LM-79-19 Test Report

For

LEDVANCE LLC

200 Ballardvale St. Wilmington MA 01887

LED LAMP

Model Name(s):
LED63ED37UNVCL850MOG

Representative (Tested) Model:
LED63ED37UNVCL850MOG

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:	LED63ED37UNVCL850MOG
Product Type:	LED LAMP
Rating Input:	120-277Vac, 50/60Hz, 63W
Declared CCT:	5000K
Declared Light Output:	10000lm

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:	230329006-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.:	NTCLR22120235
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:

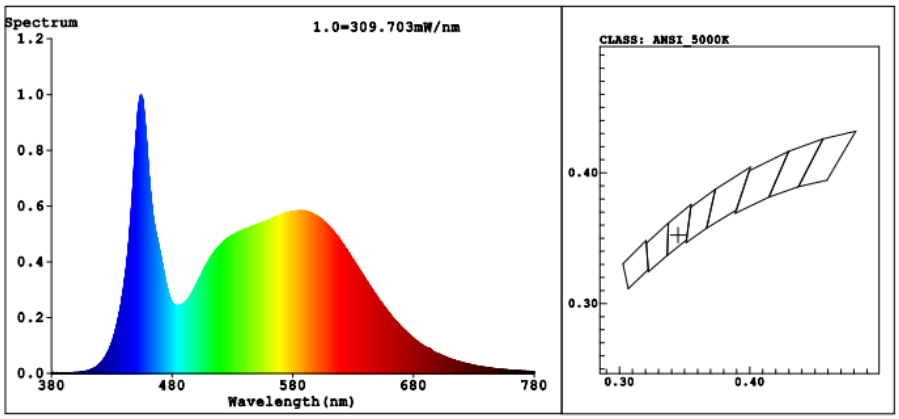
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5141	61.25	0.9929

Color Data:

Parameter	Result
CCT(K)	5008
Ra	83.9
R_f	83
R_g	95
$R_{cs,\ h1}$	-13
Chromaticity, (x, y)	(0.3450, 0.3524)
Chromaticity, (u', v')	(0.2110, 0.4850)
Duv	0.0004

Specify Color Rendering			
R1	83	R9	12
R2	90	R10	75
R3	93	R11	81
R4	82	R12	61
R5	83	R13	85
R6	85	R14	97
R7	87	R15	78
R8	68	-	-

Spectrum Diagram:



IES TM-30-18 Color Rendition Result:

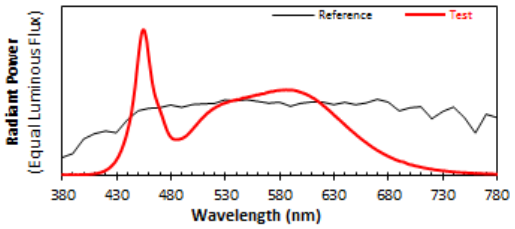
ANSI/IES TM-30-18 Color Rendition Report

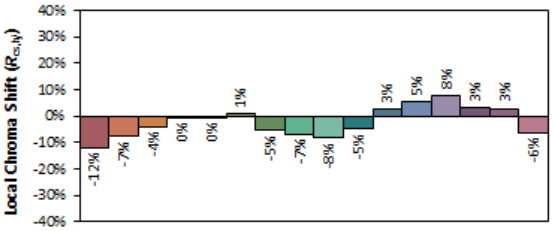
Source: --

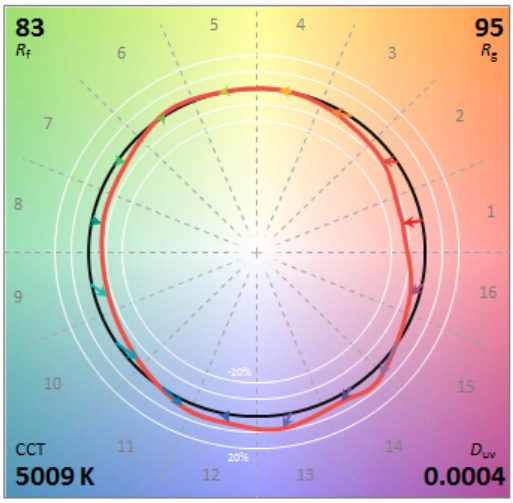
Manufacturer: LEDVANCE LLC

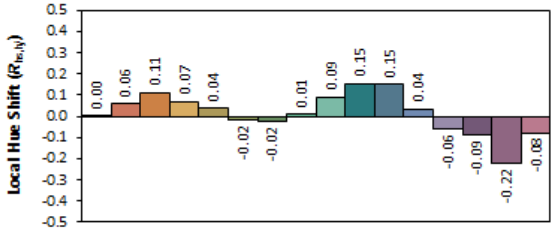
Date: 2023/3/29

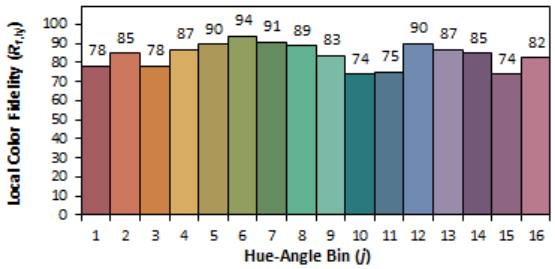
Model: LED63ED37UNVCL850MOG

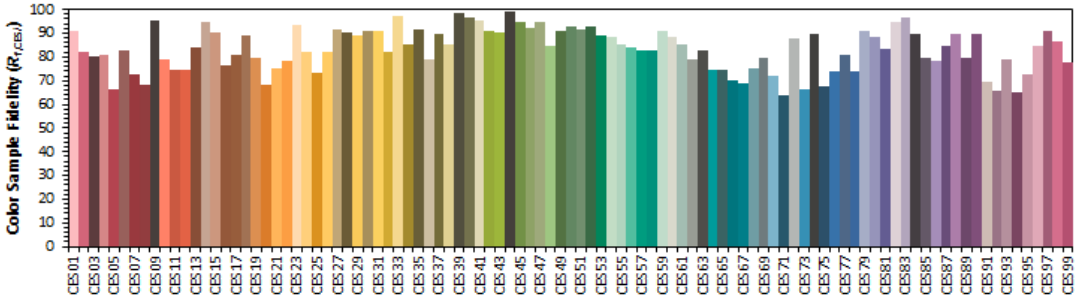












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3449
y	0.3522
u'	0.2111
v'	0.4849

CIE 13.3-1995 (CRI)

R_a	84
R_9	12

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	0.0024	447	0.6311	514	0.4286	581	0.5794	648	0.2876	715	0.0458
381	0.0025	448	0.7032	515	0.4339	582	0.5813	649	0.2796	716	0.0444
382	0.0023	449	0.7708	516	0.4401	583	0.5820	650	0.2740	717	0.0431
383	0.0024	450	0.8357	517	0.4464	584	0.5809	651	0.2673	718	0.0416
384	0.0020	451	0.8926	518	0.4503	585	0.5827	652	0.2615	719	0.0408
385	0.0020	452	0.9461	519	0.4570	586	0.5824	653	0.2553	720	0.0393
386	0.0019	453	0.9794	520	0.4590	587	0.5819	654	0.2501	721	0.0380
387	0.0019	454	0.9923	521	0.4648	588	0.5820	655	0.2433	722	0.0367
388	0.0021	455	0.9895	522	0.4693	589	0.5812	656	0.2378	723	0.0355
389	0.0024	456	0.9622	523	0.4724	590	0.5806	657	0.2319	724	0.0348
390	0.0020	457	0.9287	524	0.4761	591	0.5808	658	0.2270	725	0.0337
391	0.0020	458	0.8714	525	0.4805	592	0.5804	659	0.2217	726	0.0327
392	0.0020	459	0.8112	526	0.4839	593	0.5788	660	0.2158	727	0.0321
393	0.0025	460	0.7540	527	0.4871	594	0.5770	661	0.2095	728	0.0307
394	0.0018	461	0.7017	528	0.4895	595	0.5759	662	0.2050	729	0.0298
395	0.0021	462	0.6495	529	0.4924	596	0.5733	663	0.1992	730	0.0292
396	0.0023	463	0.6059	530	0.4947	597	0.5704	664	0.1939	731	0.0278
397	0.0026	464	0.5690	531	0.4960	598	0.5673	665	0.1891	732	0.0273
398	0.0024	465	0.5409	532	0.4992	599	0.5659	666	0.1844	733	0.0262
399	0.0027	466	0.5162	533	0.5009	600	0.5627	667	0.1799	734	0.0254
400	0.0032	467	0.4939	534	0.5055	601	0.5608	668	0.1748	735	0.0248
401	0.0034	468	0.4756	535	0.5060	602	0.5581	669	0.1696	736	0.0236
402	0.0032	469	0.4540	536	0.5078	603	0.5551	670	0.1661	737	0.0235
403	0.0040	470	0.4320	537	0.5100	604	0.5514	671	0.1612	738	0.0225
404	0.0043	471	0.4109	538	0.5135	605	0.5470	672	0.1571	739	0.0219
405	0.0045	472	0.3893	539	0.5126	606	0.5439	673	0.1523	740	0.0211
406	0.0057	473	0.3663	540	0.5169	607	0.5408	674	0.1493	741	0.0207
407	0.0064	474	0.3428	541	0.5154	608	0.5362	675	0.1444	742	0.0199
408	0.0073	475	0.3232	542	0.5172	609	0.5302	676	0.1405	743	0.0190
409	0.0083	476	0.3039	543	0.5190	610	0.5276	677	0.1371	744	0.0188
410	0.0095	477	0.2873	544	0.5217	611	0.5233	678	0.1326	745	0.0180
411	0.0108	478	0.2731	545	0.5238	612	0.5187	679	0.1295	746	0.0176
412	0.0122	479	0.2634	546	0.5283	613	0.5124	680	0.1257	747	0.0172
413	0.0141	480	0.2551	547	0.5255	614	0.5071	681	0.1219	748	0.0167
414	0.0160	481	0.2488	548	0.5294	615	0.5024	682	0.1183	749	0.0161
415	0.0180	482	0.2455	549	0.5299	616	0.4957	683	0.1150	750	0.0157
416	0.0207	483	0.2435	550	0.5325	617	0.4916	684	0.1117	751	0.0153
417	0.0229	484	0.2420	551	0.5357	618	0.4850	685	0.1083	752	0.0147
418	0.0263	485	0.2432	552	0.5355	619	0.4793	686	0.1052	753	0.0144
419	0.0296	486	0.2436	553	0.5382	620	0.4719	687	0.1025	754	0.0140
420	0.0337	487	0.2438	554	0.5386	621	0.4672	688	0.0996	755	0.0133
421	0.0386	488	0.2467	555	0.5412	622	0.4599	689	0.0964	756	0.0130
422	0.0434	489	0.2488	556	0.5430	623	0.4541	690	0.0943	757	0.0129
423	0.0487	490	0.2511	557	0.5438	624	0.4467	691	0.0919	758	0.0124
424	0.0551	491	0.2553	558	0.5475	625	0.4410	692	0.0918	759	0.0118
425	0.0622	492	0.2602	559	0.5474	626	0.4345	693	0.0911	760	0.0114
426	0.0697	493	0.2639	560	0.5485	627	0.4277	694	0.0879	761	0.0112
427	0.0782	494	0.2704	561	0.5508	628	0.4207	695	0.0843	762	0.0110
428	0.0871	495	0.2776	562	0.5533	629	0.4135	696	0.0803	763	0.0107
429	0.0987	496	0.2848	563	0.5557	630	0.4055	697	0.0766	764	0.0103
430	0.1099	497	0.2930	564	0.5560	631	0.4009	698	0.0740	765	0.0101
431	0.1229	498	0.3005	565	0.5570	632	0.3930	699	0.0715	766	0.0096
432	0.1373	499	0.3100	566	0.5582	633	0.3864	700	0.0706	767	0.0095
433	0.1545	500	0.3169	567	0.5633	634	0.3809	701	0.0696	768	0.0092
434	0.1699	501	0.3272	568	0.5628	635	0.3725	702	0.0673	769	0.0087
435	0.1904	502	0.3349	569	0.5659	636	0.3676	703	0.0651	770	0.0086
436	0.2111	503	0.3434	570	0.5682	637	0.3594	704	0.0630	771	0.0083
437	0.2334	504	0.3527	571	0.5692	638	0.3528	705	0.0616	772	0.0081
438	0.2579	505	0.3607	572	0.5698	639	0.3470	706	0.0597	773	0.0079
439	0.2839	506	0.3698	573	0.5713	640	0.3393	707	0.0581	774	0.0076
440	0.3138	507	0.3792	574	0.5720	641	0.3318	708	0.0564	775	0.0075
441	0.3453	508	0.3862	575	0.5754	642	0.3263	709	0.0544	776	0.0071
442	0.3791	509	0.3935	576	0.5771	643	0.3187	710	0.0530	777	0.0070
443	0.4160	510	0.4015	577	0.5776	644	0.3122	711	0.0512	778	0.0067
444	0.4642	511	0.4072	578	0.5782	645	0.3059	712	0.0498	779	0.0064
445	0.5137	512	0.4165	579	0.5783	646	0.2989	713	0.0484	780	0.0063
446	0.5720	513	0.4231	580	0.5806	647	0.2929	714	0.0469	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

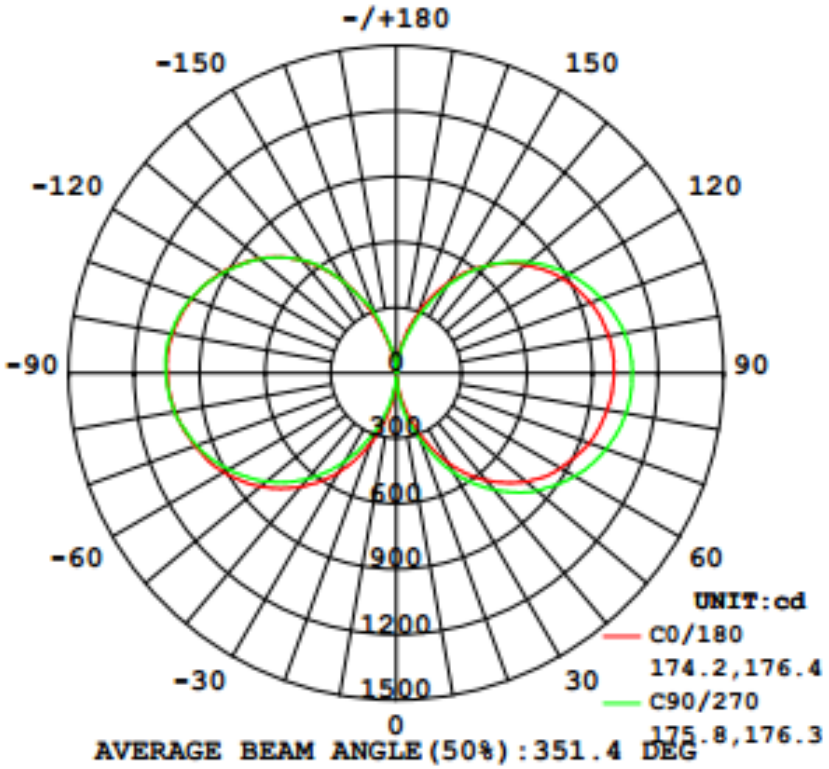
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5136	61.17	0.9926
277.0	60	0.2469	62.74	0.9174

Goniophotometer Data:

Parameter	Results	
	120V	277V
Total Luminous (lm)	10181	10422
Luminous Efficacy (lm/W)	166.44	166.11
Beam Angle (°)	351.4	
Center Beam Intensity (cd)	28	

Luminous Intensity Distribution Diagram:

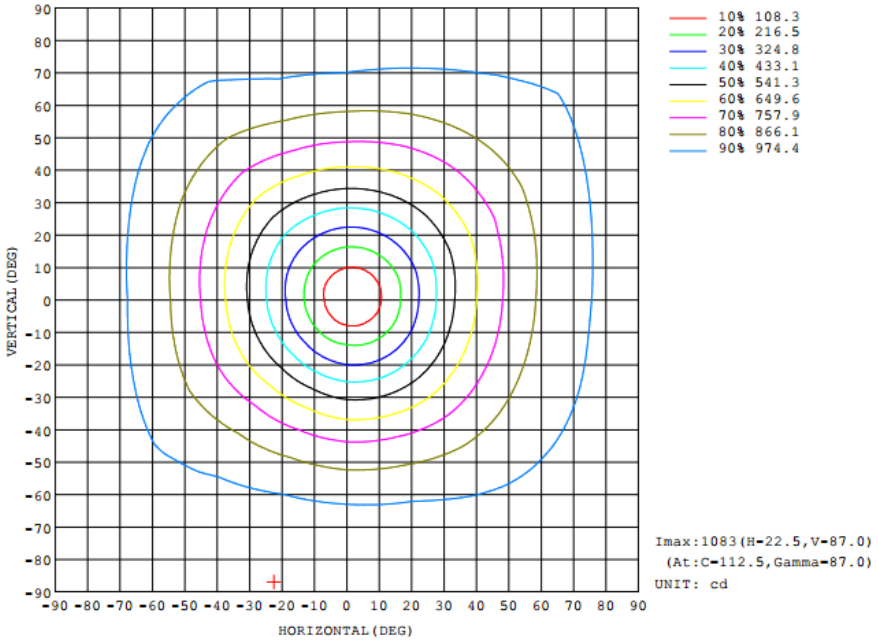


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	96.96	119.3	145.4	162.8	155.9	134.0	109.1	94.85	0- 10	7.710	7.710	0.08,0.08
20	279.3	297.8	324.9	360.7	341.6	308.8	285.5	269.7	10- 20	64.13	71.84	0.71,0.71
30	476.3	498.7	527.3	565.9	525.3	478.4	464.4	454.2	20- 30	189.7	261.6	2.57,2.57
40	643.3	671.1	699.2	728.6	682.8	635.6	634.2	620.6	30- 40	370.0	631.6	6.2,6.2
50	775.5	812.1	840.3	857.4	811.5	768.5	774.6	754.9	40- 50	571.1	1203	11.8,11.8
60	870.2	912.6	945.5	950.2	911.5	875.2	887.7	867.0	50- 60	767.1	1970	19.3,19.3
70	941.2	984.3	1024	1017	980.2	951.2	973.5	947.6	60- 70	937.5	2907	28.6,28.6
80	981.5	1025	1069	1056	1029	1007	1031	1001	70- 80	1063	3970	39,39
90	997.3	1035	1081	1068	1050	1034	1057	1029	80- 90	1133	5103	50.1,50.1
100	988.0	1019	1062	1049	1040	1029	1048	1025	90-100	1138	6241	61.3,61.3
110	946.8	964.7	1000	996.1	996.2	986.3	1000	985.4	100-110	1072	7313	71.8,71.8
120	874.0	881.7	911.5	911.3	922.6	905.5	918.0	913.0	110-120	942.6	8255	81.1,81.1
130	771.5	772.1	790.9	794.7	819.0	798.4	814.7	815.0	120-130	767.6	9023	88.6,88.6
140	643.7	635.3	641.7	648.8	676.4	651.3	678.2	674.1	130-140	567.5	9591	94.2,94.2
150	480.2	462.1	457.6	460.5	484.3	451.4	479.3	488.6	140-150	359.1	9950	97.7,97.7
160	291.0	268.6	249.2	243.6	253.2	257.1	291.7	309.4	150-160	174.8	10124	99.4,99.4
170	113.1	98.85	85.78	75.50	74.61	80.01	97.33	113.4	160-170	52.19	10177	100,100
180	0	0	0	0	0	0	0	0	170-180	4.365	10181	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	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1			
5	37.8	43.0	50.6	58.4	64.8	71.0	76.0	78.9	73.9	69.4	60.8	53.4	45.0	39.2	37.1	36.6			
10	97.0	105	119	133	145	156	163	166	156	146	134	121	109	101	94.9	93.2			
15	184	191	203	221	238	248	258	259	253	238	220	207	194	186	178	175			
20	279	286	298	311	325	346	361	358	342	324	309	296	285	277	270	269			
25	376	385	399	411	428	454	466	458	434	413	393	382	372	366	364	367			
30	476	488	499	511	527	557	566	551	525	501	478	473	464	460	454	458			
35	566	582	590	604	618	647	653	634	606	584	563	562	553	548	542	547			
40	643	662	671	688	699	726	729	708	683	657	636	640	634	628	621	623			
45	712	733	746	765	775	801	800	775	750	724	705	713	709	699	691	693			
50	776	799	812	833	840	859	857	834	812	787	768	780	775	763	755	756			
55	832	852	864	887	896	912	907	877	865	843	825	839	833	822	816	813			
60	870	898	913	938	946	961	950	923	912	891	875	892	888	874	867	861			
65	908	938	955	982	989	1001	986	958	951	934	917	939	934	922	912	903			
70	941	967	984	1015	1024	1033	1017	988	980	964	951	977	973	959	948	937			
75	965	989	1008	1042	1051	1058	1040	1011	1007	996	984	1011	1004	989	976	962			
80	982	1007	1025	1060	1069	1075	1056	1028	1029	1019	1007	1035	1031	1014	1001	983			
85	993	1016	1034	1071	1079	1084	1065	1039	1042	1034	1024	1053	1047	1030	1019	1001			
90	997	1018	1035	1071	1081	1085	1068	1044	1050	1044	1034	1060	1057	1040	1029	1007			
95	998	1015	1033	1068	1077	1082	1064	1043	1052	1046	1037	1064	1058	1042	1031	1009			
100	988	1005	1019	1054	1062	1065	1049	1028	1040	1037	1029	1052	1048	1035	1025	1003			
105	972	987	995	1029	1035	1039	1028	1008	1021	1024	1013	1032	1029	1018	1010	989			
110	947	960	965	995	1000	1004	996	982	996	998	986	1007	1000	995	985	967			
115	914	922	926	956	959	965	960	945	965	965	950	970	963	962	953	935			
120	874	878	882	906	912	919	911	901	923	924	905	923	918	918	913	894			
125	826	828	830	852	854	863	857	849	872	875	854	872	869	868	866	851			
130	771	771	772	790	791	800	795	789	819	819	798	816	815	817	815	801			
135	712	710	707	719	720	728	726	722	753	749	730	748	750	754	751	737			
140	644	642	635	642	642	650	649	646	676	669	651	674	678	682	674	660			
145	568	564	554	557	554	562	563	562	585	567	558	583	591	590	582	576			
150	480	474	462	461	458	464	461	467	484	456	451	467	479	484	489	504			
155	387	379	364	357	348	349	350	356	371	354	351	365	375	397	414	428			
160	291	284	269	262	249	243	244	245	253	252	257	277	292	306	309	302			
165	199	192	178	171	160	154	150	147	151	148	150	165	177	190	196	202			
170	113	107	98.9	93.2	85.8	83.0	75.5	75.9	74.6	74.8	80.0	88.8	97.3	105	113	119			
175	25.8	21.8	21.4	18.3	24.8	5.98	20.7	5.68	5.34	12.2	13.5	17.0	21.7	25.2	29.7	32.4			
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	0.5136	61.17	0.9926	8.42
277.0	60	0.2469	62.74	0.9174	12.20

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