LM-79-19 Test Report

For

LEDVANCE LLC

200 Ballardvale St. Wilmington MA 01887

LED LAMP

Model Name(s):
LED63ED37UNVFR840MOG

Representative (Tested) Model:
LED63ED37UNVFR840MOG

Model Difference: N/A

Prepared by:

Alan Wang

Engineer: Alan Wang
Date: 2023-03-30

Reviewed by:

Vincent Yuan

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.

Client Information:

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

Product Information:

Model Number:	LED63ED37UNVFR840MOG
Product Type:	LED LAMP
Rating Input:	120-277Vac, 50/60Hz, 63W
Declared CCT:	4000K
Declared Light Output:	9500lm

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:	230329007-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.:	NTCLR22120236
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:

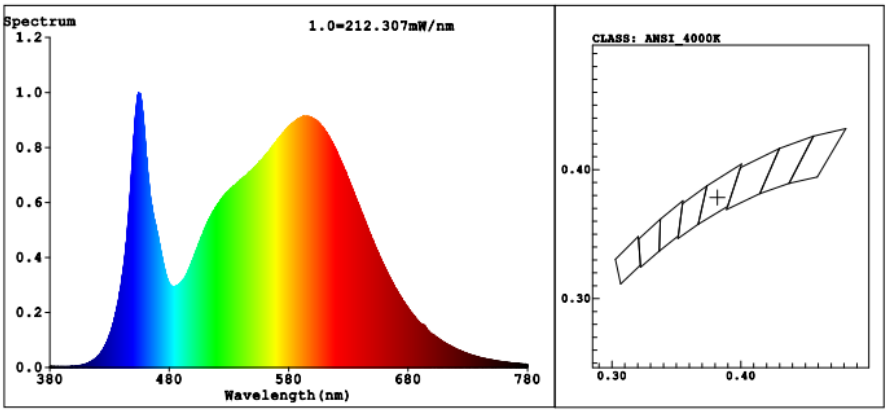
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5125	61.07	0.9930

Color Data:

Parameter	Result
CCT(K)	3975
Ra	83.3
R_f	84
R_g	94
$R_{cs,\ h1}$	-13
Chromaticity, (x, y)	(0.3818, 0.3785)
Chromaticity, (u', v')	(0.2253, 0.5026)
Duv	0.0004

Specify Color Rendering			
R1	82	R9	10
R2	91	R10	77
R3	96	R11	79
R4	81	R12	61
R5	81	R13	84
R6	86	R14	98
R7	85	R15	76
R8	64	-	-

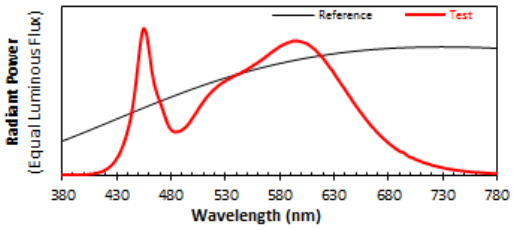
Spectrum Diagram:

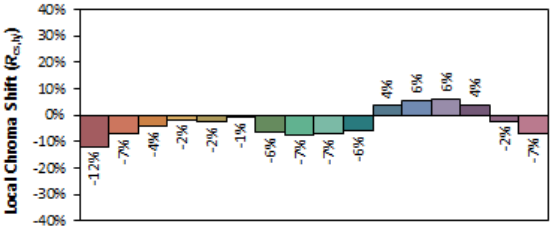


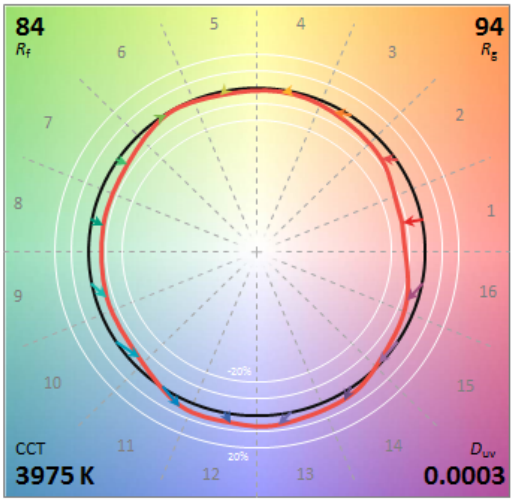
IES TM-30-18 Color Rendition Result:

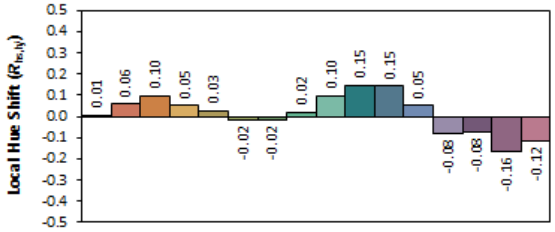
ANSI/IES TM-30-18 Color Rendition Report

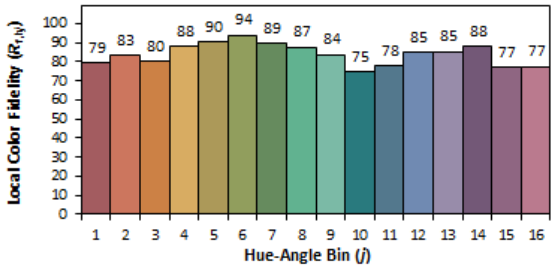
Source: --
Manufacturer: LEDVANCE LLC
Date: 2023/3/29
Model: LED63ED37UNVFR840MOG

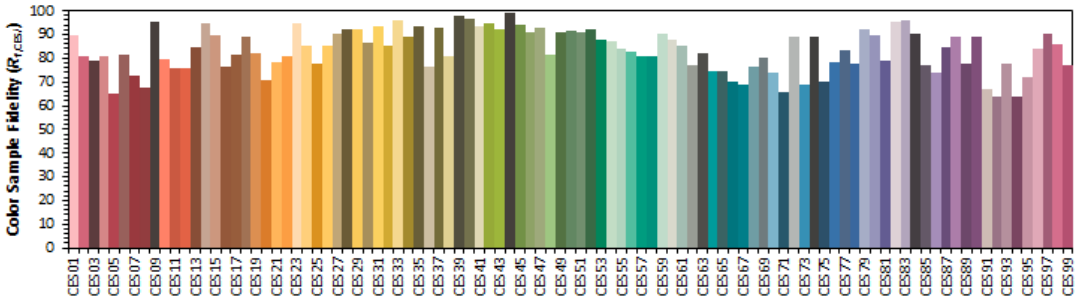












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3818
y	0.3784
u'	0.2254
v'	0.5025

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	0.0041	447	0.6062	514	0.5426	581	0.8777	648	0.4874	715	0.0793
381	0.0028	448	0.6742	515	0.5513	582	0.8831	649	0.4760	716	0.0773
382	0.0043	449	0.7404	516	0.5588	583	0.8874	650	0.4657	717	0.0746
383	0.0031	450	0.8045	517	0.5671	584	0.8889	651	0.4571	718	0.0722
384	0.0037	451	0.8662	518	0.5733	585	0.8941	652	0.4451	719	0.0696
385	0.0034	452	0.9219	519	0.5827	586	0.8969	653	0.4350	720	0.0682
386	0.0034	453	0.9645	520	0.5872	587	0.9000	654	0.4255	721	0.0659
387	0.0036	454	0.9917	521	0.5943	588	0.9022	655	0.4174	722	0.0637
388	0.0027	455	0.9962	522	0.6008	589	0.9039	656	0.4051	723	0.0621
389	0.0032	456	0.9805	523	0.6078	590	0.9065	657	0.3958	724	0.0601
390	0.0032	457	0.9589	524	0.6134	591	0.9083	658	0.3867	725	0.0586
391	0.0031	458	0.9144	525	0.6178	592	0.9122	659	0.3770	726	0.0564
392	0.0025	459	0.8634	526	0.6227	593	0.9124	660	0.3680	727	0.0546
393	0.0032	460	0.8135	527	0.6298	594	0.9111	661	0.3592	728	0.0529
394	0.0027	461	0.7603	528	0.6322	595	0.9127	662	0.3491	729	0.0517
395	0.0035	462	0.7059	529	0.6360	596	0.9103	663	0.3404	730	0.0498
396	0.0035	463	0.6654	530	0.6411	597	0.9094	664	0.3324	731	0.0484
397	0.0034	464	0.6236	531	0.6467	598	0.9079	665	0.3245	732	0.0466
398	0.0037	465	0.5951	532	0.6511	599	0.9063	666	0.3160	733	0.0455
399	0.0046	466	0.5689	533	0.6532	600	0.9055	667	0.3084	734	0.0437
400	0.0042	467	0.5457	534	0.6609	601	0.9021	668	0.2992	735	0.0429
401	0.0051	468	0.5264	535	0.6616	602	0.8996	669	0.2903	736	0.0415
402	0.0044	469	0.5065	536	0.6663	603	0.8985	670	0.2845	737	0.0399
403	0.0064	470	0.4855	537	0.6713	604	0.8944	671	0.2765	738	0.0393
404	0.0063	471	0.4645	538	0.6740	605	0.8893	672	0.2681	739	0.0378
405	0.0078	472	0.4437	539	0.6782	606	0.8868	673	0.2622	740	0.0364
406	0.0078	473	0.4207	540	0.6838	607	0.8798	674	0.2550	741	0.0356
407	0.0090	474	0.3984	541	0.6854	608	0.8749	675	0.2482	742	0.0343
408	0.0097	475	0.3777	542	0.6859	609	0.8693	676	0.2417	743	0.0333
409	0.0112	476	0.3574	543	0.6897	610	0.8641	677	0.2346	744	0.0324
410	0.0125	477	0.3400	544	0.6968	611	0.8581	678	0.2277	745	0.0312
411	0.0141	478	0.3247	545	0.6991	612	0.8526	679	0.2222	746	0.0303
412	0.0161	479	0.3150	546	0.7064	613	0.8432	680	0.2154	747	0.0294
413	0.0179	480	0.3061	547	0.7050	614	0.8369	681	0.2096	748	0.0286
414	0.0205	481	0.2995	548	0.7126	615	0.8283	682	0.2026	749	0.0280
415	0.0227	482	0.2962	549	0.7164	616	0.8208	683	0.1982	750	0.0272
416	0.0257	483	0.2933	550	0.7198	617	0.8124	684	0.1923	751	0.0261
417	0.0282	484	0.2930	551	0.7265	618	0.8044	685	0.1871	752	0.0258
418	0.0315	485	0.2950	552	0.7303	619	0.7973	686	0.1809	753	0.0244
419	0.0352	486	0.2963	553	0.7334	620	0.7871	687	0.1755	754	0.0240
420	0.0402	487	0.2972	554	0.7404	621	0.7766	688	0.1716	755	0.0234
421	0.0437	488	0.3007	555	0.7443	622	0.7681	689	0.1658	756	0.0225
422	0.0499	489	0.3034	556	0.7506	623	0.7580	690	0.1615	757	0.0218
423	0.0547	490	0.3093	557	0.7530	624	0.7457	691	0.1581	758	0.0213
424	0.0615	491	0.3140	558	0.7572	625	0.7361	692	0.1568	759	0.0208
425	0.0682	492	0.3206	559	0.7630	626	0.7268	693	0.1551	760	0.0200
426	0.0766	493	0.3263	560	0.7686	627	0.7164	694	0.1508	761	0.0195
427	0.0854	494	0.3332	561	0.7711	628	0.7097	695	0.1441	762	0.0189
428	0.0940	495	0.3425	562	0.7793	629	0.6957	696	0.1371	763	0.0187
429	0.1053	496	0.3514	563	0.7829	630	0.6848	697	0.1327	764	0.0179
430	0.1174	497	0.3619	564	0.7890	631	0.6739	698	0.1277	765	0.0176
431	0.1274	498	0.3726	565	0.7939	632	0.6618	699	0.1241	766	0.0168
432	0.1426	499	0.3862	566	0.7983	633	0.6505	700	0.1205	767	0.0160
433	0.1588	500	0.3928	567	0.8080	634	0.6421	701	0.1203	768	0.0159
434	0.1751	501	0.4065	568	0.8098	635	0.6288	702	0.1160	769	0.0151
435	0.1932	502	0.4181	569	0.8172	636	0.6179	703	0.1122	770	0.0150
436	0.2126	503	0.4279	570	0.8228	637	0.6082	704	0.1093	771	0.0148
437	0.2350	504	0.4409	571	0.8294	638	0.5968	705	0.1064	772	0.0140
438	0.2574	505	0.4524	572	0.8336	639	0.5864	706	0.1025	773	0.0136
439	0.2817	506	0.4626	573	0.8384	640	0.5751	707	0.1002	774	0.0132
440	0.3092	507	0.4753	574	0.8460	641	0.5638	708	0.0971	775	0.0125
441	0.3393	508	0.4838	575	0.8490	642	0.5532	709	0.0941	776	0.0125
442	0.3708	509	0.4952	576	0.8552	643	0.5421	710	0.0913	777	0.0121
443	0.4046	510	0.5065	577	0.8617	644	0.5324	711	0.0889	778	0.0120
444	0.4509	511	0.5150	578	0.8655	645	0.5198	712	0.0856	779	0.0113
445	0.4961	512	0.5265	579	0.8711	646	0.5080	713	0.0839	780	0.0110
446	0.5499	513	0.5354	580	0.8768	647	0.4979	714	0.0815	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

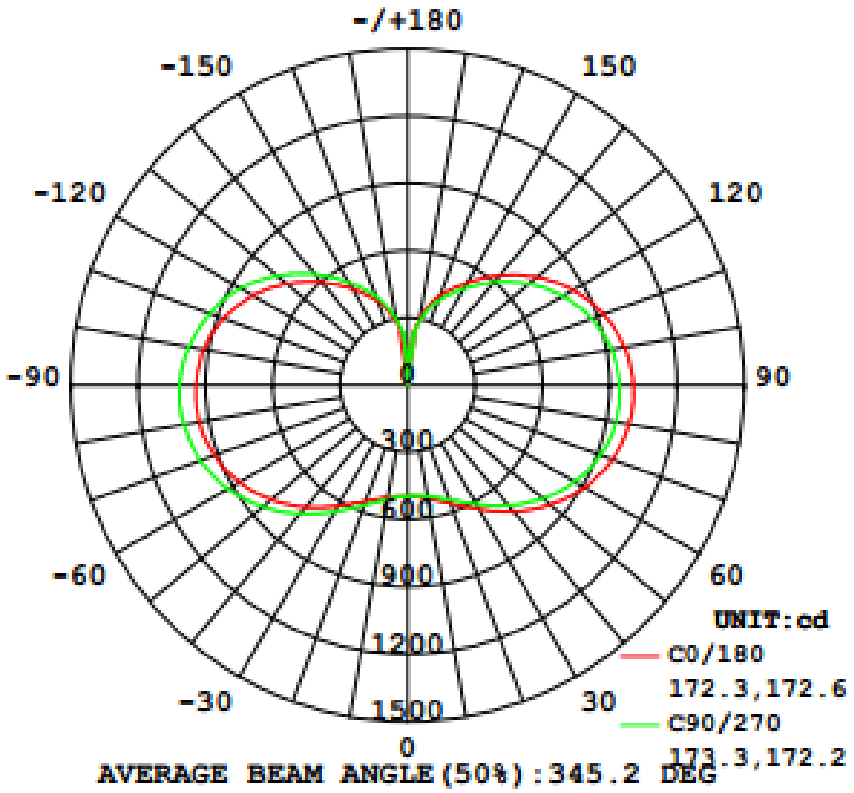
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5119	60.98	0.9928
277.0	60	0.2503	64.17	0.9255

Goniophotometer Data:

Parameter	Results	
	120V	277V
Total Luminous (lm)	10079	11810
Luminous Efficacy (lm/W)	165.28	184.04
Beam Angle (°)	345.2	
Center Beam Intensity (cd)	494	

Luminous Intensity Distribution Diagram:

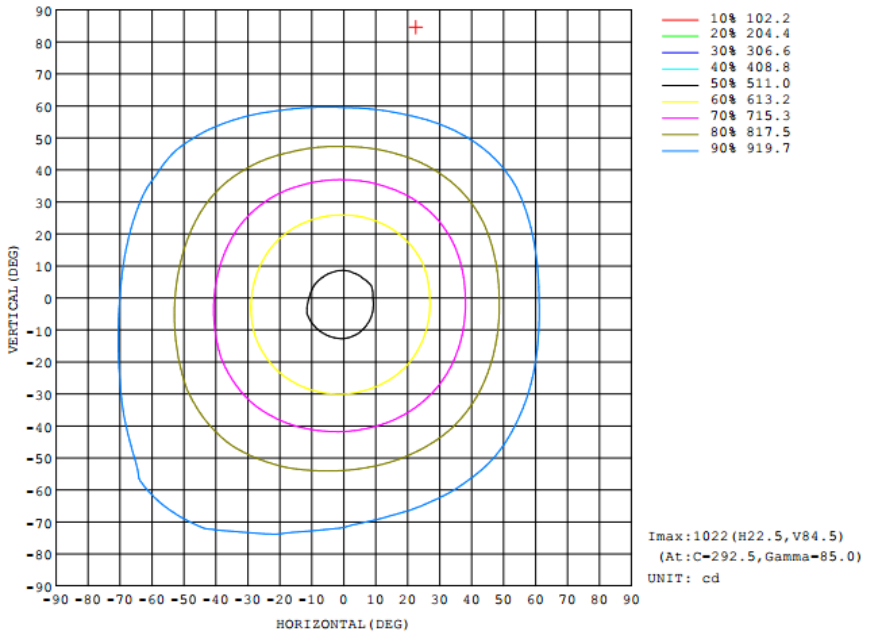


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	513.1	507.3	503.1	503.6	507.4	513.1	516.5	516.8	0- 10	47.93	47.93	0.48,0.48
20	561.3	551.5	543.7	543.0	549.9	561.5	570.1	568.6	10- 20	151.2	199.1	1.98,1.98
30	638.4	624.1	612.0	610.7	621.0	638.0	650.5	647.8	20- 30	274.7	473.9	4.7,4.7
40	733.8	716.0	699.2	695.0	708.7	732.2	746.9	744.9	30- 40	425.6	899.5	8.92,8.92
50	828.3	808.0	785.4	778.3	794.0	823.3	844.0	840.4	40- 50	596.0	1495	14.8,14.8
60	910.5	887.4	859.9	849.1	866.2	900.7	924.7	922.4	50- 60	766.0	2261	22.4,22.4
70	969.3	943.8	913.6	899.7	917.2	955.8	982.1	981.0	60- 70	913.4	3175	31.5,31.5
80	1001	975.1	943.3	926.6	942.1	983.9	1013	1014	70- 80	1018	4193	41.6,41.6
90	1006	979.2	945.6	927.1	943.2	984.2	1016	1016	80- 90	1067	5260	52.2,52.2
100	982.0	954.8	920.8	902.1	924.4	957.8	989.8	991.5	90-100	1055	6316	62.7,62.7
110	928.3	903.7	871.0	852.3	872.6	911.0	936.8	941.2	100-110	983.3	7299	72.4,72.4
120	850.1	827.0	796.3	778.8	798.6	832.6	862.7	866.7	110-120	860.9	8160	81,81
130	750.7	730.4	703.6	686.9	704.1	733.7	760.2	765.6	120-130	700.2	8860	87.9,87.9
140	637.6	621.0	600.3	584.8	599.1	622.6	646.1	651.4	130-140	524.3	9384	93.1,93.1
150	527.3	513.4	495.4	484.2	495.3	510.7	530.5	537.3	140-150	356.8	9741	96.6,96.6
160	426.0	416.2	402.6	392.8	401.0	409.1	421.9	432.0	150-160	215.1	9956	98.8,98.8
170	290.0	285.3	280.2	274.9	282.1	283.1	296.9	307.5	160-170	102.1	10058	99.8,99.8
180	0	0	0	0	0	0	0	0	170-180	20.61	10079	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	494	494	494	494	494	494	494	494	494	494	494	494	494	494	494	494			
5	500	498	496	495	494	495	495	496	497	498	500	501	502	502	502	501			
10	513	510	507	505	503	504	504	505	507	510	513	516	516	518	517	514			
15	534	530	525	522	519	519	520	522	526	530	534	538	540	541	540	536			
20	561	556	552	547	544	543	543	546	550	557	561	568	570	571	569	566			
25	597	590	584	579	575	573	574	577	582	590	597	604	607	608	605	600			
30	638	631	624	618	612	611	611	614	621	630	638	647	651	651	648	643			
35	684	676	669	662	655	653	652	656	664	674	684	694	698	699	695	689			
40	734	725	716	708	699	696	695	699	709	722	732	743	747	749	745	739			
45	782	773	762	752	743	739	737	743	753	767	779	790	797	799	793	788			
50	828	818	808	797	785	780	778	783	794	808	823	838	844	846	840	834			
55	871	861	850	839	825	819	816	821	833	849	865	880	886	888	884	877			
60	911	898	887	874	860	852	849	854	866	883	901	916	925	928	922	916			
65	943	931	919	905	890	882	877	882	895	912	931	948	956	960	955	947			
70	969	957	944	930	914	906	900	904	917	936	956	973	982	987	981	975			
75	988	977	963	949	931	921	916	921	933	952	973	991	1001	1005	1002	994			
80	1001	989	975	959	943	933	927	930	942	961	984	1003	1013	1020	1014	1008			
85	1006	995	980	964	947	935	930	934	946	966	987	1006	1019	1024	1017	1013			
90	1006	993	979	962	946	933	927	930	943	963	984	1003	1016	1021	1016	1010			
95	995	984	970	954	936	925	918	921	934	953	975	995	1007	1014	1007	1002			
100	982	968	955	938	921	910	902	905	924	937	958	978	990	996	991	986			
105	957	946	933	916	899	889	881	881	901	920	935	955	966	973	969	965			
110	928	917	904	888	871	859	852	855	873	890	911	927	937	943	941	936			
115	892	882	868	852	836	825	818	819	838	854	874	894	906	913	909	906			
120	850	840	827	812	796	786	779	780	799	814	833	852	863	869	867	862			
125	802	792	781	767	752	742	734	735	753	768	786	802	814	820	819	815			
130	751	741	730	717	704	694	687	687	704	717	734	751	760	768	766	763			
135	696	686	677	665	652	642	636	637	652	664	678	695	704	711	710	707			
140	638	631	621	610	600	590	585	585	599	609	623	636	646	652	651	650			
145	582	575	567	557	546	539	534	534	546	554	566	579	587	594	594	593			
150	527	521	513	506	495	489	484	484	495	502	511	523	531	536	537	537			
155	474	470	462	455	448	447	439	440	448	451	459	468	476	481	483	483			
160	426	421	416	410	403	395	393	395	401	402	409	416	422	429	432	433			
165	367	364	359	353	347	337	338	340	348	346	347	357	363	370	373	375			
170	290	287	285	288	280	276	275	276	282	282	283	288	297	303	307	309			
175	185	182	184	184	181	181	179	181	192	193	195	198	208	214	217	220			
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	0.5119	60.98	0.9928	8.61
277.0	60	0.2503	64.17	0.9255	12.12

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************