

## Photometric Test Report

### Relevant Standards

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

Prepared For

**RAB Lighting Inc.**

Address: 408 W 14th St New York, NY 10014

Prepared By

**Dongguan New Testing Centre Co., Ltd.**

Address: 3F No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

Prepare by:

*Alan Wang*

Engineer: Alan Wang

Date: 2025-01-21

Review by:

*Vincent Yuan*

Technical Lead: Vincent Yuan

Issue Date: 2025-01-21

Revised Date: N/A

## 1.0 Test Summary

DLC Technical Requirements V5.1

2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	3000		4092
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	134.2
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		30.5
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	10.26
			277V	6.43
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.993
			277V	0.915
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	5029±283	4793
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥80		83.0
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥0		7
Minimum Rf (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥70		83
Minimum Rg (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥89		93
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-12%≤IES Rcs,h1≤+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≥75%		78.0%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	18.7
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	0°-180°	1.0-2.0	1.26
		90°-270°	1.0-2.0	1.26
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		0.120
(Goniophotometer – Section 4.2)		Non-Worst Case		0.253
Power (Input Wattage – W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		30.5
(Goniophotometer – Section 4.2)		Non-Worst Case		30.1

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-01-20	EZP2X4 @30W5000K	-	250117003-S1
2	Goniophotometer Test	2025-01-20	EZP2X4 @30W5000K	-	250117003-S1
3	THD and PF Test	2025-01-20	EZP2X4 @30W5000K	-	250117003-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. EZP2X4 @30W5000K, 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

<b>Model No.</b>	EZP2X4 @30W5000K	<b>Sample ID</b>	250117003-S1
<b>Operate time (Min.)</b>	10	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

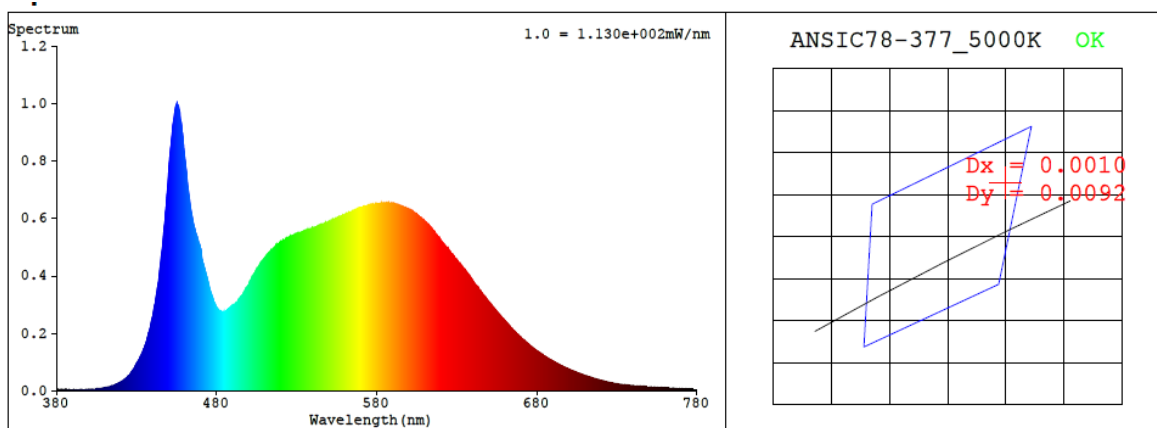
<b>Test Method</b>
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were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

<b>Voltage (Vac)</b>	<b>Frequency (Hz)</b>	<b>Current (A)</b>	<b>Power (W)</b>	<b>Power Factor</b>
120.0	60	0.253	30.1	0.993
277.0	60	0.120	30.5	0.915

<b>CCT (K)</b>	<b>CRI</b>	<b>R9</b>	<b>Duv</b>	<b>Rf</b>	<b>Rg</b>	<b>IES Rcs,h1</b>
4793	83.0	7	0.0042	83	93	-13%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3522$   $y = 0.3656$  /  $u' = 0.2108$   $v' = 0.4924$  ( $duv=4.16e-03$ )

CCT= 4793K Prcp WL:  $L_d=571.7nm$  Purity=15.4%

Peak WL:  $L_p=455nm$  FWHM:  $=23.6nm$  Ratio:  $R=16.0\%$   $G=79.4\%$   $B=4.7\%$

Render Index:  $R_a = 83.0$   $AvgR = 75.9$  TM30:  $R_f=83$   $R_g=93$

EEL: 0.09457 A++ Highest

R1 =81 R2 =90 R3 =95 R4 =79 R5 =80 R6 =86 R7 =86

R8 =66 R9 =7 R10=76 R11=78 R12=55 R13=84 R14=98 R15=75

## 4.1 Integrating Sphere Test

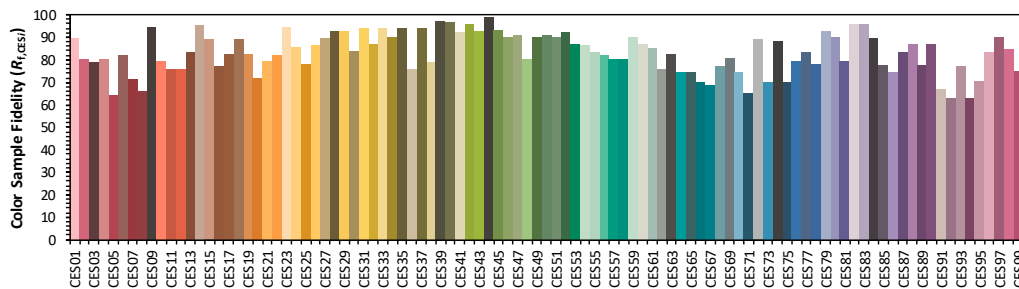
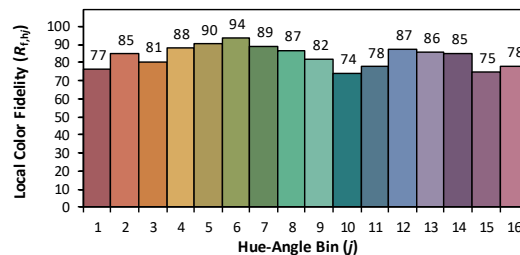
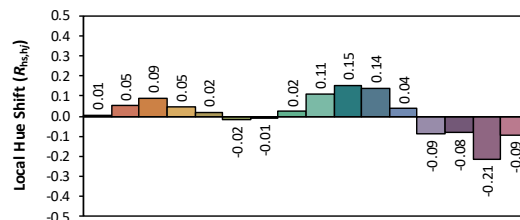
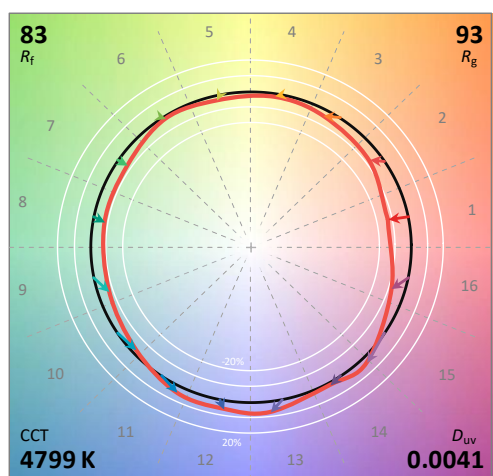
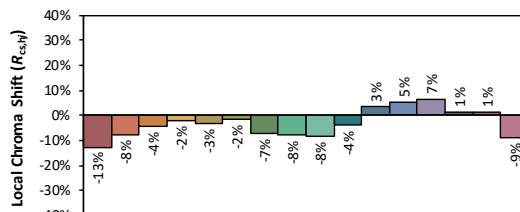
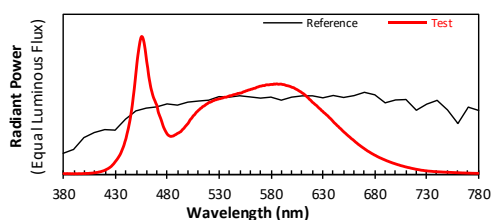
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/1/21

Model: EZP2X4 @30W5000K



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

$x$  0.3521  
 $y$  0.3655  
 $u'$  0.2108  
 $v'$  0.4923

CIE 13.3-1995  
(CRI)  
 $R_a$  83  
 $R_g$  8



## 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	4.90E-06	447	5.58E-04	514	4.89E-04	581	6.51E-04	648	3.25E-04	715	4.45E-05
381	4.30E-06	448	6.19E-04	515	4.93E-04	582	6.50E-04	649	3.17E-04	716	4.29E-05
382	4.00E-06	449	6.90E-04	516	4.97E-04	583	6.54E-04	650	3.10E-04	717	4.11E-05
383	4.90E-06	450	7.63E-04	517	5.04E-04	584	6.52E-04	651	3.03E-04	718	3.97E-05
384	4.40E-06	451	8.32E-04	518	5.09E-04	585	6.54E-04	652	2.97E-04	719	3.79E-05
385	3.70E-06	452	8.88E-04	519	5.13E-04	586	6.54E-04	653	2.89E-04	720	3.64E-05
386	4.50E-06	453	9.38E-04	520	5.20E-04	587	6.52E-04	654	2.83E-04	721	3.52E-05
387	2.90E-06	454	9.77E-04	521	5.21E-04	588	6.52E-04	655	2.76E-04	722	3.37E-05
388	4.20E-06	455	9.97E-04	522	5.24E-04	589	6.53E-04	656	2.70E-04	723	3.26E-05
389	3.30E-06	456	9.93E-04	523	5.27E-04	590	6.53E-04	657	2.63E-04	724	3.09E-05
390	2.80E-06	457	9.69E-04	524	5.33E-04	591	6.51E-04	658	2.56E-04	725	2.95E-05
391	4.40E-06	458	9.30E-04	525	5.34E-04	592	6.50E-04	659	2.52E-04	726	2.84E-05
392	3.80E-06	459	8.78E-04	526	5.39E-04	593	6.49E-04	660	2.45E-04	727	2.79E-05
393	3.50E-06	460	8.18E-04	527	5.39E-04	594	6.45E-04	661	2.38E-04	728	2.64E-05
394	4.10E-06	461	7.70E-04	528	5.43E-04	595	6.43E-04	662	2.31E-04	729	2.54E-05
395	4.30E-06	462	7.11E-04	529	5.44E-04	596	6.41E-04	663	2.26E-04	730	2.49E-05
396	4.00E-06	463	6.69E-04	530	5.47E-04	597	6.40E-04	664	2.19E-04	731	2.38E-05
397	3.80E-06	464	6.27E-04	531	5.48E-04	598	6.37E-04	665	2.14E-04	732	2.28E-05
398	4.40E-06	465	5.98E-04	532	5.50E-04	599	6.35E-04	666	2.08E-04	733	2.23E-05
399	4.70E-06	466	5.69E-04	533	5.52E-04	600	6.31E-04	667	2.02E-04	734	2.16E-05
400	5.30E-06	467	5.48E-04	534	5.54E-04	601	6.28E-04	668	1.97E-04	735	2.12E-05
401	5.10E-06	468	5.31E-04	535	5.58E-04	602	6.27E-04	669	1.92E-04	736	2.04E-05
402	6.00E-06	469	5.12E-04	536	5.58E-04	603	6.22E-04	670	1.87E-04	737	1.96E-05
403	5.70E-06	470	4.95E-04	537	5.58E-04	604	6.17E-04	671	1.81E-04	738	1.93E-05
404	6.00E-06	471	4.56E-04	538	5.62E-04	605	6.14E-04	672	1.76E-04	739	1.86E-05
405	7.10E-06	472	4.33E-04	539	5.65E-04	606	6.10E-04	673	1.70E-04	740	1.82E-05
406	7.50E-06	473	4.14E-04	540	5.68E-04	607	6.05E-04	674	1.66E-04	741	1.77E-05
407	8.20E-06	474	3.94E-04	541	5.69E-04	608	6.00E-04	675	1.62E-04	742	1.74E-05
408	8.80E-06	475	3.71E-04	542	5.70E-04	609	5.96E-04	676	1.57E-04	743	1.71E-05
409	1.01E-05	476	3.47E-04	543	5.74E-04	610	5.90E-04	677	1.52E-04	744	1.67E-05
410	1.07E-05	477	3.30E-04	544	5.76E-04	611	5.85E-04	678	1.48E-04	745	1.63E-05
411	1.19E-05	478	3.15E-04	545	5.78E-04	612	5.80E-04	679	1.44E-04	746	1.56E-05
412	1.30E-05	479	3.01E-04	546	5.80E-04	613	5.73E-04	680	1.39E-04	747	1.54E-05
413	1.43E-05	480	2.90E-04	547	5.82E-04	614	5.67E-04	681	1.36E-04	748	1.52E-05
414	1.64E-05	481	2.82E-04	548	5.86E-04	615	5.59E-04	682	1.32E-04	749	1.47E-05
415	1.77E-05	482	2.78E-04	549	5.85E-04	616	5.54E-04	683	1.28E-04	750	1.45E-05
416	1.95E-05	483	2.74E-04	550	5.88E-04	617	5.44E-04	684	1.24E-04	751	1.40E-05
417	2.20E-05	484	2.75E-04	551	5.88E-04	618	5.39E-04	685	1.20E-04	752	1.36E-05
418	2.43E-05	485	2.76E-04	552	5.91E-04	619	5.31E-04	686	1.17E-04	753	1.35E-05
419	2.69E-05	486	2.78E-04	553	5.95E-04	620	5.22E-04	687	1.14E-04	754	1.32E-05
420	3.05E-05	487	2.84E-04	554	5.98E-04	621	5.17E-04	688	1.10E-04	755	1.27E-05
421	3.43E-05	488	2.87E-04	555	6.00E-04	622	5.10E-04	689	1.07E-04	756	1.23E-05
422	3.80E-05	489	2.92E-04	556	6.04E-04	623	5.03E-04	690	1.04E-04	757	1.20E-05
423	4.21E-05	490	2.97E-04	557	6.06E-04	624	4.98E-04	691	1.01E-04	758	1.17E-05
424	4.71E-05	491	3.00E-04	558	6.09E-04	625	4.90E-04	692	9.71E-05	759	1.14E-05
425	5.25E-05	492	3.05E-04	559	6.11E-04	626	4.83E-04	693	9.45E-05	760	1.09E-05
426	5.87E-05	493	3.09E-04	560	6.13E-04	627	4.76E-04	694	9.15E-05	761	1.07E-05
427	6.70E-05	494	3.18E-04	561	6.16E-04	628	4.70E-04	695	8.86E-05	762	1.06E-05
428	7.46E-05	495	3.27E-04	562	6.17E-04	629	4.61E-04	696	8.59E-05	763	1.01E-05
429	8.44E-05	496	3.33E-04	563	6.21E-04	630	4.56E-04	697	8.30E-05	764	9.80E-06
430	9.43E-05	497	3.43E-04	564	6.23E-04	631	4.47E-04	698	8.04E-05	765	9.30E-06
431	1.04E-04	498	3.52E-04	565	6.24E-04	632	4.42E-04	699	7.81E-05	766	9.30E-06
432	1.14E-04	499	3.61E-04	566	6.29E-04	633	4.35E-04	700	7.56E-05	767	9.10E-06
433	1.26E-04	500	3.69E-04	567	6.31E-04	634	4.28E-04	701	7.30E-05	768	8.60E-06
434	1.38E-04	501	3.81E-04	568	6.33E-04	635	4.23E-04	702	7.07E-05	769	8.50E-06
435	1.53E-04	502	3.95E-04	569	6.37E-04	636	4.14E-04	703	6.83E-05	770	8.10E-06
436	1.71E-04	503	4.02E-04	570	6.38E-04	637	4.07E-04	704	6.64E-05	771	8.00E-06
437	1.90E-04	504	4.12E-04	571	6.39E-04	638	4.00E-04	705	6.35E-05	772	7.80E-06
438	2.10E-04	505	4.23E-04	572	6.42E-04	639	3.91E-04	706	6.15E-05	773	7.50E-06
439	2.36E-04	506	4.29E-04	573	6.42E-04	640	3.83E-04	707	5.97E-05	774	7.10E-06
440	2.59E-04	507	4.39E-04	574	6.43E-04	641	3.74E-04	708	5.77E-05	775	7.00E-06
441	2.93E-04	508	4.49E-04	575	6.47E-04	642	3.67E-04	709	5.54E-05	776	6.80E-06
442	3.23E-04	509	4.55E-04	576	6.48E-04	643	3.61E-04	710	5.33E-05	777	6.60E-06
443	3.59E-04	510	4.63E-04	577	6.48E-04	644	3.52E-04	711	5.17E-05	778	6.50E-06
444	3.98E-04	511	4.69E-04	578	6.47E-04	645	3.47E-04	712	4.96E-05	779	6.50E-06
445	4.45E-04	512	4.77E-04	579	6.49E-04	646	3.38E-04	713	4.81E-05	780	6.50E-06
446	4.95E-04	513	4.81E-04	580	6.50E-04	647	3.32E-04	714	4.67E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	EZP2X4 @30W5000K	<b>Sample ID</b>	250117003-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.8	<b>Humidity (%RH)</b>	41.3

<b>Test Method</b>
<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 <math>25 \pm 1^\circ\text{C}</math>, 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 <math>\pm 0.2</math> 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 <math>1.0^\circ</math> vertical intervals and <math>15^\circ</math> horizontal intervals.</p>

### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
<b>WORST CASE</b>	277.0	60	0.120	30.5	0.915
<b>NON-WORST CASE</b>	120.0	60	0.253	30.1	0.993

### Test Result

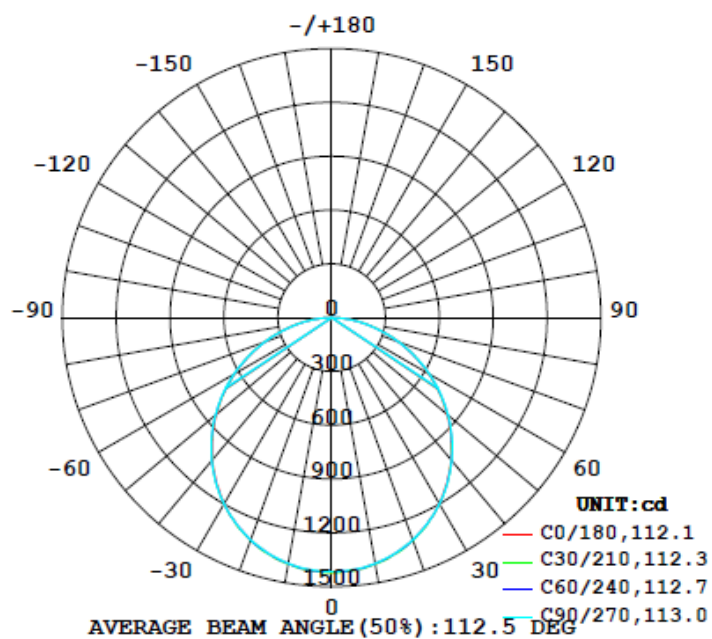
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
4092	164.5	163.9	111.9	112.7	134.2	78.0%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
18.7	18.7	1.26	1.26

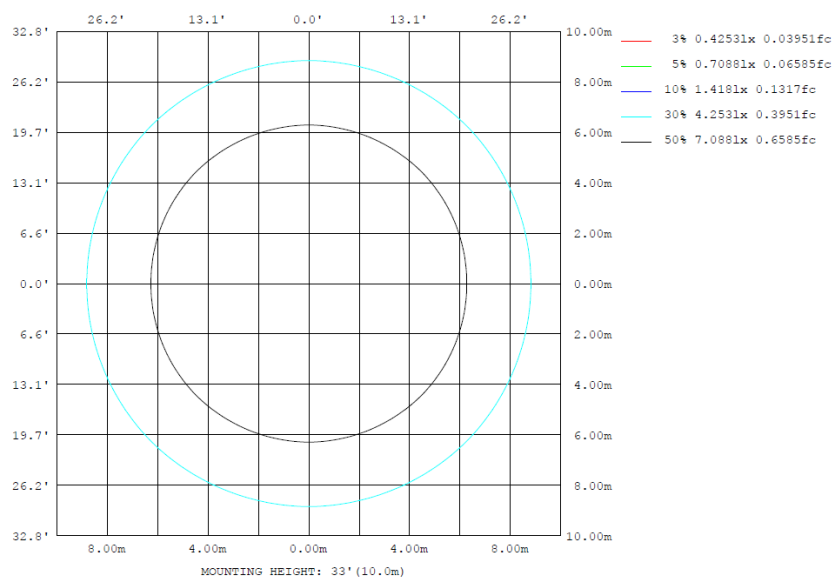
## 4.2 Goniophotometer Test

### 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	Φ zone	Φ total	%lum, lamp
10	1395	1397	1391	1397	1395	1397	1391	1397	0- 10	134.3	134.3	3.28, 3.28
20	1318	1323	1318	1323	1318	1323	1318	1323	10- 20	384.7	519.0	12.7, 12.7
30	1199	1201	1199	1201	1199	1201	1199	1201	20- 30	583.1	1102	26.9, 26.9
40	1034	1041	1041	1041	1034	1041	1041	1041	30- 40	702.4	1804	44.1, 44.1
50	837.4	846.5	847.5	846.5	837.4	846.5	847.5	846.5	40- 50	727.9	2532	61.9, 61.9
60	622.8	627.7	629.6	627.7	622.8	627.7	629.6	627.7	50- 60	658.1	3190	78, 78
70	397.2	398.7	397.4	398.7	397.2	398.7	397.4	398.7	60- 70	506.3	3697	90.3, 90.3
80	182.8	179.6	175.9	179.6	182.8	179.6	175.9	179.6	70- 80	301.8	3999	97.7, 97.7
90	0	0	0	0	0	0	0	0	80- 90	93.00	4092	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	4092	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4092	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4092	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4092	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4092	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4092	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4092	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4092	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4092	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	134.27	0-10	134.27	3.28%
10-20	384.72	0-20	518.99	12.68%
20-30	583.06	0-30	1102.05	26.93%
30-40	702.44	0-40	1804.49	44.10%
40-50	727.88	0-50	2532.37	61.89%
50-60	658.10	0-60	3190.47	77.98%
60-70	506.29	0-70	3696.76	90.35%
70-80	301.85	0-80	3998.61	97.73%
80-90	93.01	0-90	4091.62	100.00%
90-100	0.00	0-100	4091.62	100.00%
100-110	0.00	0-110	4091.62	100.00%
110-120	0.00	0-120	4091.62	100.00%
120-130	0.00	0-130	4091.62	100.00%
130-140	0.00	0-140	4091.62	100.00%
140-150	0.00	0-150	4091.62	100.00%
150-160	0.00	0-160	4091.62	100.00%
160-170	0.00	0-170	4091.62	100.00%
170-180	0.00	0-180	4091.62	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	9.2	10.9	9.6	11.2	11.5	9.3	10.9	9.6	11.2	11.5
	3H	11.1	12.6	11.5	12.9	13.3	11.1	12.6	11.5	12.9	13.3
	4H	11.8	13.2	12.2	13.6	14.0	11.8	13.2	12.2	13.6	14.0
	6H	12.4	13.7	12.8	14.1	14.5	12.4	13.7	12.8	14.0	14.4
	8H	12.6	13.9	13.0	14.2	14.6	12.6	13.8	13.0	14.2	14.6
	12H	12.8	14.0	13.2	14.3	14.8	12.7	13.9	13.1	14.3	14.7
4H	2H	9.9	11.3	10.3	11.6	12.0	9.9	11.3	10.3	11.7	12.1
	3H	12.0	13.2	12.4	13.6	14.0	12.0	13.2	12.4	13.6	14.0
	4H	12.8	13.9	13.3	14.3	14.8	12.8	13.9	13.3	14.3	14.8
	6H	13.6	14.5	14.0	14.9	15.4	13.5	14.5	14.0	14.9	15.4
	8H	13.8	14.7	14.3	15.2	15.6	13.8	14.6	14.2	15.1	15.5
	12H	14.0	14.8	14.5	15.3	15.8	13.9	14.7	14.4	15.2	15.7
8H	4H	13.2	14.1	13.7	14.5	15.0	13.2	14.1	13.7	14.5	15.0
	6H	14.0	14.8	14.5	15.3	15.7	14.0	14.7	14.5	15.2	15.7
	8H	14.4	15.1	14.9	15.6	16.0	14.3	15.0	14.8	15.5	16.0
	12H	14.7	15.3	15.2	15.8	16.3	14.6	15.2	15.1	15.7	16.2
12H	4H	13.2	14.0	13.7	14.5	15.0	13.2	14.0	13.7	14.5	15.0
	6H	14.1	14.8	14.6	15.3	15.8	14.1	14.7	14.6	15.2	15.7
	8H	14.5	15.1	15.0	15.6	16.2	14.5	15.0	15.0	15.5	16.1

Maximum UGR = 16.3

UGR – Corrected Table:

**UGR TABLE - CORRECTED**

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.1	15.8	14.5	16.1	16.4	14.2	15.8	14.5	16.1	16.4
	3H	16.0	17.5	16.4	17.8	18.2	16.0	17.5	16.4	17.8	18.2
	4H	16.7	18.1	17.1	18.5	18.9	16.7	18.1	17.1	18.5	18.9
	6H	17.3	18.6	17.7	19.0	19.4	17.3	18.6	17.7	18.9	19.3
	8H	17.5	18.8	17.9	19.1	19.5	17.5	18.7	17.9	19.1	19.5
	12H	17.7	18.9	18.1	19.2	19.7	17.6	18.8	18.0	19.2	19.6
4H	2H	14.8	16.2	15.2	16.5	16.9	14.8	16.2	15.2	16.6	17.0
	3H	16.9	18.1	17.3	18.5	18.9	16.9	18.1	17.3	18.5	18.9
	4H	17.7	18.8	18.2	19.2	19.7	17.7	18.8	18.2	19.2	19.7
	6H	18.5	19.4	18.9	19.8	20.3	18.4	19.4	18.9	19.8	20.3
	8H	18.7	19.6	19.2	20.1	20.5	18.7	19.5	19.1	20.0	20.4
	12H	18.9	19.7	19.4	20.2	20.7	18.8	19.6	19.3	20.1	20.6
8H	4H	18.1	19.0	18.6	19.4	19.9	18.1	19.0	18.6	19.4	19.9
	6H	18.9	19.7	19.4	20.2	20.6	18.9	19.6	19.4	20.1	20.6
	8H	19.3	20.0	19.8	20.5	20.9	19.2	19.9	19.7	20.4	20.9
	12H	19.6	20.2	20.1	20.7	21.2	19.5	20.1	20.0	20.6	21.1
12H	4H	18.1	18.9	18.6	19.4	19.9	18.1	18.9	18.6	19.4	19.9
	6H	19.0	19.7	19.5	20.2	20.7	19.0	19.6	19.5	20.1	20.6
	8H	19.4	20.0	19.9	20.5	21.1	19.4	19.9	19.9	20.4	21.0

Maximum UGR = 21.2

## 4.2 Goniophotometer Test

### Luminous Distribution Intensity Data

C (DEG)																	UNIT: cd				
y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270		
0	1418	1420	1420	1420	1416	1416	1415	1416	1415	1416	1420	1420	1420	1418	1420	1420	1416	1415	1416		
5	1411	1416	1416	1414	1414	1411	1410	1408	1410	1411	1414	1416	1416	1411	1416	1416	1414	1411	1410		
10	1395	1396	1396	1397	1392	1392	1392	1391	1392	1392	1397	1396	1396	1395	1396	1396	1397	1392	1392		
15	1363	1365	1364	1364	1362	1362	1361	1361	1361	1362	1364	1364	1365	1363	1365	1364	1364	1362	1361		
20	1318	1321	1321	1323	1320	1318	1318	1318	1320	1323	1321	1321	1318	1321	1321	1323	1320	1318	1318		
25	1266	1264	1267	1268	1264	1263	1265	1263	1264	1268	1267	1264	1266	1264	1267	1268	1264	1263	1265		
30	1199	1197	1200	1201	1199	1198	1199	1198	1199	1201	1200	1197	1199	1197	1200	1201	1199	1198	1199		
35	1121	1121	1125	1125	1123	1124	1125	1124	1123	1125	1125	1121	1121	1121	1125	1125	1123	1124	1125		
40	1034	1034	1037	1041	1039	1037	1041	1037	1039	1041	1037	1034	1034	1034	1037	1041	1039	1037	1041		
45	939	939	943	947	946	944	948	944	946	947	943	939	939	939	943	947	946	944	948		
50	837	839	841	847	844	845	848	845	844	847	841	839	837	839	841	847	844	845	848		
55	731	732	735	740	737	739	741	739	737	740	735	732	731	732	735	740	737	739	741		
60	623	622	625	628	628	627	630	627	628	628	625	622	623	622	625	628	627	630	628		
65	511	510	511	513	512	512	513	512	512	513	511	510	511	510	511	513	512	512	513		
70	397	397	397	399	396	395	397	395	396	399	397	397	397	397	397	399	396	395	397		
75	288	287	287	286	284	283	284	283	284	286	287	287	288	287	287	286	284	283	284		
80	183	182	181	180	177	176	176	177	180	181	181	182	183	182	181	180	177	176	176		
85	87.1	86.1	84.4	83.2	81.2	79.9	80.1	79.9	81.2	83.2	84.4	86.1	87.1	86.1	84.4	83.2	81.2	79.9	80.1		
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														
y (DEG)	0	1415	1416	1420	1420	1420													
5	1410	1411	1414	1416	1416														
10	1392	1392	1397	1396	1396														
15	1361	1362	1364	1364	1365														
20	1318	1320	1323	1321	1321														
25	1263	1264	1268	1267	1264														
30	1198	1199	1201	1200	1197														
35	1124	1123	1125	1125	1121														
40	1037	1039	1041	1037	1034														
45	944	946	947	943	939														
50	845	844	847	841	839														
55	739	737	740	735	732														
60	627	628	628	625	622														
65	512	512	513	511	510														
70	395	396	399	397	397														
75	283	284	286	287	287														
80	176	177	180	181	182														
85	79.9	81.2	83.2	84.4	86.1														
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

<b>Model No.</b>	EZP2X4 @30W5000K	<b>Sample ID</b>	250117003-S1
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

<b>Test Method</b>
<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 <math>25 \pm 1^{\circ}\text{C}</math>. 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	0.253	30.1	0.993	10.26
277.0	60	0.120	30.5	0.915	6.43

## 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\*\*\*\*\*