

## Photometric Test Report

### Relevant Standards

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

Prepared For

**RAB Lighting Inc.**

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Prepared By

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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		9694
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-180° zones)	ANSI/IES LM-79:2019	N/A		146.9
Luminaire Output (lm) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	300		9447
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2) (0°-90° zones)	ANSI/IES LM-79:2019	Standard	Premium	143.1
		105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		66.0
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	10.04
			277V	9.82
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.993
			277V	0.971
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	3985±275	3902
		4 steps	3985±154	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥70		83.8
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79-2019 CIE13.3-1995	N/A		20
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		98
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-11%
Zonal Lumen Requirement (80°-90°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≤10%		5.2%
Input Voltage (V)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Cast		120.0
(Goniophotometer – Section 4.2)		Non-Worst Case		277.0
Input Current (A)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		0.554
(Goniophotometer – Section 4.2)		Non-Worst Case		0.244
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		66.0
(Goniophotometer – Section 4.2)		Non-Worst Case		65.7

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-10-09	PWLED @72W4000K	-	241009001-S1
2	Goniophotometer Test	2024-10-09	PWLED @72W4000K	-	241009001-S1
3	THD and PF Test	2024-10-09	PWLED @72W4000K	-	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 @72W4000K, 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 @72W4000K	<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

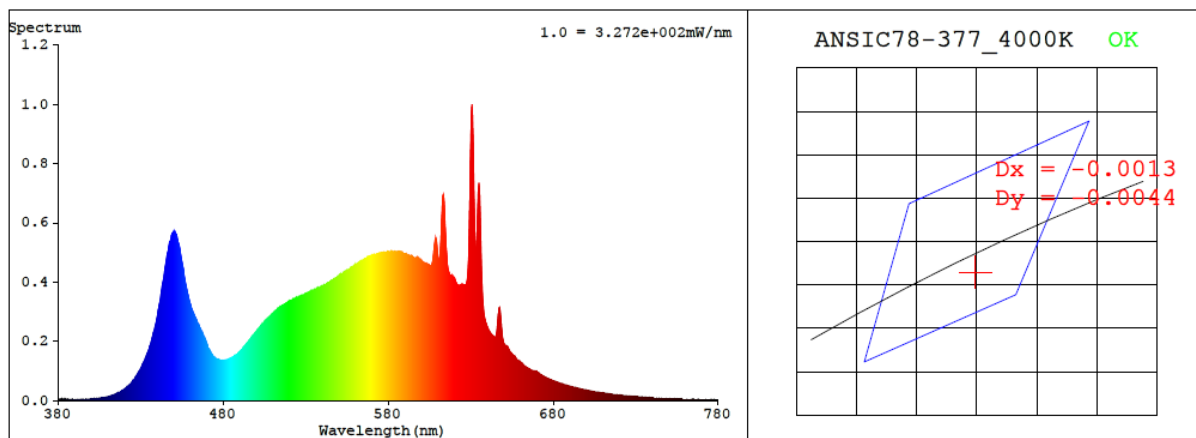
<b>Test Method</b>
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at <math>25\pm 1^{\circ}\text{C}</math>.</p> <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 <math>\pm 0.2</math> percent under load.</p> <p>The sample was measured using <math>4\pi</math> 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	0.554	66.0	0.993
277.0	60	0.244	65.7	0.971

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
3902	83.8	20	-0.0017	84	98	-11%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3835$   $y = 0.3751$  /  $u' = 0.2278$   $v' = 0.5013$  ( $duv = -1.66e-03$ )

CCT= 3902K Prcp WL: Ld=580.3nm Purity=27.7%

Peak WL: Lp=631nm FWHM: =7.9nm Ratio: R=19.0% G=77.6% B=3.4%

Render Index: Ra = 83.8 AvgR = 77.8 TM30: Rf=84 Rg=97

EEI: 0.09203 A++ Highest

R1 =83 R2 =89 R3 =93 R4 =83 R5 =82 R6 =84 R7 =87

R8 =69 R9 =20 R10=73 R11=81 R12=64 R13=84 R14=96 R15=78

## 4.1 Integrating Sphere Test

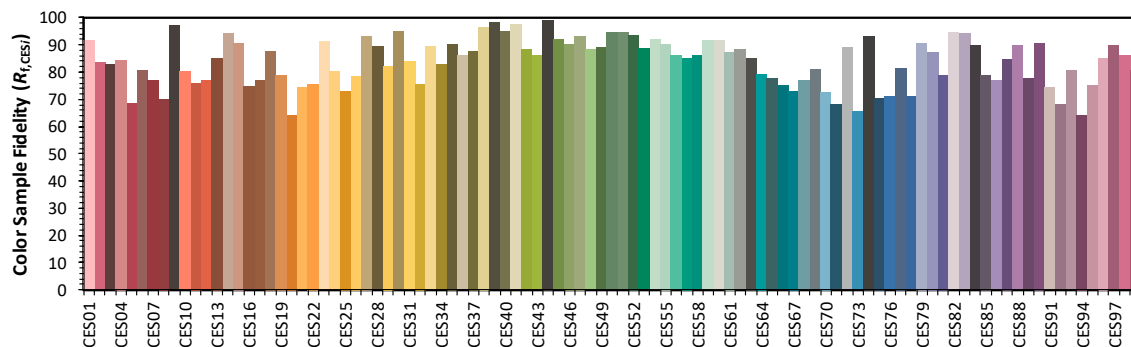
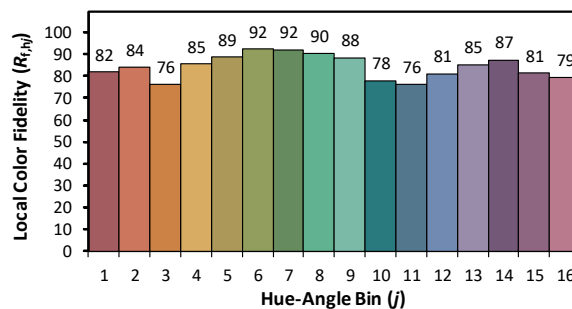
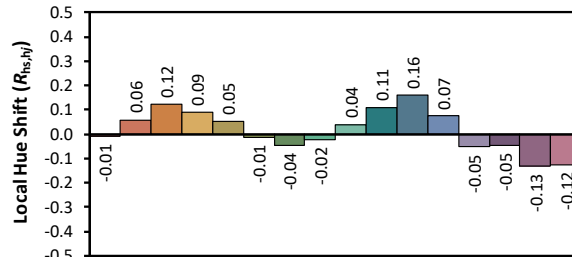
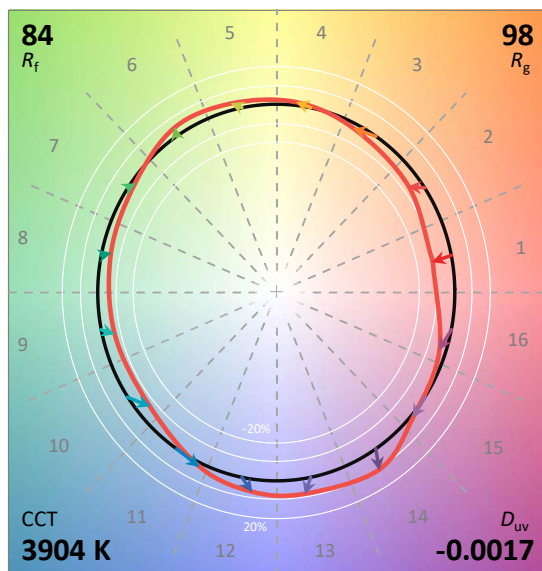
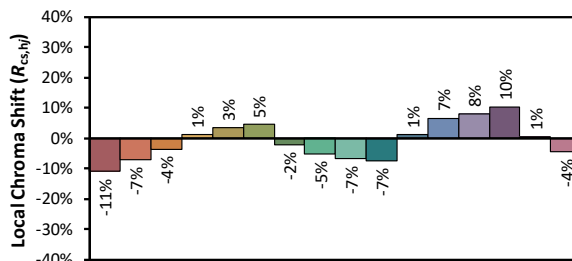
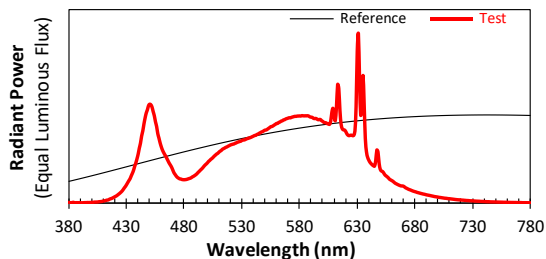
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/10/10

Model: PWLED @72W4000K



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

$x$  0.3835  
 $y$  0.3750  
 $u'$  0.2278  
 $v'$  0.5012

CIE 13.3-1995  
(CRI)

$R_a$  84  
 $R_g$  20



## 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	5.00E-06	447	5.19E-04	514	3.14E-04	581	5.02E-04	648	2.94E-04	715	2.17E-05
381	3.30E-06	448	5.38E-04	515	3.18E-04	582	5.04E-04	649	2.28E-04	716	2.09E-05
382	3.40E-06	449	5.62E-04	516	3.22E-04	583	5.03E-04	650	1.95E-04	717	2.03E-05
383	4.30E-06	450	5.70E-04	517	3.24E-04	584	5.03E-04	651	1.85E-04	718	1.97E-05
384	5.50E-06	451	5.66E-04	518	3.28E-04	585	5.03E-04	652	1.82E-04	719	1.93E-05
385	1.40E-06	452	5.53E-04	519	3.32E-04	586	5.03E-04	653	1.74E-04	720	1.90E-05
386	3.00E-06	453	5.27E-04	520	3.35E-04	587	5.03E-04	654	1.63E-04	721	1.81E-05
387	3.30E-06	454	5.03E-04	521	3.37E-04	588	5.01E-04	655	1.58E-04	722	1.77E-05
388	3.10E-06	455	4.69E-04	522	3.40E-04	589	4.97E-04	656	1.52E-04	723	1.70E-05
389	3.40E-06	456	4.42E-04	523	3.41E-04	590	4.95E-04	657	1.46E-04	724	1.64E-05
390	2.90E-06	457	4.01E-04	524	3.45E-04	591	4.94E-04	658	1.38E-04	725	1.58E-05
391	2.60E-06	458	3.75E-04	525	3.47E-04	592	4.89E-04	659	1.34E-04	726	1.55E-05
392	2.90E-06	459	3.48E-04	526	3.51E-04	593	4.87E-04	660	1.30E-04	727	1.49E-05
393	3.20E-06	460	3.26E-04	527	3.53E-04	594	4.88E-04	661	1.26E-04	728	1.42E-05
394	3.70E-06	461	3.07E-04	528	3.56E-04	595	4.85E-04	662	1.20E-04	729	1.41E-05
395	3.60E-06	462	2.93E-04	529	3.57E-04	596	4.81E-04	663	1.15E-04	730	1.36E-05
396	4.30E-06	463	2.81E-04	530	3.62E-04	597	4.81E-04	664	1.12E-04	731	1.32E-05
397	4.10E-06	464	2.69E-04	531	3.63E-04	598	4.82E-04	665	1.08E-04	732	1.28E-05
398	4.30E-06	465	2.56E-04	532	3.64E-04	599	4.75E-04	666	1.05E-04	733	1.23E-05
399	4.40E-06	466	2.43E-04	533	3.67E-04	600	4.71E-04	667	1.02E-04	734	1.19E-05
400	5.20E-06	467	2.30E-04	534	3.70E-04	601	4.66E-04	668	9.98E-05	735	1.17E-05
401	5.30E-06	468	2.19E-04	535	3.73E-04	602	4.64E-04	669	9.94E-05	736	1.14E-05
402	6.50E-06	469	2.07E-04	536	3.75E-04	603	4.62E-04	670	9.82E-05	737	1.07E-05
403	6.70E-06	470	1.92E-04	537	3.77E-04	604	4.58E-04	671	9.39E-05	738	1.05E-05
404	6.90E-06	471	1.76E-04	538	3.80E-04	605	4.56E-04	672	8.87E-05	739	1.02E-05
405	7.40E-06	472	1.66E-04	539	3.83E-04	606	4.55E-04	673	8.56E-05	740	9.90E-06
406	8.70E-06	473	1.56E-04	540	3.86E-04	607	4.73E-04	674	8.20E-05	741	9.40E-06
407	9.30E-06	474	1.49E-04	541	3.90E-04	608	5.24E-04	675	7.90E-05	742	9.20E-06
408	1.00E-05	475	1.45E-04	542	3.91E-04	609	5.45E-04	676	7.67E-05	743	8.70E-06
409	1.13E-05	476	1.41E-04	543	3.96E-04	610	4.96E-04	677	7.39E-05	744	8.80E-06
410	1.29E-05	477	1.39E-04	544	3.98E-04	611	4.76E-04	678	7.11E-05	745	8.30E-06
411	1.45E-05	478	1.37E-04	545	4.03E-04	612	5.56E-04	679	6.87E-05	746	7.80E-06
412	1.62E-05	479	1.36E-04	546	4.06E-04	613	6.83E-04	680	6.67E-05	747	7.80E-06
413	1.81E-05	480	1.35E-04	547	4.10E-04	614	6.59E-04	681	6.47E-05	748	7.60E-06
414	1.91E-05	481	1.36E-04	548	4.13E-04	615	5.33E-04	682	6.23E-05	749	7.40E-06
415	2.28E-05	482	1.37E-04	549	4.17E-04	616	4.54E-04	683	6.06E-05	750	7.30E-06
416	2.56E-05	483	1.39E-04	550	4.21E-04	617	4.29E-04	684	5.87E-05	751	7.00E-06
417	2.76E-05	484	1.42E-04	551	4.22E-04	618	4.22E-04	685	5.68E-05	752	6.70E-06
418	3.10E-05	485	1.44E-04	552	4.25E-04	619	4.21E-04	686	5.51E-05	753	6.60E-06
419	3.46E-05	486	1.47E-04	553	4.30E-04	620	4.13E-04	687	5.33E-05	754	6.40E-06
420	3.84E-05	487	1.52E-04	554	4.35E-04	621	3.99E-04	688	5.20E-05	755	6.20E-06
421	4.19E-05	488	1.55E-04	555	4.40E-04	622	3.91E-04	689	5.04E-05	756	6.00E-06
422	4.66E-05	489	1.59E-04	556	4.42E-04	623	3.89E-04	690	4.86E-05	757	5.60E-06
423	5.20E-05	490	1.64E-04	557	4.45E-04	624	3.91E-04	691	4.72E-05	758	5.70E-06
424	5.72E-05	491	1.70E-04	558	4.50E-04	625	3.92E-04	692	4.59E-05	759	5.50E-06
425	6.33E-05	492	1.78E-04	559	4.54E-04	626	3.89E-04	693	4.46E-05	760	5.30E-06
426	7.00E-05	493	1.84E-04	560	4.59E-04	627	3.91E-04	694	4.30E-05	761	5.10E-06
427	7.87E-05	494	1.91E-04	561	4.59E-04	628	4.15E-04	695	4.16E-05	762	4.90E-06
428	8.85E-05	495	1.97E-04	562	4.65E-04	629	5.55E-04	696	4.02E-05	763	4.70E-06
429	9.72E-05	496	2.04E-04	563	4.67E-04	630	8.74E-04	697	3.85E-05	764	4.50E-06
430	1.08E-04	497	2.12E-04	564	4.73E-04	631	9.76E-04	698	3.76E-05	765	4.60E-06
431	1.19E-04	498	2.20E-04	565	4.74E-04	632	7.11E-04	699	3.65E-05	766	4.30E-06
432	1.31E-04	499	2.26E-04	566	4.79E-04	633	5.07E-04	700	3.54E-05	767	4.30E-06
433	1.42E-04	500	2.32E-04	567	4.81E-04	634	6.07E-04	701	3.39E-05	768	4.10E-06
434	1.58E-04	501	2.40E-04	568	4.85E-04	635	7.35E-04	702	3.32E-05	769	3.80E-06
435	1.73E-04	502	2.46E-04	569	4.87E-04	636	5.68E-04	703	3.21E-05	770	3.80E-06
436	1.90E-04	503	2.53E-04	570	4.90E-04	637	3.74E-04	704	3.11E-05	771	3.80E-06
437	2.13E-04	504	2.58E-04	571	4.92E-04	638	2.96E-04	705	3.00E-05	772	3.80E-06
438	2.33E-04	505	2.64E-04	572	4.91E-04	639	2.65E-04	706	2.90E-05	773	3.40E-06
439	2.56E-04	506	2.71E-04	573	4.94E-04	640	2.49E-04	707	2.85E-05	774	3.30E-06
440	2.83E-04	507	2.77E-04	574	4.96E-04	641	2.36E-04	708	2.75E-05	775	3.30E-06
441	3.17E-04	508	2.83E-04	575	4.98E-04	642	2.28E-04	709	2.65E-05	776	3.20E-06
442	3.45E-04	509	2.87E-04	576	5.00E-04	643	2.21E-04	710	2.61E-05	777	3.10E-06
443	3.87E-04	510	2.94E-04	577	5.00E-04	644	2.16E-04	711	2.51E-05	778	3.00E-06
444	4.16E-04	511	2.99E-04	578	5.01E-04	645	2.14E-04	712	2.43E-05	779	2.90E-06
445	4.56E-04	512	3.03E-04	579	5.02E-04	646	2.44E-04	713	2.35E-05	780	2.90E-06
446	4.90E-04	513	3.10E-04	580	5.02E-04	647	3.06E-04	714	2.26E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	PWLED @72W4000K	<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>	120.0	60	0.554	66.0	0.993
<b>NON-WORST CASE</b>	277.0	60	0.244	65.7	0.971

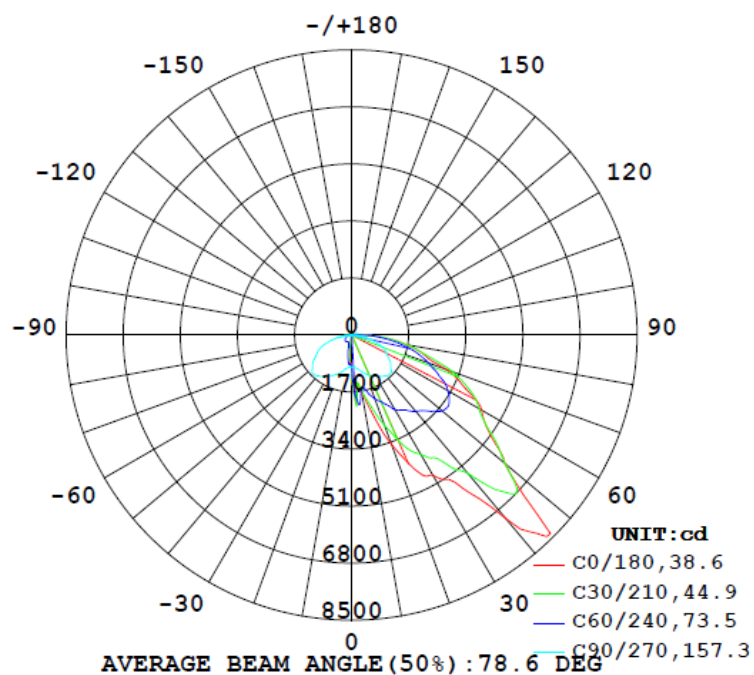
### Test Result

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>	9694	90.6	150.7	39.9	82.9	146.9	5.1%	B1-U3-G3
<b>0°-90° zones</b>	9447	90.6	150.7	39.9	82.9	143.1	5.2%	B1-U3-G3

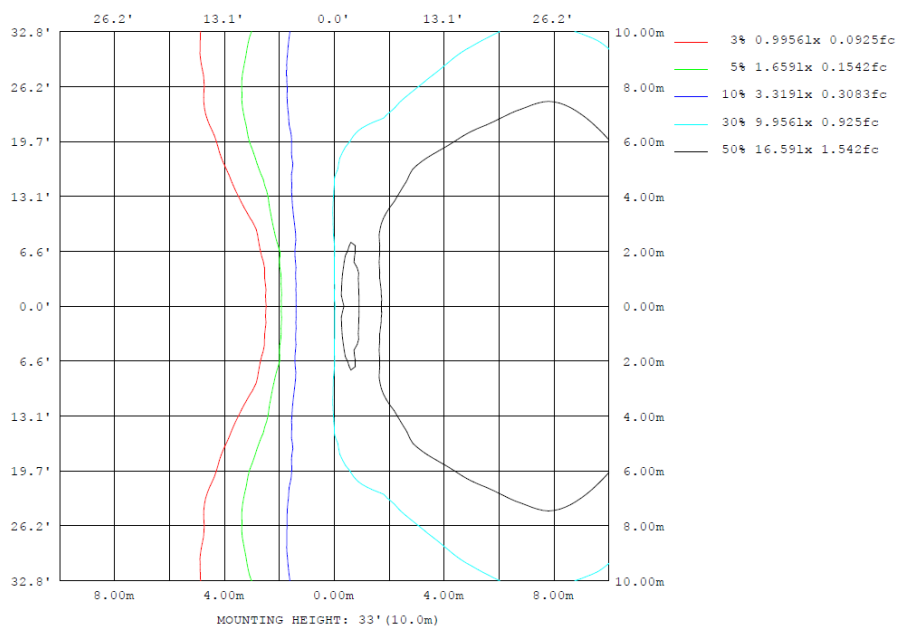
## 4.2 Goniophotometer Test

### Lighting Distribution Curve

#### LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



### Isolux Plot



## 4.2 Goniophotometer Test

### Zonal Lumen Summary

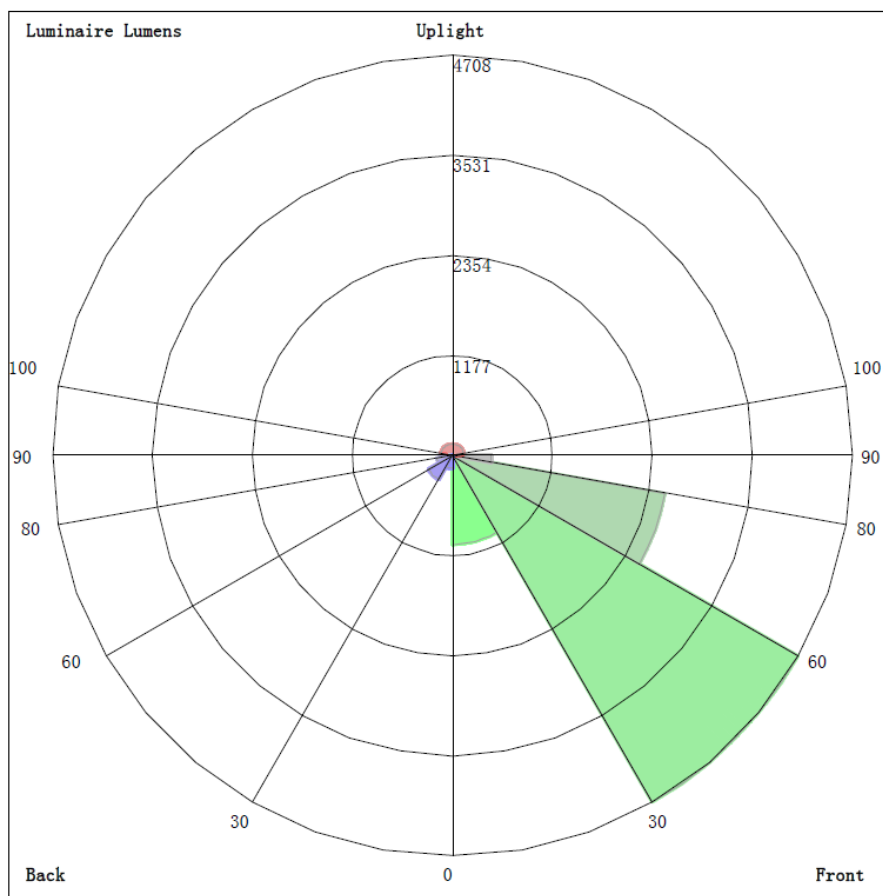
ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1753	1541	1016	425.4	220.7	425.4	1016	1541	0- 10	111.4	111.4	1.15,1.15
20	3469	2338	1234	133.0	63.48	133.0	1234	2338	10- 20	339.4	450.7	4.65,4.65
30	4828	3337	1424	113.0	42.78	113.0	1424	3337	20- 30	743.3	1194	12.3,12.3
40	7142	4151	1591	101.4	18.60	101.4	1591	4151	30- 40	1239	2433	25.1,25.1
50	5948	5308	1527	87.12	3.325	87.12	1527	5308	40- 50	1914	4347	44.8,44.8
60	4463	4017	1229	72.15	0.2299	72.15	1229	4017	50- 60	1878	6226	64.2,64.2
70	2984	3070	907.0	57.30	0.5352	57.30	907.0	3070	60- 70	1625	7851	81,81
80	1654	1669	421.2	38.42	1.175	38.42	421.2	1669	70- 80	1103	8953	92.4,92.4
90	340.6	410.0	72.70	16.66	2.080	16.66	72.70	410.0	80- 90	493.9	9447	97.5,97.5
100	175.6	144.8	14.34	7.305	3.100	7.305	14.34	144.8	90-100	111.1	9558	98.6,98.6
110	105.9	76.64	9.246	5.494	3.820	5.494	9.246	76.64	100-110	52.96	9611	99.1,99.1
120	63.86	52.15	7.969	5.309	4.226	5.309	7.969	52.15	110-120	30.34	9642	99.5,99.5
130	54.88	39.35	6.684	5.411	4.786	5.411	6.684	39.35	120-130	20.88	9662	99.7,99.7
140	39.86	30.92	5.142	5.053	4.661	5.053	5.142	30.92	130-140	14.18	9677	99.8,99.8
150	32.06	23.72	4.192	4.169	4.259	4.169	4.192	23.72	140-150	9.305	9686	99.9,99.9
160	23.22	17.73	3.850	3.526	3.193	3.526	3.850	17.73	150-160	5.429	9691	100,100
170	13.08	12.69	3.600	3.256	2.176	3.256	3.600	12.69	160-170	2.452	9694	100,100
180	1.837	2.037	2.324	2.352	1.822	2.352	2.324	2.037	170-180	0.4885	9694	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	111.37	0-10	111.37	1.15%
10-20	339.36	0-20	450.73	4.65%
20-30	743.33	0-30	1194.06	12.32%
30-40	1239.29	0-40	2433.35	25.10%
40-50	1913.81	0-50	4347.16	44.84%
50-60	1878.36	0-60	6225.52	64.22%
60-70	1625.09	0-70	7850.61	80.99%
70-80	1102.70	0-80	8953.31	92.36%
80-90	493.88	0-90	9447.19	97.46%
90-100	111.08	0-100	9558.27	98.60%
100-110	52.96	0-110	9611.23	99.15%
110-120	30.34	0-120	9641.57	99.46%
120-130	20.88	0-130	9662.45	99.68%
130-140	14.18	0-140	9676.63	99.82%
140-150	9.30	0-150	9685.93	99.92%
150-160	5.43	0-160	9691.36	99.97%
160-170	2.45	0-170	9693.81	100.00%
170-180	0.49	0-180	9694.30	100.01%

## 4.2 Goniophotometer Test

LCS/BUG

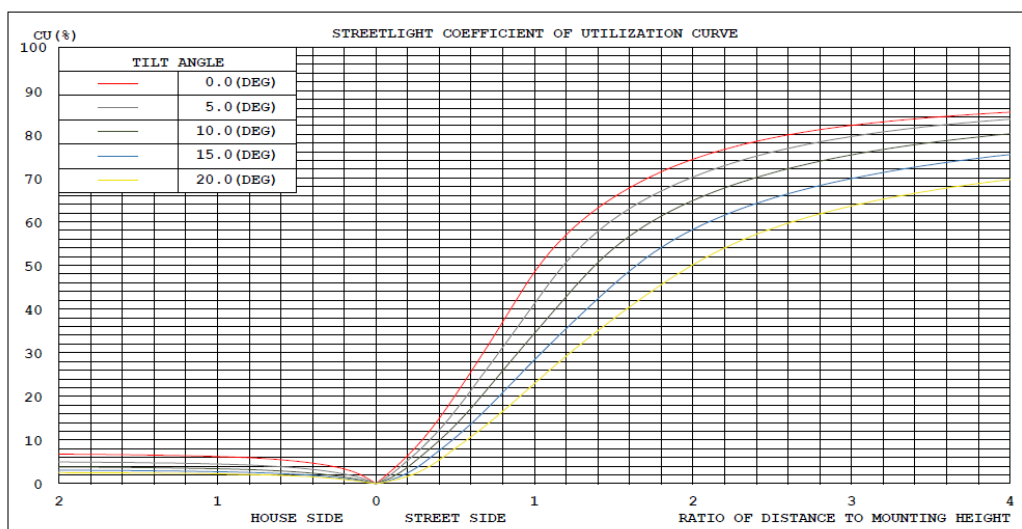


### LUMINAIRE CLASSIFICATION SYSTEM (LCS)

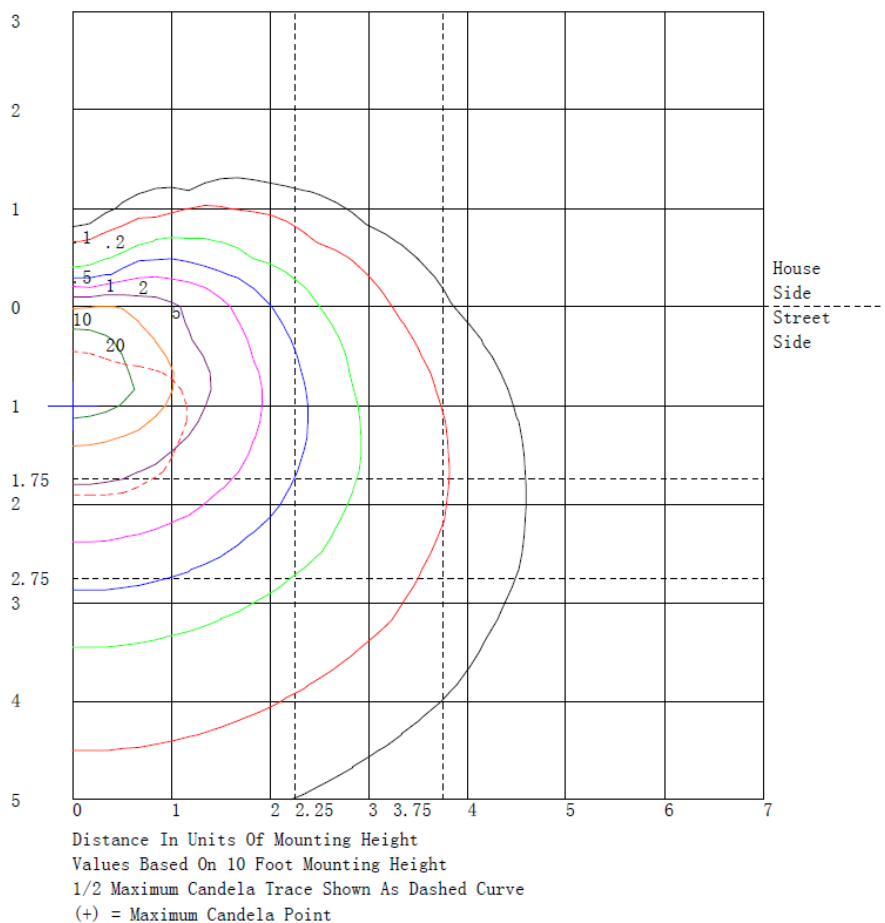
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	1044.2	N.A.	10.8
FM - Front-Medium (30-60)	4707.6	N.A.	48.6
FH - Front-High (60-80)	2543.3	N.A.	26.2
FVH - Front-Very High (80-90)	460.6	N.A.	4.8
BL - Back-Low (0-30)	149.8	N.A.	1.5
BM - Back-Medium (30-60)	323.9	N.A.	3.3
BH - Back-High (60-80)	184.5	N.A.	1.9
BVH - Back-Very High (80-90)	33.3	N.A.	0.3
UL - Uplight-Low (90-100)	111.1	N.A.	1.1
UH - Uplight-High (100-180)	136.0	N.A.	1.4
Total	9694.3	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	914	929	935	945	950	950	949	941	939	936	916	912	914	912	916	936	939	941	949
5	1686	1740	1919	2130	1975	1655	971	813	888	837	751	689	672	689	751	837	888	813	971
10	1753	1743	1673	1541	1627	1900	1016	807	650	425	281	217	221	217	281	425	650	807	1016
15	2463	2398	2176	1931	1733	1742	1131	698	392	197	128	102	95.9	102	128	197	392	698	1131
20	3469	3313	2862	2338	2020	1654	1234	603	268	133	87.1	67.0	63.5	67.0	87.1	133	268	603	1234
25	4401	4231	3611	2882	2229	1768	1342	532	232	119	71.9	52.2	50.1	52.2	71.9	119	232	532	1342
30	4828	4664	4104	3337	2568	1862	1424	521	230	113	64.1	45.5	42.8	45.5	64.1	113	230	521	1424
35	5363	5195	4523	3666	2728	1835	1505	520	243	105	59.2	36.6	30.1	36.6	59.2	105	243	520	1505
40	7142	6559	5383	4151	2970	1809	1591	515	264	101	53.7	26.2	18.6	26.2	53.7	101	264	515	1591
45	8369	7866	6682	4824	3205	1883	1626	531	262	96.8	48.9	19.0	9.79	19.0	48.9	96.8	262	531	1626
50	5948	5962	5967	5308	3518	1974	1527	529	259	87.1	45.6	14.3	3.33	14.3	45.6	87.1	259	529	1527
55	4970	5011	5024	4644	3540	1998	1411	524	246	77.8	44.7	13.4	0.23	13.4	44.7	77.8	246	524	1411
60	4463	4506	4377	4017	3298	1991	1229	510	227	72.1	45.0	15.4	0.23	15.4	45.0	72.1	227	510	1229
65	3711	3833	3881	3585	2871	1773	1091	462	196	66.9	46.5	16.6	0.34	16.6	46.5	66.9	196	462	1091
70	2984	3100	3204	3070	2438	1548	907	386	169	57.3	45.8	16.6	0.54	16.6	45.8	57.3	169	386	907
75	2215	2249	2296	2362	1980	1290	662	296	123	48.2	38.2	14.6	0.81	14.6	38.2	48.2	123	296	662
80	1654	1673	1661	1669	1430	892	421	213	92.0	38.4	31.6	11.7	1.17	11.7	31.6	38.4	92.0	213	421
85	1035	1033	1031	1026	885	511	230	122	61.2	26.4	22.3	8.36	1.59	8.36	22.3	26.4	61.2	122	230
90	341	351	370	410	378	193	72.7	61.9	33.7	16.7	13.3	5.58	2.08	5.58	13.3	16.7	33.7	61.9	72.7
95	228	228	224	220	186	77.6	21.6	28.5	18.3	10.0	7.57	3.93	2.58	3.93	7.57	10.0	18.3	28.5	21.6
100	176	173	161	145	118	48.6	14.3	18.2	12.3	7.31	5.66	3.42	3.10	3.42	5.66	7.31	12.3	18.2	14.3
105	130	129	119	104	81.4	36.8	10.9	13.4	9.29	6.08	4.91	3.36	3.56	3.36	4.91	6.08	9.29	13.4	10.9
110	106	103	91.7	76.6	59.3	29.2	9.25	10.7	7.57	5.49	4.66	3.55	3.82	3.55	4.66	5.49	7.57	10.7	9.25
115	81.5	76.3	67.6	60.0	47.3	24.9	8.48	9.07	6.68	5.33	4.69	3.88	4.05	3.88	4.69	5.33	6.68	9.07	8.48
120	63.9	62.6	57.8	52.1	40.2	22.0	7.97	8.01	6.25	5.31	4.91	4.28	4.23	4.28	4.91	5.31	6.25	8.01	7.97
125	57.2	57.4	53.8	46.4	34.4	19.7	7.37	7.22	6.06	5.39	5.14	4.65	4.55	4.65	5.14	5.39	6.06	7.22	7.37
130	54.9	53.4	47.0	39.4	29.5	17.7	6.68	6.51	5.86	5.41	5.24	4.83	4.79	4.83	5.24	5.41	5.86	6.51	6.68
135	43.7	43.0	39.5	34.7	25.7	15.7	5.89	5.89	5.60	5.33	5.15	4.81	4.74	4.81	5.15	5.33	5.60	5.89	5.89
140	39.9	39.1	36.1	30.9	22.8	14.3	5.14	5.30	5.17	5.05	4.89	4.56	4.66	4.56	4.89	5.05	5.17	5.30	5.14
145	37.3	36.3	32.8	27.2	20.2	13.2	4.58	4.74	4.70	4.61	4.47	4.18	4.50	4.18	4.47	4.61	4.70	4.74	4.58
150	32.1	31.4	28.4	23.7	17.9	12.6	4.19	4.30	4.27	4.17	4.03	3.81	4.26	3.81	4.03	4.17	4.27	4.30	4.19
155	27.8	27.4	24.9	20.7	15.9	12.3	4.01	4.10	4.00	3.86	3.63	3.28	3.81	3.28	3.63	3.86	4.00	4.10	4.01
160	23.2	22.9	21.0	17.7	14.3	12.1	3.85	3.90	3.74	3.53	3.21	2.57	3.19	2.57	3.21	3.53	3.74	3.90	3.85
165	17.9	17.7	16.8	14.8	13.0	10.2	3.70	3.71	3.57	3.37	3.14	2.34	2.59	2.34	3.14	3.37	3.57	3.71	3.70
170	13.1	13.0	12.9	12.7	12.1	3.57	3.60	3.55	3.43	3.26	2.45	2.21	2.18	2.21	2.45	3.26	3.43	3.55	3.60
175	10.3	10.3	7.90	5.20	2.40	2.63	2.81	2.79	2.70	2.60	2.50	2.39	2.08	2.39	2.50	2.60	2.70	2.79	2.81
180	1.84	1.80	1.89	2.04	2.17	2.27	2.32	2.35	2.37	2.35	2.31	2.28	1.82	2.28	2.31	2.35	2.37	2.35	2.32

Table--2

UNIT: cd

C (DEG) y (DEG)	285	300	315	330	345														
0	950	950	945	935	929														
5	1655	1975	2130	1919	1740														
10	1900	1627	1541	1673	1743														
15	1742	1733	1931	2176	2398														
20	1654	2020	2338	2862	3313														
25	1768	2229	2882	3611	4231														
30	1862	2568	3337	4104	4664														
35	1835	2728	3666	4523	5195														
40	1809	2970	4151	5383	6559														
45	1883	3205	4824	6682	7866														
50	1974	3518	5308	5967	5962														
55	1998	3540	4644	5024	5011														
60	1991	3298	4017	4377	4506														
65	1773	2871	3585	3881	3833														
70	1548	2438	3070	3204	3100														
75	1290	1980	2362	2296	2249														
80	892	1430	1669	1661	1673														
85	511	885	1026	1031	1033														
90	193	378	410	370	351														
95	77.6	186	220	224	228														
100	48.6	118	145	161	173														
105	36.8	81.4	104	119	129														
110	29.2	59.3	76.6	91.7	103														
115	24.9	47.3	60.0	67.6	76.3														
120	22.0	40.2	52.1	57.8	62.6														
125	19.7	34.4	46.4	53.8	57.4														
130	17.7	29.5	39.4	47.0	53.4														
135	15.7	25.7	34.7	39.5	43.0														
140	14.3	22.8	30.9	36.1	39.1														
145	13.2	20.2	27.2	32.8	36.3														
150	12.6	17.9	23.7	28.4	31.4														
155	12.3	15.9	20.7	24.9	27.4														
160	12.1	14.3	17.7	21.0	22.9														
165	10.2	13.0	14.8	16.8	17.7														
170	3.57	12.1	12.7	12.9	13.0														
175	2.63	2.40	5.20	7.90	10.3														
180	2.27	2.17	2.04	1.89	1.80														

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

<b>Model No.</b>	PWLED @72W4000K	<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	0.554	66.0	0.993	10.04
277.0	60	0.244	65.7	0.971	9.82



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