165	161	157	151	137	95.9	54.7	95.9	137	151	157	161	165
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table--2 UNIT: cd

C (DEG) y	285	300	315	330	345														
0	1548	1548	1549	1548	1548														
5	1541	1541	1541	1541	1541														
10	1522	1521	1520	1519	1519														
15	1492	1489	1487	1485	1483														
20	1451	1447	1442	1438	1433														
25	1400	1393	1385	1377	1372														
30	1340	1329	1316	1305	1296														
35	1273	1257	1239	1223	1210														
40	1198	1178	1152	1133	1114														
45	1119	1093	1061	1034	1012														
50	1035	1003	964	928	902														
55	947	910	863	819	786														
60	856	813	760	707	666														
65	762	715	656	593	543														
70	666	616	551	481	420														
75	568	517	448	373	302														
80	380	362	334	269	192														
85	161	157	151	137	95.9														
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@36W5000K	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	0.296	35.4	0.997	6.43
277.0	60	0.128	34.6	0.973	12.98

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*****