LM-79-19 Test Report

For

LEDVANCE LLC

200 Ballardvale St. Wilmington MA 01887

LED LAMP

Model Name(s):
LED54ED37UNVFR850MOG

Representative (Tested) Model:
LED54ED37UNVFR850MOG

Model Difference: N/A

Prepared by:

Engineer: Alan Wang
Date: 2023-03-30

Reviewed by:

Technical Lead: Vincent Yuan
Issue Date: 2023-03-31
Revised Date: N/A

Note:
1. The results contained in this report pertain only to the tested samples.
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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.

Laboratory: Dongguan New Testing Centre Co., Ltd
Address: 3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Tel: 86-769-22212079
Website: http://www.ntc-cert.com

Client Information:

Applicant Name:	LEDVANCE LLC
Brand Name:	SYLVANIA, LEDVANCE, SIMPLY DONE

Product Information:

Model Number:	LED54ED37UNVFR850MOG
Product Type:	LED LAMP
Rating Input:	120-277Vac, 50/60Hz, 54W
Declared CCT:	5000K
Declared Light Output:	8000lm

Test Information:

Standard Lamp:	Total Spectral Radiant Flux Standard Lamp, trace to NIST. 1. D908S for Gonio 2. D215S for Integrating Sphere
Date of Receipt Samples:	2023-03-27
Quantity of Receipt Samples:	1 pc
Sample Number:	230329004-S1
Test Representation:	1. All CCTs conducted IS and Electrical test; 2. The lowest CCT conducted Gonio test.

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_zhong@ntc-cert.com

Report Information:

Test Report Form:	LM-79_TRF_V1.5
Issued Date of Test Report:	2023-03-31
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR22120233
Remark *(If applicable)*:	N/A

Test Specification:	
Date of Test	2023-03-29
Test Item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Fidelity Index 8. Gamut Index 9. Local Chroma Shift 10. THD and PF
Reference Standard	ANSI/IES LM-79-19 APPROVED METHOD: OPTICAL AND ELECTRICAL MEASUREMENTS OF SOLID-STATE LIGHTING PRODUCTS ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2018 Technical Report Colorimetry ANSI IES TM-30-18 IES Method for Evaluating Light Source Color Rendition IES TM-15-11 Luminaire Classification System for Outdoor Luminaires Addendum A for IES TM-15-11 Backlight, Uplight, and Glare (BUG) Ratings ANSI C82.77-10:2020 Harmonic Emission Limits – Related Power Quality Requirements for Lighting Equipment – Solid State

Test Methods:

1. Photometric and Electrical Measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ± 1°C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at 1° vertical intervals and 15° horizonal intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at 25 °C± 1°C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at require Voltage and Frequency. It was stabilized before measurement was made. Chromaticity Coordinates, Correlated Color Temperature and Color Rendering Index were calculated from the spectral radiant flux measurements taken at least 1 nm intervals over the rage of 380 to 780 nm.

3. THD and PF Measurements:

The sample was tested according to the ANSI C82.77, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.

Integrating Sphere Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.2	41.0	Face Down	90	10

Electrical Data:

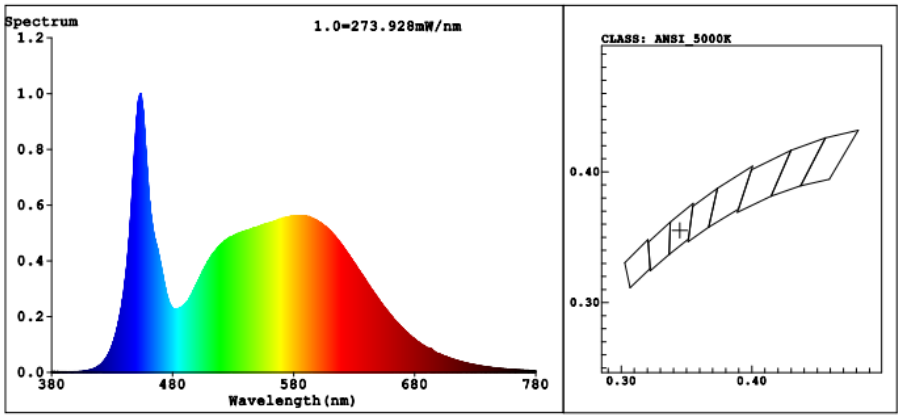
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.4345	51.66	0.9907

Color Data:

Parameter	Result
CCT(K)	5023
Ra	83.4
R_f	83
R_g	95
$R_{cs,\ h1}$	-13
Chromaticity, (x, y)	(0.3448, 0.3552)
Chromaticity, (u', v')	(0.2098, 0.4864)
Duv	0.0019

Specify Color Rendering			
R1	82	R9	10
R2	89	R10	73
R3	93	R11	81
R4	83	R12	60
R5	82	R13	84
R6	84	R14	96
R7	87	R15	77
R8	67	-	-

Spectrum Diagram:



IES TM-30-18 Color Rendition Result:

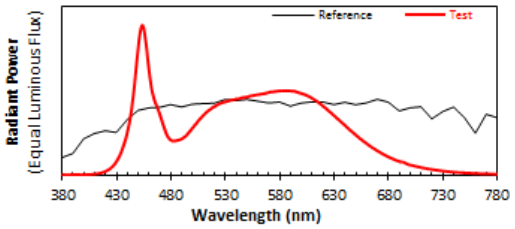
ANSI/IES TM-30-18 Color Rendition Report

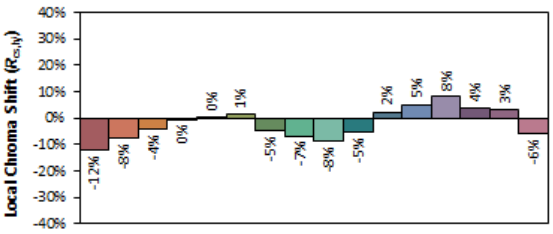
Source: --

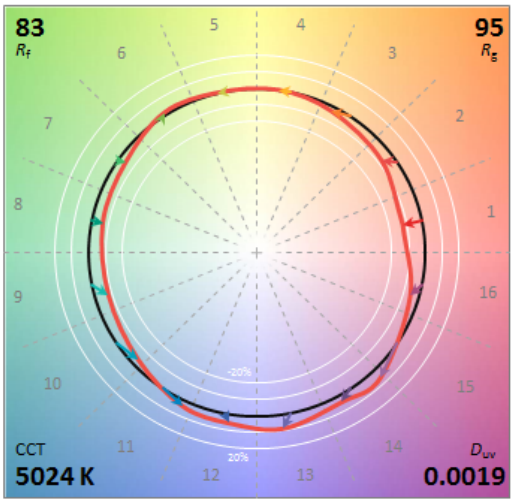
Manufacturer: LEDVANCE LLC

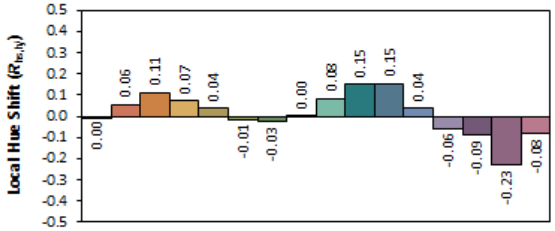
Date: 2023/3/29

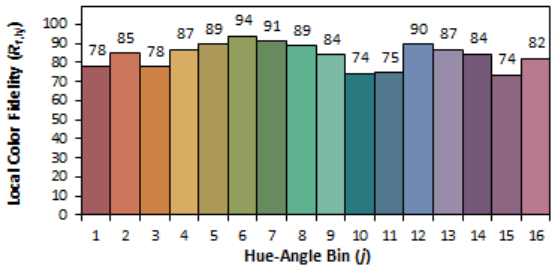
Model: LED54ED37UNVFR850MOG

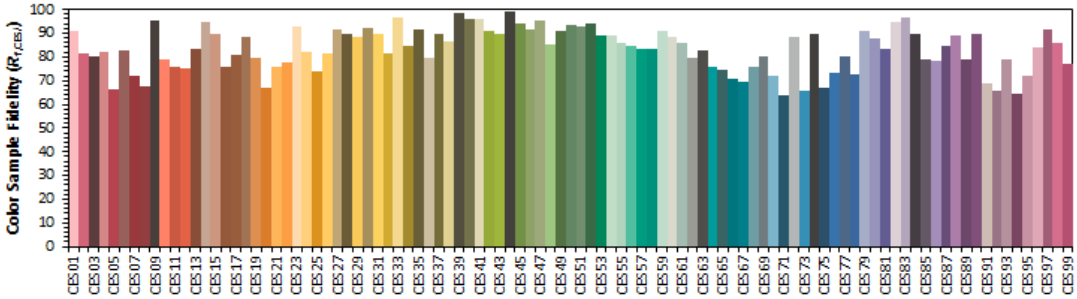












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3448
y	0.3550
u'	0.2099
v'	0.4863

CIE 13.3-1995 (CRI)

R_a	83
R_9	10

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Spectrum Data:

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0028	447	0.6713	514	0.4296	581	0.5594	648	0.2762	715	0.0430
381	0.0031	448	0.7500	515	0.4338	582	0.5603	649	0.2692	716	0.0414
382	0.0021	449	0.8198	516	0.4391	583	0.5607	650	0.2632	717	0.0401
383	0.0027	450	0.8869	517	0.4453	584	0.5596	651	0.2569	718	0.0393
384	0.0021	451	0.9393	518	0.4494	585	0.5615	652	0.2511	719	0.0379
385	0.0030	452	0.9788	519	0.4552	586	0.5612	653	0.2448	720	0.0367
386	0.0024	453	0.9958	520	0.4567	587	0.5617	654	0.2397	721	0.0357
387	0.0023	454	0.9879	521	0.4629	588	0.5611	655	0.2339	722	0.0343
388	0.0024	455	0.9589	522	0.4664	589	0.5599	656	0.2275	723	0.0332
389	0.0022	456	0.9073	523	0.4712	590	0.5595	657	0.2226	724	0.0326
390	0.0020	457	0.8523	524	0.4739	591	0.5586	658	0.2171	725	0.0309
391	0.0022	458	0.7836	525	0.4775	592	0.5580	659	0.2115	726	0.0305
392	0.0018	459	0.7179	526	0.4800	593	0.5580	660	0.2065	727	0.0294
393	0.0022	460	0.6581	527	0.4836	594	0.5556	661	0.2012	728	0.0284
394	0.0020	461	0.6097	528	0.4844	595	0.5531	662	0.1952	729	0.0276
395	0.0022	462	0.5651	529	0.4861	596	0.5508	663	0.1904	730	0.0267
396	0.0025	463	0.5333	530	0.4885	597	0.5481	664	0.1858	731	0.0261
397	0.0020	464	0.5062	531	0.4901	598	0.5456	665	0.1800	732	0.0250
398	0.0025	465	0.4841	532	0.4916	599	0.5443	666	0.1766	733	0.0246
399	0.0025	466	0.4670	533	0.4952	600	0.5421	667	0.1722	734	0.0235
400	0.0024	467	0.4489	534	0.4981	601	0.5387	668	0.1667	735	0.0231
401	0.0026	468	0.4299	535	0.4987	602	0.5365	669	0.1625	736	0.0223
402	0.0026	469	0.4107	536	0.5000	603	0.5348	670	0.1582	737	0.0215
403	0.0029	470	0.3869	537	0.5029	604	0.5305	671	0.1537	738	0.0210
404	0.0034	471	0.3653	538	0.5023	605	0.5277	672	0.1494	739	0.0202
405	0.0036	472	0.3429	539	0.5052	606	0.5245	673	0.1452	740	0.0195
406	0.0043	473	0.3210	540	0.5065	607	0.5202	674	0.1415	741	0.0189
407	0.0049	474	0.3003	541	0.5072	608	0.5170	675	0.1372	742	0.0183
408	0.0051	475	0.2804	542	0.5074	609	0.5113	676	0.1336	743	0.0177
409	0.0062	476	0.2645	543	0.5103	610	0.5081	677	0.1299	744	0.0172
410	0.0069	477	0.2508	544	0.5113	611	0.5029	678	0.1259	745	0.0168
411	0.0081	478	0.2416	545	0.5156	612	0.4977	679	0.1229	746	0.0162
412	0.0093	479	0.2356	546	0.5163	613	0.4932	680	0.1192	747	0.0158
413	0.0106	480	0.2301	547	0.5152	614	0.4890	681	0.1153	748	0.0153
414	0.0119	481	0.2274	548	0.5184	615	0.4838	682	0.1121	749	0.0150
415	0.0138	482	0.2279	549	0.5193	616	0.4775	683	0.1091	750	0.0145
416	0.0155	483	0.2270	550	0.5198	617	0.4723	684	0.1063	751	0.0141
417	0.0177	484	0.2284	551	0.5237	618	0.4667	685	0.1026	752	0.0134
418	0.0205	485	0.2287	552	0.5246	619	0.4607	686	0.1000	753	0.0130
419	0.0237	486	0.2324	553	0.5273	620	0.4541	687	0.0969	754	0.0127
420	0.0267	487	0.2336	554	0.5270	621	0.4491	688	0.0945	755	0.0124
421	0.0304	488	0.2364	555	0.5283	622	0.4438	689	0.0920	756	0.0119
422	0.0346	489	0.2389	556	0.5305	623	0.4373	690	0.0888	757	0.0116
423	0.0393	490	0.2433	557	0.5318	624	0.4303	691	0.0877	758	0.0114
424	0.0449	491	0.2477	558	0.5336	625	0.4240	692	0.0873	759	0.0108
425	0.0510	492	0.2545	559	0.5353	626	0.4182	693	0.0868	760	0.0106
426	0.0581	493	0.2580	560	0.5345	627	0.4122	694	0.0835	761	0.0102
427	0.0666	494	0.2667	561	0.5368	628	0.4051	695	0.0793	762	0.0100
428	0.0743	495	0.2750	562	0.5389	629	0.3985	696	0.0757	763	0.0097
429	0.0856	496	0.2824	563	0.5396	630	0.3919	697	0.0723	764	0.0095
430	0.0960	497	0.2924	564	0.5410	631	0.3862	698	0.0691	765	0.0092
431	0.1099	498	0.3001	565	0.5425	632	0.3771	699	0.0674	766	0.0090
432	0.1232	499	0.3116	566	0.5412	633	0.3727	700	0.0659	767	0.0088
433	0.1389	500	0.3169	567	0.5466	634	0.3670	701	0.0650	768	0.0081
434	0.1559	501	0.3286	568	0.5463	635	0.3592	702	0.0631	769	0.0083
435	0.1754	502	0.3360	569	0.5495	636	0.3532	703	0.0614	770	0.0080
436	0.1962	503	0.3441	570	0.5501	637	0.3462	704	0.0592	771	0.0075
437	0.2191	504	0.3553	571	0.5538	638	0.3402	705	0.0577	772	0.0074
438	0.2435	505	0.3638	572	0.5535	639	0.3335	706	0.0562	773	0.0071
439	0.2702	506	0.3715	573	0.5534	640	0.3271	707	0.0544	774	0.0070
440	0.3024	507	0.3801	574	0.5552	641	0.3196	708	0.0527	775	0.0070
441	0.3367	508	0.3863	575	0.5558	642	0.3134	709	0.0513	776	0.0066
442	0.3757	509	0.3958	576	0.5569	643	0.3066	710	0.0496	777	0.0064
443	0.4204	510	0.4028	577	0.5587	644	0.2995	711	0.0485	778	0.0061
444	0.4748	511	0.4094	578	0.5599	645	0.2936	712	0.0468	779	0.0059
445	0.5328	512	0.4172	579	0.5587	646	0.2880	713	0.0451	780	0.0058
446	0.5992	513	0.4229	580	0.5607	647	0.2822	714	0.0442	N/A	N/A

Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.2	54.4	Face Down	90	25

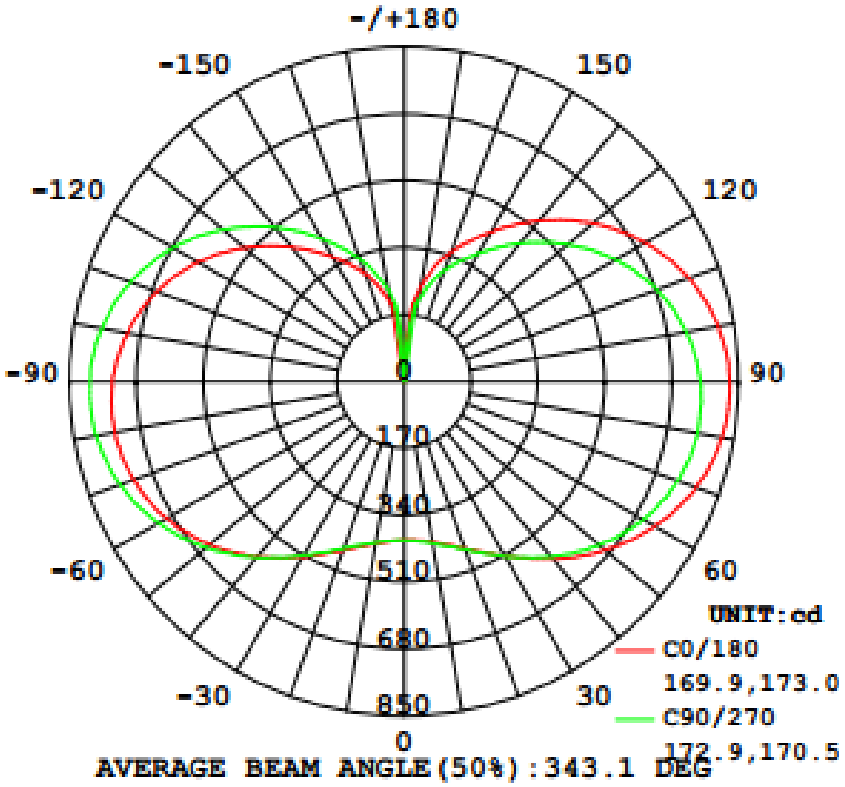
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.4345	51.62	0.9900
277.0	60	0.2072	51.38	0.8952

Goniophotometer Data:

Parameter	Results	
	120V	277V
Total Luminous (lm)	8024.0	8471.5
Luminous Efficacy (lm/W)	155.44	164.88
Beam Angle (°)	343.1	
Center Beam Intensity (cd)	404	

Luminous Intensity Distribution Diagram:

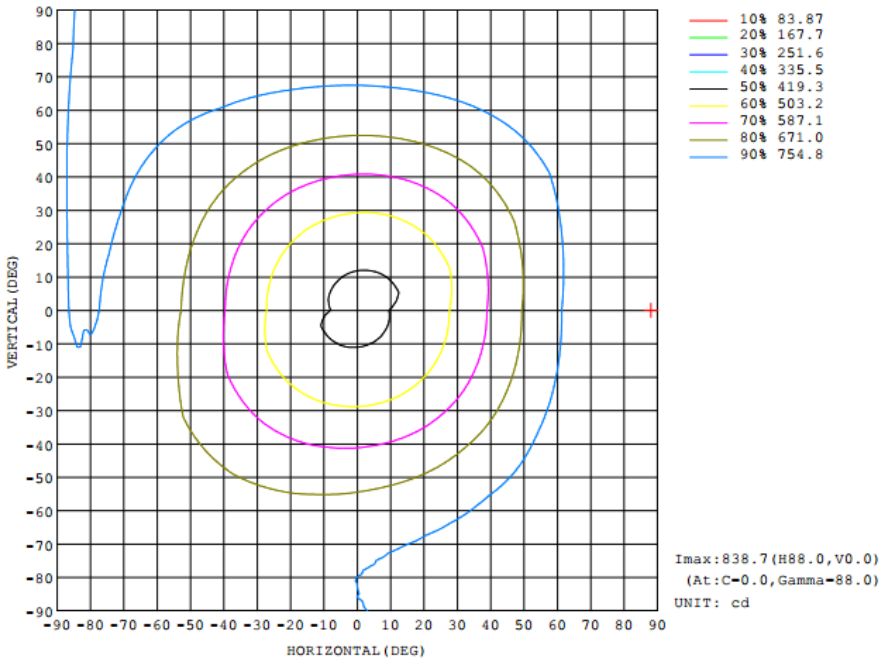


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	414.6	416.6	417.7	417.9	417.8	417.4	415.7	414.2	0- 10	39.13	39.13	0.49,0.49
20	452.3	454.6	454.1	454.7	456.0	456.0	451.5	449.0	10- 20	123.3	162.5	2.02,2.02
30	511.5	515.0	512.2	510.4	513.6	515.2	509.2	505.5	20- 30	223.5	385.9	4.81,4.81
40	588.2	590.7	581.3	573.4	581.4	586.7	583.6	579.6	30- 40	344.4	730.3	9.1,9.1
50	666.0	665.7	646.3	633.5	645.2	657.4	656.3	657.4	40- 50	479.8	1210	15.1,15.1
60	735.3	730.5	701.8	681.9	696.1	716.3	720.1	725.3	50- 60	614.5	1825	22.7,22.7
70	788.8	777.4	739.9	713.7	731.2	757.5	767.6	777.4	60- 70	731.1	2556	31.9,31.9
80	819.2	802.5	757.3	725.8	746.1	778.1	794.3	808.3	70- 80	813.6	3369	42,42
90	826.0	805.0	753.4	718.5	740.6	777.5	798.0	816.9	80- 90	851.4	4221	52.6,52.6
100	810.2	783.9	727.7	691.5	713.1	753.4	780.0	802.1	90-100	840.1	5061	63.1,63.1
110	769.0	740.1	683.1	644.6	668.7	709.6	738.6	763.1	100-110	780.5	5841	72.8,72.8
120	706.0	675.1	620.2	581.9	606.4	646.6	679.1	703.7	110-120	680.0	6521	81.3,81.3
130	625.3	594.8	542.2	506.6	528.8	567.0	600.7	625.2	120-130	551.4	7073	88.1,88.1
140	532.7	505.0	457.2	427.0	445.8	479.1	511.1	534.0	130-140	411.7	7484	93.3,93.3
150	438.3	414.2	376.0	350.1	365.5	389.6	419.1	440.0	140-150	279.0	7763	96.8,96.8
160	351.0	330.6	300.7	279.5	292.3	306.2	331.4	351.6	150-160	166.8	7930	98.8,98.8
170	241.6	225.7	207.2	189.8	200.4	208.2	235.0	253.5	160-170	78.25	8008	99.8,99.8
180	0	0	0	0	0	0	0	0	170-180	15.69	8024	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Isocandela Diagram:



Luminous Distribution Intensity Data:

Table--1 UNIT: cd

C(DEG) / γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	404	404	404	404	404	404	404	404	404	404	404	404	404	404	404	404			
5	406	406	407	406	407	407	408	407	408	408	407	406	407	406	406	405			
10	415	416	417	416	418	417	418	417	418	418	417	416	416	415	414	414			
15	430	431	433	432	433	433	434	434	435	434	433	432	431	430	429	429			
20	452	454	455	454	454	455	455	455	456	457	456	453	452	451	449	449			
25	479	482	482	482	481	481	481	481	483	484	483	481	479	477	475	476			
30	512	515	515	513	512	510	510	511	514	516	515	512	509	507	506	507			
35	549	552	552	548	546	543	542	543	548	550	551	547	545	543	541	543			
40	588	591	591	585	581	576	573	576	581	585	587	585	584	581	580	582			
45	628	631	629	621	614	608	604	607	614	620	623	621	620	619	619	621			
50	666	668	666	656	646	638	634	635	645	653	657	657	656	656	657	659			
55	703	705	700	687	676	664	659	660	673	683	690	690	691	691	693	695			
60	735	738	730	715	702	689	682	683	696	708	716	718	720	722	725	728			
65	764	765	757	738	722	708	702	702	717	729	740	743	746	751	753	756			
70	789	788	777	757	740	723	714	715	731	746	757	763	768	774	777	781			
75	807	804	793	771	751	732	722	723	742	758	770	777	783	789	795	798			
80	819	818	803	778	757	736	726	727	746	764	778	786	794	802	808	812			
85	826	822	806	781	756	735	724	725	745	764	780	790	799	807	816	819			
90	826	823	805	778	753	730	718	719	741	760	777	787	798	810	817	820			
95	821	816	798	769	743	720	707	708	730	751	768	779	792	804	812	817			
100	810	805	784	756	728	705	691	691	713	735	753	766	780	794	802	807			
105	791	786	766	736	708	683	670	671	693	715	734	748	763	777	786	790			
110	769	762	740	712	683	658	645	644	669	689	710	724	739	754	763	769			
115	740	731	710	683	653	629	615	616	639	659	680	695	711	726	736	741			
120	706	698	675	649	620	596	582	582	606	626	647	662	679	694	704	708			
125	667	658	637	610	582	559	546	546	569	588	608	624	642	656	667	671			
130	625	615	595	569	542	520	507	507	529	547	567	584	601	615	625	629			
135	580	571	551	526	500	480	467	466	488	504	523	540	556	571	580	584			
140	533	523	505	481	457	438	427	426	446	461	479	494	511	525	534	538			
145	485	477	459	437	416	399	388	387	405	417	434	449	465	478	488	491			
150	438	430	414	395	376	360	350	350	365	375	390	404	419	431	440	443			
155	393	386	372	354	338	324	316	314	329	335	348	361	374	387	394	398			
160	351	343	331	315	301	285	280	279	292	294	306	319	331	344	352	355			
165	303	297	285	271	257	242	237	237	249	250	257	272	285	297	305	308			
170	242	234	226	216	207	195	190	190	200	201	208	220	235	246	253	257			
175	160	151	144	134	123	118	113	115	129	122	138	149	165	178	187	191			
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			

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
120.0	60	0.4345	51.62	0.9900	9.88
277.0	60	0.2072	51.38	0.8952	10.75

Photo of Sample:

Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2022-11-09	2023-11-08
NTC-F01-006	2.0 meter Integrating Sphere	2022-11-09	2023-11-08
NTC-F01-012	Standard Lamp	2022-11-09	2023-11-08
NTC-F01-013	Standard Lamp	2022-11-09	2023-11-08
NTC-F01-031	Digital Power Meter	2022-08-31	2023-08-30
NTC-F01-020	Temperature & Humidity Meter	2022-11-12	2023-11-11

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