

## Photometric Test Report

### Relevant Standards

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

Prepared For

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Prepared By

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Issue Date: 2024-10-10

Revised Date: N/A

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## 1.0 Test Summary

DLC Technical Requirements V5.1

Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2) (0°-180° zones)	ANSI/IES LM-79:2019	N/A		5943
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-180° zones)	ANSI/IES LM-79:2019	N/A		151.2
Luminaire Output (lm) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	300		5790
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	Standard	Premium	147.3
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		39.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	2.92
			277V	14.81
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.996
			277V	0.918
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	5029±283	5084
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		82.3
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	N/A		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		96
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-13%
Zonal Lumen Requirement (80°-90°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≤10%		5.3%
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		0.155
(Goniophotometer – Section 4.2)		Non-Worst Case		0.328
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		39.3
(Goniophotometer – Section 4.2)		Non-Worst Case		39.2

## 2.0 Test List

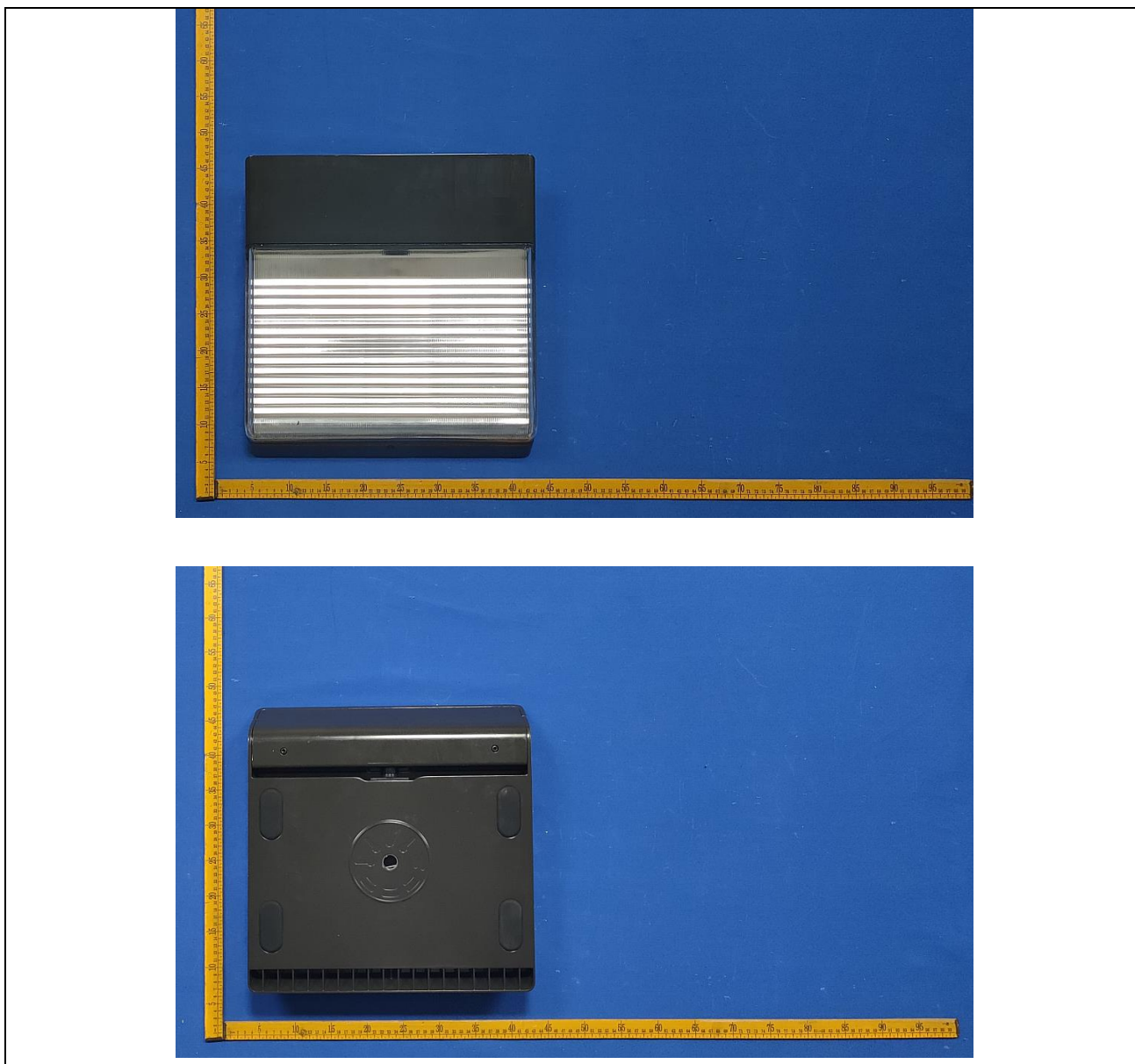
Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-10-09	PWLED @41W5000K	-	241009001-S1
2	Goniophotometer Test	2024-10-09	PWLED @41W5000K	-	241009001-S1
3	THD and PF Test	2024-10-09	PWLED @41W5000K	-	241009001-S1
<b>Remark (If any):</b>					
<ol style="list-style-type: none"> <li>The results contained in this report pertain only to the tested samples.</li> <li>This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.</li> <li>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.</li> </ol>					

### 3.0 Product Description

Luminaire Description: Model No. PWLED @41W5000K, color tunable from 3000K, 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>	PWLED @41W5000K	<b>Sample ID</b>	241009001-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

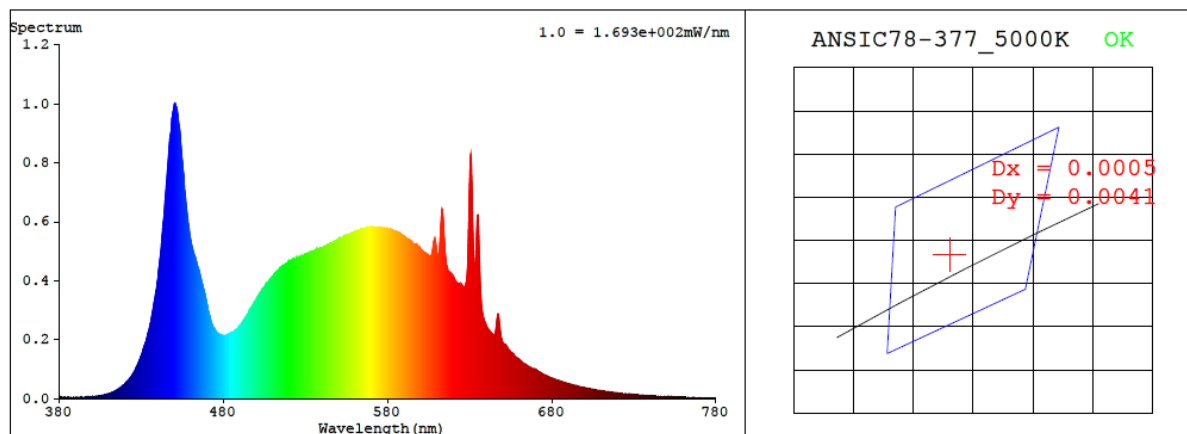
<b>Test Method</b>
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were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

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.328	39.2	0.996
277.0	60	0.155	39.3	0.918

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
5084	82.3	9	0.0019	83	96	-13%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3433$   $y = 0.3539$  /  $u' = 0.2093$   $v' = 0.4855$  ( $duv = 1.88e-03$ )

CCT= 5084K Prcp WL:  $L_d = 569.7\text{nm}$  Purity=9.2%

Peak WL:  $L_p = 450\text{nm}$  FWHM:  $\approx 20.0\text{nm}$  Ratio: R=15.5% G=80.1% B=4.4%

Render Index:  $R_a = 82.3$  AvgR = 75.3 TM30:  $R_f = 82$   $R_g = 96$

EEL: 0.09035 A++ Highest

R1 =80 R2 =87 R3 =91 R4 =82 R5 =81 R6 =82 R7 =87

R8 =68 R9 =9 R10=68 R11=81 R12=60 R13=82 R14=95 R15=76

## 4.1 Integrating Sphere Test

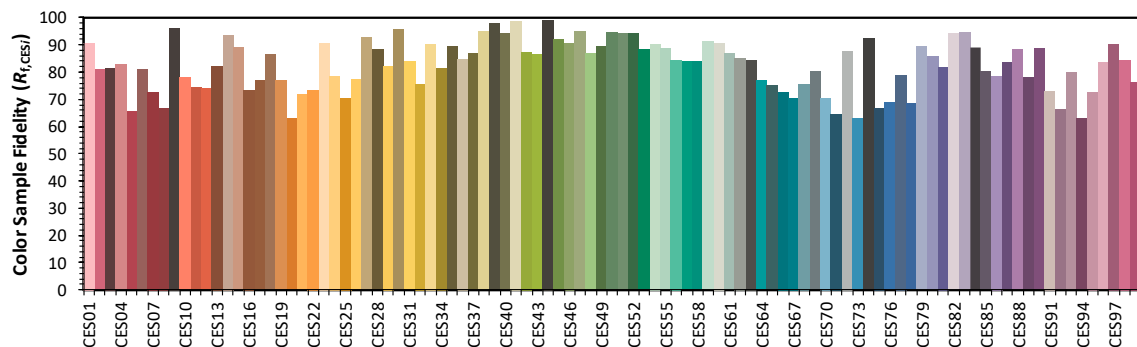
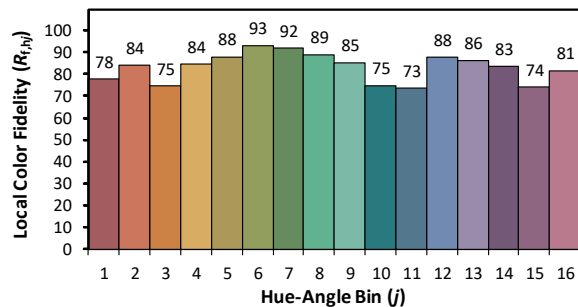
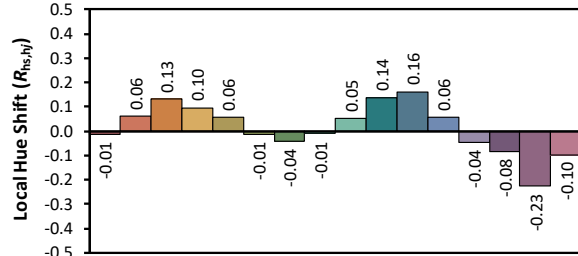
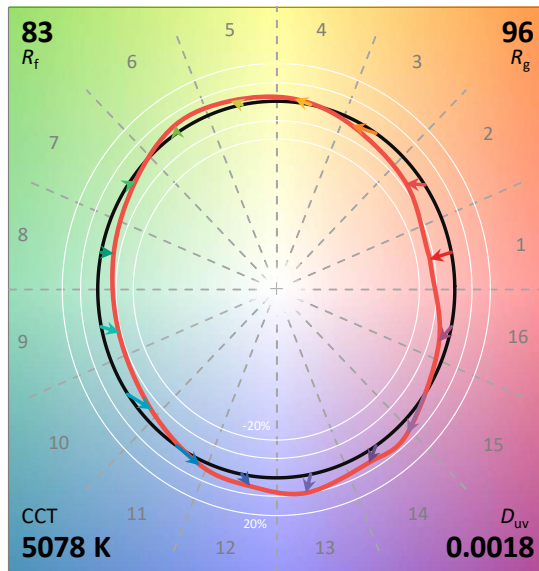
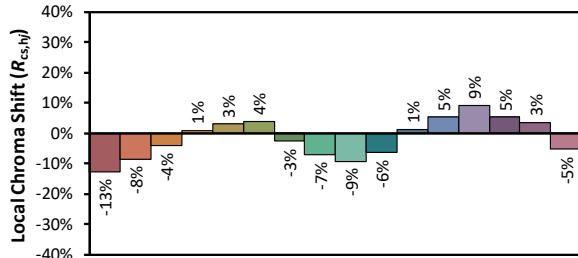
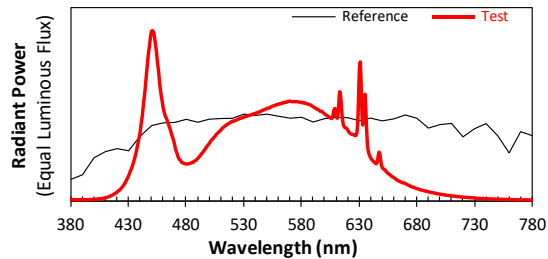
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/10/10

Model: PWLED @41W5000K



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

$x$  0.3432  
 $y$  0.3537  
 $u'$  0.2094  
 $v'$  0.4854

CIE 13.3-1995  
(CRI)

$R_a$  82  
 $R_g$  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	6.60E-06	447	8.54E-04	514	4.39E-04	581	5.73E-04	648	2.70E-04	715	2.30E-05
381	6.20E-06	448	9.02E-04	515	4.45E-04	582	5.74E-04	649	2.18E-04	716	2.23E-05
382	4.30E-06	449	9.63E-04	516	4.48E-04	583	5.71E-04	650	1.94E-04	717	2.17E-05
383	5.10E-06	450	9.95E-04	517	4.52E-04	584	5.69E-04	651	1.85E-04	718	2.10E-05
384	3.40E-06	451	9.95E-04	518	4.57E-04	585	5.67E-04	652	1.82E-04	719	2.04E-05
385	4.70E-06	452	9.77E-04	519	4.61E-04	586	5.65E-04	653	1.74E-04	720	1.97E-05
386	4.70E-06	453	9.30E-04	520	4.66E-04	587	5.62E-04	654	1.65E-04	721	1.89E-05
387	3.50E-06	454	8.79E-04	521	4.65E-04	588	5.60E-04	655	1.59E-04	722	1.86E-05
388	4.60E-06	455	8.11E-04	522	4.69E-04	589	5.54E-04	656	1.54E-04	723	1.81E-05
389	4.40E-06	456	7.56E-04	523	4.71E-04	590	5.51E-04	657	1.49E-04	724	1.76E-05
390	4.00E-06	457	6.82E-04	524	4.74E-04	591	5.46E-04	658	1.42E-04	725	1.70E-05
391	5.40E-06	458	6.29E-04	525	4.77E-04	592	5.42E-04	659	1.38E-04	726	1.65E-05
392	4.90E-06	459	5.86E-04	526	4.81E-04	593	5.38E-04	660	1.34E-04	727	1.59E-05
393	4.10E-06	460	5.45E-04	527	4.83E-04	594	5.35E-04	661	1.29E-04	728	1.55E-05
394	4.00E-06	461	5.14E-04	528	4.85E-04	595	5.31E-04	662	1.24E-04	729	1.50E-05
395	4.70E-06	462	4.94E-04	529	4.86E-04	596	5.24E-04	663	1.19E-04	730	1.44E-05
396	5.70E-06	463	4.78E-04	530	4.90E-04	597	5.23E-04	664	1.16E-04	731	1.41E-05
397	6.10E-06	464	4.58E-04	531	4.93E-04	598	5.22E-04	665	1.13E-04	732	1.35E-05
398	6.00E-06	465	4.38E-04	532	4.93E-04	599	5.13E-04	666	1.09E-04	733	1.31E-05
399	6.70E-06	466	4.19E-04	533	4.96E-04	600	5.09E-04	667	1.06E-04	734	1.26E-05
400	7.00E-06	467	3.95E-04	534	4.99E-04	601	5.03E-04	668	1.03E-04	735	1.23E-05
401	7.20E-06	468	3.74E-04	535	5.00E-04	602	4.98E-04	669	1.03E-04	736	1.19E-05
402	7.80E-06	469	3.52E-04	536	5.03E-04	603	4.94E-04	670	1.00E-04	737	1.18E-05
403	8.50E-06	470	3.23E-04	537	5.05E-04	604	4.89E-04	671	9.58E-05	738	1.12E-05
404	9.50E-06	471	2.95E-04	538	5.07E-04	605	4.85E-04	672	9.17E-05	739	1.08E-05
405	9.90E-06	472	2.76E-04	539	5.10E-04	606	4.81E-04	673	8.88E-05	740	1.03E-05
406	1.09E-05	473	2.54E-04	540	5.11E-04	607	4.93E-04	674	8.57E-05	741	1.01E-05
407	1.22E-05	474	2.42E-04	541	5.15E-04	608	5.29E-04	675	8.22E-05	742	9.70E-06
408	1.34E-05	475	2.34E-04	542	5.17E-04	609	5.39E-04	676	7.96E-05	743	9.70E-06
409	1.50E-05	476	2.24E-04	543	5.20E-04	610	4.99E-04	677	7.72E-05	744	9.20E-06
410	1.66E-05	477	2.21E-04	544	5.21E-04	611	4.85E-04	678	7.51E-05	745	8.90E-06
411	1.83E-05	478	2.17E-04	545	5.25E-04	612	5.45E-04	679	7.20E-05	746	8.70E-06
412	2.07E-05	479	2.16E-04	546	5.29E-04	613	6.37E-04	680	6.98E-05	747	8.30E-06
413	2.29E-05	480	2.14E-04	547	5.31E-04	614	6.06E-04	681	6.75E-05	748	8.10E-06
414	2.57E-05	481	2.14E-04	548	5.35E-04	615	5.08E-04	682	6.51E-05	749	7.80E-06
415	2.88E-05	482	2.15E-04	549	5.37E-04	616	4.53E-04	683	6.28E-05	750	7.50E-06
416	3.21E-05	483	2.18E-04	550	5.41E-04	617	4.33E-04	684	6.17E-05	751	7.40E-06
417	3.58E-05	484	2.20E-04	551	5.43E-04	618	4.27E-04	685	5.97E-05	752	7.30E-06
418	4.01E-05	485	2.24E-04	552	5.43E-04	619	4.24E-04	686	5.79E-05	753	7.10E-06
419	4.45E-05	486	2.24E-04	553	5.48E-04	620	4.14E-04	687	5.61E-05	754	7.00E-06
420	4.99E-05	487	2.31E-04	554	5.51E-04	621	4.02E-04	688	5.43E-05	755	6.40E-06
421	5.63E-05	488	2.35E-04	555	5.54E-04	622	3.95E-04	689	5.30E-05	756	6.20E-06
422	6.05E-05	489	2.40E-04	556	5.56E-04	623	3.90E-04	690	5.08E-05	757	6.40E-06
423	6.75E-05	490	2.47E-04	557	5.58E-04	624	3.89E-04	691	4.96E-05	758	6.00E-06
424	7.52E-05	491	2.55E-04	558	5.62E-04	625	3.87E-04	692	4.81E-05	759	5.80E-06
425	8.38E-05	492	2.62E-04	559	5.64E-04	626	3.82E-04	693	4.67E-05	760	5.70E-06
426	9.28E-05	493	2.72E-04	560	5.67E-04	627	3.82E-04	694	4.52E-05	761	5.60E-06
427	1.05E-04	494	2.80E-04	561	5.66E-04	628	3.98E-04	695	4.40E-05	762	5.50E-06
428	1.18E-04	495	2.88E-04	562	5.70E-04	629	5.06E-04	696	4.24E-05	763	5.30E-06
429	1.31E-04	496	2.99E-04	563	5.70E-04	630	7.49E-04	697	4.08E-05	764	5.00E-06
430	1.46E-04	497	3.09E-04	564	5.75E-04	631	8.10E-04	698	3.94E-05	765	4.70E-06
431	1.64E-04	498	3.18E-04	565	5.74E-04	632	5.92E-04	699	3.84E-05	766	4.60E-06
432	1.80E-04	499	3.27E-04	566	5.78E-04	633	4.44E-04	700	3.75E-05	767	4.50E-06
433	1.97E-04	500	3.36E-04	567	5.77E-04	634	5.33E-04	701	3.60E-05	768	4.30E-06
434	2.19E-04	501	3.47E-04	568	5.81E-04	635	6.24E-04	702	3.49E-05	769	4.30E-06
435	2.43E-04	502	3.55E-04	569	5.82E-04	636	4.84E-04	703	3.41E-05	770	4.10E-06
436	2.67E-04	503	3.63E-04	570	5.83E-04	637	3.41E-04	704	3.30E-05	771	4.10E-06
437	3.00E-04	504	3.70E-04	571	5.82E-04	638	2.86E-04	705	3.18E-05	772	3.90E-06
438	3.31E-04	505	3.78E-04	572	5.79E-04	639	2.64E-04	706	3.08E-05	773	3.80E-06
439	3.66E-04	506	3.88E-04	573	5.81E-04	640	2.50E-04	707	3.00E-05	774	3.80E-06
440	4.03E-04	507	3.94E-04	574	5.80E-04	641	2.39E-04	708	2.91E-05	775	3.60E-06
441	4.57E-04	508	4.02E-04	575	5.80E-04	642	2.32E-04	709	2.82E-05	776	3.60E-06
442	5.05E-04	509	4.06E-04	576	5.81E-04	643	2.24E-04	710	2.74E-05	777	3.40E-06
443	5.76E-04	510	4.14E-04	577	5.79E-04	644	2.19E-04	711	2.64E-05	778	3.30E-06
444	6.33E-04	511	4.22E-04	578	5.77E-04	645	2.17E-04	712	2.57E-05	779	3.30E-06
445	7.07E-04	512	4.28E-04	579	5.77E-04	646	2.38E-04	713	2.49E-05	780	3.30E-06
446	7.80E-04	513	4.34E-04	580	5.77E-04	647	2.83E-04	714	2.38E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	PWLED @41W5000K	<b>Sample ID</b>	241009001-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	25.0	<b>Humidity (%RH)</b>	42.2

<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	0.155	39.3	0.918
<b>NON-WORST CASE</b>	120.0	60	0.328	39.2	0.996

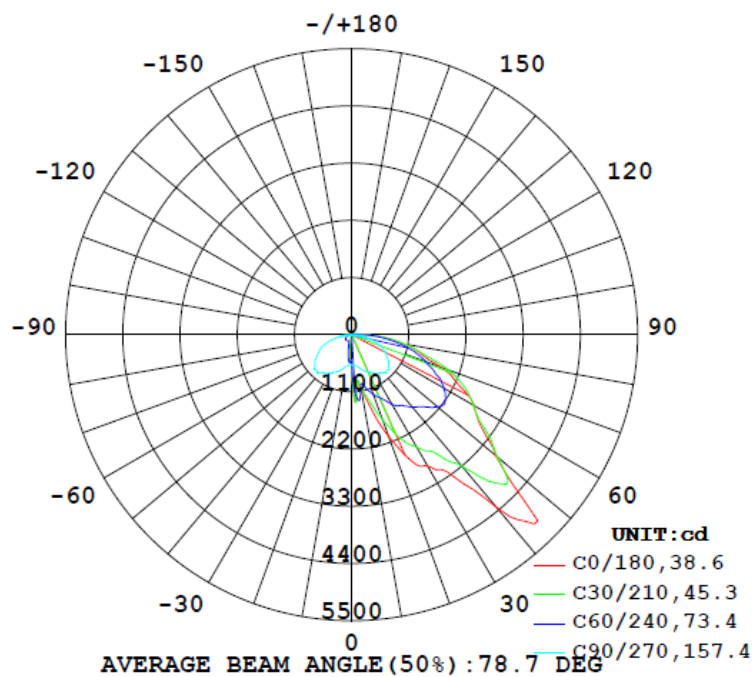
### Test Result

Result Type	Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement (80°-90°)	BUG
		C0-180	C90-270	C0-180	C90-270			
<b>0°-180° zones</b>	5943	90.7	151.2	39.9	83.9	151.2	5.2%	B1-U3-G3
<b>0°-90° zones</b>	5790	90.7	151.2	39.9	83.9	147.3	5.3%	B1-U3-G3

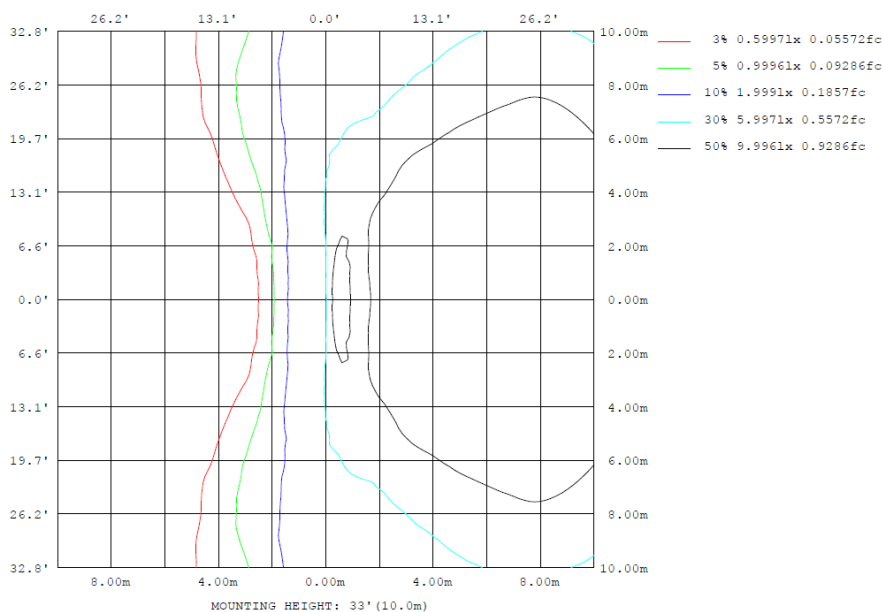
## 4.2 Goniophotometer Test

### Lighting Distribution Curve

#### LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



### Isolux Plot



## 4.2 Goniophotometer Test

### Zonal Lumen Summary

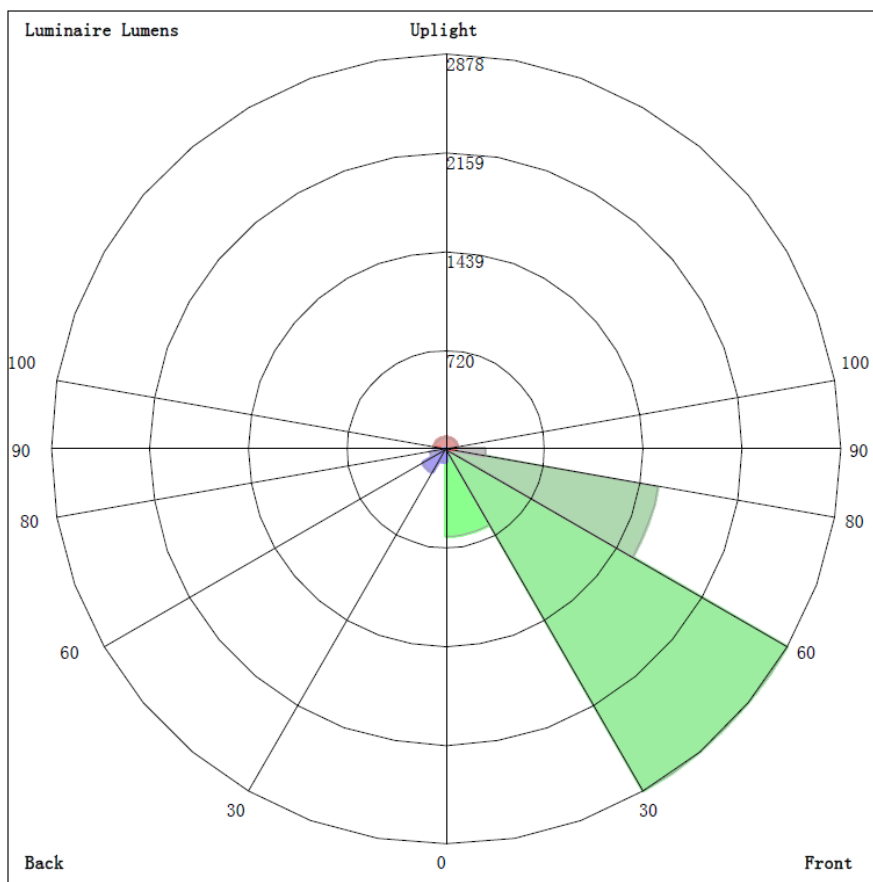
ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\Phi$ lum, lamp
10	1071	945.5	621.1	257.9	123.1	257.9	621.1	945.5	0- 10	68.18	68.18	1.15,1.15
20	2086	1419	741.4	80.82	38.88	80.82	741.4	1419	10- 20	206.6	274.8	4.62,4.62
30	2916	2015	841.0	67.90	26.19	67.90	841.0	2015	20- 30	450.0	724.8	12.2,12.2
40	4326	2551	950.6	60.57	11.32	60.57	950.6	2551	30- 40	752.2	1477	24.9,24.9
50	3615	3251	921.2	52.08	2.042	52.08	921.2	3251	40- 50	1167	2644	44.5,44.5
60	2719	2492	763.5	41.95	0.1408	41.95	763.5	2492	50- 60	1154	3798	63.9,63.9
70	1821	1904	559.3	34.89	0.3281	34.89	559.3	1904	60- 70	1002	4800	80.8,80.8
80	1014	1041	257.9	23.49	0.7237	23.49	257.9	1041	70- 80	682.6	5483	92.3,92.3
90	209.8	257.2	39.68	10.22	1.278	10.22	39.68	257.2	80- 90	306.7	5790	97.4,97.4
100	107.6	91.17	8.845	4.463	1.900	4.463	8.845	91.17	90-100	69.22	5859	98.6,98.6
110	64.83	47.74	5.703	3.357	2.341	3.357	5.703	47.74	100-110	32.80	5892	99.1,99.1
120	39.27	32.26	4.910	3.245	2.585	3.245	4.910	32.26	110-120	18.72	5910	99.5,99.5
130	33.60	24.27	4.106	3.302	2.922	3.302	4.106	24.27	120-130	12.84	5923	99.7,99.7
140	24.42	19.00	3.135	3.080	2.842	3.080	3.135	19.00	130-140	8.700	5932	99.8,99.8
150	19.63	14.51	2.543	2.539	2.593	2.539	2.543	14.51	140-150	5.688	5938	99.9,99.9
160	14.23	10.80	2.327	2.141	1.944	2.141	2.327	10.80	150-160	3.308	5941	100,100
170	7.926	7.630	2.174	1.966	1.323	1.966	2.174	7.630	160-170	1.488	5942	100,100
180	1.117	1.236	1.417	1.431	1.105	1.431	1.417	1.236	170-180	0.2943	5943	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	68.18	0-10	68.18	1.15%
10-20	206.61	0-20	274.79	4.62%
20-30	450.02	0-30	724.81	12.20%
30-40	752.17	0-40	1476.98	24.85%
40-50	1166.70	0-50	2643.68	44.49%
50-60	1154.23	0-60	3797.91	63.91%
60-70	1002.42	0-70	4800.33	80.78%
70-80	682.64	0-80	5482.97	92.27%
80-90	306.72	0-90	5789.69	97.43%
90-100	69.22	0-100	5858.91	98.59%
100-110	32.80	0-110	5891.71	99.15%
110-120	18.72	0-120	5910.43	99.46%
120-130	12.84	0-130	5923.27	99.68%
130-140	8.70	0-140	5931.97	99.82%
140-150	5.69	0-150	5937.66	99.92%
150-160	3.31	0-160	5940.97	99.97%
160-170	1.49	0-170	5942.46	100.00%
170-180	0.29	0-180	5942.75	100.00%

## 4.2 Goniophotometer Test

LCS/BUG

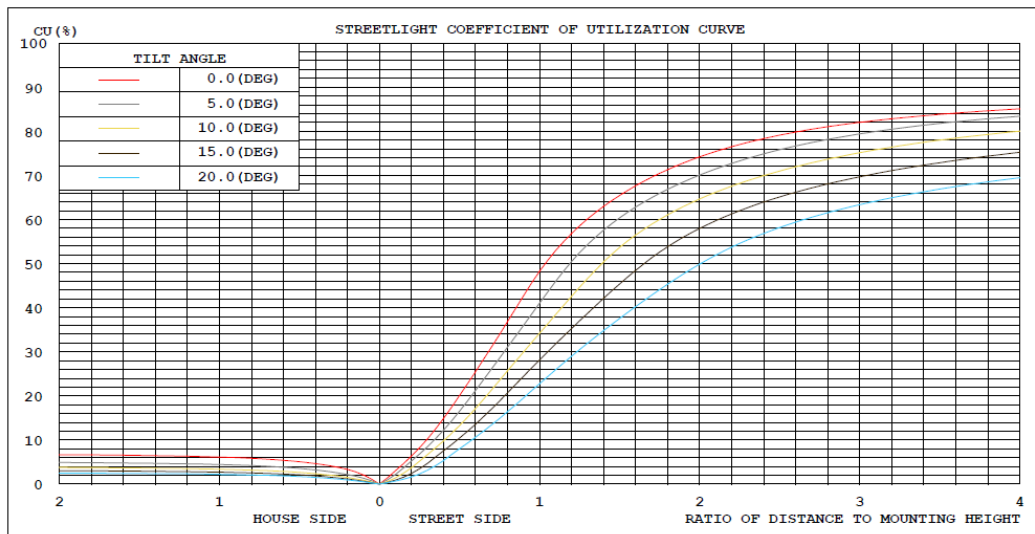


### LUMINAIRE CLASSIFICATION SYSTEM (LCS)

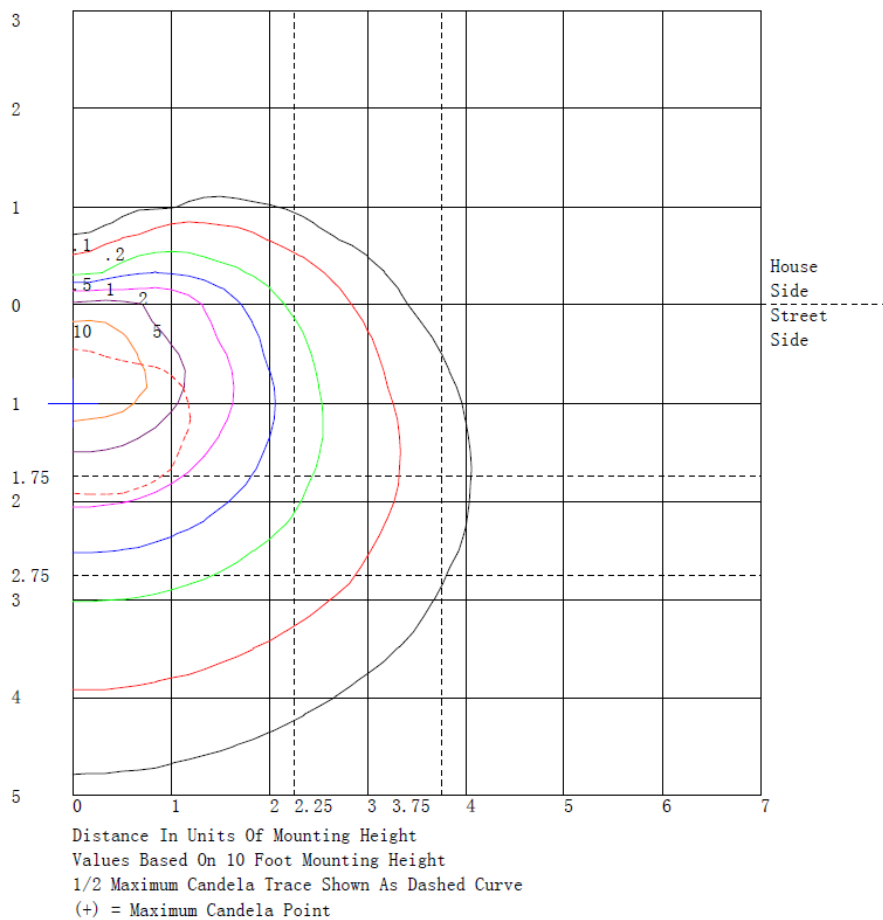
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	634.2	N.A.	10.7
FM - Front-Medium (30-60)	2878.3	N.A.	48.4
FH - Front-High (60-80)	1572.1	N.A.	26.5
FVH - Front-Very High (80-90)	286.2	N.A.	4.8
BL - Back-Low (0-30)	90.6	N.A.	1.5
BM - Back-Medium (30-60)	194.8	N.A.	3.3
BH - Back-High (60-80)	112.9	N.A.	1.9
BVH - Back-Very High (80-90)	20.5	N.A.	0.3
UL - Uplight-Low (90-100)	69.2	N.A.	1.2
UH - Uplight-High (100-180)	83.8	N.A.	1.4
Total	5942.6	N.A.	100.0
BUG Rating	B1-U3-G3		

## 4.2 Goniophotometer Test

### Coefficients of Utilization



### Isolines



## 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	556	563	566	574	575	575	576	571	567	560	554	547	556	547	554	560	567	571	576
5	1022	1059	1165	1302	1234	1005	589	496	540	508	455	416	409	416	455	508	540	496	589
10	1071	1069	1026	945	996	1167	621	490	395	258	171	133	123	133	171	258	395	490	621
15	1497	1472	1326	1174	1058	1067	682	423	238	121	80.5	62.1	58.6	62.1	80.5	121	238	423	682
20	2086	2017	1740	1419	1227	1009	741	362	163	80.8	53.2	41.1	38.9	41.1	53.2	80.8	163	362	741
25	2649	2562	2184	1753	1350	1074	787	322	140	71.9	43.9	32.1	30.7	32.1	43.9	71.9	140	322	787
30	2916	2812	2494	2015	1550	1112	841	306	136	67.9	39.1	27.9	26.2	27.9	39.1	67.9	136	306	841
35	3232	3152	2757	2230	1657	1102	897	315	141	63.0	36.1	22.5	18.4	22.5	36.1	63.0	141	315	897
40	4326	4009	3293	2551	1817	1098	951	307	154	60.6	32.7	16.0	11.3	16.0	32.7	60.6	154	307	951
45	5067	4776	4060	2941	1955	1135	971	309	156	57.8	29.7	11.6	6.02	11.6	29.7	57.8	156	309	971
50	3615	3658	3662	3251	2156	1201	921	326	149	52.1	27.6	8.69	2.04	8.69	27.6	52.1	149	326	921
55	3021	3085	3097	2869	2196	1227	845	317	150	46.4	27.1	8.09	0.15	8.09	27.1	46.4	150	317	845
60	2719	2773	2704	2492	2046	1232	763	311	135	41.9	27.4	9.36	0.14	9.36	27.4	41.9	135	311	763
65	2266	2363	2400	2214	1785	1096	670	283	118	39.7	28.4	10.1	0.21	10.1	28.4	39.7	118	283	670
70	1821	1907	1983	1904	1519	959	559	237	102	34.9	28.0	10.2	0.33	10.2	28.0	34.9	102	237	559
75	1361	1383	1423	1473	1238	800	410	183	75.2	29.5	23.5	8.98	0.50	8.98	23.5	29.5	75.2	183	410
80	1014	1023	1030	1041	894	548	258	130	56.5	23.5	19.5	7.19	0.72	7.19	19.5	23.5	56.5	130	258
85	638	637	645	642	552	319	141	75.5	37.6	16.2	13.7	5.15	0.98	5.15	13.7	16.2	37.6	75.5	141
90	210	218	233	257	238	122	39.7	38.6	20.9	10.2	8.15	3.43	1.28	3.43	8.15	10.2	20.9	38.6	39.7
95	140	141	139	138	117	46.7	13.4	17.7	11.3	6.06	4.64	2.42	1.58	2.42	4.64	6.06	11.3	17.7	13.4
100	108	107	100	91.2	73.7	30.4	8.85	11.3	7.58	4.46	3.46	2.10	1.90	2.10	3.46	4.46	7.58	11.3	8.85
105	79.7	79.4	73.5	64.7	50.4	23.0	6.69	8.27	5.72	3.71	3.00	2.06	2.18	2.06	3.00	3.71	5.72	8.27	6.69
110	64.8	63.2	55.9	47.7	36.9	18.2	5.70	6.61	4.65	3.36	2.85	2.18	2.34	2.18	2.85	3.36	4.65	6.61	5.70
115	48.3	47.0	41.9	37.3	29.3	15.4	5.23	5.58	4.09	3.25	2.87	2.38	2.48	2.38	2.87	3.25	4.09	5.58	5.23
120	39.3	38.6	35.7	32.3	24.9	13.6	4.91	4.92	3.83	3.24	3.00	2.63	2.59	2.63	3.00	3.24	3.83	4.92	4.91
125	35.1	35.3	33.1	28.6	21.3	12.1	4.54	4.43	3.70	3.29	3.14	2.85	2.78	2.85	3.14	3.29	3.70	4.43	4.54
130	33.6	32.7	28.9	24.3	18.2	10.9	4.11	3.98	3.58	3.30	3.20	2.95	2.92	2.95	3.20	3.30	3.58	3.98	4.11
135	26.8	26.4	24.3	21.4	15.8	9.57	3.60	3.60	3.41	3.26	3.14	2.93	2.89	2.93	3.14	3.26	3.41	3.60	3.60
140	24.4	24.0	22.2	19.0	14.0	8.68	3.13	3.23	3.15	3.08	2.98	2.78	2.84	2.78	2.98	3.08	3.15	3.23	3.13
145	22.8	22.2	20.1	16.7	12.3	8.03	2.78	2.88	2.86	2.81	2.72	2.54	2.74	2.54	2.72	2.81	2.86	2.88	2.78
150	19.6	19.2	17.4	14.5	10.9	7.61	2.54	2.61	2.59	2.54	2.45	2.31	2.59	2.31	2.45	2.54	2.59	2.61	2.54
155	17.0	16.8	15.2	12.6	9.68	7.39	2.43	2.49	2.43	2.35	2.20	1.99	2.32	1.99	2.20	2.35	2.43	2.49	2.43
160	14.2	14.0	12.8	10.8	8.64	7.24	2.33	2.36	2.27	2.14	1.95	1.57	1.94	1.57	1.95	2.14	2.27	2.36	2.33
165	11.0	10.8	10.3	8.98	7.81	6.09	2.24	2.25	2.17	2.04	1.90	1.43	1.58	1.43	1.90	2.04	2.17	2.25	2.24
170	7.93	7.87	7.78	7.63	7.25	2.15	2.17	2.15	2.07	1.97	1.50	1.34	1.32	1.34	1.50	1.97	2.07	2.15	2.17
175	6.15	6.14	5.86	2.57	1.46	1.60	1.71	1.70	1.65	1.58	1.52	1.46	1.26	1.46	1.52	1.58	1.65	1.70	1.71
180	1.12	1.09	1.15	1.24	1.32	1.38	1.42	1.43	1.44	1.43	1.40	1.39	1.11	1.39	1.40	1.43	1.44	1.43	1.42

Table--2

UNIT: cd

C (DEG) y (DEG)	285	300	315	330	345														
0	575	575	574	566	563														
5	1005	1234	1302	1165	1059														
10	1167	996	945	1026	1069														
15	1067	1058	1174	1326	1472														
20	1009	1227	1419	1740	2017														
25	1074	1350	1753	2184	2562														
30	1112	1550	2015	2494	2812														
35	1102	1657	2230	2757	3152														
40	1098	1817	2551	3293	4009														
45	1135	1955	2941	4060	4776														
50	1201	2156	3251	3662	3658														
55	1227	2196	2869	3097	3085														
60	1232	2046	2492	2704	2773														
65	1096	1785	2214	2400	2363														
70	959	1519	1904	1983	1907														
75	800	1238	1473	1423	1383														
80	548	894	1041	1030	1023														
85	319	552	642	645	637														
90	122	238	257	233	218														
95	46.7	117	138	139	141														
100	30.4	73.7	91.2	100	107														
105	23.0	50.4	64.7	73.5	79.4														
110	18.2	36.9	47.7	55.9	63.2														
115	15.4	29.3	37.3	41.9	47.0														
120	13.6	24.9	32.3	35.7	38.6														
125	12.1	21.3	28.6	33.1	35.3														
130	10.9	18.2	24.3	28.9	32.7														
135	9.57	15.8	21.4	24.3	26.4														
140	8.68	14.0	19.0	22.2	24.0														
145	8.03	12.3	16.7	20.1	22.2														
150	7.61	10.9	14.5	17.4	19.2														
155	7.39	9.68	12.6	15.2	16.8														
160	7.24	8.64	10.8	12.8	14.0														
165	6.09	7.81	8.98	10.3	10.8														
170	2.15	7.25	7.63	7.78	7.87														
175	1.60	1.46	2.57	5.86	6.14														
180	1.38	1.32	1.24	1.15	1.09														

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

<b>Model No.</b>	PWLED @41W5000K	<b>Sample ID</b>	241009001-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	0.328	39.2	0.996	2.92
277.0	60	0.155	39.3	0.918	14.81



## 5.0 Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2023-11-08	2024-11-07
NTC-F01-006	2.0 meter Integrating Sphere	2023-11-08	2024-11-07
NTC-F01-012	Standard Lamp	2023-11-02	2024-11-01
NTC-F01-013	Standard Lamp	2023-11-02	2024-11-01
NTC-F01-031	Digital Power Meter	2024-08-06	2025-08-05
NTC-F01-019	Temperature & Humidity Meter	2023-11-06	2024-11-05

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