

Photometric Test Report

Relevant Standards

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

Prepared For

RAB Lighting Inc.

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Issue Date: 2024-01-29

Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

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		3821
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	130.9
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		29.2
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2014	20.00%	120V	7.15
			277V	12.93
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
			277V	0.955
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	IES LM-79-2008	7 steps	3465±245	3419
		4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)	IES LM-79-2008 CIE13.3-1995	≥80		83.2
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%		74.6%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	IES LM-79-2008	Standard	Premium	23.4
		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		120.0
(Goniophotometer – Section 4.2)		Non-Worst Case		277.0
Input Current (A)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		0.244
(Goniophotometer – Section 4.2)		Non-Worst Case		0.110
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	IES LM-79-2008	Worst Case		29.2
(Goniophotometer – Section 4.2)		Non-Worst Case		29.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2024-01-25	C-SWISH2X2@30W3500K	240119001-S1
2	Goniophotometer Test	2024-01-25	C-SWISH2X2@30W3500K	240119001-S1
3	THD and PF Test	2024-01-25	C-SWISH2X2@30W3500K	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@30W3500K, 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@30W3500K	Sample ID	240119001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

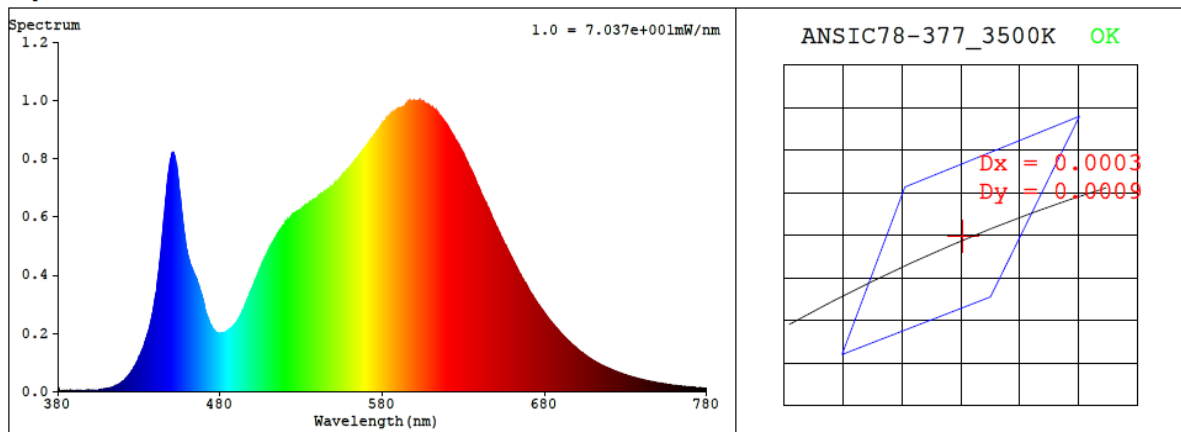
Test Method
<p>The Samples were tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using 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	0.244	29.2	0.997
277.0	60	0.110	29.1	0.955

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3419	83.2	12	0.0003	84	97	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4103$ $y = 0.3939$ / $u' = 0.2376$ $v' = 0.5133$ ($duv=3.16e-04$)

CCT= 3419K Prcp WL: Ld=581.0nm Purity=41.4%

Peak WL: Lp=600nm FWHM: =145.4nm Ratio:R=20.7% G=76.6% B=2.8%

Render Index: Ra = 83.2 AvgR = 76.9 TM30:Rf=84 Rg=97

EEL: 0.10579 A++ Highest

R1 =82	R2 =89	R3 =95	R4 =82	R5 =81	R6 =86	R7 =86
R8 =64	R9 =12	R10=74	R11=81	R12=64	R13=83	R14=97 R15=75

4.1 Integrating Sphere Test

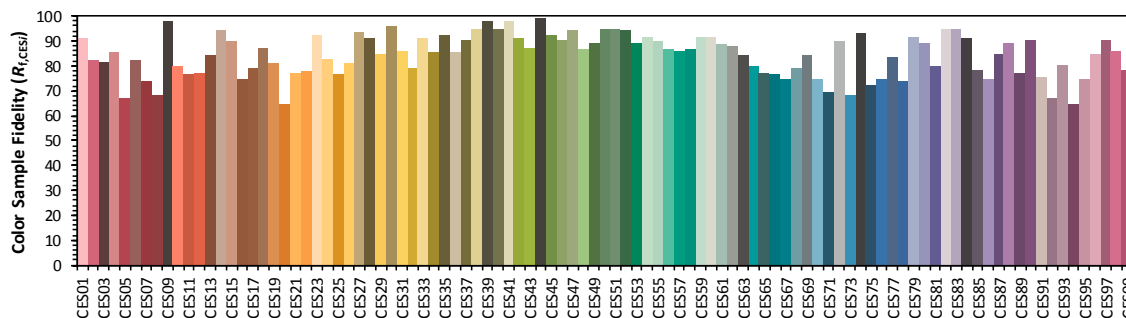
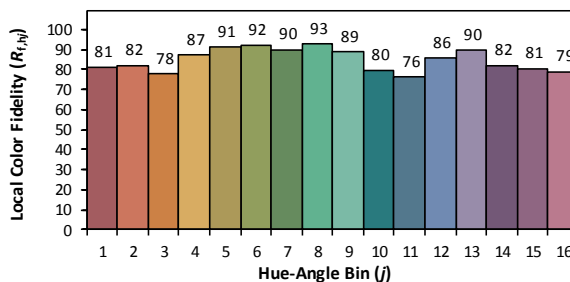
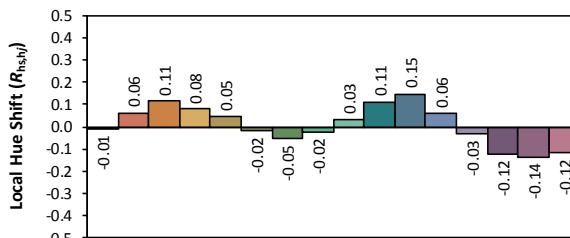
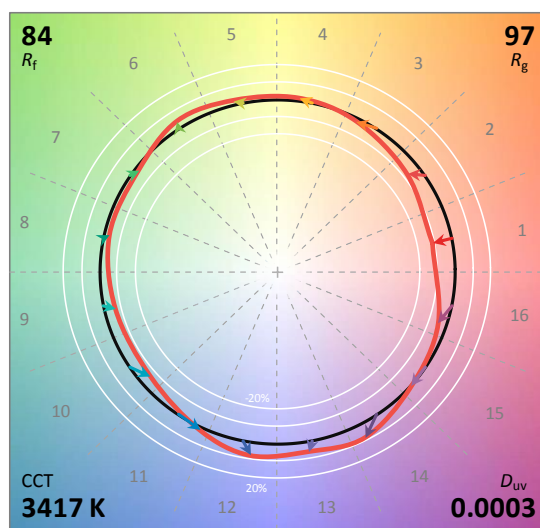
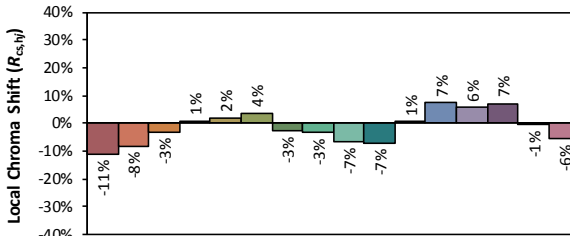
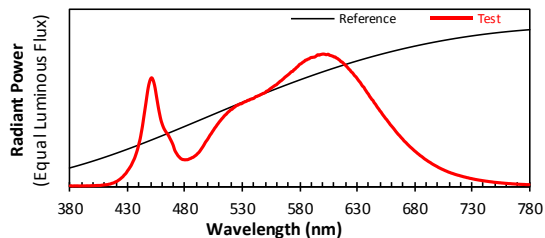
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/1/30

Model: C-SWISH2X2@30W3500K



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

x 0.4103
 y 0.3938
 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	3.50E-06	447	6.91E-04	514	5.28E-04	581	9.25E-04	648	5.95E-04	715	9.17E-05
381	3.80E-06	448	7.45E-04	515	5.37E-04	582	9.31E-04	649	5.84E-04	716	8.89E-05
382	1.70E-06	449	7.84E-04	516	5.44E-04	583	9.38E-04	650	5.70E-04	717	8.64E-05
383	2.90E-06	450	8.10E-04	517	5.55E-04	584	9.43E-04	651	5.60E-04	718	8.37E-05
384	3.10E-06	451	8.19E-04	518	5.63E-04	585	9.52E-04	652	5.47E-04	719	8.20E-05
385	2.80E-06	452	8.07E-04	519	5.70E-04	586	9.53E-04	653	5.35E-04	720	7.90E-05
386	3.30E-06	453	7.81E-04	520	5.78E-04	587	9.59E-04	654	5.24E-04	721	7.67E-05
387	2.80E-06	454	7.42E-04	521	5.81E-04	588	9.62E-04	655	5.12E-04	722	7.43E-05
388	2.40E-06	455	6.89E-04	522	5.90E-04	589	9.68E-04	656	5.03E-04	723	7.17E-05
389	2.40E-06	456	6.38E-04	523	5.96E-04	590	9.72E-04	657	4.90E-04	724	6.98E-05
390	3.50E-06	457	5.87E-04	524	6.03E-04	591	9.73E-04	658	4.79E-04	725	6.77E-05
391	2.60E-06	458	5.43E-04	525	6.10E-04	592	9.75E-04	659	4.66E-04	726	6.51E-05
392	3.10E-06	459	5.03E-04	526	6.12E-04	593	9.76E-04	660	4.57E-04	727	6.39E-05
393	2.70E-06	460	4.75E-04	527	6.17E-04	594	9.81E-04	661	4.46E-04	728	6.11E-05
394	3.40E-06	461	4.51E-04	528	6.22E-04	595	9.88E-04	662	4.36E-04	729	5.93E-05
395	3.60E-06	462	4.32E-04	529	6.23E-04	596	9.94E-04	663	4.25E-04	730	5.79E-05
396	3.30E-06	463	4.17E-04	530	6.27E-04	597	9.90E-04	664	4.13E-04	731	5.57E-05
397	3.40E-06	464	4.04E-04	531	6.33E-04	598	9.94E-04	665	4.03E-04	732	5.40E-05
398	4.10E-06	465	3.92E-04	532	6.37E-04	599	9.96E-04	666	3.92E-04	733	5.20E-05
399	4.60E-06	466	3.78E-04	533	6.40E-04	600	9.98E-04	667	3.84E-04	734	5.06E-05
400	4.20E-06	467	3.61E-04	534	6.44E-04	601	9.98E-04	668	3.74E-04	735	4.89E-05
401	4.80E-06	468	3.44E-04	535	6.50E-04	602	9.97E-04	669	3.64E-04	736	4.75E-05
402	5.10E-06	469	3.26E-04	536	6.50E-04	603	9.94E-04	670	3.55E-04	737	4.59E-05
403	5.80E-06	470	3.04E-04	537	6.57E-04	604	9.95E-04	671	3.44E-04	738	4.48E-05
404	6.10E-06	471	2.75E-04	538	6.59E-04	605	9.98E-04	672	3.36E-04	739	4.32E-05
405	6.10E-06	472	2.58E-04	539	6.61E-04	606	9.90E-04	673	3.27E-04	740	4.19E-05
406	6.30E-06	473	2.44E-04	540	6.64E-04	607	9.88E-04	674	3.18E-04	741	4.07E-05
407	7.20E-06	474	2.31E-04	541	6.71E-04	608	9.85E-04	675	3.10E-04	742	3.92E-05
408	8.80E-06	475	2.22E-04	542	6.78E-04	609	9.82E-04	676	3.01E-04	743	3.81E-05
409	9.40E-06	476	2.12E-04	543	6.79E-04	610	9.76E-04	677	2.93E-04	744	3.70E-05
410	1.07E-05	477	2.06E-04	544	6.84E-04	611	9.77E-04	678	2.85E-04	745	3.56E-05
411	1.16E-05	478	2.02E-04	545	6.87E-04	612	9.69E-04	679	2.77E-04	746	3.46E-05
412	1.24E-05	479	2.01E-04	546	6.93E-04	613	9.65E-04	680	2.69E-04	747	3.37E-05
413	1.39E-05	480	2.00E-04	547	6.96E-04	614	9.58E-04	681	2.62E-04	748	3.25E-05
414	1.62E-05	481	2.01E-04	548	7.01E-04	615	9.52E-04	682	2.55E-04	749	3.11E-05
415	1.74E-05	482	2.01E-04	549	7.03E-04	616	9.42E-04	683	2.47E-04	750	3.00E-05
416	2.13E-05	483	2.03E-04	550	7.08E-04	617	9.38E-04	684	2.41E-04	751	2.93E-05
417	2.35E-05	484	2.08E-04	551	7.17E-04	618	9.31E-04	685	2.33E-04	752	2.85E-05
418	2.62E-05	485	2.10E-04	552	7.20E-04	619	9.22E-04	686	2.27E-04	753	2.76E-05
419	3.11E-05	486	2.16E-04	553	7.26E-04	620	9.14E-04	687	2.21E-04	754	2.66E-05
420	3.50E-05	487	2.18E-04	554	7.34E-04	621	9.05E-04	688	2.14E-04	755	2.62E-05
421	3.91E-05	488	2.24E-04	555	7.40E-04	622	8.95E-04	689	2.07E-04	756	2.49E-05
422	4.54E-05	489	2.31E-04	556	7.46E-04	623	8.85E-04	690	2.01E-04	757	2.44E-05
423	5.11E-05	490	2.37E-04	557	7.52E-04	624	8.77E-04	691	1.95E-04	758	2.35E-05
424	5.82E-05	491	2.47E-04	558	7.58E-04	625	8.65E-04	692	1.89E-04	759	2.26E-05
425	6.58E-05	492	2.55E-04	559	7.64E-04	626	8.58E-04	693	1.84E-04	760	2.20E-05
426	7.32E-05	493	2.65E-04	560	7.68E-04	627	8.47E-04	694	1.79E-04	761	2.14E-05
427	8.42E-05	494	2.78E-04	561	7.77E-04	628	8.35E-04	695	1.73E-04	762	2.03E-05
428	9.24E-05	495	2.91E-04	562	7.84E-04	629	8.28E-04	696	1.67E-04	763	2.01E-05
429	1.03E-04	496	3.04E-04	563	7.93E-04	630	8.16E-04	697	1.62E-04	764	1.98E-05
430	1.17E-04	497	3.19E-04	564	7.98E-04	631	8.04E-04	698	1.57E-04	765	1.87E-05
431	1.29E-04	498	3.34E-04	565	8.06E-04	632	7.93E-04	699	1.53E-04	766	1.81E-05
432	1.42E-04	499	3.45E-04	566	8.13E-04	633	7.82E-04	700	1.48E-04	767	1.76E-05
433	1.56E-04	500	3.58E-04	567	8.22E-04	634	7.68E-04	701	1.43E-04	768	1.71E-05
434	1.74E-04	501	3.73E-04	568	8.29E-04	635	7.55E-04	702	1.38E-04	769	1.65E-05
435	1.92E-04	502	3.87E-04	569	8.36E-04	636	7.48E-04	703	1.34E-04	770	1.61E-05
436	2.10E-04	503	3.99E-04	570	8.42E-04	637	7.32E-04	704	1.30E-04	771	1.54E-05
437	2.34E-04	504	4.13E-04	571	8.50E-04	638	7.20E-04	705	1.26E-04	772	1.50E-05
438	2.60E-04	505	4.25E-04	572	8.58E-04	639	7.06E-04	706	1.22E-04	773	1.46E-05
439	2.89E-04	506	4.40E-04	573	8.66E-04	640	6.96E-04	707	1.18E-04	774	1.43E-05
440	3.25E-04	507	4.50E-04	574	8.68E-04	641	6.80E-04	708	1.15E-04	775	1.39E-05
441	3.59E-04	508	4.63E-04	575	8.80E-04	642	6.68E-04	709	1.11E-04	776	1.37E-05
442	4.07E-04	509	4.74E-04	576	8.85E-04	643	6.56E-04	710	1.07E-04	777	1.29E-05
443	4.56E-04	510	4.87E-04	577	8.95E-04	644	6.48E-04	711	1.04E-04	778	1.25E-05
444	5.15E-04	511	4.97E-04	578	9.02E-04	645	6.32E-04	712	1.00E-04	779	1.25E-05
445	5.72E-04	512	5.08E-04	579	9.10E-04	646	6.21E-04	713	9.77E-05	780	1.25E-05
446	6.30E-04	513	5.17E-04	580	9.21E-04	647	6.08E-04	714	9.49E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	C-SWISH2X2@30W3500K	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	120.0	60	0.244	29.2	0.997
NON-WORST CASE	277.0	60	0.110	29.1	0.955

Test Result

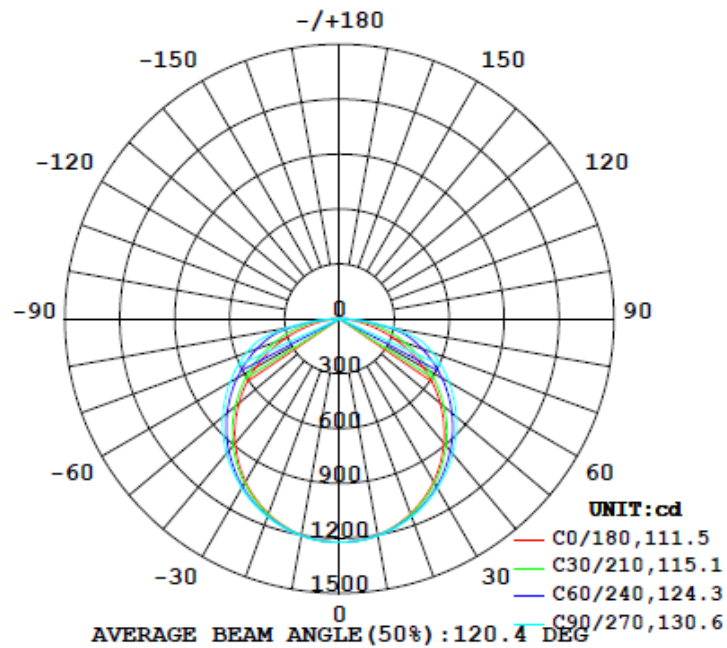
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
3821	160.9	169.6	111.5	130.5	130.9	74.6%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
20.2	23.4	1.26	1.32

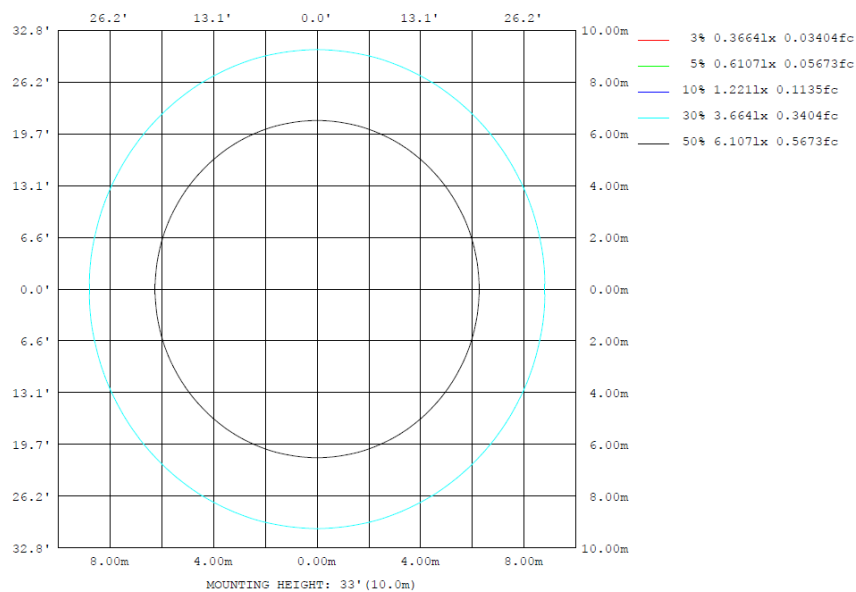
4.2 Goniophotometer Test

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	1199	1202	1204	1202	1199	1202	1204	1202	0- 10	115.6	115.6	3.03,3.03
20	1134	1143	1151	1143	1134	1143	1151	1143	10- 20	332.3	448.0	11.7,11.7
30	1028	1049	1070	1049	1028	1049	1070	1049	20- 30	507.3	955.3	25,25
40	886.9	922.1	960.8	922.1	886.9	922.1	960.8	922.1	30- 40	619.4	1575	41.2,41.2
50	718.5	772.1	833.0	772.1	718.5	772.1	833.0	772.1	40- 50	657.1	2232	58.4,58.4
60	526.5	604.9	690.0	604.9	526.5	604.9	690.0	604.9	50- 60	618.9	2851	74.6,74.6
70	319.2	430.6	538.8	430.6	319.2	430.6	538.8	430.6	60- 70	513.5	3364	88.1,88.1
80	120.3	242.0	297.2	242.0	120.3	242.0	297.2	242.0	70- 80	353.0	3717	97.3,97.3
90	0	0	0	0	0	0	0	0	80- 90	103.5	3821	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3821	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3821	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3821	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3821	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3821	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3821	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3821	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3821	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3821	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	115.65	0-10	115.65	3.03%
10-20	332.34	0-20	447.99	11.73%
20-30	507.31	0-30	955.30	25.00%
30-40	619.37	0-40	1574.67	41.21%
40-50	657.05	0-50	2231.72	58.41%
50-60	618.91	0-60	2850.63	74.61%
60-70	513.51	0-70	3364.14	88.05%
70-80	352.99	0-80	3717.13	97.29%
80-90	103.50	0-90	3820.63	100.00%
90-100	0.00	0-100	3820.63	100.00%
100-110	0.00	0-110	3820.63	100.00%
110-120	0.00	0-120	3820.63	100.00%
120-130	0.00	0-130	3820.63	100.00%
130-140	0.00	0-140	3820.63	100.00%
140-150	0.00	0-150	3820.63	100.00%
150-160	0.00	0-160	3820.63	100.00%
160-170	0.00	0-170	3820.63	100.00%
170-180	0.00	0-180	3820.63	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	11.1	12.8	11.4	13.1	13.4	12.4	14.1	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	14.9	13.9	15.3	15.7	16.1	17.6	16.5	17.9	18.3
	6H	13.9	15.3	14.3	15.6	16.0	17.1	18.4	17.5	18.8	19.2
	8H	14.0	15.3	14.5	15.7	16.1	17.4	18.7	17.8	19.1	19.5
	12H	14.1	15.3	14.5	15.7	16.2	17.6	18.8	18.0	19.2	19.6
4H	2H	12.0	13.5	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	15.2	16.3	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	19.7	20.2
	8H	15.5	16.5	16.0	16.9	17.4	18.7	19.6	19.1	20.0	20.5
	12H	15.6	16.5	16.1	16.9	17.4	18.9	19.8	19.4	20.2	20.7
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	17.0	16.8	17.5	18.0	18.8	19.6	19.3	20.1	20.5
	8H	16.5	17.2	17.0	17.7	18.2	19.3	20.0	19.8	20.5	21.0
	12H	16.7	17.3	17.2	17.8	18.3	19.6	20.2	20.1	20.7	21.3
12H	4H	15.7	16.5	16.1	17.0	17.4	17.5	18.4	18.0	18.8	19.3
	6H	16.5	17.2	17.0	17.7	18.2	18.9	19.6	19.4	20.0	20.6
	8H	16.8	17.4	17.3	17.9	18.5	19.4	20.0	19.9	20.5	21.1

Maximum UGR = 21.3

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	15.8	17.5	16.1	17.8	18.1	17.1	18.8	17.4	19.1	19.4
	3H	17.6	19.1	17.9	19.4	19.8	19.6	21.1	20.0	21.5	21.8
	4H	18.2	19.6	18.6	20.0	20.4	20.8	22.3	21.2	22.6	23.0
	6H	18.6	20.0	19.0	20.3	20.7	21.8	23.1	22.2	23.5	23.9
	8H	18.7	20.0	19.2	20.4	20.8	22.1	23.4	22.5	23.8	24.2
	12H	18.8	20.0	19.2	20.4	20.9	22.3	23.5	22.7	23.9	24.3
4H	2H	16.7	18.2	17.1	18.5	18.9	17.7	19.1	18.1	19.5	19.8
	3H	18.7	20.0	19.1	20.4	20.8	20.5	21.7	20.9	22.1	22.5
	4H	19.5	20.6	19.9	21.0	21.5	21.9	23.0	22.3	23.4	23.8
	6H	20.1	21.1	20.5	21.5	22.0	23.0	24.0	23.5	24.4	24.9
	8H	20.2	21.2	20.7	21.6	22.1	23.4	24.3	23.8	24.7	25.2
	12H	20.3	21.2	20.8	21.6	22.1	23.6	24.5	24.1	24.9	25.4
8H	4H	20.2	21.1	20.7	21.6	22.0	22.2	23.1	22.7	23.6	24.0
	6H	21.0	21.7	21.5	22.2	22.7	23.5	24.3	24.0	24.8	25.2
	8H	21.2	21.9	21.7	22.4	22.9	24.0	24.7	24.5	25.2	25.7
	12H	21.4	22.0	21.9	22.5	23.0	24.3	24.9	24.8	25.4	26.0
12H	4H	20.4	21.2	20.8	21.7	22.1	22.2	23.1	22.7	23.5	24.0
	6H	21.2	21.9	21.7	22.4	22.9	23.6	24.3	24.1	24.7	25.3
	8H	21.5	22.1	22.0	22.6	23.2	24.1	24.7	24.6	25.2	25.8

Maximum UGR = 26.0

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	1221	1222	1221	1221	1221	1221	1220	1221	1221	1221	1221	1222	1221	1222	1221	1221	1221	1221	1220
5	1216	1217	1217	1216	1217	1216	1216	1216	1217	1216	1217	1217	1216	1217	1217	1216	1217	1216	1216
10	1199	1200	1201	1202	1203	1203	1204	1203	1203	1202	1201	1200	1199	1200	1201	1202	1203	1203	1204
15	1172	1174	1176	1177	1180	1181	1182	1181	1180	1177	1176	1174	1172	1174	1176	1177	1180	1181	1182
20	1134	1136	1139	1143	1148	1151	1151	1151	1148	1143	1139	1136	1134	1136	1139	1143	1148	1151	1151
25	1086	1089	1093	1100	1108	1113	1114	1113	1108	1100	1093	1089	1086	1089	1093	1100	1108	1113	1114
30	1028	1031	1038	1049	1059	1066	1070	1066	1059	1049	1038	1031	1028	1031	1038	1049	1059	1066	1070
35	962	966	976	989	1004	1014	1018	1014	1004	989	976	966	962	966	976	989	1004	1014	1018
40	887	893	905	922	941	956	961	956	941	922	905	893	887	893	905	922	941	956	961
45	805	812	828	850	874	893	899	893	874	850	828	812	805	812	828	850	874	893	899
50	718	726	745	772	802	825	833	825	802	772	745	726	718	726	745	772	802	825	833
55	625	634	657	690	726	753	762	753	726	690	657	634	625	634	657	690	726	753	762
60	526	537	565	605	647	678	690	678	647	605	565	537	526	537	565	605	647	678	690
65	424	437	472	519	565	600	615	600	565	519	472	437	424	437	472	519	565	600	615
70	319	336	378	431	482	522	539	522	482	431	378	336	319	336	378	431	482	522	539
75	216	237	286	342	397	440	457	440	397	342	286	237	216	237	286	342	397	440	457
80	120	144	194	242	269	287	297	287	269	242	194	144	120	144	194	242	269	287	297
85	43.0	57.5	84.3	98.6	106	111	116	111	106	98.6	84.3	57.5	43.0	57.5	84.3	98.6	106	111	116
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	1221	1221	1221	1221	1222														
5	1216	1217	1216	1217	1217														
10	1203	1203	1202	1201	1200														
15	1181	1180	1177	1176	1174														
20	1151	1148	1143	1139	1136														
25	1113	1108	1100	1093	1089														
30	1066	1059	1049	1038	1031														
35	1014	1004	989	976	966														
40	956	941	922	905	893														
45	893	874	850	828	812														
50	825	802	772	745	726														
55	753	726	690	657	634														
60	678	647	605	565	537														
65	600	565	519	472	437														
70	522	482	431	378	336														
75	440	397	342	286	237														
80	287	269	242	194	144														
85	111	106	98.6	84.3	57.5														
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-SWISH2X2@30W3500K	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	0.244	29.2	0.997	7.15
277.0	60	0.110	29.1	0.955	12.93

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*****