LM-79-19 Test Report

For

LEDVANCE LLC

200 Ballardvale St. Wilmington MA 01887

LED LAMP

Model Name(s):
LED63ED37UNVCL840MOG

Representative (Tested) Model:
LED63ED37UNVCL840MOG

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:	LED63ED37UNVCL840MOG
Product Type:	LED LAMP
Rating Input:	120-277Vac, 50/60Hz, 63W
Declared CCT:	4000K
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:	230329005-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.:	NTCLR22120234
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:

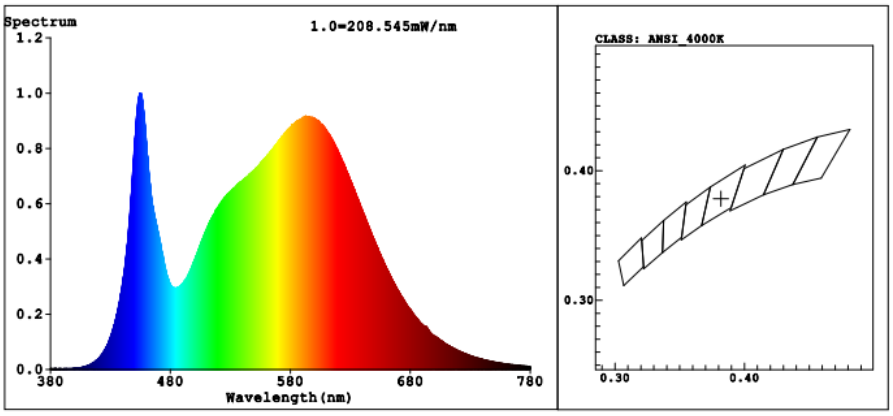
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5187	61.76	0.9923

Color Data:

Parameter	Result
CCT(K)	3977
Ra	83.3
R_f	84
R_g	94
$R_{cs,\ h1}$	-13
Chromaticity, (x, y)	(0.3817, 0.3784)
Chromaticity, (u', v')	(0.2253, 0.5025)
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	-	-

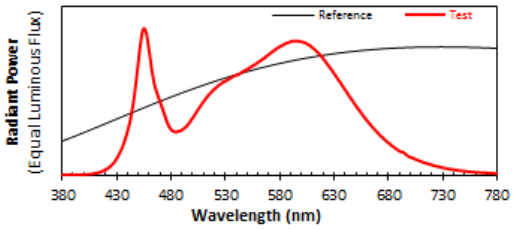
Spectrum Diagram:

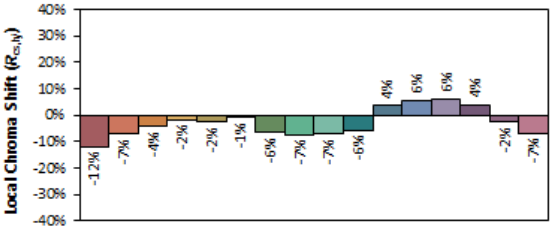


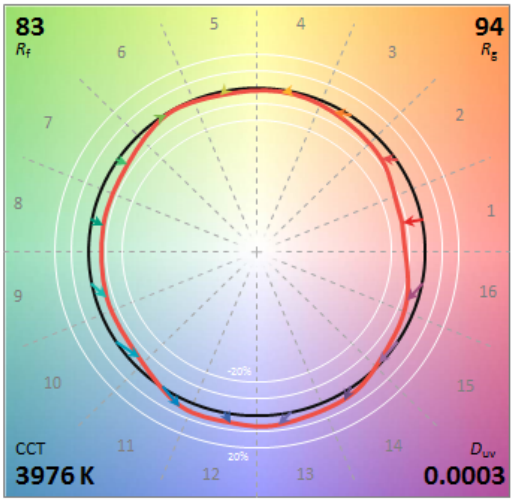
IES TM-30-18 Color Rendition Result:

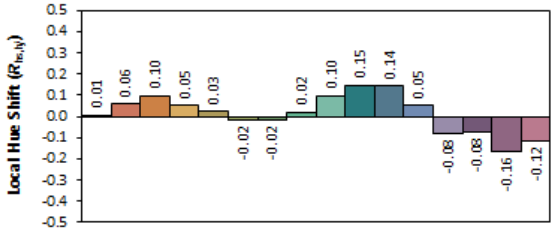
ANSI/IES TM-30-18 Color Rendition Report

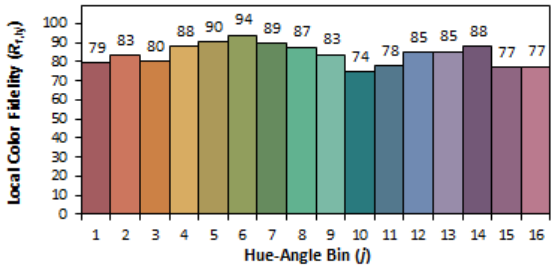
Source: --
Manufacturer: LEDVANCE LLC
Date: 2023/3/29
Model: LED63ED37UNVCL840MOG

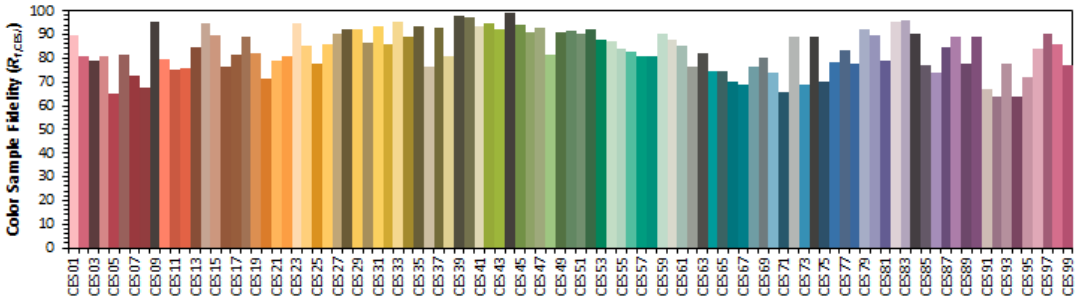












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3817
y	0.3782
u'	0.2254
v'	0.5024

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	0.0038	447	0.6074	514	0.5442	581	0.8800	648	0.4882	715	0.0792
381	0.0026	448	0.6712	515	0.5518	582	0.8844	649	0.4770	716	0.0769
382	0.0029	449	0.7363	516	0.5590	583	0.8890	650	0.4675	717	0.0748
383	0.0034	450	0.8012	517	0.5670	584	0.8911	651	0.4568	718	0.0728
384	0.0024	451	0.8650	518	0.5761	585	0.8971	652	0.4460	719	0.0708
385	0.0027	452	0.9207	519	0.5838	586	0.8986	653	0.4382	720	0.0688
386	0.0028	453	0.9665	520	0.5877	587	0.9020	654	0.4275	721	0.0660
387	0.0035	454	0.9899	521	0.5973	588	0.9040	655	0.4179	722	0.0639
388	0.0030	455	0.9990	522	0.6011	589	0.9066	656	0.4059	723	0.0618
389	0.0028	456	0.9860	523	0.6096	590	0.9098	657	0.3971	724	0.0602
390	0.0023	457	0.9640	524	0.6149	591	0.9125	658	0.3870	725	0.0587
391	0.0028	458	0.9200	525	0.6201	592	0.9130	659	0.3774	726	0.0568
392	0.0028	459	0.8700	526	0.6246	593	0.9136	660	0.3684	727	0.0551
393	0.0037	460	0.8187	527	0.6310	594	0.9128	661	0.3600	728	0.0534
394	0.0021	461	0.7678	528	0.6346	595	0.9121	662	0.3511	729	0.0518
395	0.0034	462	0.7115	529	0.6376	596	0.9139	663	0.3419	730	0.0496
396	0.0034	463	0.6715	530	0.6415	597	0.9122	664	0.3330	731	0.0487
397	0.0036	464	0.6298	531	0.6480	598	0.9092	665	0.3241	732	0.0474
398	0.0033	465	0.5984	532	0.6485	599	0.9083	666	0.3171	733	0.0455
399	0.0040	466	0.5734	533	0.6565	600	0.9086	667	0.3086	734	0.0440
400	0.0041	467	0.5520	534	0.6585	601	0.9046	668	0.2998	735	0.0432
401	0.0050	468	0.5306	535	0.6634	602	0.9010	669	0.2922	736	0.0413
402	0.0048	469	0.5111	536	0.6684	603	0.9008	670	0.2848	737	0.0402
403	0.0059	470	0.4886	537	0.6738	604	0.8959	671	0.2763	738	0.0386
404	0.0061	471	0.4675	538	0.6770	605	0.8905	672	0.2691	739	0.0377
405	0.0065	472	0.4472	539	0.6782	606	0.8870	673	0.2623	740	0.0366
406	0.0077	473	0.4247	540	0.6824	607	0.8840	674	0.2566	741	0.0356
407	0.0090	474	0.4033	541	0.6838	608	0.8791	675	0.2484	742	0.0345
408	0.0096	475	0.3806	542	0.6865	609	0.8704	676	0.2421	743	0.0328
409	0.0114	476	0.3599	543	0.6917	610	0.8656	677	0.2347	744	0.0321
410	0.0127	477	0.3421	544	0.6974	611	0.8594	678	0.2287	745	0.0315
411	0.0142	478	0.3296	545	0.7012	612	0.8524	679	0.2221	746	0.0305
412	0.0164	479	0.3179	546	0.7085	613	0.8436	680	0.2177	747	0.0296
413	0.0172	480	0.3080	547	0.7083	614	0.8376	681	0.2114	748	0.0288
414	0.0199	481	0.3009	548	0.7138	615	0.8318	682	0.2040	749	0.0279
415	0.0226	482	0.2983	549	0.7190	616	0.8229	683	0.1984	750	0.0273
416	0.0256	483	0.2955	550	0.7215	617	0.8126	684	0.1929	751	0.0265
417	0.0281	484	0.2941	551	0.7279	618	0.8059	685	0.1878	752	0.0254
418	0.0326	485	0.2950	552	0.7317	619	0.7989	686	0.1812	753	0.0249
419	0.0349	486	0.2977	553	0.7355	620	0.7866	687	0.1763	754	0.0241
420	0.0401	487	0.2992	554	0.7420	621	0.7791	688	0.1719	755	0.0235
421	0.0440	488	0.3010	555	0.7460	622	0.7674	689	0.1665	756	0.0225
422	0.0497	489	0.3060	556	0.7480	623	0.7584	690	0.1625	757	0.0216
423	0.0551	490	0.3100	557	0.7528	624	0.7469	691	0.1580	758	0.0214
424	0.0617	491	0.3138	558	0.7610	625	0.7382	692	0.1570	759	0.0207
425	0.0693	492	0.3218	559	0.7644	626	0.7284	693	0.1555	760	0.0200
426	0.0762	493	0.3272	560	0.7704	627	0.7171	694	0.1512	761	0.0193
427	0.0852	494	0.3343	561	0.7740	628	0.7086	695	0.1447	762	0.0190
428	0.0941	495	0.3436	562	0.7789	629	0.6966	696	0.1379	763	0.0185
429	0.1059	496	0.3523	563	0.7849	630	0.6856	697	0.1328	764	0.0176
430	0.1178	497	0.3623	564	0.7917	631	0.6758	698	0.1271	765	0.0174
431	0.1308	498	0.3739	565	0.7953	632	0.6637	699	0.1238	766	0.0168
432	0.1445	499	0.3870	566	0.7992	633	0.6531	700	0.1213	767	0.0164
433	0.1601	500	0.3933	567	0.8090	634	0.6419	701	0.1196	768	0.0159
434	0.1740	501	0.4080	568	0.8132	635	0.6319	702	0.1152	769	0.0155
435	0.1936	502	0.4176	569	0.8181	636	0.6213	703	0.1130	770	0.0149
436	0.2126	503	0.4291	570	0.8247	637	0.6099	704	0.1090	771	0.0142
437	0.2355	504	0.4410	571	0.8303	638	0.5981	705	0.1063	772	0.0139
438	0.2579	505	0.4523	572	0.8361	639	0.5866	706	0.1034	773	0.0136
439	0.2822	506	0.4642	573	0.8422	640	0.5769	707	0.1006	774	0.0133
440	0.3092	507	0.4743	574	0.8459	641	0.5650	708	0.0975	775	0.0129
441	0.3386	508	0.4855	575	0.8514	642	0.5536	709	0.0947	776	0.0126
442	0.3696	509	0.4948	576	0.8583	643	0.5430	710	0.0916	777	0.0120
443	0.4073	510	0.5062	577	0.8633	644	0.5313	711	0.0885	778	0.0117
444	0.4491	511	0.5154	578	0.8673	645	0.5204	712	0.0859	779	0.0115
445	0.4938	512	0.5257	579	0.8721	646	0.5108	713	0.0841	780	0.0111
446	0.5472	513	0.5364	580	0.8775	647	0.4989	714	0.0819	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

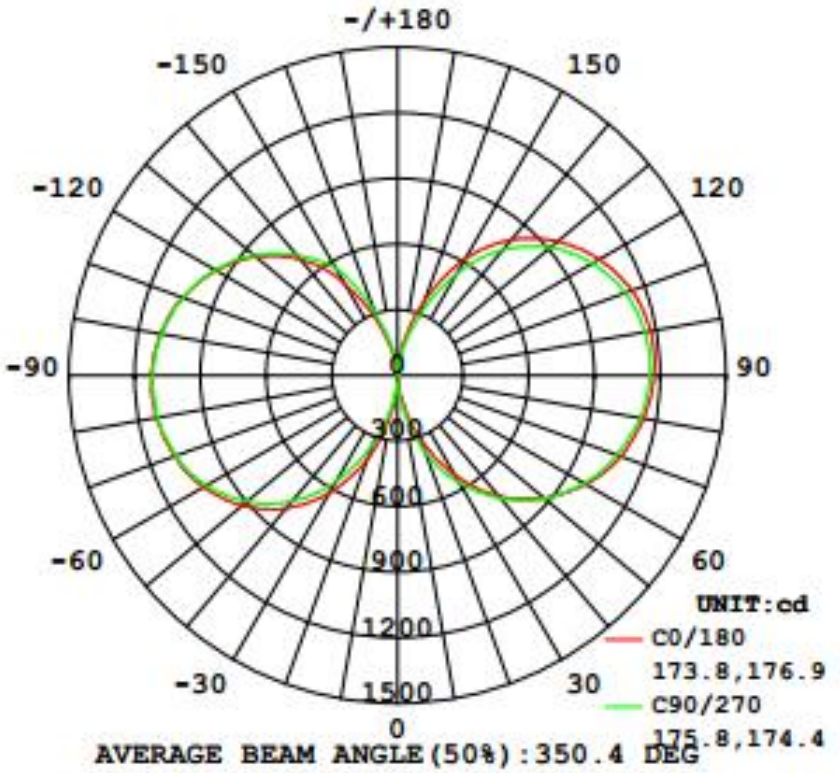
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5185	61.73	0.9921
277.0	60	0.2499	63.91	0.9231

Goniophotometer Data:

Parameter	Results	
	120V	277V
Total Luminous (lm)	11156	11139
Luminous Efficacy (lm/W)	180.72	174.29
Beam Angle (°)	350.4	
Center Beam Intensity (cd)	36	

Luminous Intensity Distribution Diagram:

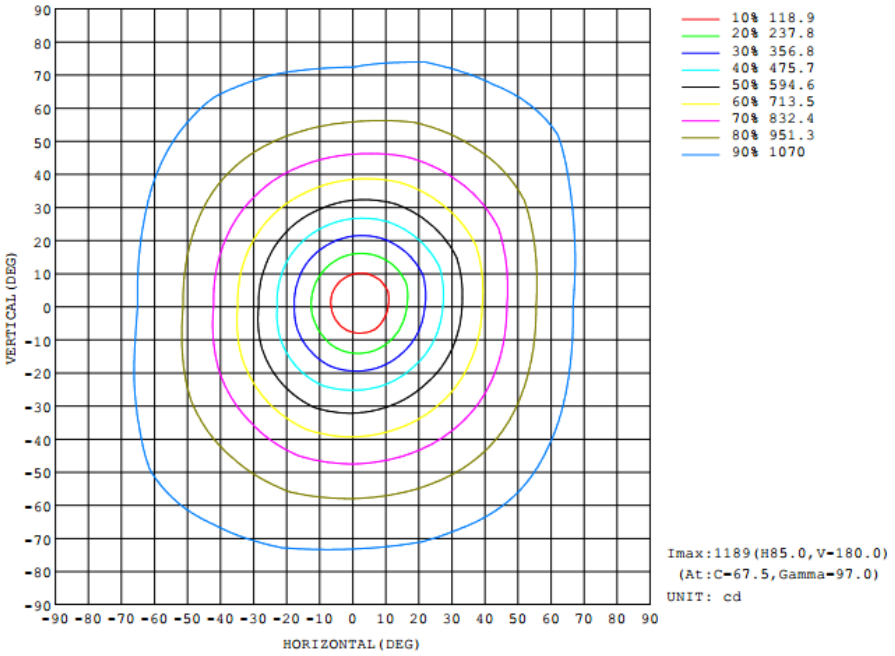


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	105.0	122.2	159.5	184.9	183.1	156.6	125.0	96.76	0- 10	8.667	8.667	0.08,0.08
20	315.9	339.4	374.2	389.4	408.2	366.1	332.1	296.0	10- 20	72.64	81.31	0.73,0.73
30	526.5	544.3	566.5	575.6	618.1	582.0	556.4	519.7	20- 30	215.7	297.1	2.66,2.66
40	720.4	715.2	733.8	753.4	792.7	758.1	750.6	715.1	30- 40	414.4	711.4	6.38,6.38
50	874.2	854.2	878.7	897.1	926.3	891.7	898.0	866.5	40- 50	635.0	1346	12.1,12.1
60	993.6	958.5	984.6	995.4	1024	984.6	1008	980.4	50- 60	846.1	2193	19.7,19.7
70	1085	1040	1066	1066	1082	1038	1076	1059	60- 70	1025	3218	28.8,28.8
80	1142	1094	1126	1110	1120	1065	1112	1108	70- 80	1153	4371	39.2,39.2
90	1171	1128	1152	1125	1123	1063	1117	1123	80- 90	1223	5594	50.1,50.1
100	1173	1129	1146	1110	1098	1036	1094	1116	90-100	1227	6821	61.1,61.1
110	1140	1098	1105	1061	1044	991.4	1041	1072	100-110	1159	7980	71.5,71.5
120	1063	1029	1026	981.1	958.9	915.8	962.6	992.6	110-120	1028	9008	80.7,80.7
130	955.0	927.6	910.3	861.7	844.8	815.4	854.9	889.0	120-130	845.6	9853	88.3,88.3
140	809.8	783.3	749.8	703.5	693.2	672.9	717.1	757.0	130-140	631.3	10485	94,94
150	614.2	577.8	532.7	485.5	483.2	504.6	566.6	600.3	140-150	409.6	10894	97.7,97.7
160	366.6	328.8	286.6	248.2	252.4	259.8	309.6	340.4	150-160	198.6	11093	99.4,99.4
170	140.4	124.6	99.50	72.49	74.65	86.21	109.3	131.3	160-170	58.16	11151	100,100
180	0	0	0	0	0	0	0	0	170-180	4.914	11156	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	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	36.5			
5	37.6	40.9	53.6	66.1	76.5	87.5	93.8	96.2	92.8	85.3	73.6	66.6	53.4	44.7	36.7	35.0			
10	105	115	122	146	160	170	185	190	183	174	157	146	125	107	96.8	92.3			
15	205	218	227	251	264	274	288	295	293	282	260	249	221	201	188	183			
20	316	328	339	367	374	376	389	399	408	392	366	363	332	310	296	290			
25	421	438	450	478	478	473	485	500	516	501	475	476	447	427	408	397			
30	527	538	544	573	567	559	576	596	618	607	582	591	556	531	520	506			
35	630	638	635	663	652	647	666	689	709	697	676	693	662	635	624	608			
40	720	722	715	747	734	731	753	772	793	779	758	779	751	725	715	698			
45	801	797	787	822	810	807	832	847	864	851	830	855	830	806	796	778			
50	874	868	854	890	879	874	897	908	926	915	892	922	898	874	866	850			
55	935	929	908	947	934	931	948	957	979	966	943	979	958	933	928	914			
60	994	982	959	999	985	978	995	1002	1024	1010	985	1026	1008	983	980	969			
65	1045	1031	1003	1044	1030	1022	1035	1039	1059	1044	1017	1063	1049	1024	1024	1016			
70	1085	1071	1040	1080	1066	1056	1066	1064	1082	1067	1038	1087	1076	1057	1059	1054			
75	1115	1101	1070	1110	1096	1086	1091	1087	1105	1087	1058	1105	1097	1080	1085	1082			
80	1142	1129	1094	1139	1126	1109	1110	1105	1120	1097	1065	1116	1112	1097	1108	1107			
85	1160	1149	1114	1162	1145	1121	1122	1113	1125	1101	1066	1119	1118	1104	1120	1122			
90	1171	1163	1128	1173	1152	1130	1125	1117	1123	1100	1063	1116	1117	1106	1123	1130			
95	1177	1170	1132	1177	1155	1132	1123	1109	1117	1093	1054	1109	1110	1103	1123	1133			
100	1173	1168	1129	1171	1146	1123	1110	1093	1098	1077	1036	1090	1094	1093	1116	1126			
105	1160	1155	1119	1157	1132	1106	1091	1071	1076	1053	1017	1067	1070	1074	1097	1108			
110	1140	1135	1098	1134	1105	1077	1061	1042	1044	1024	991	1038	1041	1049	1072	1087			
115	1105	1102	1067	1100	1071	1041	1024	1003	1004	987	958	1004	1007	1014	1037	1054			
120	1063	1063	1029	1059	1026	998	981	958	959	941	916	960	963	971	993	1011			
125	1012	1016	984	1007	974	945	928	904	905	893	872	912	915	923	942	960			
130	955	959	928	946	910	879	862	839	845	830	815	851	855	868	889	906			
135	887	889	861	874	835	805	788	767	772	762	748	785	789	803	824	845			
140	810	808	783	790	750	720	703	685	693	686	673	708	717	733	757	779			
145	718	717	689	691	650	620	601	583	600	603	595	633	645	664	692	714			
150	614	613	578	573	533	505	486	467	483	504	505	550	567	587	600	596			
155	489	485	453	442	407	384	367	353	364	376	385	422	437	450	451	445			
160	367	356	329	317	287	265	248	241	252	249	260	289	310	323	340	358			
165	246	237	219	206	181	160	147	142	152	152	158	176	190	209	229	243			
170	140	134	125	116	99.5	84.8	72.5	69.6	74.7	75.5	86.2	99.1	109	119	131	141			
175	34.9	32.7	22.6	20.7	9.36	5.20	8.15	3.15	4.18	11.7	14.9	21.9	27.5	28.9	32.5	36.3			
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	0.5185	61.73	0.9921	8.45
277.0	60	0.2499	63.91	0.9231	12.21

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