

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		4511
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	164.6
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		27.4
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	11.90
			277V	7.84
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.992
			277V	0.964
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3985±275	4134
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥80		84.8
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 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		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%		74.6%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	23.9
		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		0.103
(Goniophotometer – Section 4.2)		Non-Worst Case		0.225
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		27.4
(Goniophotometer – Section 4.2)		Non-Worst Case		26.8

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-07-19	SWISHFA1X4 @29W4000K	-	250715001-S1
2	Goniophotometer Test	2025-07-19	SWISHFA1X4 @29W4000K	-	250715001-S1
3	THD and PF Test	2025-07-19	SWISHFA1X4 @29W4000K	-	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 @29W4000K, 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 @29W4000K	Sample ID	250715001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

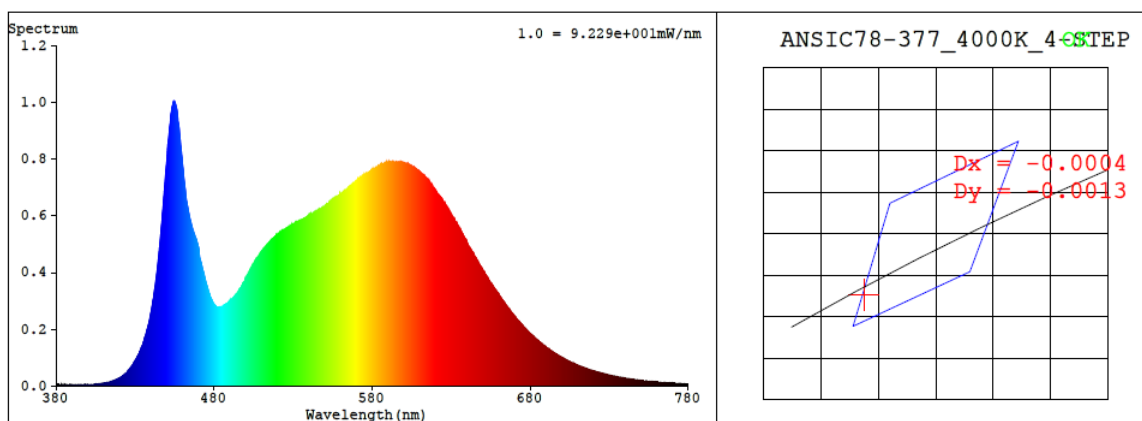
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.225	26.8	0.992
277.0	60	0.103	27.4	0.964

CCT (K)	CRI	R9	Duv	SDCM	Rf	Rg	IES Rcs,h1
4134	84.8	16	-0.0005	3.6	84	94	-11%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3744$ $y = 0.3718$ / $u' = 0.2231$ $v' = 0.4985$ ($duv = -5.01e-04$)

CCT= 4134K Prcp WL: $L_d = 578.8nm$ Purity=23.9%

Peak WL: $L_p = 454nm$ FWHM: $=24.1nm$ Ratio: R=18.2% G=77.6% B=4.1%

Render Index: $R_a = 84.8$ AvgR = 78.8 TM30: $R_f = 84$ $R_g = 95$

EEL: 0.08558 A++ Highest

R1 =84	R2 =92	R3 =96	R4 =82	R5 =83	R6 =88	R7 =86
R8 =67	R9 =16	R10=81	R11=81	R12=62	R13=87	R14=98
						R15=78

4.1 Integrating Sphere Test

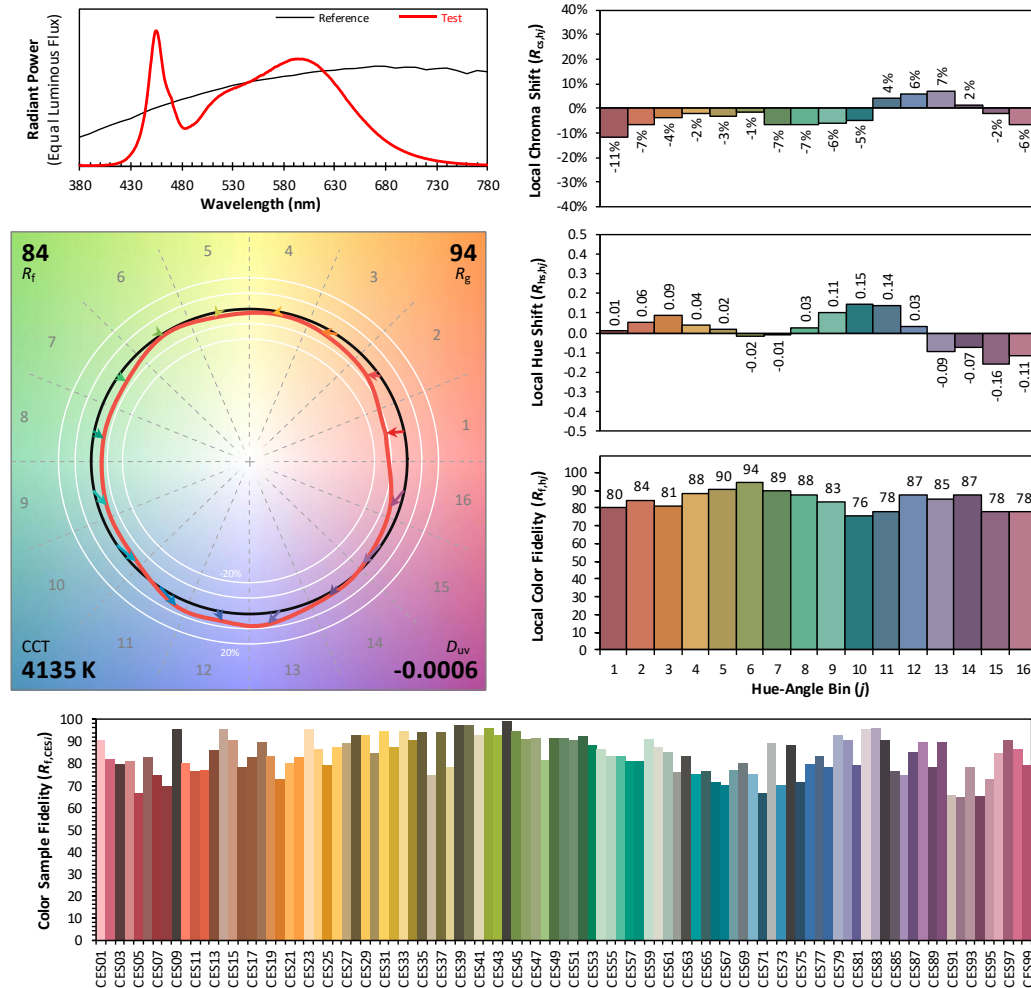
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/7/22

Model: SWISHFAIX4 @29W4000K



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

x 0.3743
 y 0.3717
 u' 0.2231
 v' 0.4984

CIE 13.3-1995
(CRI)

R_a 85
 R_9 17

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	4.80E-06	447	5.90E-04	514	5.01E-04	581	7.65E-04	648	4.28E-04	715	6.29E-05
381	6.20E-06	448	6.58E-04	515	5.07E-04	582	7.69E-04	649	4.18E-04	716	6.09E-05
382	4.30E-06	449	7.33E-04	516	5.15E-04	583	7.70E-04	650	4.09E-04	717	5.86E-05
383	3.80E-06	450	7.93E-04	517	5.18E-04	584	7.76E-04	651	4.00E-04	718	5.69E-05
384	2.90E-06	451	8.66E-04	518	5.24E-04	585	7.78E-04	652	3.90E-04	719	5.50E-05
385	4.50E-06	452	9.21E-04	519	5.28E-04	586	7.83E-04	653	3.82E-04	720	5.33E-05
386	3.60E-06	453	9.71E-04	520	5.34E-04	587	7.82E-04	654	3.72E-04	721	5.17E-05
387	4.10E-06	454	9.95E-04	521	5.39E-04	588	7.86E-04	655	3.63E-04	722	5.01E-05
388	3.60E-06	455	9.97E-04	522	5.43E-04	589	7.87E-04	656	3.57E-04	723	4.86E-05
389	3.60E-06	456	9.82E-04	523	5.47E-04	590	7.86E-04	657	3.47E-04	724	4.71E-05
390	3.40E-06	457	9.43E-04	524	5.50E-04	591	7.90E-04	658	3.39E-04	725	4.55E-05
391	4.10E-06	458	9.02E-04	525	5.54E-04	592	7.88E-04	659	3.32E-04	726	4.42E-05
392	4.30E-06	459	8.39E-04	526	5.58E-04	593	7.91E-04	660	3.25E-04	727	4.28E-05
393	3.40E-06	460	7.84E-04	527	5.61E-04	594	7.89E-04	661	3.14E-04	728	4.12E-05
394	3.50E-06	461	7.28E-04	528	5.65E-04	595	7.90E-04	662	3.07E-04	729	3.97E-05
395	4.10E-06	462	6.76E-04	529	5.67E-04	596	7.88E-04	663	2.99E-04	730	3.85E-05
396	4.30E-06	463	6.36E-04	530	5.71E-04	597	7.89E-04	664	2.91E-04	731	3.76E-05
397	3.80E-06	464	6.08E-04	531	5.74E-04	598	7.90E-04	665	2.84E-04	732	3.59E-05
398	4.50E-06	465	5.82E-04	532	5.78E-04	599	7.88E-04	666	2.75E-04	733	3.52E-05
399	4.90E-06	466	5.61E-04	533	5.77E-04	600	7.86E-04	667	2.69E-04	734	3.41E-05
400	5.00E-06	467	5.41E-04	534	5.82E-04	601	7.84E-04	668	2.61E-04	735	3.30E-05
401	5.40E-06	468	5.24E-04	535	5.85E-04	602	7.83E-04	669	2.54E-04	736	3.18E-05
402	5.60E-06	469	5.09E-04	536	5.88E-04	603	7.81E-04	670	2.47E-04	737	3.07E-05
403	5.40E-06	470	4.90E-04	537	5.91E-04	604	7.78E-04	671	2.40E-04	738	3.00E-05
404	6.30E-06	471	4.51E-04	538	5.94E-04	605	7.74E-04	672	2.33E-04	739	2.87E-05
405	7.40E-06	472	4.28E-04	539	5.98E-04	606	7.71E-04	673	2.27E-04	740	2.81E-05
406	7.40E-06	473	4.04E-04	540	6.02E-04	607	7.68E-04	674	2.20E-04	741	2.73E-05
407	7.90E-06	474	3.85E-04	541	6.04E-04	608	7.63E-04	675	2.15E-04	742	2.63E-05
408	8.30E-06	475	3.61E-04	542	6.06E-04	609	7.61E-04	676	2.08E-04	743	2.53E-05
409	9.00E-06	476	3.41E-04	543	6.11E-04	610	7.55E-04	677	2.03E-04	744	2.44E-05
410	1.00E-05	477	3.23E-04	544	6.15E-04	611	7.50E-04	678	1.96E-04	745	2.39E-05
411	1.06E-05	478	3.09E-04	545	6.17E-04	612	7.46E-04	679	1.91E-04	746	2.32E-05
412	1.20E-05	479	2.97E-04	546	6.21E-04	613	7.42E-04	680	1.85E-04	747	2.22E-05
413	1.27E-05	480	2.88E-04	547	6.22E-04	614	7.34E-04	681	1.80E-04	748	2.16E-05
414	1.47E-05	481	2.82E-04	548	6.27E-04	615	7.27E-04	682	1.75E-04	749	2.09E-05
415	1.62E-05	482	2.78E-04	549	6.31E-04	616	7.21E-04	683	1.70E-04	750	2.02E-05
416	1.81E-05	483	2.77E-04	550	6.33E-04	617	7.12E-04	684	1.64E-04	751	1.97E-05
417	2.05E-05	484	2.78E-04	551	6.41E-04	618	7.07E-04	685	1.60E-04	752	1.91E-05
418	2.27E-05	485	2.80E-04	552	6.42E-04	619	6.96E-04	686	1.55E-04	753	1.87E-05
419	2.52E-05	486	2.85E-04	553	6.47E-04	620	6.90E-04	687	1.50E-04	754	1.77E-05
420	2.81E-05	487	2.87E-04	554	6.53E-04	621	6.81E-04	688	1.46E-04	755	1.76E-05
421	3.14E-05	488	2.91E-04	555	6.58E-04	622	6.74E-04	689	1.41E-04	756	1.68E-05
422	3.53E-05	489	2.96E-04	556	6.62E-04	623	6.68E-04	690	1.38E-04	757	1.66E-05
423	3.96E-05	490	3.02E-04	557	6.67E-04	624	6.60E-04	691	1.33E-04	758	1.57E-05
424	4.43E-05	491	3.04E-04	558	6.69E-04	625	6.50E-04	692	1.30E-04	759	1.54E-05
425	4.88E-05	492	3.11E-04	559	6.72E-04	626	6.44E-04	693	1.25E-04	760	1.48E-05
426	5.62E-05	493	3.16E-04	560	6.74E-04	627	6.34E-04	694	1.22E-04	761	1.44E-05
427	6.38E-05	494	3.22E-04	561	6.81E-04	628	6.23E-04	695	1.18E-04	762	1.40E-05
428	7.08E-05	495	3.30E-04	562	6.86E-04	629	6.14E-04	696	1.15E-04	763	1.33E-05
429	8.02E-05	496	3.40E-04	563	6.91E-04	630	6.03E-04	697	1.11E-04	764	1.31E-05
430	8.87E-05	497	3.48E-04	564	6.93E-04	631	5.96E-04	698	1.07E-04	765	1.28E-05
431	9.88E-05	498	3.59E-04	565	7.00E-04	632	5.88E-04	699	1.04E-04	766	1.23E-05
432	1.09E-04	499	3.67E-04	566	7.05E-04	633	5.78E-04	700	1.01E-04	767	1.21E-05
433	1.21E-04	500	3.79E-04	567	7.06E-04	634	5.68E-04	701	9.81E-05	768	1.17E-05
434	1.35E-04	501	3.91E-04	568	7.14E-04	635	5.58E-04	702	9.46E-05	769	1.09E-05
435	1.49E-04	502	3.99E-04	569	7.18E-04	636	5.48E-04	703	9.20E-05	770	1.11E-05
436	1.68E-04	503	4.11E-04	570	7.24E-04	637	5.39E-04	704	8.91E-05	771	1.04E-05
437	1.88E-04	504	4.22E-04	571	7.30E-04	638	5.27E-04	705	8.62E-05	772	1.02E-05
438	2.07E-04	505	4.31E-04	572	7.32E-04	639	5.17E-04	706	8.32E-05	773	9.90E-06
439	2.32E-04	506	4.42E-04	573	7.36E-04	640	5.06E-04	707	8.10E-05	774	9.60E-06
440	2.61E-04	507	4.49E-04	574	7.37E-04	641	4.93E-04	708	7.83E-05	775	9.50E-06
441	2.95E-04	508	4.57E-04	575	7.44E-04	642	4.85E-04	709	7.58E-05	776	9.10E-06
442	3.29E-04	509	4.64E-04	576	7.48E-04	643	4.75E-04	710	7.34E-05	777	8.50E-06
443	3.68E-04	510	4.73E-04	577	7.51E-04	644	4.67E-04	711	7.11E-05	778	8.40E-06
444	4.14E-04	511	4.81E-04	578	7.54E-04	645	4.56E-04	712	6.89E-05	779	8.40E-06
445	4.65E-04	512	4.88E-04	579	7.59E-04	646	4.47E-04	713	6.69E-05	780	8.40E-06
446	5.25E-04	513	4.95E-04	580	7.61E-04	647	4.38E-04	714	6.50E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SWISHFA1X4 @29W4000K	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	0.103	27.4	0.964
NON-WORST CASE	120.0	60	0.225	26.8	0.992

Test Result

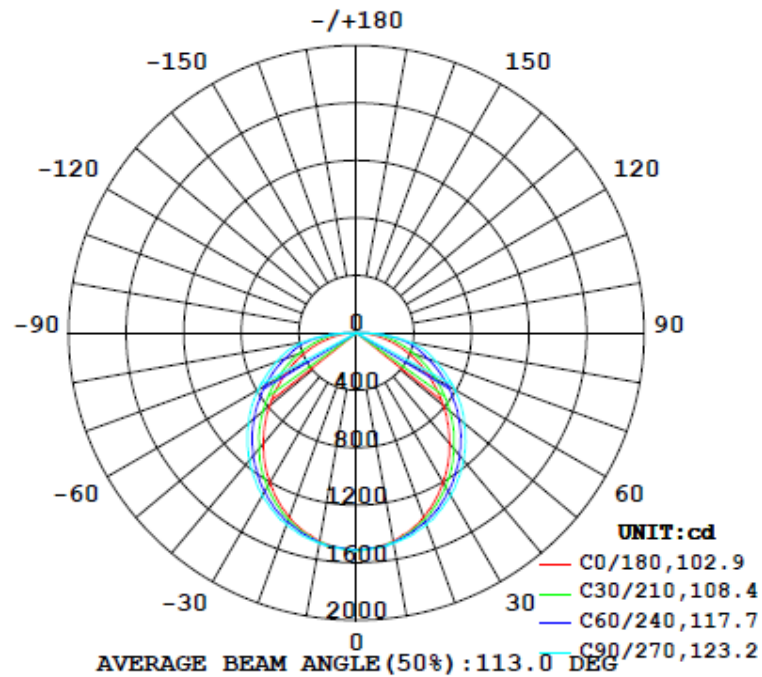
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement (0° - 60°)
	C0-180	C90-270	C0-180	C90-270		
4511	162.0	172.7	103.2	123.1	164.6	74.6%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
20.7	23.9	1.20	1.30

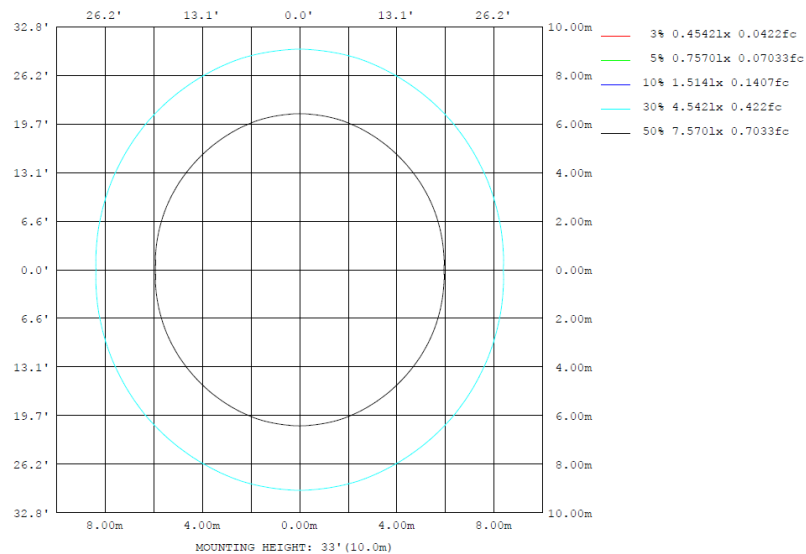
4.2 Goniophotometer Test

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	zone	total	lum, lamp
10	1471	1481	1486	1481	1471	1481	1486	1481	0- 10	142.6	142.6	3.16, 3.16
20	1363	1391	1421	1391	1363	1391	1421	1391	10- 20	406.9	549.5	12.2, 12.2
30	1204	1252	1310	1252	1204	1252	1310	1252	20- 30	613.1	1163	25.8, 25.8
40	1008	1084	1157	1084	1008	1084	1157	1084	30- 40	735.1	1898	42.1, 42.1
50	788.8	889.2	975.3	889.2	788.8	889.2	975.3	889.2	40- 50	762.8	2661	59, 59
60	569.1	682.7	790.3	682.7	569.1	682.7	790.3	682.7	50- 60	702.5	3363	74.6, 74.6
70	359.5	480.6	592.6	480.6	359.5	480.6	592.6	480.6	60- 70	573.2	3936	87.3, 87.3
80	165.0	300.7	377.4	300.7	165.0	300.7	377.4	300.7	70- 80	404.8	4341	96.2, 96.2
90	0	0	0	0	0	0	0	0	80- 90	169.7	4511	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	4511	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4511	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4511	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4511	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4511	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4511	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4511	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4511	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4511	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	142.64	0-10	142.64	3.16%
10-20	406.87	0-20	549.51	12.18%
20-30	613.11	0-30	1162.62	25.77%
30-40	735.13	0-40	1897.75	42.07%
40-50	762.77	0-50	2660.52	58.98%
50-60	702.51	0-60	3363.03	74.56%
60-70	573.24	0-70	3936.27	87.26%
70-80	404.80	0-80	4341.07	96.24%
80-90	169.72	0-90	4510.79	100.00%
90-100	0.00	0-100	4510.79	100.00%
100-110	0.00	0-110	4510.79	100.00%
110-120	0.00	0-120	4510.79	100.00%
120-130	0.00	0-130	4510.79	100.00%
130-140	0.00	0-140	4510.79	100.00%
140-150	0.00	0-150	4510.79	100.00%
150-160	0.00	0-160	4510.79	100.00%
160-170	0.00	0-170	4510.79	100.00%
170-180	0.00	0-180	4510.79	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	10.7	12.4	11.0	12.7	13.0	12.2	13.9	12.5	14.2	14.5
	3H	12.5	14.0	12.8	14.3	14.7	14.6	16.1	14.9	16.4	16.8
	4H	13.2	14.6	13.6	15.0	15.4	15.8	17.2	16.2	17.6	17.9
	6H	13.8	15.1	14.2	15.5	15.9	16.9	18.2	17.3	18.6	19.0
	8H	13.9	15.2	14.4	15.6	16.0	17.3	18.6	17.7	19.0	19.4
	12H	14.1	15.3	14.5	15.7	16.2	17.7	18.9	18.1	19.3	19.7
4H	2H	11.6	13.0	12.0	13.4	13.8	12.8	14.2	13.2	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	15.6	15.0	16.1	16.5	16.8	17.9	17.2	18.3	18.7
	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	15.9	16.9	17.3	18.7	19.6	19.1	20.0	20.5
	12H	15.7	16.5	16.2	17.0	17.5	19.1	20.0	19.6	20.4	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	16.1	16.9	16.6	17.4	17.9	18.7	19.5	19.2	19.9	20.4
	8H	16.5	17.2	17.0	17.7	18.2	19.4	20.1	19.9	20.6	21.1
	12H	16.9	17.5	17.4	18.0	18.5	20.0	20.6	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	19.9	20.5
	8H	16.9	17.6	17.4	18.1	18.6	19.6	20.2	20.1	20.7	21.2

Maximum UGR = 21.7

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	15.9	17.6	16.2	17.9	18.2	17.4	19.1	17.7	19.4	19.7
	3H	17.7	19.2	18.0	19.5	19.9	19.8	21.3	20.1	21.6	22.0
	4H	18.4	19.8	18.8	20.2	20.6	21.0	22.4	21.4	22.8	23.1
	6H	19.0	20.3	19.4	20.7	21.1	22.1	23.4	22.5	23.8	24.2
	8H	19.1	20.4	19.6	20.8	21.2	22.5	23.8	22.9	24.2	24.6
	12H	19.3	20.5	19.7	20.9	21.4	22.9	24.1	23.3	24.5	24.9
4H	2H	16.8	18.2	17.2	18.6	19.0	18.0	19.4	18.4	19.7	20.1
	3H	18.9	20.1	19.3	20.5	20.9	20.6	21.8	21.0	22.2	22.6
	4H	19.7	20.8	20.2	21.3	21.7	22.0	23.1	22.4	23.5	23.9
	6H	20.4	21.4	20.9	21.9	22.3	23.3	24.3	23.8	24.7	25.2
	8H	20.7	21.6	21.1	22.1	22.5	23.9	24.8	24.3	25.2	25.7
	12H	20.9	21.7	21.4	22.2	22.7	24.3	25.2	24.8	25.6	26.1
8H	4H	20.4	21.4	20.9	21.8	22.3	22.3	23.3	22.8	23.7	24.2
	6H	21.3	22.1	21.8	22.6	23.1	23.9	24.7	24.4	25.1	25.6
	8H	21.7	22.4	22.2	22.9	23.4	24.6	25.3	25.1	25.8	26.3
	12H	22.1	22.7	22.6	23.2	23.7	25.2	25.8	25.7	26.3	26.9
12H	4H	20.6	21.5	21.1	21.9	22.4	22.4	23.2	22.9	23.7	24.2
	6H	21.7	22.4	22.2	22.8	23.4	24.0	24.7	24.5	25.1	25.7
	8H	22.1	22.8	22.6	23.3	23.8	24.8	25.4	25.3	25.9	26.4

Maximum UGR = 26.9

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	1514	1512	1511	1510	1508	1516	1514	1516	1508	1510	1511	1512	1514	1512	1511	1510	1508	1516	1514
5	1499	1500	1502	1502	1499	1503	1505	1503	1499	1502	1502	1500	1499	1500	1502	1502	1499	1503	1505
10	1471	1472	1479	1481	1482	1487	1486	1487	1482	1481	1479	1472	1471	1472	1479	1481	1482	1487	1486
15	1428	1427	1437	1442	1446	1458	1462	1458	1446	1442	1437	1427	1428	1427	1437	1442	1446	1458	1462
20	1363	1373	1384	1391	1401	1414	1421	1414	1401	1391	1384	1373	1363	1373	1384	1391	1401	1414	1421
25	1291	1303	1317	1331	1347	1367	1368	1367	1347	1331	1317	1303	1291	1303	1317	1331	1347	1367	1368
30	1204	1219	1240	1252	1275	1301	1310	1301	1275	1252	1240	1219	1204	1219	1240	1252	1275	1301	1310
35	1111	1123	1154	1175	1201	1223	1235	1223	1201	1175	1154	1123	1111	1123	1154	1175	1201	1223	1235
40	1008	1028	1054	1084	1117	1149	1157	1149	1117	1084	1054	1028	1008	1028	1054	1084	1117	1149	1157
45	901	917	957	987	1026	1052	1074	1052	1026	987	957	917	901	917	957	987	1026	1052	1074
50	789	814	848	889	929	963	975	963	929	889	848	814	789	814	848	889	929	963	975
55	679	703	739	785	828	870	890	870	828	785	739	703	679	703	739	785	828	870	890
60	569	593	632	683	733	771	790	771	733	683	632	593	569	593	632	683	733	771	790
65	462	486	528	580	633	671	686	671	633	580	528	486	462	486	528	580	633	671	686
70	360	382	426	481	531	573	593	573	531	481	426	382	360	382	426	481	531	573	593
75	259	282	330	384	443	488	505	488	443	384	330	282	259	282	330	384	443	488	505
80	165	188	238	301	342	369	377	369	342	301	238	188	165	188	238	301	342	369	377
85	77.3	104	149	180	197	204	207	204	197	180	149	104	77.3	104	149	180	197	204	207
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	1516	1508	1510	1511	1512														
5	1503	1499	1502	1502	1500														
10	1487	1482	1481	1479	1472														
15	1458	1446	1442	1437	1427														
20	1414	1401	1391	1384	1373														
25	1367	1347	1331	1317	1303														
30	1301	1275	1252	1240	1219														
35	1223	1201	1175	1154	1123														
40	1149	1117	1084	1054	1028														
45	1052	1026	987	957	917														
50	963	929	889	848	814														
55	870	828	785	739	703														
60	771	733	683	632	593														
65	671	633	580	528	486														
70	573	531	481	426	382														
75	488	443	384	330	282														
80	369	342	301	238	188														
85	204	197	180	149	104														
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 @29W4000K	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	0.225	26.8	0.992	11.90
277.0	60	0.103	27.4	0.964	7.84

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*****