LM-79-19 Test Report

For

LEDVANCE LLC

200 Ballardvale St. Wilmington MA 01887

LED LAMP

Model Name(s):
LED63ED37UNVFR850MOG

Representative (Tested) Model:
LED63ED37UNVFR850MOG

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:	LED63ED37UNVFR850MOG
Product Type:	LED LAMP
Rating Input:	120-277Vac, 50/60Hz, 63W
Declared CCT:	5000K
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:	230329008-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.:	NTCLR22120237
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:

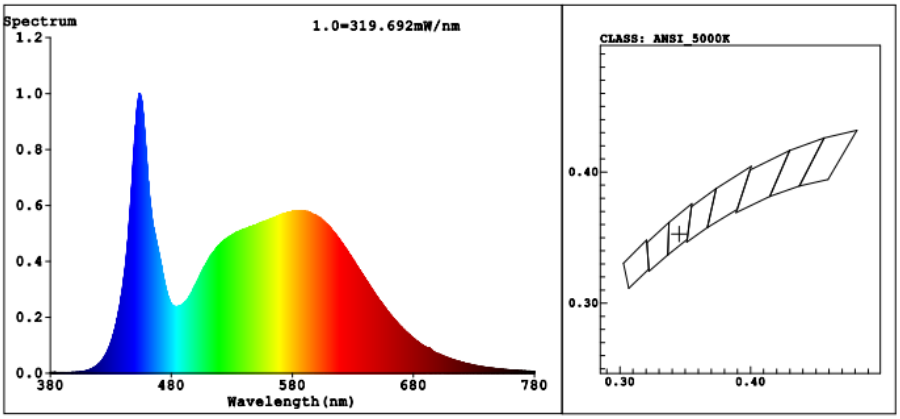
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5143	61.19	0.9914

Color Data:

Parameter	Result
CCT(K)	4992
Ra	83.7
R_f	83
R_g	95
$R_{cs,\ h1}$	-13
Chromaticity, (x, y)	(0.3454, 0.3528)
Chromaticity, (u', v')	(0.2112, 0.4853)
Duv	0.0005

Specify Color Rendering			
R1	82	R9	13
R2	90	R10	75
R3	94	R11	80
R4	81	R12	55
R5	82	R13	85
R6	84	R14	97
R7	87	R15	78
R8	68	-	-

Spectrum Diagram:



IES TM-30-18 Color Rendition Result:

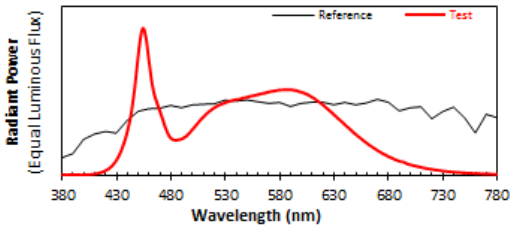
ANSI/IES TM-30-18 Color Rendition Report

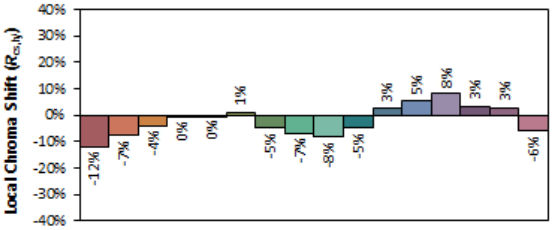
Source: --

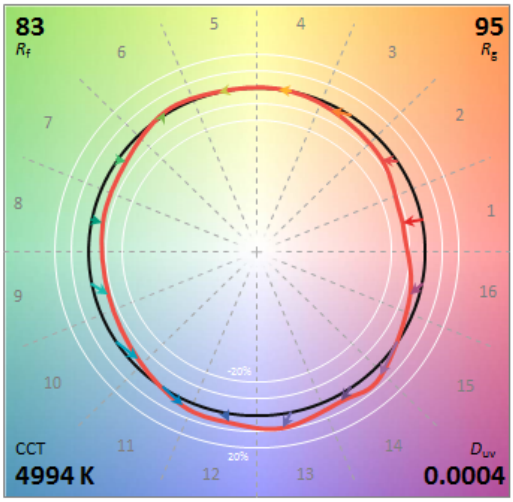
Manufacturer: LEDVANCE LLC

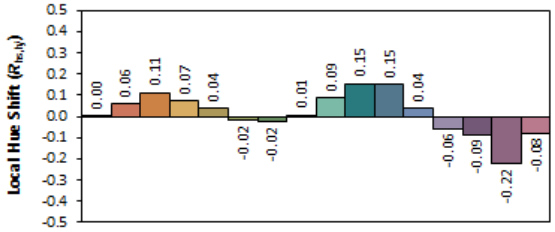
Date: 2023/3/29

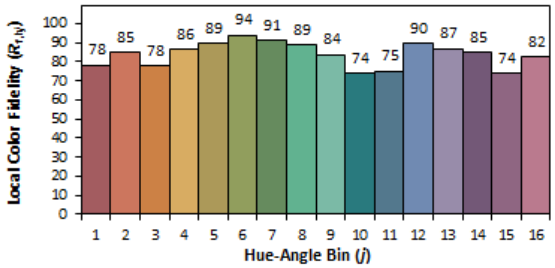
Model: LED63ED37UNVFR850MOG

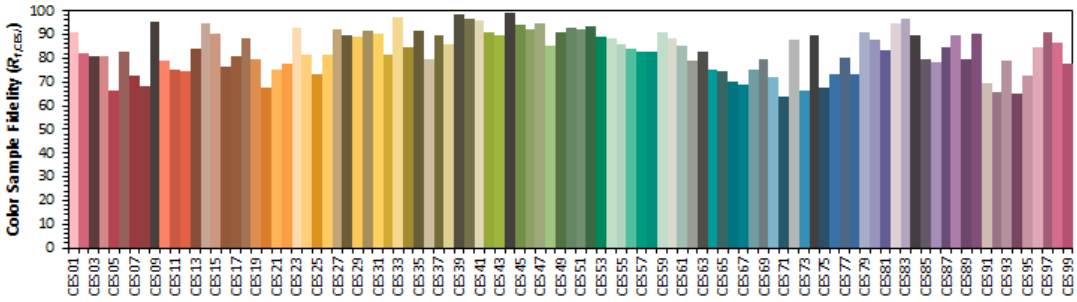












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3454
y	0.3527
u'	0.2112
v'	0.4852

CIE 13.3-1995 (CRI)

R_a	84
R_9	13

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	0.0030	447	0.6428	514	0.4290	581	0.5782	648	0.2849	715	0.0456
381	0.0028	448	0.7155	515	0.4346	582	0.5783	649	0.2788	716	0.0439
382	0.0028	449	0.7848	516	0.4383	583	0.5797	650	0.2739	717	0.0427
383	0.0023	450	0.8471	517	0.4453	584	0.5793	651	0.2666	718	0.0415
384	0.0037	451	0.9058	518	0.4498	585	0.5791	652	0.2604	719	0.0406
385	0.0024	452	0.9551	519	0.4562	586	0.5799	653	0.2551	720	0.0389
386	0.0024	453	0.9857	520	0.4590	587	0.5793	654	0.2496	721	0.0377
387	0.0024	454	0.9961	521	0.4649	588	0.5796	655	0.2434	722	0.0369
388	0.0024	455	0.9840	522	0.4686	589	0.5791	656	0.2372	723	0.0354
389	0.0024	456	0.9527	523	0.4728	590	0.5799	657	0.2317	724	0.0345
390	0.0025	457	0.9114	524	0.4758	591	0.5787	658	0.2256	725	0.0335
391	0.0026	458	0.8538	525	0.4782	592	0.5775	659	0.2205	726	0.0326
392	0.0022	459	0.7916	526	0.4818	593	0.5761	660	0.2146	727	0.0313
393	0.0021	460	0.7363	527	0.4857	594	0.5734	661	0.2094	728	0.0304
394	0.0023	461	0.6812	528	0.4873	595	0.5741	662	0.2036	729	0.0291
395	0.0023	462	0.6274	529	0.4903	596	0.5713	663	0.1987	730	0.0286
396	0.0027	463	0.5896	530	0.4932	597	0.5671	664	0.1937	731	0.0277
397	0.0025	464	0.5538	531	0.4961	598	0.5659	665	0.1889	732	0.0272
398	0.0029	465	0.5270	532	0.4975	599	0.5639	666	0.1842	733	0.0261
399	0.0030	466	0.5043	533	0.5006	600	0.5605	667	0.1793	734	0.0253
400	0.0030	467	0.4834	534	0.5047	601	0.5596	668	0.1739	735	0.0246
401	0.0033	468	0.4629	535	0.5037	602	0.5567	669	0.1698	736	0.0239
402	0.0035	469	0.4430	536	0.5073	603	0.5537	670	0.1654	737	0.0230
403	0.0042	470	0.4199	537	0.5089	604	0.5508	671	0.1604	738	0.0225
404	0.0041	471	0.3991	538	0.5111	605	0.5470	672	0.1564	739	0.0218
405	0.0049	472	0.3786	539	0.5120	606	0.5432	673	0.1509	740	0.0211
406	0.0058	473	0.3530	540	0.5139	607	0.5386	674	0.1483	741	0.0202
407	0.0061	474	0.3301	541	0.5147	608	0.5343	675	0.1437	742	0.0198
408	0.0070	475	0.3122	542	0.5147	609	0.5302	676	0.1401	743	0.0194
409	0.0080	476	0.2940	543	0.5162	610	0.5261	677	0.1367	744	0.0184
410	0.0092	477	0.2770	544	0.5192	611	0.5220	678	0.1317	745	0.0182
411	0.0108	478	0.2651	545	0.5228	612	0.5167	679	0.1281	746	0.0176
412	0.0120	479	0.2542	546	0.5244	613	0.5099	680	0.1252	747	0.0170
413	0.0139	480	0.2487	547	0.5251	614	0.5052	681	0.1216	748	0.0164
414	0.0157	481	0.2428	548	0.5258	615	0.4998	682	0.1177	749	0.0162
415	0.0175	482	0.2398	549	0.5285	616	0.4949	683	0.1147	750	0.0158
416	0.0202	483	0.2382	550	0.5273	617	0.4896	684	0.1113	751	0.0152
417	0.0231	484	0.2377	551	0.5331	618	0.4836	685	0.1078	752	0.0147
418	0.0256	485	0.2374	552	0.5347	619	0.4784	686	0.1049	753	0.0142
419	0.0293	486	0.2400	553	0.5360	620	0.4721	687	0.1020	754	0.0138
420	0.0334	487	0.2402	554	0.5371	621	0.4652	688	0.0988	755	0.0134
421	0.0370	488	0.2419	555	0.5391	622	0.4578	689	0.0964	756	0.0130
422	0.0423	489	0.2451	556	0.5396	623	0.4535	690	0.0933	757	0.0126
423	0.0476	490	0.2477	557	0.5420	624	0.4456	691	0.0917	758	0.0123
424	0.0537	491	0.2514	558	0.5433	625	0.4399	692	0.0913	759	0.0119
425	0.0604	492	0.2570	559	0.5461	626	0.4331	693	0.0898	760	0.0113
426	0.0680	493	0.2613	560	0.5463	627	0.4266	694	0.0878	761	0.0113
427	0.0772	494	0.2670	561	0.5495	628	0.4208	695	0.0837	762	0.0107
428	0.0868	495	0.2755	562	0.5520	629	0.4135	696	0.0793	763	0.0104
429	0.0967	496	0.2815	563	0.5532	630	0.4058	697	0.0764	764	0.0101
430	0.1083	497	0.2904	564	0.5538	631	0.4009	698	0.0734	765	0.0099
431	0.1220	498	0.2984	565	0.5558	632	0.3926	699	0.0714	766	0.0095
432	0.1362	499	0.3098	566	0.5562	633	0.3843	700	0.0700	767	0.0093
433	0.1528	500	0.3153	567	0.5619	634	0.3798	701	0.0691	768	0.0090
434	0.1691	501	0.3254	568	0.5600	635	0.3724	702	0.0661	769	0.0087
435	0.1895	502	0.3337	569	0.5639	636	0.3661	703	0.0651	770	0.0084
436	0.2101	503	0.3419	570	0.5651	637	0.3594	704	0.0630	771	0.0082
437	0.2327	504	0.3520	571	0.5683	638	0.3533	705	0.0612	772	0.0079
438	0.2565	505	0.3609	572	0.5686	639	0.3450	706	0.0593	773	0.0078
439	0.2836	506	0.3692	573	0.5698	640	0.3388	707	0.0579	774	0.0076
440	0.3138	507	0.3778	574	0.5699	641	0.3311	708	0.0556	775	0.0075
441	0.3460	508	0.3847	575	0.5726	642	0.3255	709	0.0543	776	0.0071
442	0.3795	509	0.3925	576	0.5740	643	0.3194	710	0.0527	777	0.0070
443	0.4193	510	0.4001	577	0.5759	644	0.3118	711	0.0508	778	0.0067
444	0.4689	511	0.4078	578	0.5762	645	0.3058	712	0.0500	779	0.0066
445	0.5209	512	0.4160	579	0.5761	646	0.2986	713	0.0480	780	0.0063
446	0.5792	513	0.4218	580	0.5788	647	0.2917	714	0.0467	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

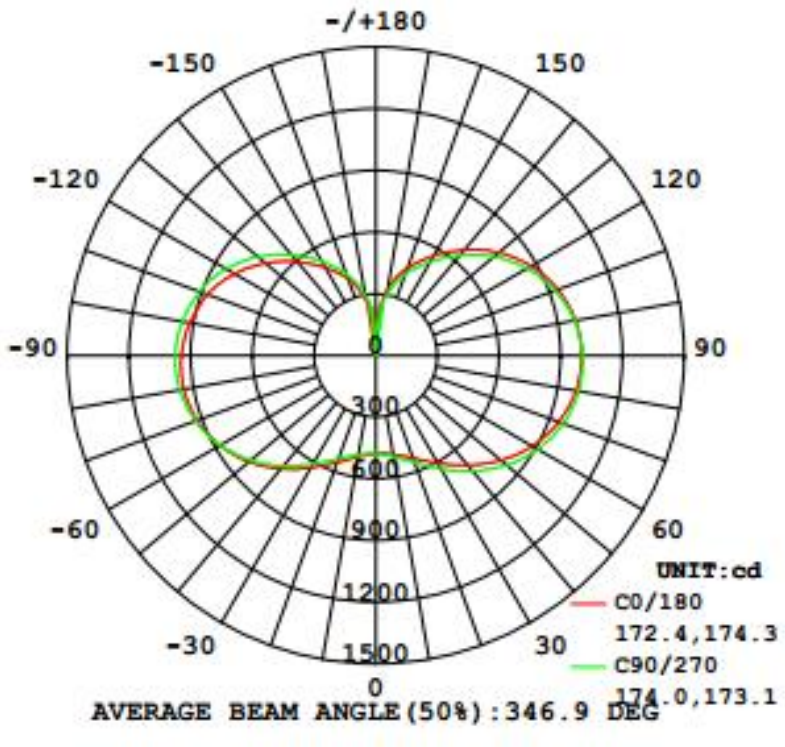
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5140	61.12	0.9909
277.0	60	0.2412	61.87	0.9261

Goniophotometer Data:

Parameter	Results	
	120V	277V
Total Luminous (lm)	10102	10440
Luminous Efficacy (lm/W)	165.28	168.74
Beam Angle (°)	346.9	
Center Beam Intensity (cd)	478	

Luminous Intensity Distribution Diagram:

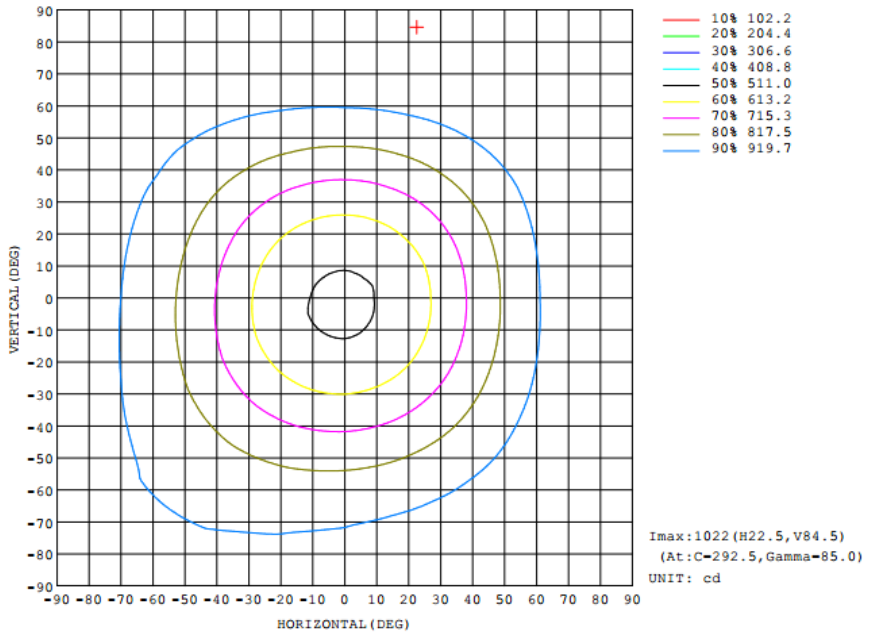


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	489.3	495.2	500.4	503.2	500.9	496.1	490.3	487.1	0- 10	46.46	46.46	0.46,0.46
20	532.9	543.8	554.5	557.9	552.9	544.5	535.4	528.2	10- 20	147.3	193.7	1.92,1.92
30	604.1	619.9	636.4	637.7	630.2	619.5	608.7	598.2	20- 30	269.2	463.0	4.58,4.58
40	696.6	716.4	734.1	731.7	719.7	709.6	701.1	687.7	30- 40	418.8	881.8	8.73,8.73
50	793.5	813.9	829.3	822.0	804.7	797.6	793.0	782.6	40- 50	588.5	1470	14.6,14.6
60	880.0	899.7	910.4	894.9	875.9	871.8	873.9	866.3	50- 60	759.1	2229	22.1,22.1
70	946.9	964.2	969.8	947.8	925.3	923.6	933.3	930.3	60- 70	908.4	3138	31.1,31.1
80	988.2	1001	1001	972.8	947.5	953.3	968.1	970.6	70- 80	1016	4154	41.1,41.1
90	1003	1011	1005	971.8	946.5	953.9	975.4	981.6	80- 90	1069	5223	51.7,51.7
100	986.7	992.3	980.8	941.2	917.9	929.0	955.6	967.9	90-100	1060	6283	62.2,62.2
110	942.6	943.4	927.3	887.0	871.6	884.9	911.3	924.0	100-110	990.8	7274	72,72
120	871.8	870.3	848.3	807.7	795.3	809.6	842.8	861.2	110-120	870.6	8144	80.6,80.6
130	779.8	773.9	749.6	708.7	699.5	714.9	748.6	769.7	120-130	710.8	8855	87.7,87.7
140	671.5	663.1	637.4	600.5	595.8	608.6	640.2	661.8	130-140	534.7	9390	92.9,92.9
150	560.1	550.0	526.0	494.8	493.8	501.5	528.8	550.9	140-150	365.3	9755	96.6,96.6
160	455.6	445.3	423.9	398.7	398.8	402.5	422.2	444.5	150-160	220.8	9976	98.8,98.8
170	320.4	310.6	296.2	272.9	274.8	275.2	299.4	323.0	160-170	105.0	10081	99.8,99.8
180	0	0	0	0	0	0	0	18.50	170-180	21.26	10102	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Isocandela Diagram:



Luminous Distribution Intensity Data:

Table--1 UNIT: cd

γ (DEG) \ C (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	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
5	480	481	482	484	485	486	487	486	486	485	484	482	480	479	478	478
10	489	491	495	498	500	502	503	503	501	499	496	493	490	488	487	487
15	507	510	516	520	523	527	527	526	524	520	517	513	509	506	504	504
20	533	537	544	550	554	557	558	557	553	548	544	540	535	531	528	528
25	565	570	578	587	593	595	596	593	589	584	579	574	569	563	559	558
30	604	611	620	628	636	639	638	635	630	625	619	615	609	603	598	597
35	649	656	666	677	684	687	686	680	675	669	664	659	654	646	641	641
40	697	705	716	726	734	735	732	726	720	714	710	706	701	693	688	686
45	746	753	766	777	782	783	779	770	764	757	754	752	748	741	736	735
50	794	802	814	824	829	829	822	811	805	800	798	796	793	786	783	781
55	839	847	859	868	872	869	862	850	843	837	837	837	836	830	827	826
60	880	888	900	908	910	906	895	882	876	870	872	874	874	869	866	867
65	917	925	935	942	944	937	925	909	903	898	901	906	907	904	902	901
70	947	955	964	970	970	961	948	930	925	920	924	931	933	931	930	931
75	971	978	987	991	990	979	964	945	940	936	942	950	954	953	953	955
80	988	994	1001	1006	1001	990	973	953	948	946	953	962	968	969	971	971
85	998	1004	1011	1011	1007	994	975	956	950	947	955	967	975	977	980	981
90	1003	1006	1011	1012	1005	990	972	951	947	944	954	967	975	979	982	984
95	998	1001	1005	1005	996	980	961	940	935	934	945	959	969	974	978	982
100	987	989	992	991	981	963	941	921	918	917	929	944	956	963	968	972
105	968	970	972	969	958	939	918	897	896	897	908	924	937	942	949	954
110	943	944	943	941	927	908	887	866	872	872	885	899	911	918	924	930
115	910	911	911	904	889	871	850	830	836	837	849	866	881	891	899	905
120	872	873	870	864	848	829	808	787	795	797	810	827	843	853	861	867
125	828	828	825	816	801	781	760	741	749	751	764	782	797	809	818	823
130	780	778	774	765	750	728	709	691	699	702	715	733	749	760	770	775
135	727	725	720	710	694	674	656	639	648	650	662	679	695	707	718	723
140	672	669	663	652	637	618	600	585	596	598	609	625	640	651	662	668
145	615	612	606	596	581	563	547	533	544	545	554	569	584	596	606	612
150	560	557	550	540	526	510	495	484	494	494	501	514	529	540	551	557
155	506	504	497	486	473	459	446	438	446	446	452	463	475	486	496	503
160	456	451	445	436	424	408	399	391	399	398	403	412	422	435	444	451
165	399	396	389	378	366	346	339	334	341	340	340	352	364	377	388	394
170	320	315	311	306	296	281	273	268	275	274	275	285	299	312	323	330
175	214	208	204	195	184	177	168	164	177	178	182	191	208	223	236	245
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	18.5	27.5

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
120.0	60	0.5140	61.12	0.9909	8.69
277.0	60	0.2412	61.87	0.9261	12.32

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