

Photometric Test Report

Relevant Standards

- ☒ ANSI/IES LM-79-2019
- ☒ ANSI C82.77-2017

Prepared For

RAB Lighting Inc.

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Issue Date: 2025-07-22

Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	1500		5442
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	149.5
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		36.4
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	12.16
			277V	11.65
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.993
			277V	0.985
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	5029±283	4994
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥80		83.5
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥0		11
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		95
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-12%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≥75%		74.1%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	24.7
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	0°-180°	1.0-2.0	1.20
		90°-270°	1.0-2.0	1.32
Input Voltage (V)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Cast		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		0.133
(Goniophotometer – Section 4.2)		Non-Worst Case		0.304
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		36.4
(Goniophotometer – Section 4.2)		Non-Worst Case		36.2

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-07-19	SWISHFA1X4 @39W5000K	-	250715001-S1
2	Goniophotometer Test	2025-07-19	SWISHFA1X4 @39W5000K	-	250715001-S1
3	THD and PF Test	2025-07-19	SWISHFA1X4 @39W5000K	-	250715001-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 must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

3.0 Product Description

Luminaire Description: Model No. SWISHFA1X4 @39W5000K, 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.	SWISHFA1X4 @39W5000K	Sample ID	250715001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

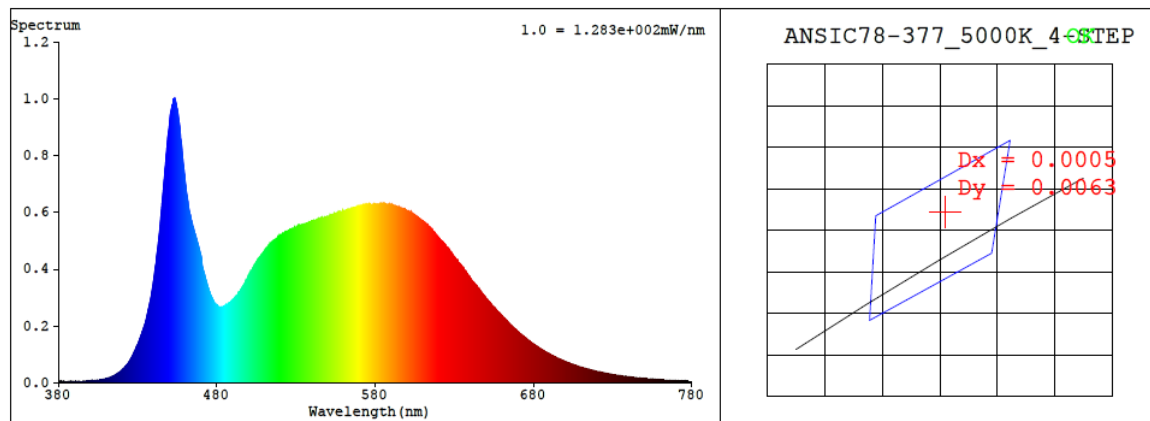
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.304	36.2	0.993
277.0	60	0.133	36.4	0.985

CCT (K)	CRI	R9	Duv	SDCM	Rf	Rg	IES Rcs,h1
4994	83.5	11	0.0029	1.2	84	95	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3458$ $y = 0.3580$ / $u' = 0.2094$ $v' = 0.4879$ ($duv=2.93e-03$)

CCT= 4994K Prcp WL: Ld=570.1nm Purity=11.2%

Peak WL: Lp=453nm FWHM: =24.6nm Ratio:R=15.7% G=79.6% B=4.7%

Render Index: Ra = 83.5 AvgR = 76.4 TM30:Rf=84 Rg=95

EEL: 0.09429 A++ Highest

R1 =82 R2 =89 R3 =94 R4 =81 R5 =81 R6 =84 R7 =88

R8 =68 R9 =11 R10=74 R11=80 R12=57 R13=84 R14=97 R15=76

4.1 Integrating Sphere Test

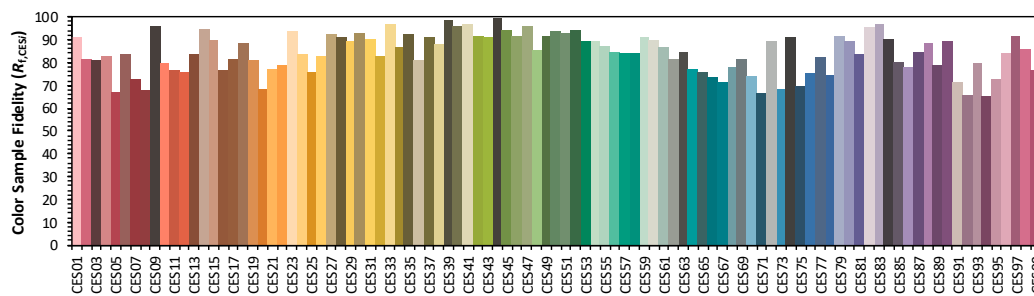
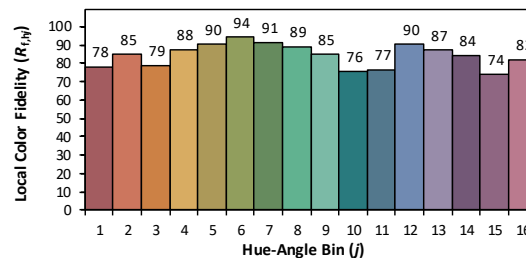
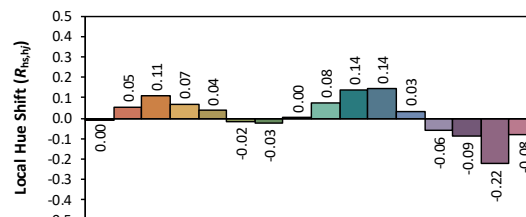
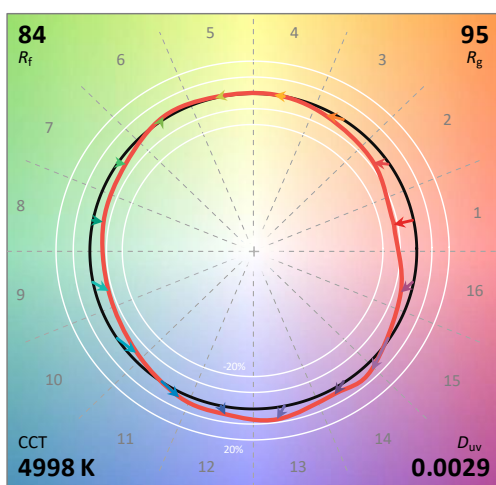
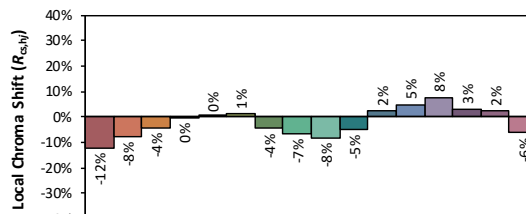
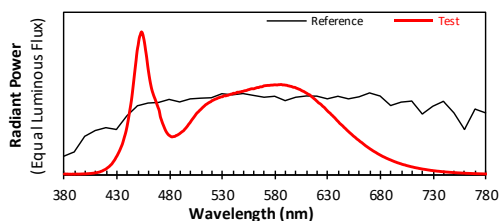
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/7/22

Model: SWISHFA1X4 @39W5000K



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

x 0.3457
 y 0.3579
 u' 0.2094
 v' 0.4878

CIE 13.3-1995
(CRI)

R_a 84
 R_g 11

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	7.36E-04	514	4.91E-04	581	6.29E-04	648	3.12E-04	715	4.72E-05
381	6.20E-06	448	8.00E-04	515	4.95E-04	582	6.29E-04	649	3.05E-04	716	4.54E-05
382	5.20E-06	449	8.67E-04	516	5.00E-04	583	6.30E-04	650	2.98E-04	717	4.40E-05
383	5.90E-06	450	9.08E-04	517	5.05E-04	584	6.30E-04	651	2.92E-04	718	4.26E-05
384	4.70E-06	451	9.56E-04	518	5.09E-04	585	6.32E-04	652	2.85E-04	719	4.12E-05
385	4.90E-06	452	9.79E-04	519	5.12E-04	586	6.31E-04	653	2.79E-04	720	3.99E-05
386	4.70E-06	453	9.99E-04	520	5.19E-04	587	6.29E-04	654	2.72E-04	721	3.90E-05
387	4.20E-06	454	9.91E-04	521	5.22E-04	588	6.29E-04	655	2.66E-04	722	3.77E-05
388	5.60E-06	455	9.62E-04	522	5.26E-04	589	6.28E-04	656	2.60E-04	723	3.67E-05
389	4.80E-06	456	9.24E-04	523	5.29E-04	590	6.27E-04	657	2.53E-04	724	3.53E-05
390	4.50E-06	457	8.72E-04	524	5.32E-04	591	6.26E-04	658	2.47E-04	725	3.41E-05
391	5.60E-06	458	8.24E-04	525	5.35E-04	592	6.23E-04	659	2.42E-04	726	3.30E-05
392	5.80E-06	459	7.64E-04	526	5.39E-04	593	6.22E-04	660	2.36E-04	727	3.18E-05
393	5.00E-06	460	7.12E-04	527	5.40E-04	594	6.19E-04	661	2.30E-04	728	3.08E-05
394	5.40E-06	461	6.66E-04	528	5.44E-04	595	6.18E-04	662	2.25E-04	729	3.01E-05
395	5.30E-06	462	6.27E-04	529	5.46E-04	596	6.16E-04	663	2.19E-04	730	2.88E-05
396	6.00E-06	463	5.94E-04	530	5.46E-04	597	6.13E-04	664	2.13E-04	731	2.82E-05
397	6.10E-06	464	5.70E-04	531	5.52E-04	598	6.12E-04	665	2.07E-04	732	2.72E-05
398	6.80E-06	465	5.48E-04	532	5.53E-04	599	6.10E-04	666	2.01E-04	733	2.63E-05
399	6.60E-06	466	5.30E-04	533	5.52E-04	600	6.06E-04	667	1.96E-04	734	2.55E-05
400	6.90E-06	467	5.09E-04	534	5.56E-04	601	6.04E-04	668	1.91E-04	735	2.51E-05
401	7.60E-06	468	4.88E-04	535	5.56E-04	602	6.00E-04	669	1.86E-04	736	2.40E-05
402	8.20E-06	469	4.68E-04	536	5.59E-04	603	5.98E-04	670	1.81E-04	737	2.33E-05
403	8.50E-06	470	4.47E-04	537	5.62E-04	604	5.94E-04	671	1.76E-04	738	2.24E-05
404	9.10E-06	471	4.07E-04	538	5.64E-04	605	5.89E-04	672	1.71E-04	739	2.19E-05
405	9.60E-06	472	3.85E-04	539	5.65E-04	606	5.86E-04	673	1.66E-04	740	2.12E-05
406	1.05E-05	473	3.63E-04	540	5.70E-04	607	5.83E-04	674	1.62E-04	741	2.06E-05
407	1.13E-05	474	3.45E-04	541	5.70E-04	608	5.78E-04	675	1.58E-04	742	1.98E-05
408	1.22E-05	475	3.26E-04	542	5.70E-04	609	5.74E-04	676	1.53E-04	743	1.93E-05
409	1.31E-05	476	3.10E-04	543	5.74E-04	610	5.70E-04	677	1.48E-04	744	1.88E-05
410	1.46E-05	477	2.97E-04	544	5.78E-04	611	5.64E-04	678	1.44E-04	745	1.81E-05
411	1.59E-05	478	2.86E-04	545	5.77E-04	612	5.61E-04	679	1.40E-04	746	1.76E-05
412	1.77E-05	479	2.78E-04	546	5.79E-04	613	5.57E-04	680	1.36E-04	747	1.72E-05
413	1.92E-05	480	2.73E-04	547	5.80E-04	614	5.50E-04	681	1.32E-04	748	1.64E-05
414	2.18E-05	481	2.68E-04	548	5.83E-04	615	5.44E-04	682	1.28E-04	749	1.59E-05
415	2.49E-05	482	2.65E-04	549	5.83E-04	616	5.37E-04	683	1.25E-04	750	1.54E-05
416	2.72E-05	483	2.67E-04	550	5.86E-04	617	5.31E-04	684	1.21E-04	751	1.51E-05
417	3.18E-05	484	2.68E-04	551	5.88E-04	618	5.25E-04	685	1.18E-04	752	1.46E-05
418	3.51E-05	485	2.70E-04	552	5.89E-04	619	5.18E-04	686	1.14E-04	753	1.40E-05
419	3.89E-05	486	2.75E-04	553	5.91E-04	620	5.11E-04	687	1.11E-04	754	1.37E-05
420	4.39E-05	487	2.77E-04	554	5.95E-04	621	5.04E-04	688	1.08E-04	755	1.34E-05
421	4.97E-05	488	2.82E-04	555	5.96E-04	622	4.99E-04	689	1.05E-04	756	1.29E-05
422	5.51E-05	489	2.86E-04	556	5.99E-04	623	4.94E-04	690	1.02E-04	757	1.25E-05
423	6.14E-05	490	2.92E-04	557	6.01E-04	624	4.87E-04	691	9.84E-05	758	1.20E-05
424	6.91E-05	491	2.98E-04	558	6.02E-04	625	4.79E-04	692	9.56E-05	759	1.19E-05
425	7.60E-05	492	3.04E-04	559	6.02E-04	626	4.74E-04	693	9.24E-05	760	1.14E-05
426	8.69E-05	493	3.09E-04	560	6.03E-04	627	4.67E-04	694	8.99E-05	761	1.08E-05
427	9.72E-05	494	3.18E-04	561	6.06E-04	628	4.58E-04	695	8.70E-05	762	1.06E-05
428	1.08E-04	495	3.26E-04	562	6.08E-04	629	4.50E-04	696	8.42E-05	763	1.03E-05
429	1.22E-04	496	3.35E-04	563	6.11E-04	630	4.43E-04	697	8.22E-05	764	1.00E-05
430	1.34E-04	497	3.44E-04	564	6.10E-04	631	4.36E-04	698	7.95E-05	765	9.80E-06
431	1.48E-04	498	3.55E-04	565	6.14E-04	632	4.31E-04	699	7.74E-05	766	9.40E-06
432	1.63E-04	499	3.64E-04	566	6.16E-04	633	4.22E-04	700	7.44E-05	767	9.20E-06
433	1.79E-04	500	3.75E-04	567	6.16E-04	634	4.16E-04	701	7.22E-05	768	8.70E-06
434	1.97E-04	501	3.85E-04	568	6.18E-04	635	4.08E-04	702	7.02E-05	769	8.40E-06
435	2.15E-04	502	3.95E-04	569	6.22E-04	636	4.01E-04	703	6.89E-05	770	8.40E-06
436	2.40E-04	503	4.05E-04	570	6.23E-04	637	3.93E-04	704	6.59E-05	771	8.10E-06
437	2.66E-04	504	4.15E-04	571	6.24E-04	638	3.85E-04	705	6.41E-05	772	7.80E-06
438	2.91E-04	505	4.26E-04	572	6.25E-04	639	3.77E-04	706	6.21E-05	773	7.70E-06
439	3.22E-04	506	4.34E-04	573	6.26E-04	640	3.70E-04	707	6.03E-05	774	7.30E-06
440	3.60E-04	507	4.40E-04	574	6.25E-04	641	3.61E-04	708	5.84E-05	775	7.30E-06
441	4.02E-04	508	4.49E-04	575	6.26E-04	642	3.54E-04	709	5.64E-05	776	7.10E-06
442	4.48E-04	509	4.55E-04	576	6.27E-04	643	3.48E-04	710	5.50E-05	777	6.80E-06
443	4.92E-04	510	4.63E-04	577	6.27E-04	644	3.42E-04	711	5.32E-05	778	6.50E-06
444	5.43E-04	511	4.70E-04	578	6.28E-04	645	3.33E-04	712	5.13E-05	779	6.50E-06
445	6.06E-04	512	4.77E-04	579	6.29E-04	646	3.27E-04	713	4.99E-05	780	6.50E-06
446	6.71E-04	513	4.83E-04	580	6.29E-04	647	3.20E-04	714	4.84E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SWISHFA1X4 @39W5000K	Sample ID	250715001-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	43.1

Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^\circ\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.</p> <p>The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1.0° vertical intervals and 15° horizontal intervals.</p>

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.0	60	0.133	36.4	0.985
NON-WORST CASE	120.0	60	0.304	36.2	0.993

Test Result

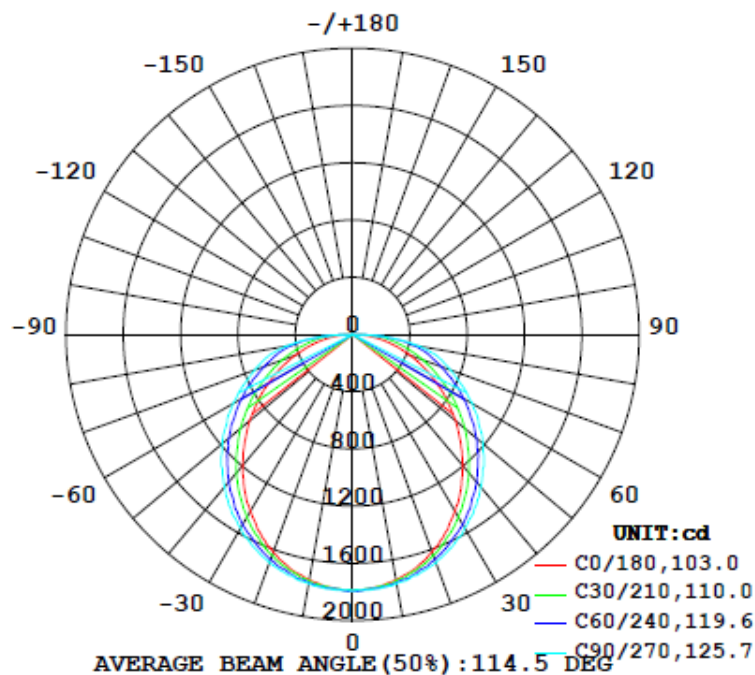
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement (0° - 60°)
	C0-180	C90-270	C0-180	C90-270		
5442	162.3	173.0	103.3	125.2	149.5	74.1%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
21.5	24.7	1.20	1.32

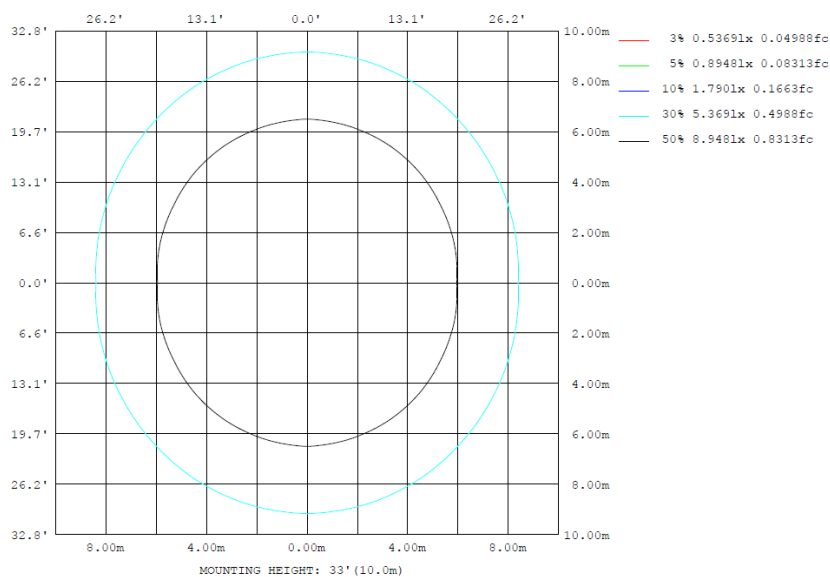
4.2 Goniophotometer Test

Lighting Distribution Curve

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	lum,lm
10	1742	1759	1766	1759	1742	1759	1766	1759	0- 10	169.2	169.2	3.11,3.11
20	1619	1663	1697	1663	1619	1663	1697	1663	10- 20	484.0	653.2	12.12
30	1427	1506	1563	1506	1427	1506	1563	1506	20- 30	731.1	1384	25.4,25.4
40	1196	1301	1390	1301	1196	1301	1390	1301	30- 40	879.9	2264	41.6,41.6
50	939.2	1076	1187	1076	939.2	1076	1187	1076	40- 50	916.3	3180	58.4,58.4
60	679.4	832.7	964.1	832.7	679.4	832.7	964.1	832.7	50- 60	850.1	4031	74.1,74.1
70	427.1	593.7	726.4	593.7	427.1	593.7	726.4	593.7	60- 70	699.3	4730	86.9,86.9
80	197.3	376.2	469.8	376.2	197.3	376.2	469.8	376.2	70- 80	499.2	5229	96.1,96.1
90	0	0	0	0	0	0	0	0	80- 90	212.7	5442	100,100
100	0	0	0	0	0	0	0	0	90-100	0	5442	100,100
110	0	0	0	0	0	0	0	0	100-110	0	5442	100,100
120	0	0	0	0	0	0	0	0	110-120	0	5442	100,100
130	0	0	0	0	0	0	0	0	120-130	0	5442	100,100
140	0	0	0	0	0	0	0	0	130-140	0	5442	100,100
150	0	0	0	0	0	0	0	0	140-150	0	5442	100,100
160	0	0	0	0	0	0	0	0	150-160	0	5442	100,100
170	0	0	0	0	0	0	0	0	160-170	0	5442	100,100
180	0	0	0	0	0	0	0	0	170-180	0	5442	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	169.24	0-10	169.24	3.11%
10-20	483.96	0-20	653.20	12.00%
20-30	731.07	0-30	1384.27	25.44%
30-40	879.91	0-40	2264.18	41.61%
40-50	916.29	0-50	3180.47	58.45%
50-60	850.05	0-60	4030.52	74.07%
60-70	699.32	0-70	4729.84	86.92%
70-80	499.22	0-80	5229.06	96.09%
80-90	212.71	0-90	5441.77	100.00%
90-100	0.00	0-100	5441.77	100.00%
100-110	0.00	0-110	5441.77	100.00%
110-120	0.00	0-120	5441.77	100.00%
120-130	0.00	0-130	5441.77	100.00%
130-140	0.00	0-140	5441.77	100.00%
140-150	0.00	0-150	5441.77	100.00%
150-160	0.00	0-160	5441.77	100.00%
160-170	0.00	0-170	5441.77	100.00%
170-180	0.00	0-180	5441.77	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											
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
		10.7	12.4	11.1	12.7	13.0	12.2	13.9	12.6	14.2	14.5
	3H	12.5	14.0	12.9	14.4	14.7	14.7	16.2	15.0	16.5	16.9
	4H	13.2	14.7	13.6	15.0	15.4	15.8	17.3	16.2	17.7	18.0
	6H	13.8	15.1	14.2	15.5	15.9	17.0	18.3	17.4	18.7	19.1
	8H	14.0	15.3	14.4	15.7	16.1	17.4	18.7	17.9	19.1	19.5
	12H	14.1	15.4	14.6	15.8	16.2	17.8	19.1	18.3	19.5	19.9
4H	2H	11.6	13.1	12.0	13.4	13.8	12.8	14.3	13.2	14.6	15.0
	3H	13.7	15.0	14.1	15.3	15.7	15.5	16.8	15.9	17.1	17.5
	4H	14.6	15.7	15.0	16.1	16.5	16.9	18.0	17.3	18.4	18.9
	6H	15.3	16.3	15.8	16.7	17.2	18.3	19.2	18.7	19.7	20.1
	8H	15.6	16.5	16.0	16.9	17.4	18.8	19.7	19.3	20.2	20.7
	12H	15.8	16.6	16.2	17.1	17.6	19.3	20.1	19.8	20.6	21.1
8H	4H	15.3	16.2	15.8	16.7	17.2	17.3	18.2	17.7	18.6	19.1
	6H	16.3	17.1	16.8	17.5	18.0	18.8	19.6	19.3	20.1	20.6
	8H	16.7	17.4	17.2	17.9	18.4	19.5	20.2	20.0	20.7	21.2
	12H	17.0	17.6	17.5	18.1	18.7	20.2	20.8	20.7	21.3	21.8
12H	4H	15.5	16.4	16.0	16.8	17.3	17.3	18.2	17.8	18.6	19.1
	6H	16.6	17.3	17.1	17.8	18.3	18.9	19.7	19.5	20.1	20.6
	8H	17.1	17.7	17.6	18.2	18.8	19.7	20.4	20.2	20.8	21.4

Maximum UGR = 21.8

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											
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
		16.6	18.3	17.0	18.6	18.9	18.1	19.8	18.5	20.1	20.4
	3H	18.4	19.9	18.8	20.3	20.6	20.6	22.1	20.9	22.4	22.8
	4H	19.1	20.6	19.5	20.9	21.3	21.7	23.2	22.1	23.6	23.9
	6H	19.7	21.0	20.1	21.4	21.8	22.9	24.2	23.3	24.6	25.0
	8H	19.9	21.2	20.3	21.6	22.0	23.3	24.6	23.8	25.0	25.4
	12H	20.0	21.3	20.5	21.7	22.1	23.7	25.0	24.2	25.4	25.8
4H	2H	17.5	19.0	17.9	19.3	19.7	18.7	20.2	19.1	20.5	20.9
	3H	19.6	20.9	20.0	21.2	21.6	21.4	22.7	21.8	23.0	23.4
	4H	20.5	21.6	20.9	22.0	22.4	22.8	23.9	23.2	24.3	24.8
	6H	21.2	22.2	21.7	22.6	23.1	24.2	25.1	24.6	25.6	26.0
	8H	21.5	22.4	21.9	22.8	23.3	24.7	25.6	25.2	26.1	26.6
	12H	21.7	22.5	22.1	23.0	23.5	25.2	26.0	25.7	26.5	27.0
8H	4H	21.2	22.1	21.7	22.6	23.1	23.2	24.1	23.6	24.5	25.0
	6H	22.2	23.0	22.7	23.4	23.9	24.7	25.5	25.2	26.0	26.5
	8H	22.6	23.3	23.1	23.8	24.3	25.4	26.1	25.9	26.6	27.1
	12H	22.9	23.5	23.4	24.0	24.6	26.1	26.7	26.6	27.2	27.7
12H	4H	21.4	22.3	21.9	22.7	23.2	23.2	24.1	23.7	24.5	25.0
	6H	22.5	23.2	23.0	23.7	24.2	24.8	25.6	25.4	26.0	26.5
	8H	23.0	23.6	23.5	24.1	24.7	25.6	26.3	26.1	26.7	27.3

Maximum UGR = 27.7

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1789	1788	1786	1791	1791	1783	1789	1783	1791	1791	1786	1788	1789	1788	1786	1791	1791	1783	1789
5	1774	1777	1778	1779	1782	1779	1785	1779	1782	1779	1778	1777	1774	1777	1778	1779	1782	1779	1785
10	1742	1749	1749	1759	1762	1761	1766	1761	1762	1759	1749	1749	1742	1749	1749	1759	1762	1761	1766
15	1693	1697	1706	1717	1725	1728	1742	1728	1725	1717	1706	1697	1693	1697	1706	1717	1725	1728	1742
20	1619	1632	1642	1663	1675	1683	1697	1683	1675	1663	1642	1632	1619	1632	1642	1663	1675	1683	1697
25	1528	1551	1562	1584	1608	1623	1638	1623	1608	1584	1562	1551	1528	1551	1562	1584	1608	1623	1638
30	1427	1452	1476	1506	1536	1552	1563	1552	1536	1506	1476	1452	1427	1452	1476	1506	1536	1552	1563
35	1319	1342	1373	1407	1443	1469	1483	1469	1443	1407	1373	1342	1319	1342	1373	1407	1443	1469	1483
40	1196	1227	1263	1301	1348	1380	1390	1380	1348	1301	1263	1227	1196	1227	1263	1301	1348	1380	1390
45	1066	1105	1141	1194	1236	1275	1299	1275	1236	1194	1141	1105	1066	1105	1141	1194	1236	1275	1299
50	939	977	1024	1076	1128	1163	1187	1163	1128	1076	1024	977	939	977	1024	1076	1128	1163	1187
55	807	848	894	951	1006	1055	1071	1055	1006	951	894	848	807	848	894	951	1006	1055	1071
60	679	716	769	833	892	936	964	936	892	833	769	716	679	716	769	833	892	936	964
65	551	588	642	715	777	822	843	822	777	715	642	588	551	588	642	715	777	822	843
70	427	464	523	594	656	706	726	706	656	594	523	464	427	464	523	594	656	706	726
75	310	343	406	477	549	600	621	600	549	477	406	343	310	343	406	477	549	600	621
80	197	232	297	376	429	458	470	458	429	376	297	232	197	232	297	376	429	458	470
85	94.1	132	191	229	245	253	255	253	245	229	191	132	94.1	132	191	229	245	253	255
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 (DEG)	285	300	315	330	345														
0	1783	1791	1791	1786	1788														
5	1779	1782	1779	1778	1777														
10	1761	1762	1759	1749	1749														
15	1728	1725	1717	1706	1697														
20	1683	1675	1663	1642	1632														
25	1623	1608	1584	1562	1551														
30	1552	1536	1506	1476	1452														
35	1469	1443	1407	1373	1342														
40	1380	1348	1301	1263	1227														
45	1275	1236	1194	1141	1105														
50	1163	1128	1076	1024	977														
55	1055	1006	951	894	848														
60	936	892	833	769	716														
65	822	777	715	642	588														
70	706	656	594	523	464														
75	600	549	477	406	343														
80	458	429	376	297	232														
85	253	245	229	191	132														
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.	SWISHFA1X4 @39W5000K	Sample ID	250715001-S1
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The samples were tested according to the and Ansi C82.77: 2002 and ANSI C82.77-10:2020</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	0.304	36.2	0.993	12.16
277.0	60	0.133	36.4	0.985	11.65

5.0 Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2024-11-07	2025-11-06
NTC-F01-006	2.0 meter Integrating Sphere	2024-11-07	2025-11-06
NTC-F01-012	Standard Lamp	2024-10-28	2025-10-27
NTC-F01-013	Standard Lamp	2024-10-28	2025-10-27
NTC-F01-031	Digital Power Meter	2024-08-06	2025-08-05
NTC-F01-019	Temperature & Humidity Meter	2024-10-29	2025-10-28

*****End of Report*****