

Photometric Test Report

Relevant Standards

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

Prepared For

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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		5668
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	161.5
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		35.1
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	12.60
			277V	11.58
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.992
			277V	0.983
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3985±275	4127
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥80		85.0
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥0		18
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		94
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)	ANSI/IES LM-79:2019	≥75%		74.5%
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	1.30
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		0.129
(Goniophotometer – Section 4.2)		Non-Worst Case		0.294
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		35.1
(Goniophotometer – Section 4.2)		Non-Worst Case		35.0

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-07-19	SWISHFA1X4 @39W4000K	-	250715001-S1
2	Goniophotometer Test	2025-07-19	SWISHFA1X4 @39W4000K	-	250715001-S1
3	THD and PF Test	2025-07-19	SWISHFA1X4 @39W4000K	-	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 @39W4000K, 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 @39W4000K	Sample ID	250715001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

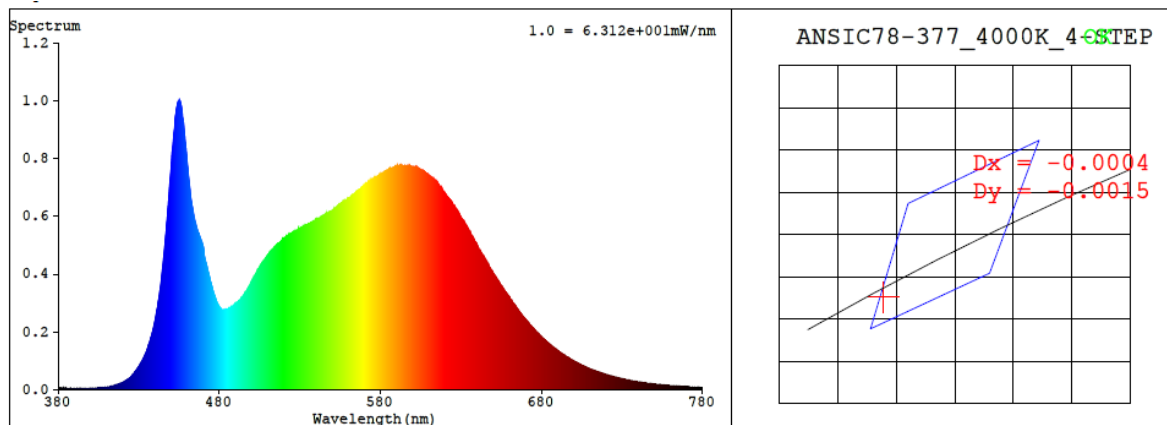
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.294	35.0	0.992
277.0	60	0.129	35.1	0.983

CCT (K)	CRI	R9	Duv	SDCM	Rf	Rg	IES Rcs,h1
4127	85.0	18	-0.0006	3.5	84	94	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3746$ $y = 0.3718$ / $u' = 0.2233$ $v' = 0.4985$ ($duv = -6.05e-04$)

CCT= 4127K Prcp WL: Ld=578.9nm Purity=24.0%

Peak WL: Lp=455nm FWHM: =23.7nm Ratio:R=18.3% G=77.5% B=4.2%

Render Index: Ra = 85.0 AvgR = 79.2 TM30:Rf=84 Rg=95

EEI: 0.08510 A++ Highest

R1 =84 R2 =93 R3 =96 R4 =82 R5 =84 R6 =89 R7 =86

R8 =67 R9 =18 R10=82 R11=81 R12=62 R13=87 R14=98 R15=79

4.1 Integrating Sphere Test

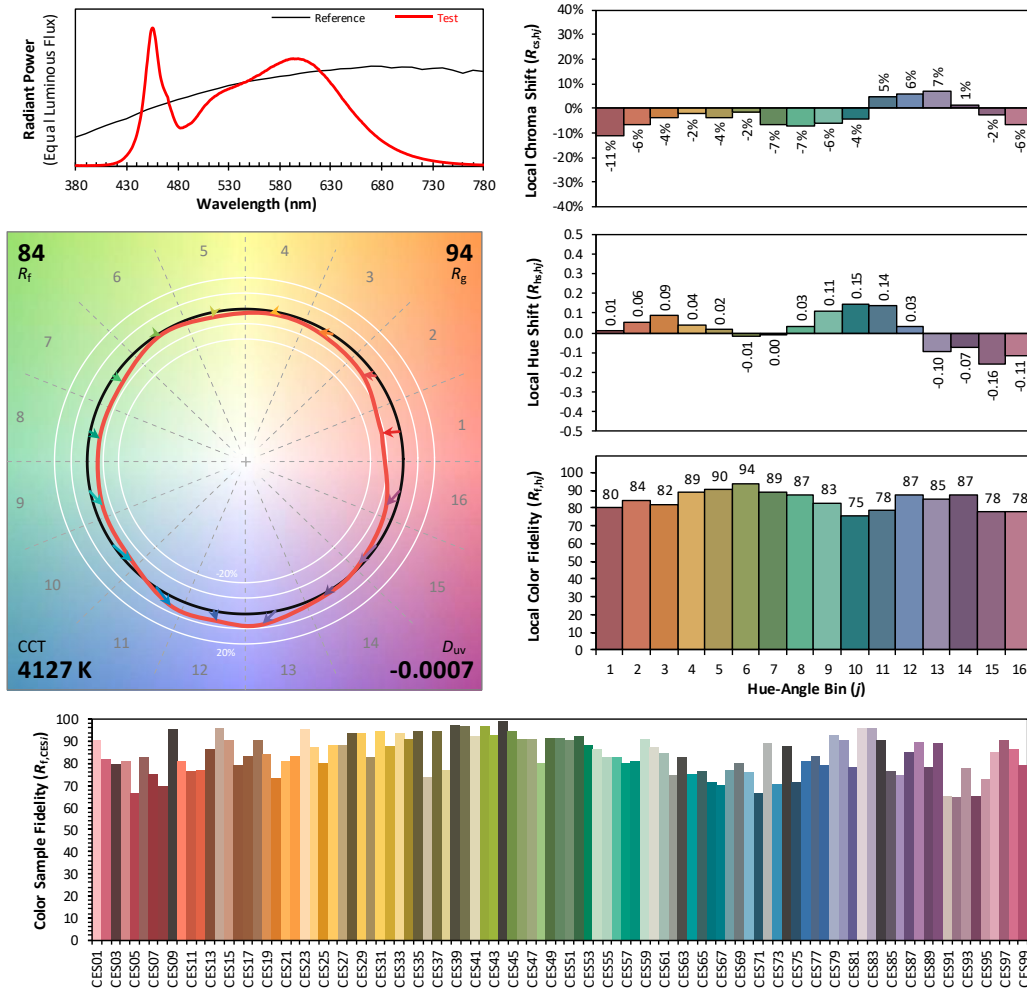
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/7/22

Model: SWISHFAIX4 @39W4000K



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

x 0.3746
 y 0.3716
 u' 0.2233
 v' 0.4984

CIE 13.3-1995
(CRI)

R_a 85
 R_9 18

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	4.00E-06	447	5.56E-04	514	4.92E-04	581	7.48E-04	648	4.22E-04	715	6.19E-05
381	4.50E-06	448	6.23E-04	515	4.97E-04	582	7.52E-04	649	4.13E-04	716	6.04E-05
382	4.60E-06	449	7.02E-04	516	5.04E-04	583	7.56E-04	650	4.04E-04	717	5.80E-05
383	3.60E-06	450	7.63E-04	517	5.07E-04	584	7.59E-04	651	3.95E-04	718	5.63E-05
384	3.60E-06	451	8.39E-04	518	5.12E-04	585	7.62E-04	652	3.87E-04	719	5.42E-05
385	4.50E-06	452	8.98E-04	519	5.17E-04	586	7.66E-04	653	3.77E-04	720	5.23E-05
386	3.70E-06	453	9.58E-04	520	5.23E-04	587	7.65E-04	654	3.69E-04	721	5.08E-05
387	3.70E-06	454	9.88E-04	521	5.27E-04	588	7.69E-04	655	3.60E-04	722	4.92E-05
388	4.10E-06	455	9.98E-04	522	5.30E-04	589	7.71E-04	656	3.52E-04	723	4.78E-05
389	3.50E-06	456	9.89E-04	523	5.35E-04	590	7.73E-04	657	3.43E-04	724	4.63E-05
390	3.50E-06	457	9.53E-04	524	5.39E-04	591	7.75E-04	658	3.35E-04	725	4.48E-05
391	3.20E-06	458	9.12E-04	525	5.43E-04	592	7.74E-04	659	3.28E-04	726	4.34E-05
392	4.20E-06	459	8.51E-04	526	5.46E-04	593	7.76E-04	660	3.21E-04	727	4.21E-05
393	4.20E-06	460	7.90E-04	527	5.49E-04	594	7.73E-04	661	3.11E-04	728	4.05E-05
394	4.20E-06	461	7.34E-04	528	5.52E-04	595	7.74E-04	662	3.04E-04	729	3.92E-05
395	4.50E-06	462	6.80E-04	529	5.56E-04	596	7.74E-04	663	2.96E-04	730	3.82E-05
396	4.30E-06	463	6.37E-04	530	5.58E-04	597	7.75E-04	664	2.88E-04	731	3.70E-05
397	4.70E-06	464	6.08E-04	531	5.62E-04	598	7.76E-04	665	2.80E-04	732	3.56E-05
398	4.30E-06	465	5.80E-04	532	5.64E-04	599	7.73E-04	666	2.72E-04	733	3.45E-05
399	4.70E-06	466	5.60E-04	533	5.65E-04	600	7.72E-04	667	2.65E-04	734	3.36E-05
400	5.30E-06	467	5.42E-04	534	5.70E-04	601	7.70E-04	668	2.57E-04	735	3.24E-05
401	5.20E-06	468	5.25E-04	535	5.72E-04	602	7.70E-04	669	2.50E-04	736	3.12E-05
402	5.50E-06	469	5.09E-04	536	5.75E-04	603	7.68E-04	670	2.44E-04	737	3.01E-05
403	5.70E-06	470	4.95E-04	537	5.78E-04	604	7.65E-04	671	2.37E-04	738	2.95E-05
404	5.90E-06	471	4.54E-04	538	5.82E-04	605	7.60E-04	672	2.31E-04	739	2.82E-05
405	6.40E-06	472	4.32E-04	539	5.84E-04	606	7.59E-04	673	2.23E-04	740	2.74E-05
406	6.70E-06	473	4.08E-04	540	5.89E-04	607	7.56E-04	674	2.18E-04	741	2.68E-05
407	7.20E-06	474	3.88E-04	541	5.92E-04	608	7.51E-04	675	2.12E-04	742	2.60E-05
408	7.80E-06	475	3.63E-04	542	5.93E-04	609	7.47E-04	676	2.05E-04	743	2.46E-05
409	8.50E-06	476	3.44E-04	543	5.97E-04	610	7.42E-04	677	1.99E-04	744	2.44E-05
410	8.90E-06	477	3.25E-04	544	6.02E-04	611	7.37E-04	678	1.94E-04	745	2.33E-05
411	9.90E-06	478	3.09E-04	545	6.04E-04	612	7.34E-04	679	1.88E-04	746	2.25E-05
412	1.04E-05	479	2.96E-04	546	6.05E-04	613	7.30E-04	680	1.83E-04	747	2.20E-05
413	1.21E-05	480	2.86E-04	547	6.08E-04	614	7.24E-04	681	1.77E-04	748	2.12E-05
414	1.29E-05	481	2.79E-04	548	6.14E-04	615	7.15E-04	682	1.72E-04	749	2.05E-05
415	1.50E-05	482	2.75E-04	549	6.17E-04	616	7.10E-04	683	1.67E-04	750	2.01E-05
416	1.59E-05	483	2.76E-04	550	6.18E-04	617	7.03E-04	684	1.63E-04	751	1.93E-05
417	1.81E-05	484	2.76E-04	551	6.26E-04	618	6.98E-04	685	1.58E-04	752	1.87E-05
418	2.03E-05	485	2.78E-04	552	6.27E-04	619	6.86E-04	686	1.53E-04	753	1.82E-05
419	2.24E-05	486	2.83E-04	553	6.32E-04	620	6.80E-04	687	1.48E-04	754	1.77E-05
420	2.48E-05	487	2.84E-04	554	6.38E-04	621	6.71E-04	688	1.44E-04	755	1.69E-05
421	2.82E-05	488	2.89E-04	555	6.42E-04	622	6.64E-04	689	1.40E-04	756	1.65E-05
422	3.14E-05	489	2.93E-04	556	6.46E-04	623	6.59E-04	690	1.36E-04	757	1.59E-05
423	3.52E-05	490	2.99E-04	557	6.51E-04	624	6.51E-04	691	1.32E-04	758	1.54E-05
424	3.91E-05	491	3.02E-04	558	6.54E-04	625	6.41E-04	692	1.28E-04	759	1.53E-05
425	4.41E-05	492	3.07E-04	559	6.56E-04	626	6.35E-04	693	1.24E-04	760	1.47E-05
426	5.02E-05	493	3.11E-04	560	6.59E-04	627	6.25E-04	694	1.20E-04	761	1.42E-05
427	5.62E-05	494	3.18E-04	561	6.65E-04	628	6.15E-04	695	1.16E-04	762	1.36E-05
428	6.42E-05	495	3.26E-04	562	6.70E-04	629	6.06E-04	696	1.13E-04	763	1.32E-05
429	7.19E-05	496	3.35E-04	563	6.75E-04	630	5.96E-04	697	1.10E-04	764	1.29E-05
430	7.94E-05	497	3.43E-04	564	6.78E-04	631	5.89E-04	698	1.05E-04	765	1.24E-05
431	8.94E-05	498	3.53E-04	565	6.85E-04	632	5.80E-04	699	1.03E-04	766	1.22E-05
432	9.83E-05	499	3.62E-04	566	6.88E-04	633	5.71E-04	700	9.98E-05	767	1.18E-05
433	1.10E-04	500	3.73E-04	567	6.92E-04	634	5.61E-04	701	9.65E-05	768	1.15E-05
434	1.22E-04	501	3.84E-04	568	6.97E-04	635	5.50E-04	702	9.38E-05	769	1.11E-05
435	1.35E-04	502	3.94E-04	569	7.02E-04	636	5.41E-04	703	9.10E-05	770	1.06E-05
436	1.52E-04	503	4.03E-04	570	7.08E-04	637	5.31E-04	704	8.78E-05	771	1.03E-05
437	1.71E-04	504	4.15E-04	571	7.13E-04	638	5.21E-04	705	8.45E-05	772	1.00E-05
438	1.90E-04	505	4.24E-04	572	7.16E-04	639	5.10E-04	706	8.25E-05	773	9.80E-06
439	2.12E-04	506	4.34E-04	573	7.20E-04	640	5.00E-04	707	7.97E-05	774	9.40E-06
440	2.39E-04	507	4.42E-04	574	7.22E-04	641	4.88E-04	708	7.70E-05	775	9.30E-06
441	2.71E-04	508	4.48E-04	575	7.28E-04	642	4.80E-04	709	7.46E-05	776	8.90E-06
442	3.05E-04	509	4.56E-04	576	7.31E-04	643	4.70E-04	710	7.15E-05	777	8.50E-06
443	3.39E-04	510	4.64E-04	577	7.35E-04	644	4.62E-04	711	7.00E-05	778	8.50E-06
444	3.83E-04	511	4.73E-04	578	7.38E-04	645	4.52E-04	712	6.81E-05	779	8.40E-06
445	4.34E-04	512	4.80E-04	579	7.42E-04	646	4.42E-04	713	6.59E-05	780	8.50E-06
446	4.91E-04	513	4.85E-04	580	7.46E-04	647	4.34E-04	714	6.39E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SWISHFA1X4 @39W4000K	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	0.129	35.1	0.983
NON-WORST CASE	120.0	60	0.294	35.0	0.992

Test Result

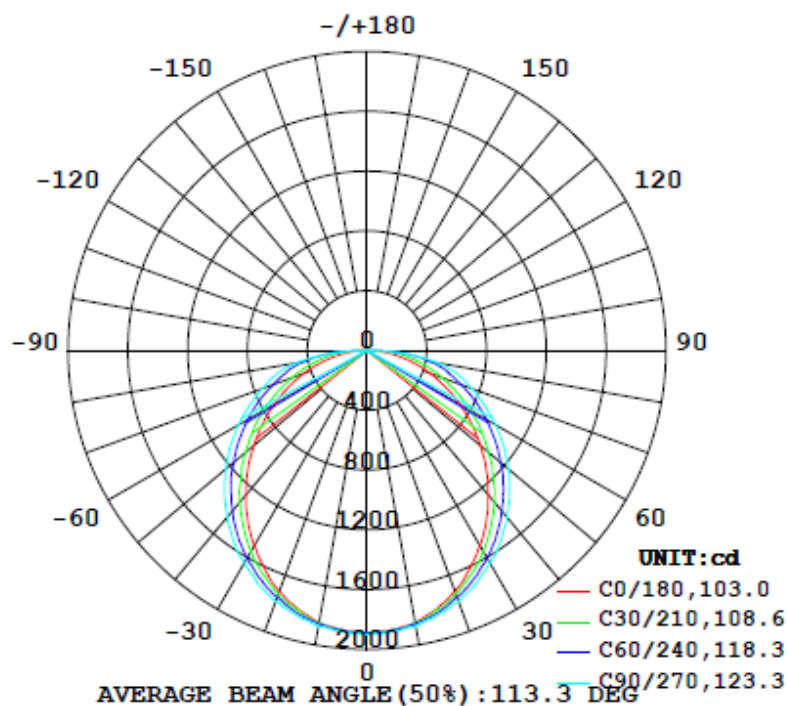
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement (0° - 60°)
	C0-180	C90-270	C0-180	C90-270		
5668	162.2	172.9	103.2	123.5	161.5	74.5%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
21.5	24.7	1.20	1.30

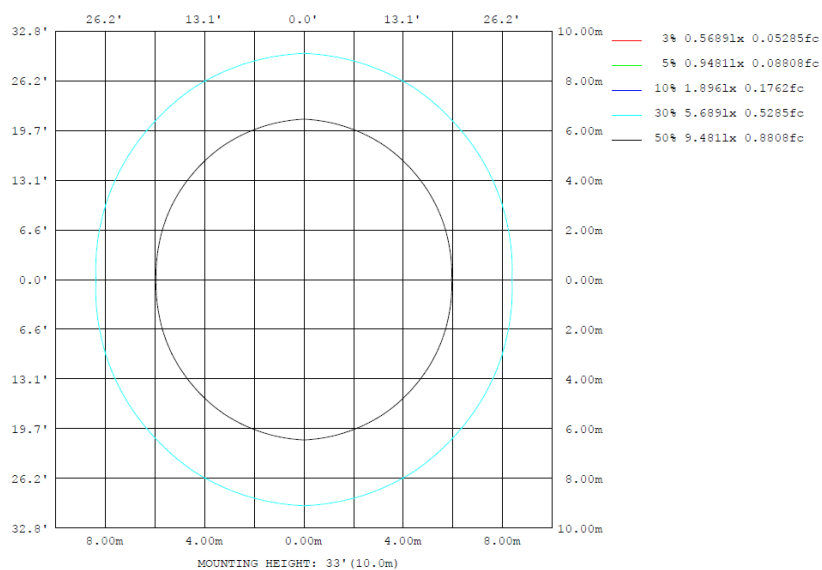
4.2 Goniophotometer Test

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	Φ zone	Φ total	%lum, lamp
10	1848	1856	1874	1856	1848	1856	1874	1856	0- 10	178.7	178.7	3.15, 3.15
20	1715	1751	1788	1751	1715	1751	1788	1751	10- 20	510.4	689.1	12.2, 12.2
30	1510	1576	1644	1576	1510	1576	1644	1576	20- 30	769.1	1458	25.7, 25.7
40	1262	1361	1457	1361	1262	1361	1457	1361	30- 40	922.7	2381	42, 42
50	991.2	1113	1235	1113	991.2	1113	1235	1113	40- 50	957.2	3338	58.9, 58.9
60	716.7	856.7	991.3	856.7	716.7	856.7	991.3	856.7	50- 60	882.1	4220	74.5, 74.5
70	451.5	606.2	744.3	606.2	451.5	606.2	744.3	606.2	60- 70	721.0	4941	87.2, 87.2
80	208.3	376.9	480.3	376.9	208.3	376.9	480.3	376.9	70- 80	509.5	5451	96.2, 96.2
90	0	0	0	0	0	0	0	0	80- 90	216.9	5668	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	5668	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	5668	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	5668	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	5668	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	5668	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	5668	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	5668	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	5668	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	5668	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	178.71	0-10	178.71	3.15%
10-20	510.36	0-20	689.07	12.16%
20-30	769.11	0-30	1458.18	25.73%
30-40	922.74	0-40	2380.92	42.01%
40-50	957.23	0-50	3338.15	58.90%
50-60	882.14	0-60	4220.29	74.46%
60-70	720.98	0-70	4941.27	87.18%
70-80	509.55	0-80	5450.82	96.17%
80-90	216.89	0-90	5667.71	100.00%
90-100	0.00	0-100	5667.71	100.00%
100-110	0.00	0-110	5667.71	100.00%
110-120	0.00	0-120	5667.71	100.00%
120-130	0.00	0-130	5667.71	100.00%
130-140	0.00	0-140	5667.71	100.00%
140-150	0.00	0-150	5667.71	100.00%
150-160	0.00	0-160	5667.71	100.00%
160-170	0.00	0-170	5667.71	100.00%
170-180	0.00	0-180	5667.71	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	10.7	12.4	11.1	12.7	13.0	12.2	13.8	12.5	14.2	14.5
	3H	12.5	14.0	12.9	14.4	14.7	14.6	16.1	14.9	16.4	16.8
	4H	13.2	14.7	13.6	15.0	15.4	15.8	17.2	16.2	17.5	17.9
	6H	13.8	15.1	14.2	15.5	15.9	16.9	18.2	17.3	18.6	19.0
	8H	14.0	15.3	14.4	15.7	16.1	17.3	18.6	17.7	19.0	19.4
	12H	14.1	15.4	14.6	15.8	16.2	17.7	19.0	18.1	19.3	19.8
4H	2H	11.6	13.1	12.0	13.4	13.8	12.7	14.2	13.1	14.5	14.9
	3H	13.7	14.9	14.1	15.3	15.7	15.4	16.6	15.8	17.0	17.4
	4H	14.5	15.7	15.0	16.1	16.5	16.8	17.9	17.2	18.3	18.8
	6H	15.2	16.2	15.7	16.7	17.1	18.1	19.1	18.6	19.5	20.0
	8H	15.5	16.4	16.0	16.9	17.3	18.7	19.6	19.1	20.1	20.5
	12H	15.7	16.6	16.2	17.0	17.5	19.2	20.0	19.7	20.5	20.9
8H	4H	15.2	16.2	15.7	16.6	17.1	17.1	18.1	17.6	18.5	19.0
	6H	16.2	17.0	16.7	17.4	17.9	18.7	19.5	19.2	20.0	20.4
	8H	16.6	17.3	17.1	17.8	18.2	19.4	20.1	19.9	20.6	21.1
	12H	16.9	17.5	17.4	18.0	18.6	20.0	20.7	20.5	21.1	21.7
12H	4H	15.4	16.3	15.9	16.7	17.2	17.2	18.0	17.7	18.5	19.0
	6H	16.5	17.2	17.0	17.6	18.2	18.8	19.5	19.3	20.0	20.5
	8H	17.0	17.6	17.5	18.1	18.6	19.6	20.2	20.1	20.7	21.3

Maximum UGR = 21.7

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	16.7	18.4	17.1	18.7	19.0	18.2	19.8	18.5	20.2	20.5
	3H	18.5	20.0	18.9	20.4	20.7	20.6	22.1	20.9	22.4	22.8
	4H	19.2	20.7	19.6	21.0	21.4	21.8	23.2	22.2	23.5	23.9
	6H	19.8	21.1	20.2	21.5	21.9	22.9	24.2	23.3	24.6	25.0
	8H	20.0	21.3	20.4	21.7	22.1	23.3	24.6	23.7	25.0	25.4
	12H	20.1	21.4	20.6	21.8	22.2	23.7	25.0	24.1	25.3	25.8
4H	2H	17.6	19.1	18.0	19.4	19.8	18.7	20.2	19.1	20.5	20.9
	3H	19.7	20.9	20.1	21.3	21.7	21.4	22.6	21.8	23.0	23.4
	4H	20.5	21.7	21.0	22.1	22.5	22.8	23.9	23.2	24.3	24.8
	6H	21.2	22.2	21.7	22.7	23.1	24.1	25.1	24.6	25.5	26.0
	8H	21.5	22.4	22.0	22.9	23.3	24.7	25.6	25.1	26.1	26.5
	12H	21.7	22.6	22.2	23.0	23.5	25.2	26.0	25.7	26.5	26.9
8H	4H	21.2	22.2	21.7	22.6	23.1	23.1	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	26.4
	8H	22.6	23.3	23.1	23.8	24.2	25.4	26.1	25.9	26.6	27.1
	12H	22.9	23.5	23.4	24.0	24.6	26.0	26.7	26.5	27.1	27.7
12H	4H	21.4	22.3	21.9	22.7	23.2	23.2	24.0	23.7	24.5	25.0
	6H	22.5	23.2	23.0	23.6	24.2	24.8	25.5	25.3	26.0	26.5
	8H	23.0	23.6	23.5	24.1	24.6	25.6	26.2	26.1	26.7	27.3

Maximum UGR = 27.7

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

UNIT: cd																				
C (DBG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	
γ (DBG)	0	1896	1893	1893	1894	1889	1889	1901	1889	1889	1894	1893	1893	1896	1893	1893	1894	1889	1889	1901
5	1881	1876	1880	1880	1876	1880	1889	1880	1876	1880	1880	1876	1881	1876	1880	1880	1876	1880	1889	
10	1848	1846	1849	1856	1857	1850	1874	1850	1857	1856	1849	1846	1848	1846	1849	1856	1857	1850	1874	
15	1792	1800	1798	1807	1818	1827	1833	1827	1818	1807	1798	1800	1792	1800	1798	1807	1818	1827	1833	
20	1715	1725	1736	1751	1756	1767	1788	1767	1756	1751	1736	1725	1715	1725	1736	1751	1756	1767	1788	
25	1617	1636	1649	1664	1687	1702	1723	1702	1687	1664	1649	1636	1617	1636	1649	1664	1687	1702	1723	
30	1510	1528	1552	1576	1604	1623	1644	1623	1604	1576	1552	1528	1510	1528	1552	1576	1604	1623	1644	
35	1392	1414	1443	1477	1509	1533	1558	1533	1509	1477	1443	1414	1392	1414	1443	1477	1509	1533	1558	
40	1262	1289	1329	1361	1401	1431	1457	1431	1401	1361	1329	1289	1262	1289	1329	1361	1401	1431	1457	
45	1128	1158	1194	1237	1291	1322	1348	1322	1291	1237	1194	1158	1128	1158	1194	1237	1291	1322	1348	
50	991	1022	1064	1113	1163	1205	1235	1205	1163	1113	1064	1022	991	1022	1064	1113	1163	1205	1235	
55	851	882	929	987	1047	1086	1116	1086	1047	987	929	882	851	882	929	987	1047	1086	1116	
60	717	747	795	857	920	967	991	967	920	857	795	747	717	747	795	857	920	967	991	
65	579	611	665	728	798	840	868	840	798	728	665	611	579	611	665	728	798	840	868	
70	451	482	534	606	668	718	744	718	668	606	534	482	451	482	534	606	668	718	744	
75	325	356	414	484	559	611	633	611	559	484	414	356	325	356	414	484	559	611	633	
80	208	237	299	377	433	465	480	465	433	377	299	237	208	237	299	377	433	465	480	
85	99.3	132	191	229	253	263	267	263	253	229	191	132	99.3	132	191	229	253	263	267	
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	1889	1889	1894	1893	1893													
5	1880	1876	1880	1880	1876														
10	1850	1857	1856	1849	1846														
15	1827	1818	1807	1798	1800														
20	1767	1756	1751	1736	1725														
25	1702	1687	1664	1649	1636														
30	1623	1604	1576	1552	1528														
35	1533	1509	1477	1443	1414														
40	1431	1401	1361	1329	1289														
45	1322	1291	1237	1194	1158														
50	1205	1163	1113	1064	1022														
55	1086	1047	987	929	882														
60	967	920	857	795	747														
65	840	798	728	665	611														
70	718	668	606	534	482														
75	611	559	484	414	356														
80	465	433	377	299	237														
85	263	253	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 @39W4000K	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	0.294	35.0	0.992	12.60
277.0	60	0.129	35.1	0.983	11.58

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*****