

## 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

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		3091
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	117.5
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		26.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	11.02
			277V	9.63
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.994
			277V	0.924
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	5029±283	4764
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥80		83.4
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	≥0		9
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%		77.9%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	20.1
		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		0.103
(Goniophotometer – Section 4.2)		Non-Worst Case		0.213
Power (Input Wattage – W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		26.3
(Goniophotometer – Section 4.2)		Non-Worst Case		25.4

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-01-20	EZP1X4 @25W5000K	-	250117001-S1
2	Goniophotometer Test	2025-01-20	EZP1X4 @25W5000K	-	250117001-S1
3	THD and PF Test	2025-01-20	EZP1X4 @25W5000K	-	250117001-S1

### Remark (If any):

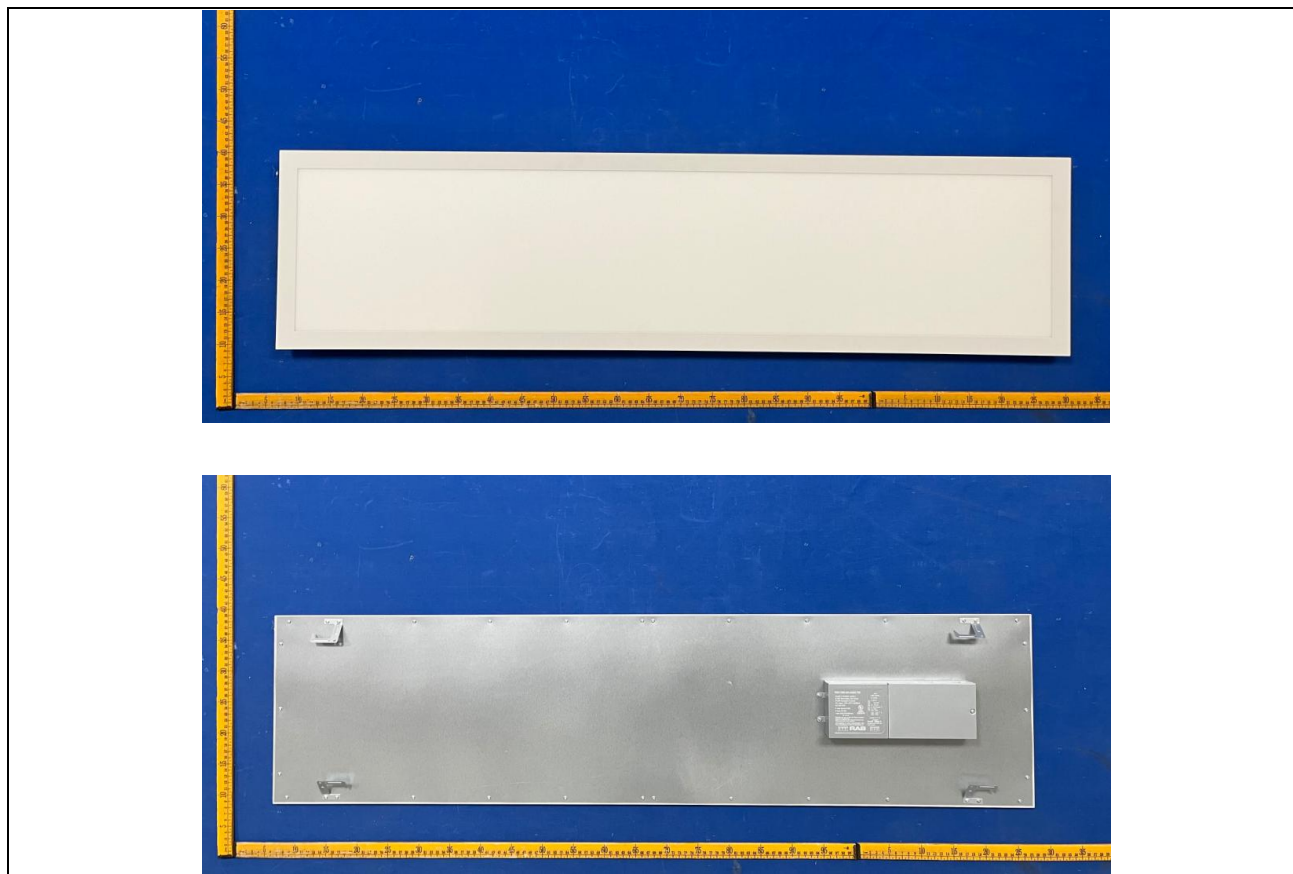
1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

### 3.0 Product Description

Luminaire Description: Model No. EZP1X4 @25W5000K, 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>	EZP1X4 @25W5000K	<b>Sample ID</b>	250117001-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

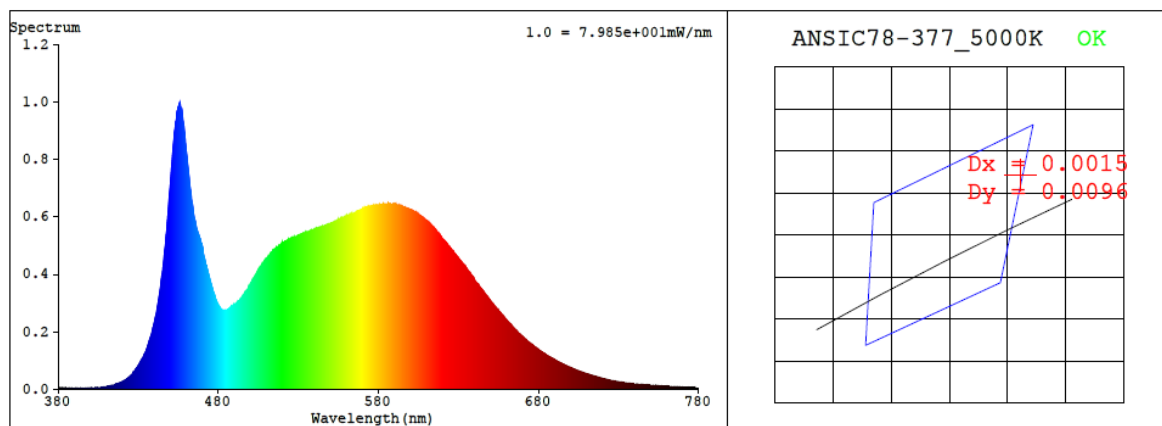
<b>Test Method</b>
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were 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	0.213	25.4	0.994
277.0	60	0.103	26.3	0.924

<b>CCT (K)</b>	<b>CRI</b>	<b>R9</b>	<b>Duv</b>	<b>Rf</b>	<b>Rg</b>	<b>IES Rcs,h1</b>
4764	83.4	9	0.0041	83	93	-13%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3536$   $y = 0.3667$  /  $u' = 0.2113$   $v' = 0.4931$  ( $duv=4.14e-03$ )

CCT= 4764K Prcp WL: Ld=572.1nm Purity=16.1%

Peak WL: Lp=456nm FWHM: =23.3nm Ratio:R=16.1% G=79.2% B=4.7%

Render Index: Ra = 83.4 AvgR = 76.4 TM30:Rf=84 Rg=93

EEL: 0.11356 A+

R1 =82	R2 =91	R3 =96	R4 =79	R5 =81	R6 =86	R7 =86
R8 =66	R9 =9	R10=78	R11=78	R12=55	R13=85	R14=98
						R15=75

## 4.1 Integrating Sphere Test

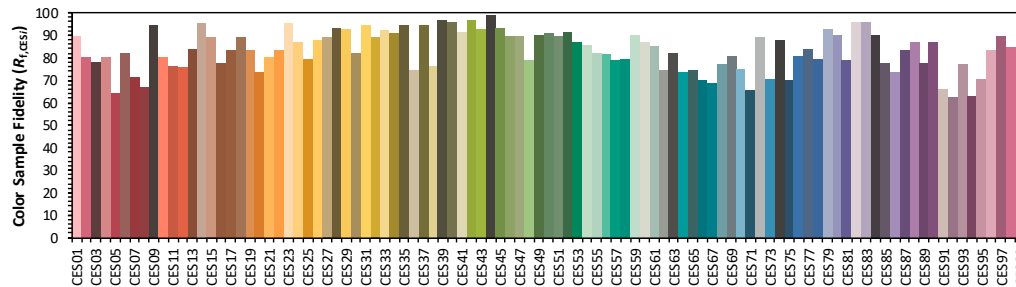
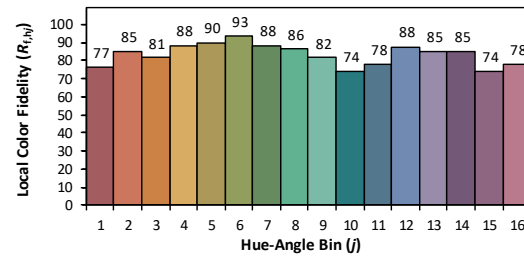
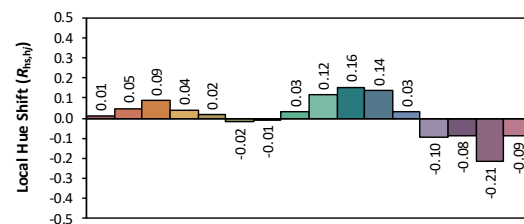
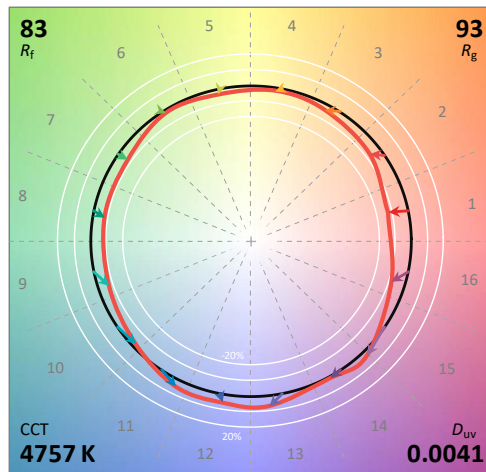
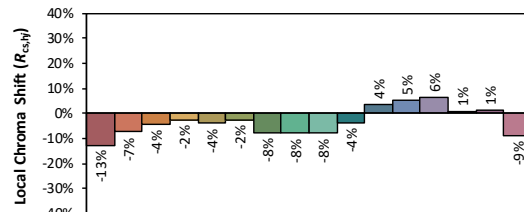
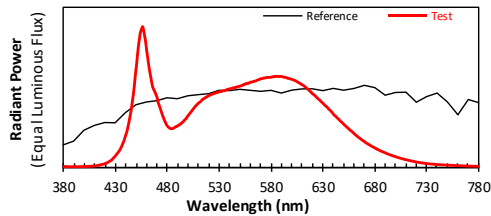
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/1/21

Model: EZP1X4 @25W5000K



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

$x$  0.3535  
 $y$  0.3665  
 $u'$  0.2113  
 $v'$  0.4930

CIE 13.3-1995  
(CRI)  
 $R_a$  83  
 $R_g$  9



## 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	4.50E-06	447	5.12E-04	514	4.83E-04	581	6.43E-04	648	3.23E-04	715	4.55E-05
381	4.70E-06	448	5.75E-04	515	4.86E-04	582	6.42E-04	649	3.15E-04	716	4.35E-05
382	4.00E-06	449	6.53E-04	516	4.92E-04	583	6.47E-04	650	3.08E-04	717	4.22E-05
383	4.00E-06	450	7.15E-04	517	4.95E-04	584	6.45E-04	651	3.01E-04	718	4.08E-05
384	3.80E-06	451	7.90E-04	518	5.01E-04	585	6.45E-04	652	2.94E-04	719	3.89E-05
385	2.20E-06	452	8.60E-04	519	5.04E-04	586	6.47E-04	653	2.87E-04	720	3.72E-05
386	3.10E-06	453	9.15E-04	520	5.11E-04	587	6.45E-04	654	2.80E-04	721	3.62E-05
387	3.00E-06	454	9.61E-04	521	5.12E-04	588	6.45E-04	655	2.74E-04	722	3.48E-05
388	3.20E-06	455	9.80E-04	522	5.16E-04	589	6.45E-04	656	2.67E-04	723	3.34E-05
389	3.20E-06	456	1.00E-03	523	5.18E-04	590	6.45E-04	657	2.60E-04	724	3.21E-05
390	2.90E-06	457	9.74E-04	524	5.22E-04	591	6.44E-04	658	2.55E-04	725	3.10E-05
391	3.30E-06	458	9.34E-04	525	5.23E-04	592	6.41E-04	659	2.48E-04	726	2.98E-05
392	3.50E-06	459	8.91E-04	526	5.28E-04	593	6.39E-04	660	2.42E-04	727	2.89E-05
393	2.90E-06	460	8.29E-04	527	5.28E-04	594	6.40E-04	661	2.34E-04	728	2.81E-05
394	3.80E-06	461	7.78E-04	528	5.32E-04	595	6.36E-04	662	2.28E-04	729	2.68E-05
395	3.40E-06	462	7.23E-04	529	5.33E-04	596	6.33E-04	663	2.22E-04	730	2.62E-05
396	3.50E-06	463	6.78E-04	530	5.37E-04	597	6.32E-04	664	2.16E-04	731	2.52E-05
397	3.50E-06	464	6.39E-04	531	5.38E-04	598	6.30E-04	665	2.10E-04	732	2.44E-05
398	4.30E-06	465	5.97E-04	532	5.38E-04	599	6.27E-04	666	2.05E-04	733	2.36E-05
399	3.60E-06	466	5.67E-04	533	5.42E-04	600	6.26E-04	667	1.99E-04	734	2.28E-05
400	4.10E-06	467	5.50E-04	534	5.44E-04	601	6.23E-04	668	1.93E-04	735	2.22E-05
401	4.50E-06	468	5.35E-04	535	5.44E-04	602	6.19E-04	669	1.89E-04	736	2.16E-05
402	4.80E-06	469	5.15E-04	536	5.47E-04	603	6.17E-04	670	1.83E-04	737	2.10E-05
403	5.60E-06	470	4.97E-04	537	5.50E-04	604	6.13E-04	671	1.78E-04	738	2.05E-05
404	5.70E-06	471	4.63E-04	538	5.54E-04	605	6.09E-04	672	1.73E-04	739	1.98E-05
405	5.80E-06	472	4.42E-04	539	5.54E-04	606	6.05E-04	673	1.68E-04	740	1.91E-05
406	6.50E-06	473	4.19E-04	540	5.57E-04	607	6.01E-04	674	1.64E-04	741	1.87E-05
407	6.60E-06	474	3.98E-04	541	5.58E-04	608	5.96E-04	675	1.59E-04	742	1.81E-05
408	7.40E-06	475	3.76E-04	542	5.60E-04	609	5.92E-04	676	1.55E-04	743	1.75E-05
409	8.40E-06	476	3.56E-04	543	5.64E-04	610	5.87E-04	677	1.50E-04	744	1.73E-05
410	8.90E-06	477	3.36E-04	544	5.63E-04	611	5.83E-04	678	1.47E-04	745	1.67E-05
411	9.80E-06	478	3.20E-04	545	5.67E-04	612	5.78E-04	679	1.42E-04	746	1.61E-05
412	1.14E-05	479	3.04E-04	546	5.67E-04	613	5.71E-04	680	1.38E-04	747	1.59E-05
413	1.25E-05	480	2.93E-04	547	5.71E-04	614	5.65E-04	681	1.34E-04	748	1.54E-05
414	1.42E-05	481	2.85E-04	548	5.71E-04	615	5.59E-04	682	1.30E-04	749	1.50E-05
415	1.55E-05	482	2.78E-04	549	5.74E-04	616	5.53E-04	683	1.26E-04	750	1.46E-05
416	1.80E-05	483	2.75E-04	550	5.76E-04	617	5.46E-04	684	1.23E-04	751	1.41E-05
417	1.94E-05	484	2.73E-04	551	5.78E-04	618	5.38E-04	685	1.19E-04	752	1.37E-05
418	2.11E-05	485	2.75E-04	552	5.81E-04	619	5.32E-04	686	1.15E-04	753	1.33E-05
419	2.32E-05	486	2.78E-04	553	5.85E-04	620	5.23E-04	687	1.12E-04	754	1.32E-05
420	2.63E-05	487	2.82E-04	554	5.87E-04	621	5.18E-04	688	1.10E-04	755	1.28E-05
421	2.86E-05	488	2.87E-04	555	5.92E-04	622	5.13E-04	689	1.06E-04	756	1.24E-05
422	3.26E-05	489	2.89E-04	556	5.93E-04	623	5.05E-04	690	1.03E-04	757	1.21E-05
423	3.66E-05	490	2.96E-04	557	5.97E-04	624	4.97E-04	691	9.98E-05	758	1.15E-05
424	4.10E-05	491	2.98E-04	558	5.95E-04	625	4.91E-04	692	9.62E-05	759	1.13E-05
425	4.56E-05	492	3.05E-04	559	5.99E-04	626	4.84E-04	693	9.36E-05	760	1.09E-05
426	4.99E-05	493	3.08E-04	560	6.04E-04	627	4.78E-04	694	9.11E-05	761	1.06E-05
427	5.83E-05	494	3.16E-04	561	6.04E-04	628	4.70E-04	695	8.79E-05	762	1.04E-05
428	6.58E-05	495	3.22E-04	562	6.07E-04	629	4.63E-04	696	8.54E-05	763	1.01E-05
429	7.38E-05	496	3.30E-04	563	6.09E-04	630	4.56E-04	697	8.27E-05	764	9.80E-06
430	8.25E-05	497	3.39E-04	564	6.12E-04	631	4.49E-04	698	7.99E-05	765	9.50E-06
431	9.19E-05	498	3.45E-04	565	6.13E-04	632	4.42E-04	699	7.77E-05	766	8.90E-06
432	1.02E-04	499	3.57E-04	566	6.16E-04	633	4.34E-04	700	7.52E-05	767	9.10E-06
433	1.11E-04	500	3.67E-04	567	6.20E-04	634	4.30E-04	701	7.28E-05	768	8.60E-06
434	1.22E-04	501	3.76E-04	568	6.22E-04	635	4.20E-04	702	7.05E-05	769	8.40E-06
435	1.35E-04	502	3.86E-04	569	6.24E-04	636	4.12E-04	703	6.80E-05	770	7.90E-06
436	1.51E-04	503	3.94E-04	570	6.29E-04	637	4.07E-04	704	6.60E-05	771	7.90E-06
437	1.69E-04	504	4.05E-04	571	6.29E-04	638	3.98E-04	705	6.38E-05	772	7.60E-06
438	1.87E-04	505	4.15E-04	572	6.31E-04	639	3.91E-04	706	6.18E-05	773	7.20E-06
439	2.11E-04	506	4.23E-04	573	6.35E-04	640	3.81E-04	707	5.94E-05	774	7.00E-06
440	2.34E-04	507	4.33E-04	574	6.34E-04	641	3.71E-04	708	5.79E-05	775	6.90E-06
441	2.57E-04	508	4.40E-04	575	6.37E-04	642	3.66E-04	709	5.57E-05	776	6.80E-06
442	2.90E-04	509	4.49E-04	576	6.38E-04	643	3.58E-04	710	5.36E-05	777	6.40E-06
443	3.25E-04	510	4.56E-04	577	6.39E-04	644	3.50E-04	711	5.21E-05	778	6.40E-06
444	3.65E-04	511	4.61E-04	578	6.39E-04	645	3.45E-04	712	5.03E-05	779	6.30E-06
445	4.03E-04	512	4.66E-04	579	6.39E-04	646	3.37E-04	713	4.88E-05	780	6.30E-06
446	4.58E-04	513	4.74E-04	580	6.39E-04	647	3.28E-04	714	4.69E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	EZP1X4 @25W5000K	<b>Sample ID</b>	250117001-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.9	<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	0.103	26.3	0.924
<b>NON-WORST CASE</b>	120.0	60	0.213	25.4	0.994

#### Test Result

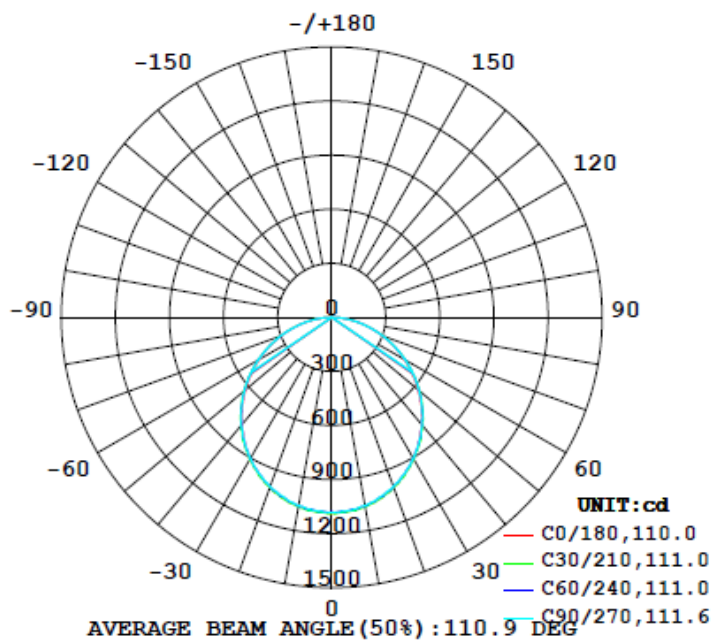
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0°-60°)
3091	164.3	164.3	110.0	111.2	117.5	77.9%

UGR		Spacing Criterion	
Crosswise	Endwise	(0°-180°)	(90°-270°)
20.1	20.1	1.26	1.26

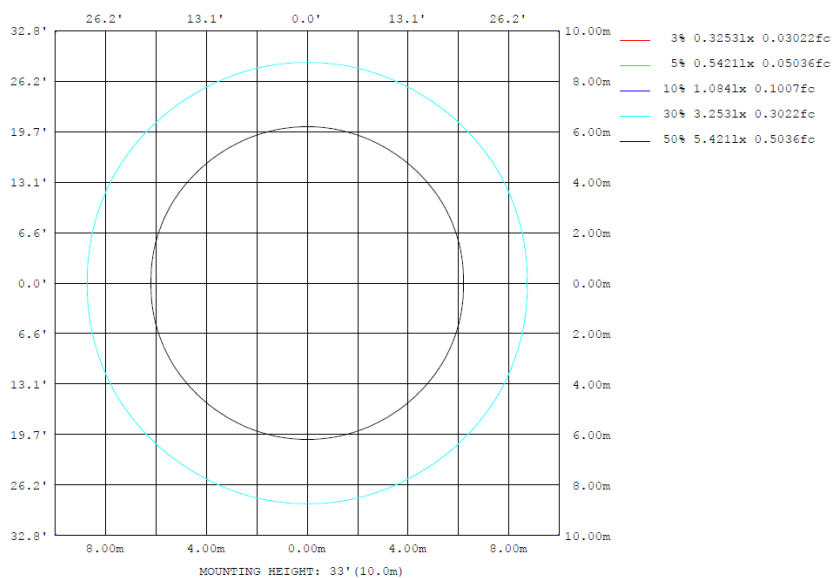
## 4.2 Goniophotometer Test

### 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	zone	total	lum, lamp
10	1066	1067	1060	1067	1066	1067	1060	1067	0- 10	102.5	102.5	3.32,3.32
20	998.4	1001	998.5	1001	998.4	1001	998.5	1001	10- 20	292.7	395.2	12.8,12.8
30	908.0	907.1	903.3	907.1	908.0	907.1	903.3	907.1	20- 30	441.5	836.7	27.1,27.1
40	774.9	782.1	780.5	782.1	774.9	782.1	780.5	782.1	30- 40	529.5	1366	44.2,44.2
50	625.5	632.4	633.0	632.4	625.5	632.4	633.0	632.4	40- 50	546.7	1913	61.9,61.9
60	462.8	471.3	469.7	471.3	462.8	471.3	469.7	471.3	50- 60	493.6	2406	77.9,77.9
70	295.8	299.8	300.3	299.8	295.8	299.8	300.3	299.8	60- 70	380.7	2787	90.2,90.2
80	137.9	139.1	137.7	139.1	137.9	139.1	137.7	139.1	70- 80	229.9	3017	97.6,97.6
90	0	0	0	0	0	0	0	0	80- 90	73.49	3091	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3091	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3091	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3091	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3091	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3091	100,100
150	0	0	0	0	0	0	0	0	140-150	0	3091	100,100
160	0	0	0	0	0	0	0	0	150-160	0	3091	100,100
170	0	0	0	0	0	0	0	0	160-170	0	3091	100,100
180	0	0	0	0	0	0	0	0	170-180	0	3091	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	102.48	0-10	102.48	3.32%
10-20	292.71	0-20	395.19	12.79%
20-30	441.54	0-30	836.73	27.07%
30-40	529.47	0-40	1366.20	44.21%
40-50	546.66	0-50	1912.86	61.89%
50-60	493.57	0-60	2406.43	77.86%
60-70	380.75	0-70	2787.18	90.18%
70-80	229.92	0-80	3017.10	97.62%
80-90	73.49	0-90	3090.59	100.00%
90-100	0.00	0-100	3090.59	100.00%
100-110	0.00	0-110	3090.59	100.00%
110-120	0.00	0-120	3090.59	100.00%
120-130	0.00	0-130	3090.59	100.00%
130-140	0.00	0-140	3090.59	100.00%
140-150	0.00	0-150	3090.59	100.00%
150-160	0.00	0-160	3090.59	100.00%
160-170	0.00	0-170	3090.59	100.00%
170-180	0.00	0-180	3090.59	100.00%

## 4.2 Goniophotometer Test

UGR – Uncorrected Table:

**UGR TABLE - UNCORRECTED**

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	11.6	13.2	12.0	13.6	13.9	11.6	13.3	12.0	13.6	13.9
	3H	13.5	15.0	13.9	15.3	15.7	13.5	15.0	13.9	15.3	15.7
	4H	14.2	15.6	14.6	16.0	16.3	14.2	15.6	14.6	16.0	16.4
	6H	14.8	16.1	15.2	16.5	16.9	14.8	16.1	15.2	16.5	16.9
	8H	15.0	16.3	15.4	16.6	17.0	15.0	16.3	15.4	16.6	17.0
	12H	15.2	16.4	15.6	16.7	17.2	15.2	16.4	15.6	16.7	17.2
4H	2H	12.3	13.7	12.7	14.0	14.4	12.3	13.7	12.7	14.0	14.4
	3H	14.4	15.6	14.8	16.0	16.4	14.4	15.6	14.8	16.0	16.4
	4H	15.2	16.3	15.7	16.7	17.2	15.2	16.3	15.7	16.7	17.2
	6H	16.0	16.9	16.4	17.4	17.8	16.0	16.9	16.4	17.3	17.8
	8H	16.2	17.1	16.7	17.6	18.0	16.2	17.1	16.7	17.6	18.0
	12H	16.5	17.3	16.9	17.7	18.2	16.4	17.2	16.9	17.7	18.2
8H	4H	15.6	16.5	16.0	16.9	17.4	15.6	16.5	16.0	16.9	17.4
	6H	16.5	17.2	17.0	17.7	18.2	16.4	17.2	16.9	17.7	18.2
	8H	16.8	17.5	17.3	18.0	18.5	16.8	17.5	17.3	18.0	18.5
	12H	17.1	17.7	17.6	18.2	18.8	17.1	17.7	17.6	18.2	18.7
12H	4H	15.7	16.4	16.1	16.9	17.4	15.7	16.4	16.1	16.9	17.4
	6H	16.6	17.2	17.1	17.7	18.2	16.6	17.2	17.1	17.7	18.2
	8H	17.0	17.6	17.5	18.1	18.6	17.0	17.5	17.5	18.0	18.6

Maximum UGR = 18.8

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		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	15.5	17.1	15.9	17.5	17.8	15.5	17.2	15.9	17.5	17.8
	3H	17.4	18.9	17.8	19.2	19.6	17.4	18.9	17.8	19.2	19.6
	4H	18.1	19.5	18.5	19.9	20.2	18.1	19.5	18.5	19.9	20.3
	6H	18.7	20.0	19.1	20.4	20.8	18.7	20.0	19.1	20.4	20.8
	8H	18.9	20.2	19.3	20.5	20.9	18.9	20.2	19.3	20.5	20.9
	12H	19.1	20.3	19.5	20.6	21.1	19.1	20.3	19.5	20.6	21.1
4H	2H	16.2	17.6	16.6	17.9	18.3	16.2	17.6	16.6	17.9	18.3
	3H	18.3	19.5	18.7	19.9	20.3	18.3	19.5	18.7	19.9	20.3
	4H	19.1	20.2	19.6	20.6	21.1	19.1	20.2	19.6	20.6	21.1
	6H	19.9	20.8	20.3	21.3	21.7	19.9	20.8	20.3	21.2	21.7
	8H	20.1	21.0	20.6	21.5	21.9	20.1	21.0	20.6	21.5	21.9
	12H	20.4	21.2	20.8	21.6	22.1	20.3	21.1	20.8	21.6	22.1
8H	4H	19.5	20.4	19.9	20.8	21.3	19.5	20.4	19.9	20.8	21.3
	6H	20.4	21.1	20.9	21.6	22.1	20.3	21.1	20.8	21.6	22.1
	8H	20.7	21.4	21.2	21.9	22.4	20.7	21.4	21.2	21.9	22.4
	12H	21.0	21.6	21.5	22.1	22.7	21.0	21.6	21.5	22.1	22.6
12H	4H	19.6	20.3	20.0	20.8	21.3	19.6	20.3	20.0	20.8	21.3
	6H	20.5	21.1	21.0	21.6	22.1	20.5	21.1	21.0	21.6	22.1
	8H	20.9	21.5	21.4	22.0	22.5	20.9	21.4	21.4	21.9	22.5

Maximum UGR = 22.7

## 4.2 Goniophotometer Test

### Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1084	1086	1083	1080	1078	1081	1082	1081	1078	1080	1083	1086	1084	1086	1083	1080	1078	1081	1082
5	1076	1081	1082	1080	1075	1077	1075	1077	1075	1080	1082	1081	1076	1081	1082	1080	1075	1077	1075
10	1066	1069	1069	1067	1065	1060	1060	1060	1065	1067	1069	1069	1066	1069	1069	1067	1065	1060	1060
15	1040	1042	1041	1035	1032	1032	1031	1032	1032	1035	1041	1042	1040	1042	1041	1035	1032	1032	1031
20	998	1003	1003	1001	999	998	999	998	999	1001	1003	1003	998	1003	1003	1001	999	998	999
25	959	964	964	961	957	959	956	959	957	961	964	964	959	964	964	961	957	959	956
30	908	912	911	907	905	902	903	902	905	907	911	912	908	912	911	907	905	902	903
35	842	846	849	844	842	842	846	842	842	844	849	846	842	846	849	844	842	842	846
40	775	781	784	782	779	779	781	779	779	782	784	781	775	781	784	782	779	779	781
45	704	711	715	712	709	709	708	709	709	712	715	711	704	711	715	712	709	709	708
50	626	631	635	632	630	633	633	633	630	632	635	631	626	631	635	632	630	633	633
55	543	549	554	552	551	553	554	553	551	552	554	549	543	549	554	552	551	553	554
60	463	469	472	471	472	469	470	469	472	471	472	469	463	469	472	471	472	469	470
65	381	385	387	386	385	385	385	385	385	386	387	385	381	385	387	386	385	385	385
70	296	299	301	300	300	300	300	300	300	301	299	296	299	301	300	300	300	300	300
75	215	218	219	218	217	217	216	217	217	218	219	218	215	218	219	218	217	217	216
80	138	140	141	139	138	138	138	138	138	139	141	140	138	140	141	139	138	138	138
85	65.7	66.4	66.5	66.1	65.4	65.3	65.7	65.3	65.4	66.1	66.5	66.4	65.7	66.4	66.5	66.1	65.4	65.3	65.7
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table--2

UNIT: cd

C (DEG) γ (DEG)	285	300	315	330	345														
0	1081	1078	1080	1083	1086														
5	1077	1075	1080	1082	1081														
10	1060	1065	1067	1069	1069														
15	1032	1032	1035	1041	1042														
20	998	999	1001	1003	1003														
25	959	957	961	964	964														
30	902	905	907	911	912														
35	842	842	844	849	846														
40	779	779	782	784	781														
45	709	709	712	715	711														
50	633	630	632	635	631														
55	553	551	552	554	549														
60	469	472	471	472	469														
65	385	385	386	387	385														
70	300	300	300	301	299														
75	217	217	218	219	218														
80	138	138	139	141	140														
85	65.3	65.4	66.1	66.5	66.4														
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>	EZP1X4 @25W5000K	<b>Sample ID</b>	250117001-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	0.213	25.4	0.994	11.02
277.0	60	0.103	26.3	0.924	9.63

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