

LM-79-08 Test Report

For

ETI Solid State Lighting (Zhuhai) Ltd

No.1, Zhongzhu Road South, Science & Technology Innovation Coast, High Tech District, Zhuhai City,
Guangdong Prov., China 519085

High Bay

Model Name(s):

638033##-YY

Representative (Tested) Model:

63803361

Model Difference:

1. ##= 31 identifies 3500K, 41 identifies 4000K, 61 identifies 5000K;
2. YY stands for function, can be blank for dimming, I for dimming with sensor, EM for dimming with Back up power, I-EM for dimming with sensor and Back up power;
3. All is the same construction, except CCT and function.

Prepare by:



Engineer: Alan Wang

Date: 2021-01-27

Review by:



Technical Lead: Vincent Yuan

Issue Date: 2021-01-29

Revised Date: N/A

Note:

1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd
3. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

Client Information:

Client Name:	ETI Solid State Lighting (Zhuhai) Ltd
Brand Name:	ETI
Factory Name:	ETI Solid State Lighting (Zhuhai) Ltd
Factory Address:	No.1, Zhongzhu Road South, Science & Technology Innovation Coast, High Tech District, Zhuhai City, Guangdong Prov., China 519085

Product Information:

Model Number:	638033##, 638033##-I, 638033##-EM, 638033##-I-EM
Product Type:	High-Bay Luminaires for Commercial and Industrial Buildings
Rating Input:	120-277Vac, 50/60Hz, 200W
Declared CCT:	5000K
Declared Light Output:	27000 lm
LED Manufacturer:	LUMILEDS
LED Model:	LUXEON 3030 2D
Driver Manufacturer:	SOSEN
Driver model:	SS-200CNL-260B

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:	2021-01-26
Quantity of Receipt Samples:	1 pc
Sample Number:	210126006-S1

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 st 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:

Issued Date of Test Report:	2021-01-29
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR21010127
Remark (If applicable):	N/A

Test Specification:	
Date of Test	2021-01-26
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	IES LM-79-2008 Electrical and Photometric 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 15-2004 Technical Report Colorimetry ANSI IES TM-30-18 IES Method for Evaluating Light Source Color Rendition ANSI C78.77-10-2014 Harmonic Emission Limits – Related Power Quality Requirements IES TM-15-11 Luminaire Classification System for Outdoor Luminaires Addendum A for IES TM-15-11 Backlight, Uplight, and Glare (BUG) Ratings

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° horizontal 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 C82.77-2002, 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)
25.4	41.0	Face Down	90	10

Electrical Data:

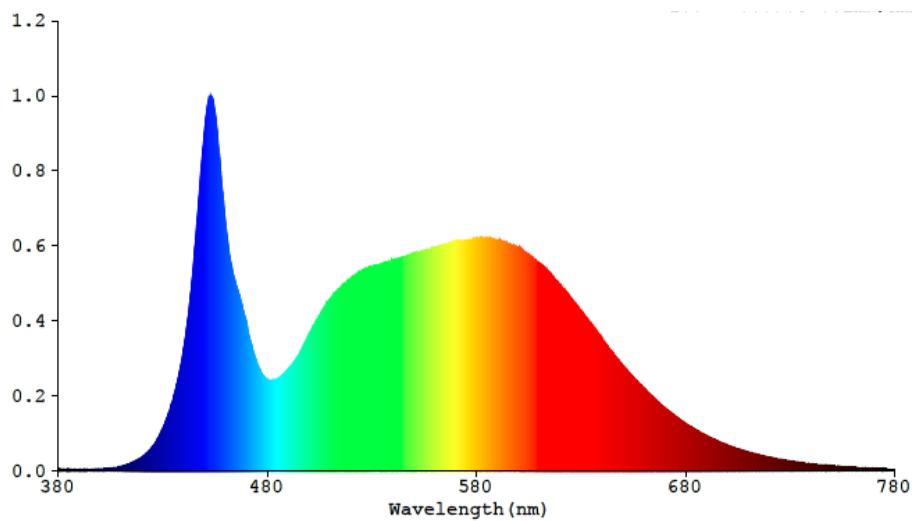
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	1.6806	201.81	0.9993

Color Data:

Parameter	Result
CCT(K)	4956
R _a	82.2
R _f	83
R _g	95
R _{cs, h1}	-13%
Chromaticity, (x, y)	(0.3477, 0.3631)
Chromaticity, (u', v')	(0.2087, 0.4905)
Duv	0.0047

Specify Color Rendering			
R1	80	R9	4
R2	88	R10	71
R3	94	R11	79
R4	80	R12	54
R5	80	R13	82
R6	83	R14	97
R7	88	R15	74
R8	66	-	-

Spectrum Diagram:



IES TM-30-18 Color Rendition Result:

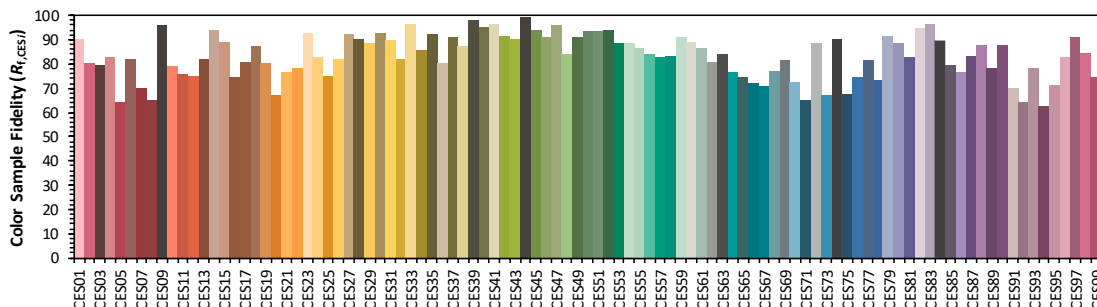
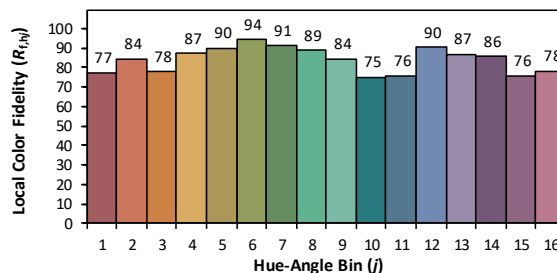
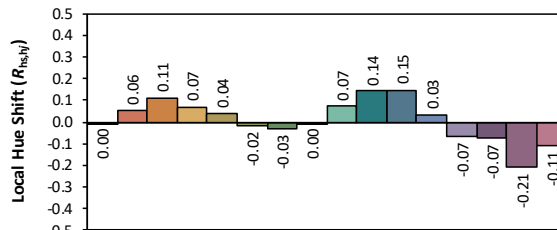
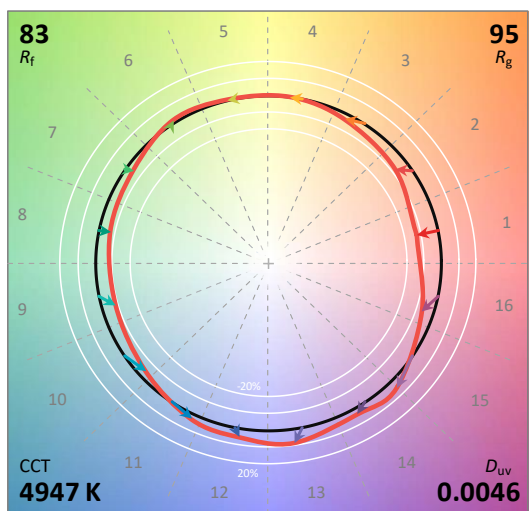
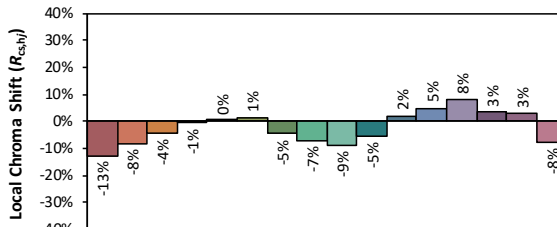
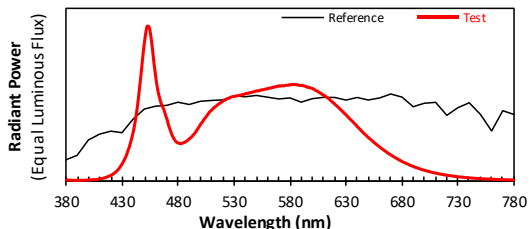
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Date: 2021/1/27

Manufacturer: ETI Solid State Lighting (2

Model: 63803361



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

x 0.3476
 y 0.3629
 u' 0.2088
 v' 0.4904

CIE 13.3-1995
(CRI)

R_a 82
 R_9 4

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	0.0050	447	0.7160	514	0.4833	581	0.6197	648	0.2951	715	0.0434
381	0.0054	448	0.7891	515	0.4889	582	0.6221	649	0.2878	716	0.0420
382	0.0048	449	0.8547	516	0.4958	583	0.6219	650	0.2808	717	0.0406
383	0.0043	450	0.9132	517	0.4997	584	0.6211	651	0.2743	718	0.0395
384	0.0041	451	0.9615	518	0.5051	585	0.6207	652	0.2688	719	0.0378
385	0.0037	452	0.9961	519	0.5091	586	0.6208	653	0.2623	720	0.0370
386	0.0034	453	0.9980	520	0.5147	587	0.6187	654	0.2558	721	0.0359
387	0.0034	454	0.9882	521	0.5199	588	0.6179	655	0.2497	722	0.0345
388	0.0038	455	0.9520	522	0.5211	589	0.6157	656	0.2436	723	0.0335
389	0.0030	456	0.9000	523	0.5265	590	0.6146	657	0.2372	724	0.0325
390	0.0034	457	0.8410	524	0.5304	591	0.6168	658	0.2318	725	0.0316
391	0.0032	458	0.7709	525	0.5330	592	0.6134	659	0.2264	726	0.0305
392	0.0041	459	0.7141	526	0.5359	593	0.6115	660	0.2207	727	0.0295
393	0.0039	460	0.6577	527	0.5391	594	0.6100	661	0.2150	728	0.0286
394	0.0040	461	0.6096	528	0.5420	595	0.6047	662	0.2089	729	0.0280
395	0.0040	462	0.5707	529	0.5441	596	0.6051	663	0.2041	730	0.0268
396	0.0040	463	0.5418	530	0.5435	597	0.6014	664	0.1988	731	0.0260
397	0.0041	464	0.5138	531	0.5458	598	0.6011	665	0.1930	732	0.0253
398	0.0050	465	0.4928	532	0.5489	599	0.5982	666	0.1886	733	0.0245
399	0.0053	466	0.4760	533	0.5490	600	0.5968	667	0.1831	734	0.0239
400	0.0055	467	0.4589	534	0.5506	601	0.5925	668	0.1776	735	0.0232
401	0.0056	468	0.4382	535	0.5524	602	0.5888	669	0.1732	736	0.0225
402	0.0066	469	0.4137	536	0.5540	603	0.5831	670	0.1689	737	0.0214
403	0.0068	470	0.3942	537	0.5553	604	0.5802	671	0.1639	738	0.0209
404	0.0074	471	0.3650	538	0.5583	605	0.5771	672	0.1597	739	0.0203
405	0.0080	472	0.3425	539	0.5586	606	0.5713	673	0.1552	740	0.0198
406	0.0083	473	0.3237	540	0.5622	607	0.5672	674	0.1511	741	0.0191
407	0.0092	474	0.3023	541	0.5637	608	0.5634	675	0.1468	742	0.0184
408	0.0101	475	0.2858	542	0.5640	609	0.5568	676	0.1427	743	0.0176
409	0.0115	476	0.2732	543	0.5667	610	0.5542	677	0.1385	744	0.0174
410	0.0123	477	0.2613	544	0.5683	611	0.5503	678	0.1341	745	0.0168
411	0.0139	478	0.2529	545	0.5703	612	0.5445	679	0.1311	746	0.0164
412	0.0156	479	0.2470	546	0.5712	613	0.5386	680	0.1262	747	0.0158
413	0.0175	480	0.2444	547	0.5741	614	0.5335	681	0.1227	748	0.0154
414	0.0195	481	0.2415	548	0.5754	615	0.5291	682	0.1191	749	0.0148
415	0.0219	482	0.2404	549	0.5778	616	0.5212	683	0.1162	750	0.0143
416	0.0246	483	0.2415	550	0.5811	617	0.5151	684	0.1129	751	0.0140
417	0.0275	484	0.2438	551	0.5797	618	0.5080	685	0.1095	752	0.0134
418	0.0304	485	0.2468	552	0.5820	619	0.5029	686	0.1062	753	0.0130
419	0.0335	486	0.2497	553	0.5831	620	0.4961	687	0.1031	754	0.0128
420	0.0376	487	0.2555	554	0.5860	621	0.4888	688	0.0994	755	0.0122
421	0.0410	488	0.2594	555	0.5876	622	0.4830	689	0.0971	756	0.0120
422	0.0463	489	0.2659	556	0.5878	623	0.4765	690	0.0942	757	0.0119
423	0.0518	490	0.2725	557	0.5904	624	0.4694	691	0.0912	758	0.0114
424	0.0574	491	0.2782	558	0.5920	625	0.4624	692	0.0881	759	0.0113
425	0.0646	492	0.2844	559	0.5942	626	0.4550	693	0.0856	760	0.0107
426	0.0713	493	0.2927	560	0.5937	627	0.4483	694	0.0835	761	0.0106
427	0.0812	494	0.3012	561	0.5974	628	0.4415	695	0.0807	762	0.0101
428	0.0908	495	0.3089	562	0.5984	629	0.4336	696	0.0783	763	0.0098
429	0.1022	496	0.3207	563	0.5989	630	0.4274	697	0.0758	764	0.0095
430	0.1136	497	0.3311	564	0.6023	631	0.4200	698	0.0729	765	0.0094
431	0.1269	498	0.3426	565	0.6033	632	0.4119	699	0.0715	766	0.0091
432	0.1417	499	0.3533	566	0.6044	633	0.4048	700	0.0688	767	0.0087
433	0.1559	500	0.3661	567	0.6078	634	0.3977	701	0.0669	768	0.0085
434	0.1761	501	0.3751	568	0.6087	635	0.3907	702	0.0653	769	0.0082
435	0.1972	502	0.3842	569	0.6102	636	0.3835	703	0.0631	770	0.0078
436	0.2173	503	0.3964	570	0.6134	637	0.3759	704	0.0608	771	0.0077
437	0.2417	504	0.4052	571	0.6113	638	0.3683	705	0.0595	772	0.0075
438	0.2681	505	0.4144	572	0.6126	639	0.3610	706	0.0571	773	0.0072
439	0.2964	506	0.4252	573	0.6139	640	0.3532	707	0.0558	774	0.0070
440	0.3297	507	0.4342	574	0.6131	641	0.3446	708	0.0538	775	0.0069
441	0.3695	508	0.4446	575	0.6133	642	0.3374	709	0.0521	776	0.0066
442	0.4113	509	0.4503	576	0.6161	643	0.3298	710	0.0505	777	0.0064
443	0.4628	510	0.4586	577	0.6162	644	0.3222	711	0.0492	778	0.0062
444	0.5170	511	0.4648	578	0.6168	645	0.3158	712	0.0476	779	0.0062
445	0.5827	512	0.4730	579	0.6178	646	0.3080	713	0.0465	780	0.0062
446	0.6477	513	0.4783	580	0.6213	647	0.3013	714	0.0444	N/A	N/A

Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.9	48.1	Face Down	90	25

Electrical Data:

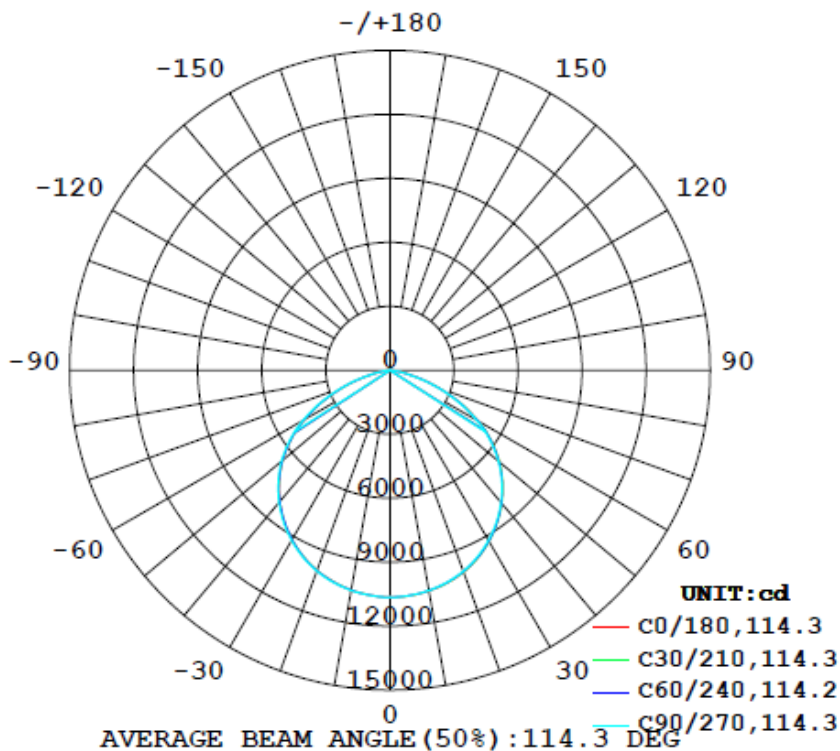
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	1.6806	201.81	0.9993

Goniophotometer Data:

Parameter	Results	
Total Luminous (lm)	29755.6	
Luminous Efficacy (lm/w)	147.44	
Zonal Lumens Distribution (20-50°)	52.4%	
Beam Angle (°)	114.3	
UGR	Crosswise	Endwise
	36.3	36.0

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

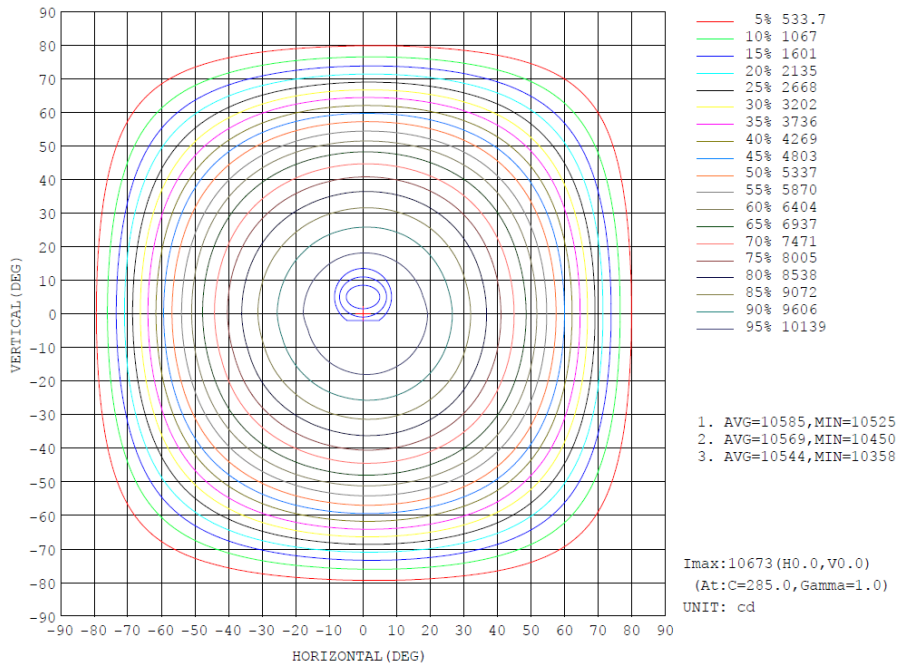


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1050	1050	1048	1047	1047	1048	1049	1050	0- 10	1008	1008	3.39,3.39
20	1008	1006	1002	999.4	998.8	999.6	1003	1006	10- 20	2908	3916	13.2,13.2
30	926.4	927.7	921.1	916.4	918.2	917.2	922.2	927.8	20- 30	4458	8374	28.1,28.1
40	812.3	814.9	808.1	802.2	803.5	803.8	809.6	815.2	30- 40	5438	13811	46.4,46.4
50	668.2	669.4	661.6	654.7	656.0	656.9	664.5	669.7	40- 50	5705	19516	65.6,65.6
60	477.7	478.2	468.2	459.5	463.5	463.8	472.3	480.4	50- 60	5108	24625	82.8,82.8
70	244.5	246.1	237.0	228.9	234.6	234.0	243.4	250.8	60- 70	3511	28136	94.6,94.6
80	51.39	50.06	45.21	41.35	44.73	46.17	50.08	54.27	70- 80	1423	29559	99.3,99.3
90	1.480	1.095	0.5858	0.3174	0.1778	0.1822	0.2751	1.698	80- 90	167.9	29727	99.9,99.9
100	0.1413	0.1439	0.1495	0.1512	0.2985	0.3011	0.2975	0.2907	90-100	2.368	29729	99.9,99.9
110	0.2083	0.2056	0.2189	0.2260	0.3708	0.3809	0.3846	0.3724	100-110	2.768	29732	99.9,99.9
120	0.3238	0.3105	0.3188	0.3323	0.4638	0.4615	0.4571	0.4447	110-120	3.337	29735	99.9,99.9
130	0.4617	0.4398	0.4492	0.4620	0.6344	0.6471	0.6535	0.6016	120-130	4.119	29739	99.9,99.9
140	0.5745	0.5649	0.5786	0.5818	0.7721	0.8315	0.7912	0.7788	130-140	4.817	29744	100,100
150	0.6092	0.6132	0.6094	0.6316	0.8705	0.9031	0.8875	0.8812	140-150	4.504	29749	100,100
160	0.7294	0.7029	0.6412	0.7253	0.9541	0.9757	0.9132	0.9064	150-160	3.622	29752	100,100
170	0.8191	0.8388	0.7799	0.8090	0.9766	1.001	0.9480	0.9029	160-170	2.433	29755	100,100
180	0.9628	0.9720	0.9405	0.9379	0.9613	0.9796	0.9339	0.9198	170-180	0.8670	29756	100,100
DEG	LUMINOUS INTENSITY:~10cd									UNIT:lm		

Isocandela Diagram:



Uncorrected UGR Table:

Corrected UGR Table:

Luminous Distribution Intensity Data:

Table--1

UNIT: ×10cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
γ (DEG)	0	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065
5	1061	1061	1061	1061	1060	1061	1060	1060	1060	1060	1059	1059	1059	1059	1059	1060	1059	1060	1060
10	1050	1050	1051	1050	1049	1049	1048	1048	1047	1047	1046	1046	1047	1047	1047	1048	1047	1049	1049
15	1033	1032	1032	1032	1031	1031	1029	1029	1028	1027	1026	1027	1027	1027	1027	1027	1028	1029	1030
20	1008	1007	1006	1006	1005	1004	1002	1002	1000	999	999	998	999	999	999	1000	1001	1002	1003
25	971	971	972	972	969	969	966	965	964	962	962	963	963	962	963	963	964	966	967
30	926	926	927	928	926	925	921	918	917	916	917	917	918	918	918	917	918	920	922
35	873	874	875	875	873	872	868	865	863	863	864	864	865	865	865	864	864	866	870
40	812	814	815	815	813	812	808	805	802	802	802	802	804	804	805	804	804	806	810
45	745	746	747	746	744	743	740	736	734	734	733	732	734	735	735	735	736	739	742
50	668	669	669	669	666	665	662	657	655	655	654	654	656	656	656	657	658	661	665
55	580	580	580	580	577	576	572	567	565	563	564	565	568	567	566	566	569	572	575
60	478	478	478	478	474	471	468	464	461	460	461	461	463	463	464	464	465	469	472
65	363	364	364	365	362	358	355	350	347	346	347	348	350	351	351	350	353	356	359
70	245	246	246	246	242	240	237	232	229	229	230	230	235	234	233	234	236	239	243
75	135	136	136	135	133	131	127	123	121	120	122	123	127	128	127	127	128	131	135
80	51.4	50.7	50.5	50.1	48.2	47.0	45.2	43.3	42.0	41.3	41.8	42.1	44.7	44.9	45.4	46.2	47.4	48.3	50.1
85	11.3	11.1	10.8	10.7	10.3	10.1	9.88	9.54	9.31	9.21	9.21	10.00	9.80	9.94	10.1	10.3	10.6	10.7	11.2
90	1.48	1.40	1.27	1.09	0.72	0.82	0.59	0.45	0.38	0.32	0.26	0.25	0.18	0.18	0.18	0.18	0.20	0.21	0.28
95	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.24	0.23	0.24	0.24	0.24	0.23	0.23
100	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.30	0.30	0.30	0.30	0.30	0.30	0.30
105	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.35	0.35	0.35	0.35	0.36	0.36	0.35
110	0.21	0.21	0.20	0.21	0.21	0.22	0.22	0.22	0.22	0.23	0.23	0.22	0.37	0.37	0.38	0.38	0.38	0.38	0.38
115	0.26	0.25	0.25	0.25	0.25	0.26	0.27	0.27	0.27	0.28	0.27	0.27	0.40	0.40	0.40	0.41	0.41	0.41	0.41
120	0.32	0.32	0.31	0.31	0.32	0.31	0.32	0.33	0.33	0.33	0.34	0.33	0.46	0.46	0.46	0.46	0.46	0.45	0.46
125	0.40	0.39	0.37	0.38	0.38	0.37	0.38	0.39	0.39	0.40	0.41	0.40	0.54	0.54	0.53	0.54	0.53	0.53	0.54
130	0.46	0.46	0.46	0.44	0.46	0.45	0.45	0.45	0.47	0.46	0.48	0.47	0.63	0.64	0.65	0.65	0.66	0.65	0.65
135	0.53	0.53	0.52	0.50	0.51	0.54	0.53	0.53	0.52	0.53	0.53	0.54	0.71	0.73	0.74	0.76	0.76	0.75	0.75
140	0.57	0.59	0.57	0.56	0.57	0.59	0.58	0.57	0.57	0.58	0.57	0.58	0.77	0.80	0.80	0.83	0.84	0.82	0.79
145	0.59	0.61	0.59	0.58	0.60	0.60	0.60	0.60	0.61	0.60	0.59	0.59	0.82	0.83	0.84	0.86	0.88	0.87	0.86
150	0.61	0.63	0.63	0.61	0.60	0.62	0.61	0.62	0.62	0.63	0.61	0.62	0.87	0.87	0.87	0.90	0.90	0.89	0.89
155	0.67	0.69	0.69	0.65	0.63	0.65	0.63	0.65	0.66	0.67	0.68	0.65	0.90	0.89	0.93	0.92	0.92	0.92	0.89
160	0.73	0.74	0.73	0.70	0.66	0.67	0.64	0.69	0.70	0.73	0.72	0.71	0.95	0.95	0.95	0.98	0.96	0.94	0.91
165	0.77	0.79	0.79	0.79	0.74	0.74	0.72	0.76	0.78	0.80	0.77	0.76	0.96	0.96	0.98	0.99	1.01	0.99	0.95
170	0.82	0.84	0.85	0.84	0.77	0.78	0.78	0.77	0.81	0.81	0.81	0.81	0.98	0.98	0.99	1.00	1.00	0.99	0.95
175	0.91	0.94	0.94	0.93	0.88	0.87	0.84	0.85	0.88	0.89	0.90	0.91	0.98	0.98	1.00	1.00	0.99	0.99	0.94
180	0.96	0.98	0.98	0.97	0.94	0.94	0.94	0.89	0.91	0.94	0.94	0.97	0.96	0.96	0.99	0.98	0.97	0.95	0.93

Table--2

UNIT: ×10cd

C (DEG)	285	300	315	330	345														
γ (DEG)	0	1065	1065	1065	1065														
5	1060	1061	1061	1061	1061														
10	1050	1050	1050	1050	1052														
15	1031	1032	1032	1032	1033														
20	1005	1006	1006	1007	1008														
25	970	971	972	972	973														
30	925	927	928	927	928														
35	873	874	875	875	875														
40	812	814	815	815	815														
45	744	746	747	747	747														
50	667	669	670	670	670														
55	579	582	582	582	581														
60	477	479	480	481	480														
65	364	367	368	368	367														
70	247	248	251	249	249														
75	138	140	141	140	139														
80	52.2	52.9	54.3	54.5	54.2														
85	11.3	11.7	12.0	12.0	12.1														
90	0.33	1.65	1.70	1.70	1.72														
95	0.23	0.23	0.23	0.22	0.22														
100	0.29	0.29	0.29	0.29	0.29														
105	0.35	0.35	0.35	0.35	0.34														
110	0.38	0.38	0.37	0.37	0.36														
115	0.41	0.41	0.40	0.39	0.39														
120	0.45	0.45	0.44	0.44	0.45														
125	0.53	0.51	0.51	0.50	0.52														
130	0.64	0.63	0.60	0.62	0.63														
135	0.72	0.69	0.69	0.71	0.71														
140	0.77	0.78	0.78	0.78	0.79														
145	0.82	0.84	0.83	0.81	0.83														
150	0.87	0.86	0.88	0.88	0.88														
155	0.89	0.89	0.89	0.93	0.92														
160	0.90	0.91	0.91	0.96	0.96														
165	0.94	0.94	0.93	0.96	0.97														
170	0.94	0.94	0.90	0.95	0.97														
175	0.92	0.94	0.91	0.96	0.97														
180	0.93	0.89	0.92	0.94	0.94														

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.7439	197.22	0.9571	6.27

Photo of Sample:



Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2020-11-12	2021-11-11
NTC-F01-006	2.0 meter Integrating Sphere	2020-11-12	2021-11-11
NTC-F01-012	Standard Lamp	2020-11-12	2021-11-11
NTC-F01-013	Standard Lamp	2020-11-12	2021-11-11
NTC-F01-031	Digital Power Meter	2020-08-22	2021-08-21
NTC-F01-019	Temperature & Humidity Meter	2020-11-13	2021-11-12

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