

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

UVC Disinfection Troffer

Model Name(s):

558071###

Representative (Tested) Model:

558071410

Model Difference:

1. The first and second # represents 4000K, can be 41-50;
2. The third # represents factory code, can be 0-9;
3. All is the same construction, except model design.

Prepare by:



Engineer: Alan Wang

Date: 2021-06-03

Review by:



Technical Lead: Vincent Yuan

Issue Date: 2021-06-07

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 does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

Laboratory: Dongguan New Testing Centre Co., Ltd

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Tel: 86-769-22212079

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Client Information:

Applicant Name:	ETI Solid State Lighting (Zhuhai) Ltd
Brand Name:	SILENTAIRE
Factory 1 Name:	ETI Solid State Lighting (Zhuhai) Ltd
Factory 1 Address:	No.1, Zhongzhu Road South, Science & Technology Innovation Coast, High tech District, Zhuhai City, Guangdong Prov., China 519085
Factory 2 Name:	NVC VIETNAM TECHNOLOGY AND LIGHTING COMPANY LIMITED
Factory 2 Address:	Lot CN23-1, Yen Phong Industrial park, Dong Phong commune, Yen Phong district, Bac Ninh province, Vietnam

Product Information:

Model Number:	558041### (###=410-509)
Product Type:	2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Rating Input:	120-277Vac, 50/60Hz, 45W for Luminaire, 50W for total Luminaire with UVC
Declared CCT:	4000K
Declared Light Output:	5500 lm
LED Manufacturer:	Samsung Electronics Co., Ltd.
LED Model:	SPMWH1229AQ5XXTXXX
LED Quantity:	Main Light: 96 pcs Blue Light: 3 pcs UVC Light: 4 pcs

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:	2021-05-20
Quantity of Receipt Samples:	1 pc
Sample Number:	210520028-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:	2021-06-07
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR21060028
Remark (If applicable):	1. The product contains with UVC Light, only Main Light was tested in this report.

Test Specification:	
Date of Test	2021-05-21
Test Item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Correlated Color Temperature 4. Color Rendering Index 5. Chromaticity Coordinate 6. Fidelity Index 7. Gamut Index 8. Local Chroma Shift 9. 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 $25\text{ }^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 $25\text{ }^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 C82.77-10-2014, 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:

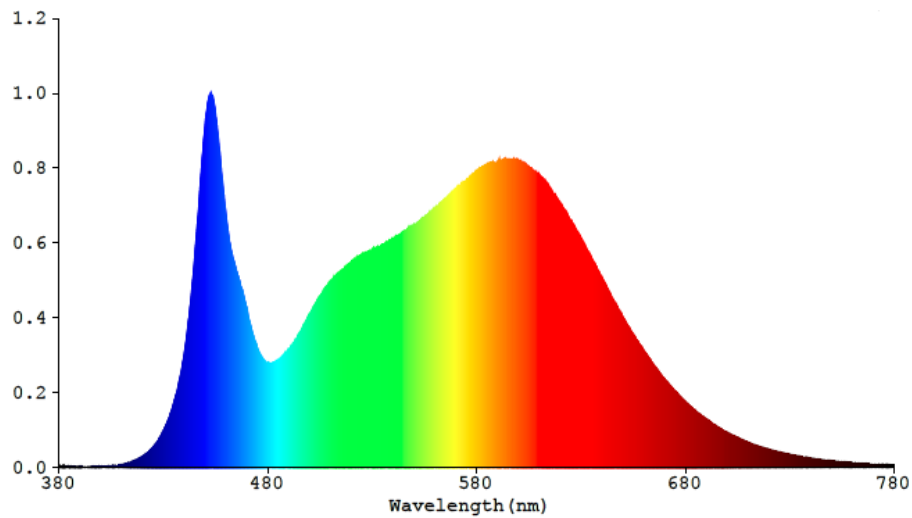
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.3795	44.57	0.9788

Color Data:

Parameter	Result
CCT(K)	4107
R _a	84.0
R _f	84
R _g	94
R _{cs, hl}	-12%
Chromaticity, (x, y)	(0.3757, 0.3735)
Chromaticity, (u', v')	(0.2233, 0.4995)
Duv	-0.0001

Specify Color Rendering			
R1	83	R9	10
R2	91	R10	79
R3	96	R11	81
R4	82	R12	63
R5	83	R13	85
R6	88	R14	98
R7	85	R15	77
R8	65	-	-

Spectrum Diagram:



IES TM-30-18 Color Rendition Result:

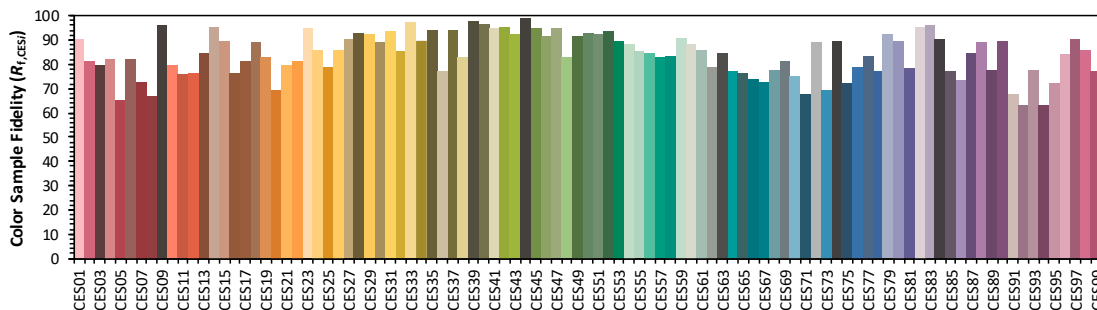
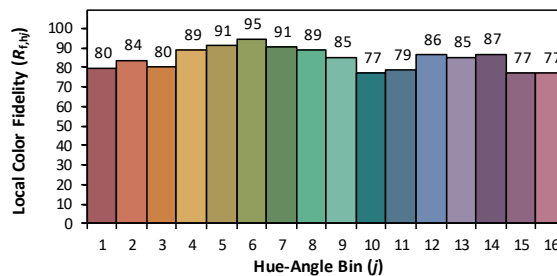
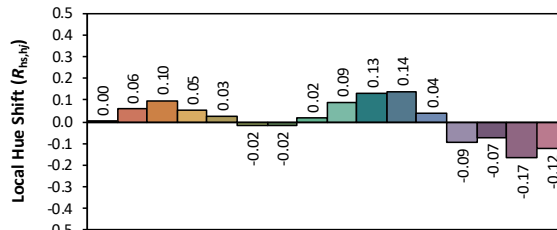
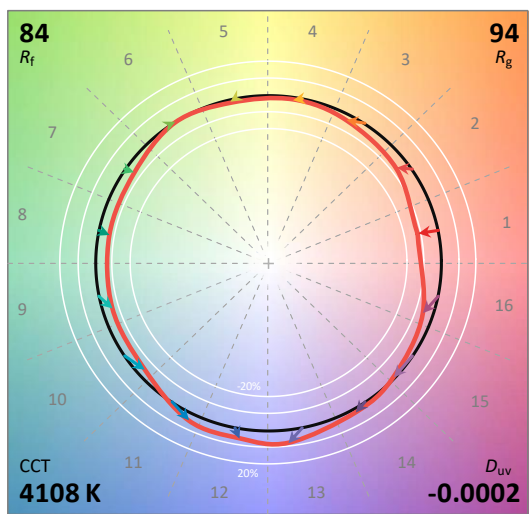
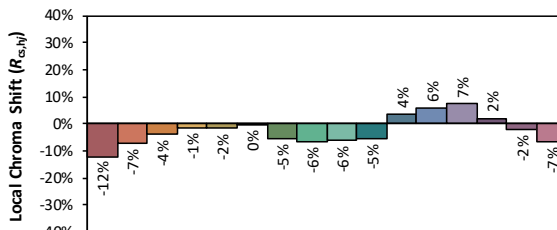
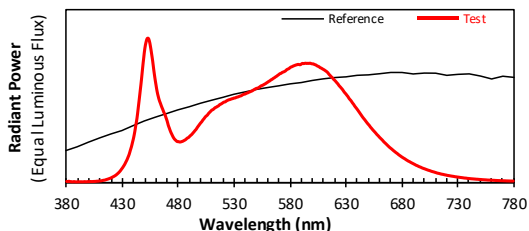
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: ETI Solid State Lighting (2

Date: 2021/6/3

Model: 558071410



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

x 0.3757
 y 0.3734
 u' 0.2233
 v' 0.4994

CIE 13.3-1995
(CRI)

R_a 84
 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	0.0049	447	0.7122	514	0.5195	581	0.7979	648	0.4215	715	0.0568
381	0.0039	448	0.7903	515	0.5247	582	0.8006	649	0.4114	716	0.0549
382	0.0060	449	0.8616	516	0.5286	583	0.8050	650	0.4018	717	0.0537
383	0.0036	450	0.9265	517	0.5366	584	0.8077	651	0.3934	718	0.0518
384	0.0034	451	0.9673	518	0.5404	585	0.8109	652	0.3822	719	0.0501
385	0.0014	452	0.9936	519	0.5448	586	0.8130	653	0.3735	720	0.0486
386	0.0030	453	0.9971	520	0.5504	587	0.8154	654	0.3639	721	0.0467
387	0.0031	454	0.9798	521	0.5548	588	0.8152	655	0.3553	722	0.0455
388	0.0018	455	0.9417	522	0.5563	589	0.8135	656	0.3470	723	0.0441
389	0.0016	456	0.8925	523	0.5622	590	0.8170	657	0.3381	724	0.0427
390	0.0021	457	0.8400	524	0.5662	591	0.8226	658	0.3288	725	0.0414
391	0.0023	458	0.7781	525	0.5700	592	0.8214	659	0.3215	726	0.0403
392	0.0022	459	0.7224	526	0.5719	593	0.8226	660	0.3124	727	0.0390
393	0.0025	460	0.6734	527	0.5748	594	0.8241	661	0.3046	728	0.0373
394	0.0019	461	0.6280	528	0.5776	595	0.8226	662	0.2971	729	0.0365
395	0.0022	462	0.5940	529	0.5795	596	0.8234	663	0.2891	730	0.0352
396	0.0033	463	0.5662	530	0.5829	597	0.8228	664	0.2798	731	0.0343
397	0.0024	464	0.5455	531	0.5837	598	0.8242	665	0.2726	732	0.0330
398	0.0024	465	0.5235	532	0.5877	599	0.8214	666	0.2653	733	0.0320
399	0.0038	466	0.5049	533	0.5896	600	0.8196	667	0.2576	734	0.0310
400	0.0029	467	0.4844	534	0.5922	601	0.8191	668	0.2500	735	0.0300
401	0.0040	468	0.4686	535	0.5961	602	0.8147	669	0.2425	736	0.0286
402	0.0038	469	0.4456	536	0.5977	603	0.8127	670	0.2360	737	0.0280
403	0.0038	470	0.4231	537	0.6020	604	0.8073	671	0.2300	738	0.0273
404	0.0044	471	0.3938	538	0.6068	605	0.8032	672	0.2232	739	0.0258
405	0.0047	472	0.3728	539	0.6092	606	0.7999	673	0.2165	740	0.0253
406	0.0052	473	0.3509	540	0.6111	607	0.7934	674	0.2104	741	0.0244
407	0.0063	474	0.3344	541	0.6160	608	0.7903	675	0.2041	742	0.0235
408	0.0064	475	0.3180	542	0.6181	609	0.7852	676	0.1988	743	0.0229
409	0.0076	476	0.3042	543	0.6223	610	0.7808	677	0.1921	744	0.0223
410	0.0081	477	0.2947	544	0.6254	611	0.7761	678	0.1863	745	0.0215
411	0.0093	478	0.2876	545	0.6289	612	0.7705	679	0.1809	746	0.0210
412	0.0110	479	0.2810	546	0.6319	613	0.7650	680	0.1752	747	0.0201
413	0.0129	480	0.2811	547	0.6367	614	0.7571	681	0.1703	748	0.0199
414	0.0138	481	0.2783	548	0.6418	615	0.7469	682	0.1653	749	0.0190
415	0.0165	482	0.2785	549	0.6458	616	0.7388	683	0.1609	750	0.0184
416	0.0188	483	0.2809	550	0.6499	617	0.7303	684	0.1553	751	0.0180
417	0.0213	484	0.2834	551	0.6510	618	0.7233	685	0.1506	752	0.0172
418	0.0241	485	0.2878	552	0.6554	619	0.7135	686	0.1457	753	0.0167
419	0.0269	486	0.2919	553	0.6604	620	0.7062	687	0.1422	754	0.0162
420	0.0305	487	0.2977	554	0.6665	621	0.6977	688	0.1376	755	0.0157
421	0.0347	488	0.3050	555	0.6696	622	0.6885	689	0.1333	756	0.0152
422	0.0386	489	0.3086	556	0.6732	623	0.6797	690	0.1294	757	0.0144
423	0.0430	490	0.3161	557	0.6779	624	0.6684	691	0.1253	758	0.0141
424	0.0481	491	0.3237	558	0.6821	625	0.6603	692	0.1213	759	0.0138
425	0.0545	492	0.3301	559	0.6875	626	0.6512	693	0.1168	760	0.0134
426	0.0615	493	0.3393	560	0.6926	627	0.6423	694	0.1139	761	0.0130
427	0.0691	494	0.3482	561	0.6980	628	0.6308	695	0.1098	762	0.0126
428	0.0779	495	0.3579	562	0.7023	629	0.6202	696	0.1063	763	0.0123
429	0.0886	496	0.3665	563	0.7088	630	0.6117	697	0.1036	764	0.0117
430	0.0990	497	0.3790	564	0.7125	631	0.6015	698	0.0997	765	0.0114
431	0.1110	498	0.3896	565	0.7187	632	0.5917	699	0.0964	766	0.0109
432	0.1237	499	0.4001	566	0.7232	633	0.5791	700	0.0937	767	0.0107
433	0.1394	500	0.4104	567	0.7290	634	0.5703	701	0.0910	768	0.0104
434	0.1545	501	0.4189	568	0.7338	635	0.5607	702	0.0879	769	0.0099
435	0.1737	502	0.4306	569	0.7399	636	0.5488	703	0.0851	770	0.0097
436	0.1933	503	0.4395	570	0.7453	637	0.5392	704	0.0823	771	0.0094
437	0.2202	504	0.4504	571	0.7516	638	0.5268	705	0.0802	772	0.0092
438	0.2456	505	0.4581	572	0.7539	639	0.5169	706	0.0772	773	0.0089
439	0.2770	506	0.4646	573	0.7600	640	0.5069	707	0.0744	774	0.0084
440	0.3093	507	0.4752	574	0.7629	641	0.4961	708	0.0722	775	0.0083
441	0.3501	508	0.4834	575	0.7665	642	0.4849	709	0.0701	776	0.0080
442	0.3978	509	0.4911	576	0.7710	643	0.4738	710	0.0675	777	0.0078
443	0.4444	510	0.4992	577	0.7787	644	0.4626	711	0.0652	778	0.0077
444	0.5082	511	0.5025	578	0.7831	645	0.4512	712	0.0624	779	0.0075
445	0.5745	512	0.5093	579	0.7864	646	0.4414	713	0.0609	780	0.0075
446	0.6422	513	0.5160	580	0.7929	647	0.4319	714	0.0591	N/A	N/A

Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.1	44.9	Face Down	90	25

Electrical Data:

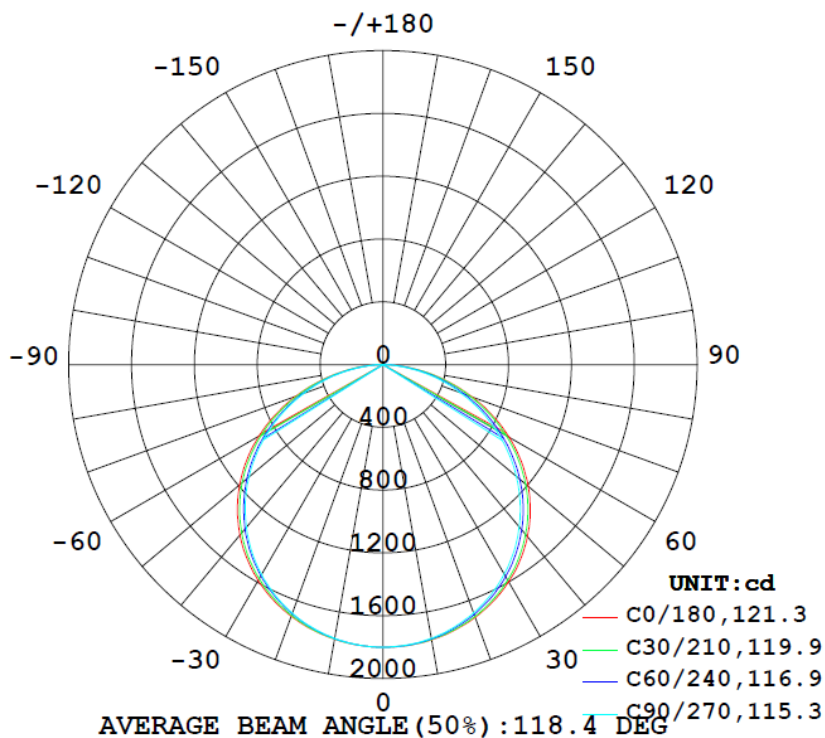
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.3795	44.57	0.9788

Goniophotometer Data:

Parameter	Results	
Total Luminous (lm)	5512.4	
Luminous Efficacy (lm/w)	123.68	
Zonal Lumens Distribution (0-60°)	77.0%	
Beam Angle (°)	118.4	
Spacing Criterion	0-180°	90-270°
	1.26	1.34
UGR	Viewed Crosswise	Viewed Endwise
	20.8	20.0

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

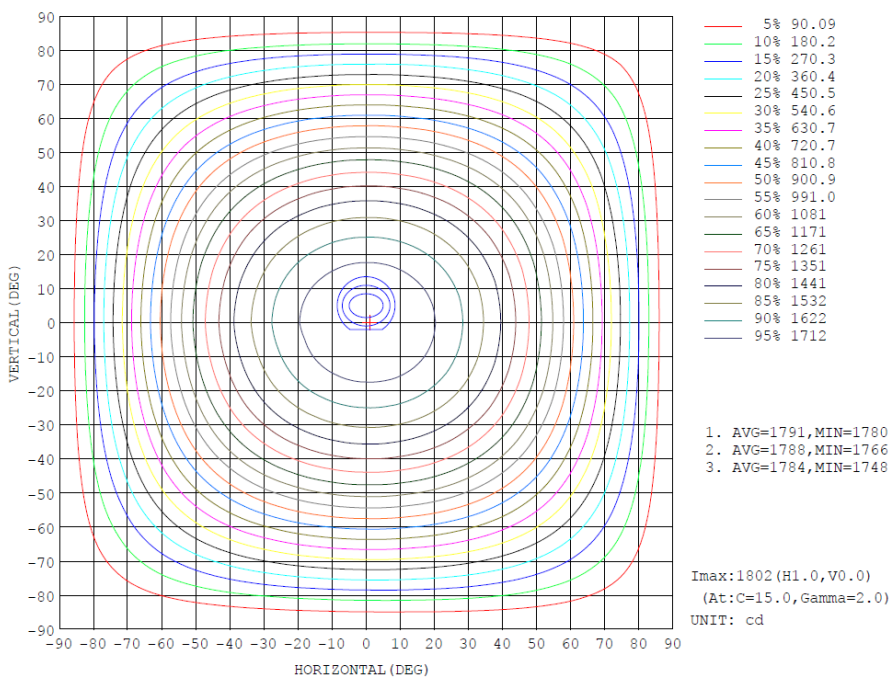


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	%lum, lamp
10	1780	1776	1771	1772	1777	1773	1771	1777	0- 10	170.6	170.6	3.1,3.1
20	1714	1701	1685	1692	1707	1695	1686	1701	10- 20	492.2	662.8	12,12
30	1598	1574	1543	1561	1589	1565	1546	1575	20- 30	756.2	1419	25.7,25.7
40	1431	1394	1349	1376	1417	1383	1354	1395	30- 40	929.0	2348	42.6,42.6
50	1208	1161	1108	1140	1192	1149	1114	1164	40- 50	985.0	3333	60.5,60.5
60	927.8	882.5	828.1	858.6	912.8	871.5	836.0	886.3	50- 60	911.2	4244	77,77
70	604.8	571.3	525.9	547.2	591.7	563.9	535.9	575.7	60- 70	714.2	4958	89.9,89.9
80	272.1	258.4	224.0	236.7	262.1	254.3	235.2	262.8	70- 80	428.8	5387	97.7,97.7
90	7.948	10.27	5.179	5.617	0.4030	3.763	5.725	3.729	80- 90	120.3	5507	99.9,99.9
100	0.3412	0.3067	0.3135	0.3398	0.6110	0.6463	0.6648	0.5926	90-100	0.9193	5508	99.9,99.9
110	0.4352	0.3520	0.3976	0.4522	0.6761	0.6911	0.7018	0.6732	100-110	0.5509	5509	99.9,99.9
120	0.5976	0.4480	0.5082	0.6105	0.7907	0.7461	0.8220	0.7353	110-120	0.5793	5509	99.9,99.9
130	0.7554	0.6144	0.6569	0.7755	0.9718	0.9972	1.055	0.9063	120-130	0.6594	5510	100,100
140	0.8597	0.7450	0.7974	0.8520	1.025	1.105	1.175	1.038	130-140	0.6965	5511	100,100
150	0.9101	0.8189	0.7674	0.8752	1.140	1.177	1.218	1.177	140-150	0.6114	5511	100,100
160	1.093	0.9389	0.7822	0.9859	1.306	1.244	1.168	1.204	150-160	0.4837	5512	100,100
170	1.277	1.189	1.014	1.201	1.371	1.430	1.301	1.226	160-170	0.3316	5512	100,100
180	1.352	1.331	1.270	1.250	1.356	1.363	1.287	1.235	170-180	0.1229	5512	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Isocandela Diagram:



Uncorrected UGR Table:

UGR Table - Uncorrected

Reflectances										
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20
Room Size										
X=2H Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
	10.2	11.9	10.6	12.2	12.5	9.6	11.2	9.9	11.6	11.9
3H	12.2	13.7	12.5	14.0	14.4	11.4	12.9	11.8	13.3	13.6
4H	12.9	14.4	13.3	14.7	15.1	12.1	13.6	12.5	13.9	14.3
6H	13.5	14.9	13.9	15.2	15.6	12.7	14.0	13.1	14.3	14.7
8H	13.7	15.0	14.2	15.4	15.8	12.8	14.1	13.2	14.5	14.9
12H	13.9	15.1	14.3	15.5	15.9	12.9	14.1	13.3	14.5	14.9
4H	2H	10.8	12.2	11.2	12.6	13.0	10.3	11.7	10.7	12.1
	3H	13.0	14.2	13.4	14.6	15.0	12.4	13.6	12.8	14.0
	4H	13.9	15.0	14.4	15.4	15.9	13.2	14.3	13.6	14.7
	6H	14.7	15.6	15.1	16.1	16.5	13.9	14.8	14.3	15.3
	8H	14.9	15.8	15.4	16.3	16.7	14.1	15.0	14.5	15.4
	12H	15.1	15.9	15.6	16.4	16.9	14.2	15.0	14.7	15.5
8H	4H	14.3	15.2	14.7	15.6	16.1	13.6	14.5	14.1	14.9
	6H	15.1	15.9	15.6	16.4	16.8	14.4	15.1	14.9	15.6
	8H	15.5	16.2	16.0	16.7	17.1	14.6	15.3	15.2	15.8
	12H	15.7	16.3	16.2	16.8	17.4	14.8	15.4	15.3	15.9
12H	4H	14.3	15.1	14.8	15.6	16.0	13.6	14.5	14.1	14.9
	6H	15.2	15.9	15.7	16.3	16.9	14.5	15.1	15.0	15.6
	8H	15.6	16.2	16.1	16.7	17.2	14.8	15.4	15.3	15.9

Maximum UGR = 17.4

Corrected UGR Table:

UGR Table - Corrected

Reflectances										
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20
Room Size										
X=2H Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
	16.1	17.8	16.5	18.1	18.4	15.5	17.1	15.8	17.5	17.8
3H	18.1	19.6	18.4	19.9	20.3	17.3	18.8	17.7	19.2	19.5
4H	18.8	20.3	19.2	20.6	21.0	18.0	19.5	18.4	19.8	20.2
6H	19.4	20.8	19.8	21.1	21.5	18.6	19.9	19.0	20.2	20.6
8H	19.6	20.9	20.1	21.3	21.7	18.7	20.0	19.1	20.4	20.8
12H	19.8	21.0	20.2	21.4	21.8	18.8	20.0	19.2	20.4	20.8
4H	2H	16.7	18.1	17.1	18.5	18.9	16.2	17.6	16.6	18.0
	3H	18.9	20.1	19.3	20.5	20.9	18.3	19.5	18.7	19.9
	4H	19.8	20.9	20.3	21.3	21.8	19.1	20.2	19.5	20.6
	6H	20.6	21.5	21.0	22.0	22.4	19.8	20.7	20.2	21.2
	8H	20.8	21.7	21.3	22.2	22.6	20.0	20.9	20.4	21.3
	12H	21.0	21.8	21.5	22.3	22.8	20.1	20.9	20.6	21.4
8H	4H	20.2	21.1	20.6	21.5	22.0	19.5	20.4	20.0	20.8
	6H	21.0	21.8	21.5	22.3	22.7	20.3	21.0	20.8	21.5
	8H	21.4	22.1	21.9	22.6	23.0	20.5	21.2	21.1	21.7
	12H	21.6	22.2	22.1	22.7	23.3	20.7	21.3	21.2	21.8
12H	4H	20.2	21.0	20.7	21.5	21.9	19.5	20.4	20.0	20.8
	6H	21.1	21.8	21.6	22.2	22.8	20.4	21.0	20.9	21.5
	8H	21.5	22.1	22.0	22.6	23.1	20.7	21.3	21.2	21.8

Maximum UGR = 23.3

Luminous Distribution Intensity Data:

Table--1

UNIT: cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
γ (DEG)	0	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
5	1796	1796	1796	1795	1795	1794	1792	1792	1792	1792	1793	1793	1793	1793	1794	1793	1793	1794	1793
10	1780	1780	1778	1776	1774	1773	1771	1770	1770	1772	1774	1774	1777	1776	1774	1773	1772	1772	1771
15	1753	1752	1749	1746	1742	1737	1734	1735	1736	1739	1742	1744	1747	1747	1744	1741	1738	1736	1735
20	1714	1712	1708	1701	1695	1689	1685	1685	1687	1692	1698	1701	1707	1706	1701	1695	1691	1688	1686
25	1662	1660	1654	1644	1634	1626	1620	1621	1625	1634	1641	1647	1654	1651	1645	1636	1629	1625	1622
30	1598	1596	1586	1574	1560	1550	1543	1544	1550	1561	1571	1579	1589	1585	1576	1565	1555	1549	1546
35	1521	1518	1506	1490	1473	1461	1453	1453	1462	1475	1489	1499	1510	1506	1495	1480	1467	1459	1456
40	1431	1426	1412	1394	1374	1359	1349	1351	1361	1376	1393	1404	1417	1413	1400	1383	1367	1357	1354
45	1326	1321	1305	1284	1261	1244	1234	1236	1248	1265	1283	1297	1311	1307	1291	1272	1254	1243	1240
50	1208	1202	1185	1161	1138	1118	1108	1111	1122	1140	1161	1176	1192	1187	1170	1149	1131	1119	1114
55	1074	1069	1051	1026	1002	982	973	974	986	1004	1025	1041	1058	1053	1037	1016	997	984	979
60	928	922	906	882	858	838	828	830	840	859	879	895	913	908	892	872	852	840	836
65	770	765	751	730	706	688	678	679	688	705	723	738	756	752	738	720	702	691	687
70	605	602	589	571	551	534	526	525	533	547	561	574	592	589	578	564	549	539	536
75	437	435	426	412	397	383	376	374	379	388	399	408	425	424	417	407	396	392	386
80	272	272	267	258	246	232	224	223	228	237	242	246	262	263	260	254	245	238	235
85	118	119	116	107	99.1	91.0	87.6	85.3	85.1	87.6	92.4	96.9	109	111	110	104	99.7	97.0	95.7
90	7.95	9.26	9.95	10.3	9.38	8.24	5.18	4.16	6.35	5.62	5.30	5.66	0.40	0.81	2.11	3.76	4.81	5.70	5.73
95	0.27	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.27	0.28	0.28	0.27	0.51	0.52	0.57	0.69	1.10	1.27	1.10
100	0.34	0.32	0.31	0.31	0.31	0.31	0.31	0.32	0.33	0.34	0.34	0.34	0.61	0.60	0.62	0.65	0.69	0.76	0.66
105	0.39	0.36	0.34	0.34	0.35	0.35	0.36	0.37	0.39	0.39	0.39	0.39	0.68	0.67	0.67	0.70	0.72	0.75	0.69
110	0.44	0.40	0.36	0.35	0.37	0.38	0.40	0.42	0.44	0.45	0.46	0.45	0.68	0.67	0.68	0.69	0.71	0.73	0.70
115	0.51	0.44	0.41	0.38	0.39	0.42	0.45	0.48	0.50	0.52	0.52	0.52	0.68	0.67	0.68	0.69	0.70	0.72	0.78
120	0.60	0.52	0.48	0.45	0.46	0.48	0.51	0.55	0.58	0.61	0.62	0.60	0.79	0.76	0.76	0.75	0.74	0.75	0.82
125	0.68	0.60	0.54	0.53	0.53	0.54	0.58	0.61	0.66	0.71	0.69	0.68	0.90	0.89	0.86	0.88	0.86	0.86	0.91
130	0.76	0.69	0.63	0.61	0.62	0.63	0.66	0.69	0.75	0.78	0.76	0.75	0.97	0.97	0.98	1.00	1.01	1.02	1.05
135	0.82	0.76	0.71	0.68	0.70	0.72	0.74	0.77	0.82	0.82	0.82	0.81	1.01	1.01	1.04	1.05	1.12	1.15	1.16
140	0.86	0.82	0.79	0.75	0.74	0.78	0.80	0.81	0.85	0.85	0.85	0.84	1.02	1.02	1.04	1.11	1.10	1.15	1.18
145	0.87	0.87	0.82	0.78	0.76	0.80	0.80	0.81	0.86	0.86	0.85	0.86	1.09	1.05	1.05	1.15	1.15	1.20	1.22
150	0.91	0.92	0.86	0.82	0.77	0.79	0.77	0.79	0.86	0.88	0.86	0.89	1.14	1.13	1.10	1.18	1.18	1.20	1.22
155	0.98	0.99	0.97	0.87	0.83	0.86	0.80	0.84	0.91	0.91	0.94	0.93	1.20	1.19	1.18	1.17	1.18	1.22	1.18
160	1.09	1.09	1.03	0.94	0.84	0.86	0.78	0.86	0.95	0.99	1.01	1.05	1.31	1.29	1.26	1.24	1.23	1.19	1.17
165	1.20	1.21	1.15	1.10	0.96	0.95	0.89	0.96	1.08	1.12	1.17	1.17	1.33	1.34	1.35	1.35	1.34	1.28	1.22
170	1.28	1.30	1.25	1.19	1.05	1.05	1.01	1.04	1.17	1.20	1.22	1.26	1.37	1.37	1.41	1.43	1.45	1.38	1.30
175	1.34	1.38	1.37	1.33	1.19	1.20	1.14	1.13	1.24	1.24	1.27	1.32	1.40	1.40	1.43	1.42	1.42	1.42	1.35
180	1.35	1.38	1.36	1.33	1.30	1.29	1.27	1.23	1.24	1.25	1.26	1.30	1.36	1.36	1.38	1.36	1.34	1.32	1.29

Table--2

UNIT: cd

C (DEG)	285	300	315	330	345														
γ (DEG)	0	1800	1800	1800	1800														
5	1793	1794	1794	1794	1796														
10	1772	1774	1777	1779	1781														
15	1739	1741	1745	1751	1754														
20	1689	1695	1701	1710	1714														
25	1627	1635	1645	1656	1663														
30	1551	1562	1575	1589	1599														
35	1462	1475	1492	1509	1522														
40	1360	1376	1395	1416	1431														
45	1247	1264	1286	1310	1326														
50	1122	1140	1164	1189	1208														
55	988	1006	1030	1056	1075														
60	844	863	886	911	930														
65	695	711	733	757	774														
70	542	557	576	595	610														
75	391	403	417	432	444														
80	240	251	263	273	280														
85	98.5	104	111	121	126														
90	5.42	4.97	3.73	2.45	2.74														
95	1.14	0.81	0.56	0.50	0.49														
100	0.68	0.64	0.59	0.58	0.58														
105	0.69	0.68	0.66	0.65	0.65														
110	0.69	0.68	0.67	0.67	0.66														
115	0.69	0.68	0.69	0.67	0.66														
120	0.73	0.73	0.74	0.74	0.74														
125	0.83	0.81	0.82	0.80	0.84														
130	0.99	0.94	0.91	0.91	0.91														
135	1.12	1.04	0.99	0.98	0.97														
140	1.09	1.08	1.04	1.03	1.00														
145	1.19	1.16	1.12	1.08	1.06														
150	1.20	1.20	1.18	1.15	1.14														
155	1.18	1.21	1.17	1.22	1.20														
160	1.18	1.17	1.20	1.27	1.29														
165	1.19	1.20	1.23	1.29	1.31														
170	1.29	1.23	1.23	1.31	1.33														
175	1.35	1.33	1.23	1.33	1.33														
180	1.28	1.23	1.23	1.26	1.27														

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD (%)
120.0	60	0.3795	44.57	0.9788	5.37
277.0	60	0.1761	44.03	0.9026	9.67

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*******