

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 Flushmount

Model Name(s):

558061###

Representative (Tested) Model:

558061420

Model Difference:

1. The first and second # represents Color tunable from 3000K, 4000K and 5000K, 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: 2021-07-30

Review by:



Technical Lead: Vincent Yuan

Issue Date: 2021-08-02

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:

Applicant Name:	ETI Solid State Lighting (Zhuhai) Ltd
Brand Name:	ETI, NVC, Cleanaire, 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:	558061### (###=410-509)
Product Type:	UVC Disinfection Flushmount
Rating Input:	120-277Vac, 50/60Hz, 20W
Declared CCT:	3000K/4000K/5000K
Declared Light Output:	1600 lm
LED Manufacturer:	Main Light: Samsung Electronics Co., Ltd.
LED Model:	Main Light: SPMWH1228FD5XXVXXX and SPMWH1228FD5XXRXXX
LED Quantity:	Main Light: SPMWH1228FD5XXVXXX: 110 pcs SPMWH1228FD5XXRXXX: 110 pcs Blue Light: 5 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:	2021-07-26
Quantity of Receipt Samples:	1 pc
Sample Number:	210726001-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:	2021-08-02
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR21070028
Remark (If applicable):	1. The product contains with UVC Light, only Main Light was tested in this report.

Test Specification:	
Date of Test	2021-07-26
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
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 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.

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:

CCT	Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
3000K	120.0	60	0.1718	20.11	0.9754
4000K	120.0	60	0.1685	19.72	0.9757
5000K	120.0	60	0.1707	19.99	0.9763

Color Data:

CCT	Test CCT (K)	R _a	R ₉	R _f	R _g	R _{cs, h1}	Chromaticity		
							(x, y)	(u', v')	Duv
3000K	3022	85.2	17	86	98	-10%	(0.4328, 0.3981)	(0.2505, 0.5184)	-0.0018
4000K	4062	87.8	30	86	96	-10%	(0.3753, 0.3648)	(0.2265, 0.4954)	-0.0042
5000K	5171	86.9	23	85	96	-11%	(0.3404, 0.3458)	(0.2104, 0.4811)	-0.0010

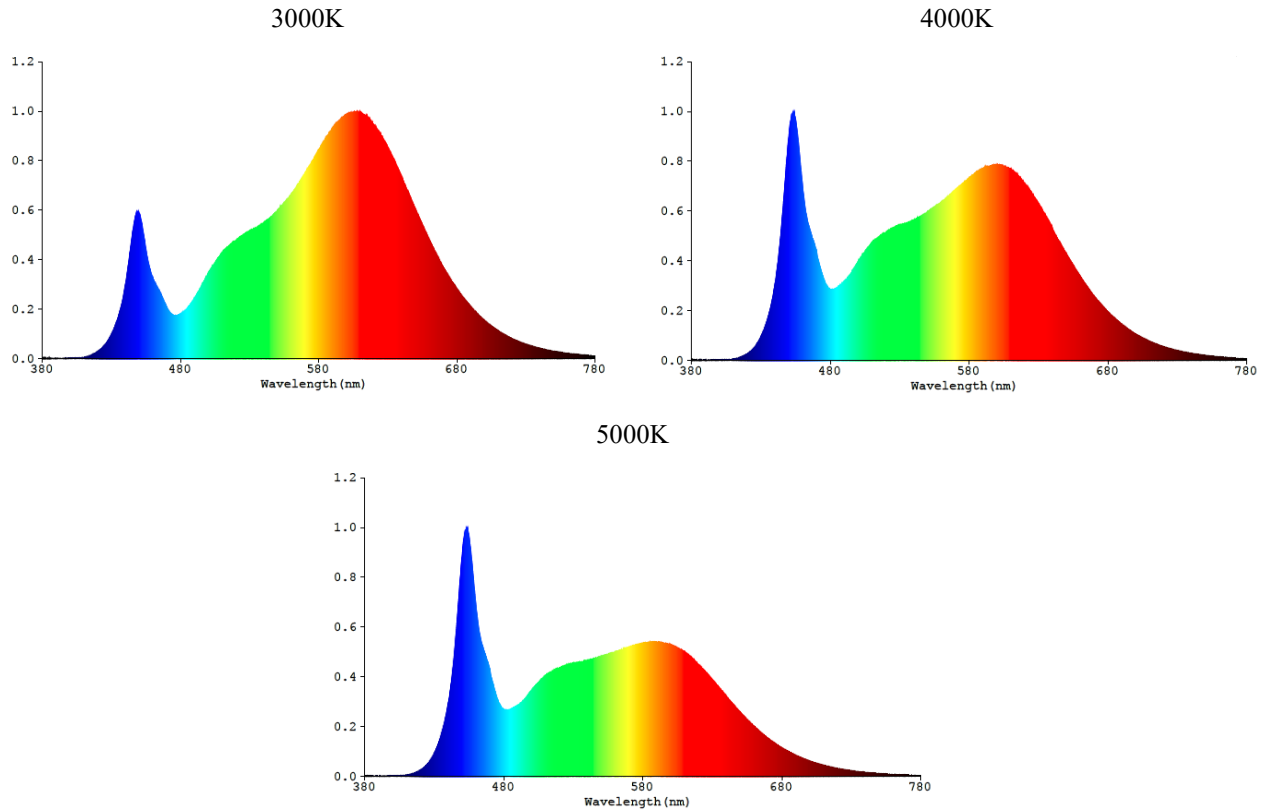
Specify Color Rendering:

CCT	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
3000K	84	93	97	85	85	91	84	63	17	83	85	78	86	99	77
4000K	88	95	96	86	88	91	87	71	30	87	87	69	91	99	83
5000K	86	93	95	86	87	89	87	71	23	83	86	67	89	98	82

Light Output:

CCT	Luminous (lm)	Efficacy (lm/W)
3000K	1850.4	92.01
4000K	1995.9	101.21
5000K	1994.3	99.76

Spectrum Diagram:



IES TM-30-18 Color Rendition Result (3000K):

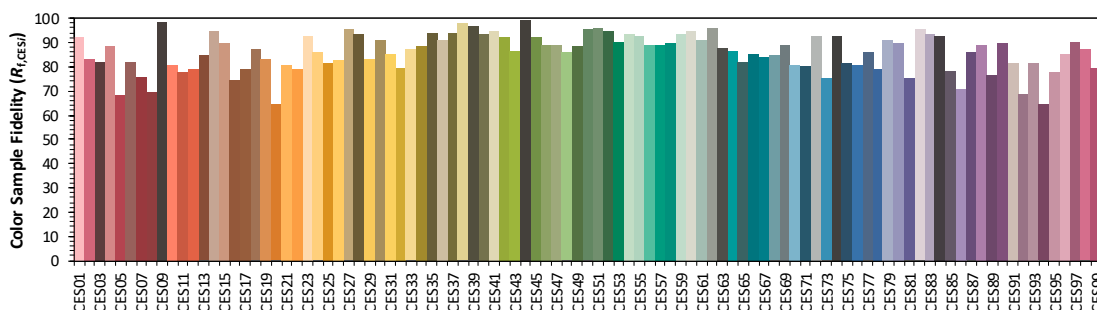
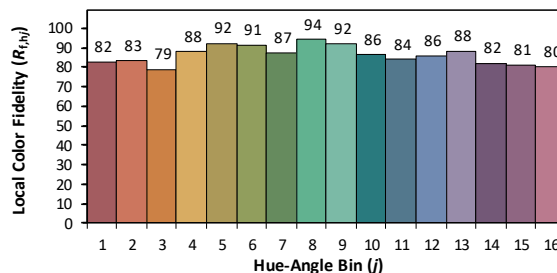
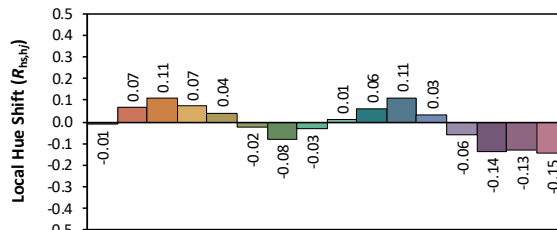
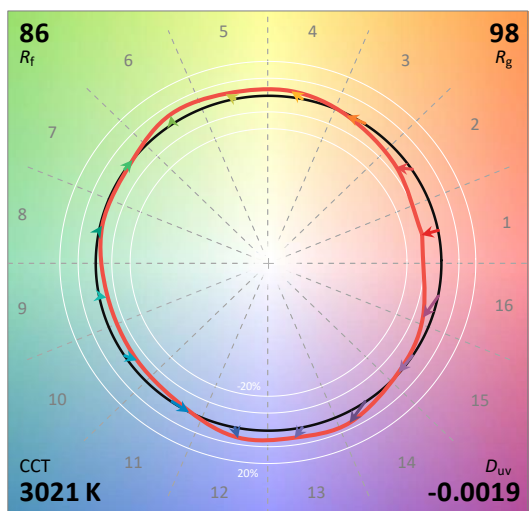
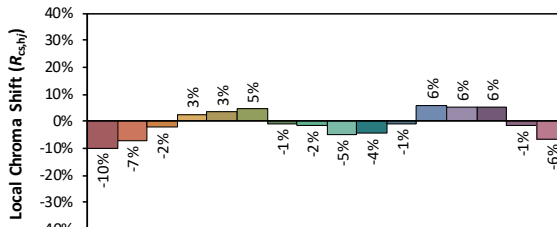
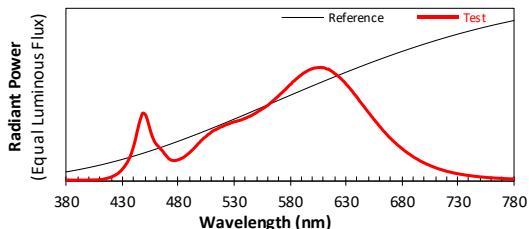
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Date: 2021/7/30

Manufacturer: ETI Solid State Lighting (Z

Model: 558061420



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

x 0.4328
 y 0.3980
 u' 0.2505
 v' 0.5183

CIE 13.3-1995
(CRI)
 R_a 85
 R_9 17

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Spectrum Data (3000K):

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0018	447	0.5697	514	0.4505	581	0.8518	648	0.6301	715	0.0963
381	0.0032	448	0.5922	515	0.4558	582	0.8642	649	0.6170	716	0.0931
382	0.0036	449	0.5930	516	0.4619	583	0.8742	650	0.6042	717	0.0895
383	0.0006	450	0.5855	517	0.4658	584	0.8801	651	0.5922	718	0.0869
384	0.0008	451	0.5702	518	0.4723	585	0.8914	652	0.5796	719	0.0838
385	0.0023	452	0.5441	519	0.4749	586	0.8988	653	0.5658	720	0.0809
386	0.0005	453	0.5095	520	0.4779	587	0.9071	654	0.5542	721	0.0784
387	0.0026	454	0.4756	521	0.4839	588	0.9164	655	0.5415	722	0.0762
388	0.0009	455	0.4396	522	0.4878	589	0.9226	656	0.5303	723	0.0739
389	0.0026	456	0.4069	523	0.4925	590	0.9310	657	0.5165	724	0.0717
390	0.0024	457	0.3801	524	0.4951	591	0.9390	658	0.5064	725	0.0691
391	0.0022	458	0.3573	525	0.4993	592	0.9466	659	0.4929	726	0.0669
392	0.0021	459	0.3367	526	0.5020	593	0.9527	660	0.4811	727	0.0649
393	0.0022	460	0.3241	527	0.5077	594	0.9577	661	0.4697	728	0.0629
394	0.0016	461	0.3101	528	0.5109	595	0.9637	662	0.4583	729	0.0606
395	0.0016	462	0.3012	529	0.5134	596	0.9691	663	0.4454	730	0.0588
396	0.0013	463	0.2904	530	0.5182	597	0.9750	664	0.4346	731	0.0573
397	0.0026	464	0.2780	531	0.5195	598	0.9792	665	0.4252	732	0.0549
398	0.0018	465	0.2694	532	0.5210	599	0.9837	666	0.4135	733	0.0533
399	0.0026	466	0.2580	533	0.5258	600	0.9867	667	0.4024	734	0.0517
400	0.0027	467	0.2436	534	0.5279	601	0.9897	668	0.3913	735	0.0502
401	0.0030	468	0.2307	535	0.5297	602	0.9933	669	0.3805	736	0.0484
402	0.0034	469	0.2199	536	0.5337	603	0.9930	670	0.3712	737	0.0467
403	0.0033	470	0.2076	537	0.5360	604	0.9954	671	0.3622	738	0.0454
404	0.0038	471	0.1966	538	0.5408	605	0.9959	672	0.3518	739	0.0438
405	0.0037	472	0.1880	539	0.5456	606	0.9976	673	0.3440	740	0.0428
406	0.0038	473	0.1814	540	0.5478	607	0.9964	674	0.3339	741	0.0415
407	0.0045	474	0.1783	541	0.5529	608	0.9999	675	0.3253	742	0.0406
408	0.0048	475	0.1752	542	0.5584	609	0.9942	676	0.3157	743	0.0391
409	0.0058	476	0.1750	543	0.5624	610	0.9961	677	0.3070	744	0.0376
410	0.0063	477	0.1750	544	0.5653	611	0.9932	678	0.2994	745	0.0360
411	0.0074	478	0.1771	545	0.5713	612	0.9880	679	0.2914	746	0.0351
412	0.0081	479	0.1789	546	0.5752	613	0.9850	680	0.2831	747	0.0343
413	0.0098	480	0.1824	547	0.5818	614	0.9824	681	0.2758	748	0.0329
414	0.0130	481	0.1849	548	0.5872	615	0.9822	682	0.2668	749	0.0318
415	0.0146	482	0.1902	549	0.5922	616	0.9713	683	0.2591	750	0.0311
416	0.0169	483	0.1945	550	0.5991	617	0.9682	684	0.2515	751	0.0297
417	0.0203	484	0.1989	551	0.6056	618	0.9591	685	0.2452	752	0.0291
418	0.0228	485	0.2052	552	0.6127	619	0.9531	686	0.2376	753	0.0286
419	0.0262	486	0.2127	553	0.6182	620	0.9437	687	0.2318	754	0.0270
420	0.0302	487	0.2200	554	0.6237	621	0.9385	688	0.2244	755	0.0264
421	0.0340	488	0.2278	555	0.6306	622	0.9289	689	0.2181	756	0.0259
422	0.0384	489	0.2355	556	0.6360	623	0.9222	690	0.2106	757	0.0245
423	0.0430	490	0.2452	557	0.6423	624	0.9144	691	0.2044	758	0.0237
424	0.0497	491	0.2535	558	0.6488	625	0.9048	692	0.1986	759	0.0231
425	0.0552	492	0.2637	559	0.6552	626	0.8956	693	0.1927	760	0.0228
426	0.0616	493	0.2725	560	0.6626	627	0.8850	694	0.1877	761	0.0216
427	0.0705	494	0.2829	561	0.6708	628	0.8759	695	0.1813	762	0.0215
428	0.0791	495	0.2925	562	0.6792	629	0.8661	696	0.1751	763	0.0204
429	0.0886	496	0.3042	563	0.6878	630	0.8533	697	0.1698	764	0.0198
430	0.0999	497	0.3140	564	0.6962	631	0.8417	698	0.1643	765	0.0194
431	0.1124	498	0.3265	565	0.7042	632	0.8321	699	0.1598	766	0.0189
432	0.1237	499	0.3342	566	0.7127	633	0.8209	700	0.1549	767	0.0181
433	0.1405	500	0.3464	567	0.7222	634	0.8088	701	0.1500	768	0.0177
434	0.1535	501	0.3555	568	0.7305	635	0.7964	702	0.1453	769	0.0171
435	0.1727	502	0.3643	569	0.7389	636	0.7848	703	0.1405	770	0.0162
436	0.1917	503	0.3754	570	0.7494	637	0.7710	704	0.1374	771	0.0158
437	0.2140	504	0.3805	571	0.7595	638	0.7590	705	0.1330	772	0.0153
438	0.2391	505	0.3892	572	0.7674	639	0.7469	706	0.1285	773	0.0150
439	0.2705	506	0.3981	573	0.7764	640	0.7352	707	0.1243	774	0.0143
440	0.3021	507	0.4069	574	0.7853	641	0.7211	708	0.1205	775	0.0140
441	0.3384	508	0.4127	575	0.7954	642	0.7059	709	0.1165	776	0.0137
442	0.3786	509	0.4222	576	0.8038	643	0.6934	710	0.1135	777	0.0133
443	0.4244	510	0.4293	577	0.8146	644	0.6805	711	0.1089	778	0.0127
444	0.4635	511	0.4367	578	0.8251	645	0.6689	712	0.1057	779	0.0128
445	0.5064	512	0.4421	579	0.8348	646	0.6561	713	0.1022	780	0.0128
446	0.5391	513	0.4466	580	0.8449	647	0.6425	714	0.0992	N/A	N/A

IES TM-30-18 Color Rendition Result (4000K):

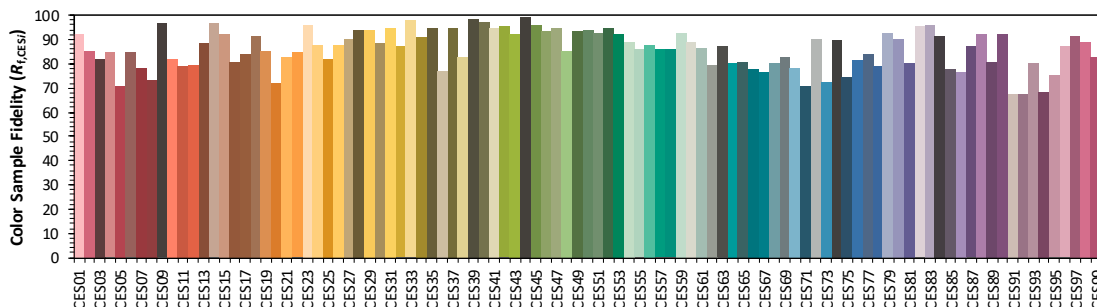
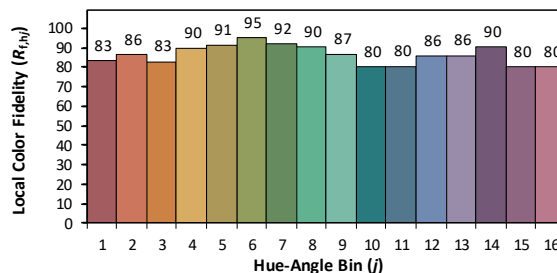
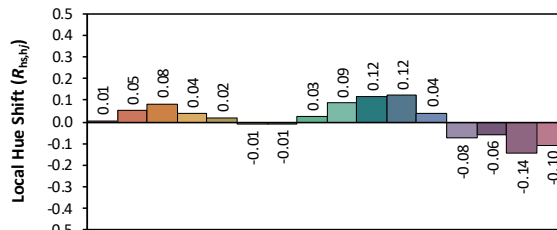
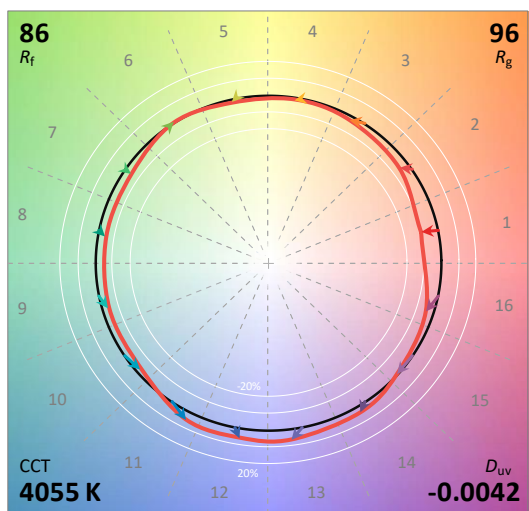
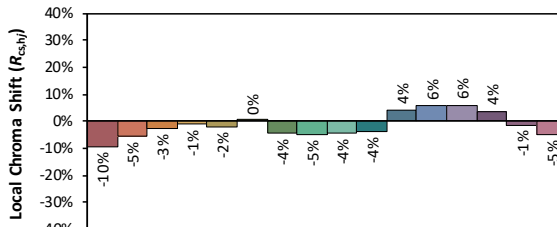
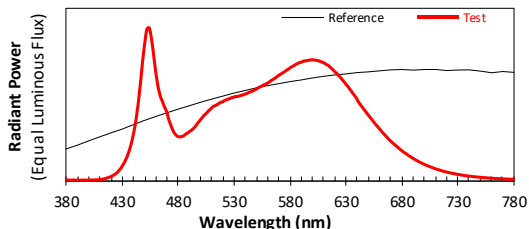
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Date: 2021/7/30

Manufacturer: ETI Solid State Lighting (2

Model: 558061420



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

x 0.3753
 y 0.3647
 u' 0.2266
 v' 0.4954

CIE 13.3-1995
(CRI)
 R_a 88
 R_9 29

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Spectrum Data (4000K):

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0047	447	0.7022	514	0.4925	581	0.7382	648	0.4476	715	0.0664
381	0.0038	448	0.7783	515	0.4958	582	0.7436	649	0.4380	716	0.0636
382	0.0016	449	0.8427	516	0.5015	583	0.7464	650	0.4289	717	0.0611
383	0.0033	450	0.9002	517	0.5055	584	0.7513	651	0.4191	718	0.0596
384	0.0024	451	0.9536	518	0.5103	585	0.7563	652	0.4098	719	0.0577
385	0.0028	452	0.9892	519	0.5121	586	0.7597	653	0.3999	720	0.0559
386	0.0043	453	0.9955	520	0.5147	587	0.7629	654	0.3919	721	0.0541
387	0.0028	454	0.9948	521	0.5201	588	0.7680	655	0.3823	722	0.0525
388	0.0025	455	0.9653	522	0.5244	589	0.7694	656	0.3726	723	0.0505
389	0.0025	456	0.9214	523	0.5256	590	0.7714	657	0.3638	724	0.0493
390	0.0034	457	0.8701	524	0.5290	591	0.7750	658	0.3556	725	0.0475
391	0.0016	458	0.8105	525	0.5330	592	0.7778	659	0.3468	726	0.0465
392	0.0026	459	0.7515	526	0.5329	593	0.7796	660	0.3390	727	0.0446
393	0.0021	460	0.6958	527	0.5389	594	0.7800	661	0.3296	728	0.0432
394	0.0031	461	0.6478	528	0.5406	595	0.7812	662	0.3209	729	0.0417
395	0.0029	462	0.6054	529	0.5418	596	0.7826	663	0.3121	730	0.0402
396	0.0030	463	0.5749	530	0.5460	597	0.7846	664	0.3050	731	0.0394
397	0.0029	464	0.5465	531	0.5462	598	0.7859	665	0.2974	732	0.0381
398	0.0028	465	0.5282	532	0.5488	599	0.7868	666	0.2887	733	0.0369
399	0.0022	466	0.5112	533	0.5472	600	0.7879	667	0.2816	734	0.0356
400	0.0029	467	0.4906	534	0.5504	601	0.7856	668	0.2732	735	0.0345
401	0.0030	468	0.4747	535	0.5519	602	0.7860	669	0.2647	736	0.0333
402	0.0033	469	0.4579	536	0.5551	603	0.7838	670	0.2591	737	0.0318
403	0.0035	470	0.4399	537	0.5567	604	0.7838	671	0.2518	738	0.0315
404	0.0041	471	0.4086	538	0.5586	605	0.7813	672	0.2453	739	0.0302
405	0.0042	472	0.3862	539	0.5622	606	0.7807	673	0.2392	740	0.0293
406	0.0043	473	0.3661	540	0.5636	607	0.7755	674	0.2327	741	0.0284
407	0.0051	474	0.3470	541	0.5670	608	0.7749	675	0.2261	742	0.0276
408	0.0055	475	0.3298	542	0.5699	609	0.7707	676	0.2198	743	0.0267
409	0.0057	476	0.3148	543	0.5742	610	0.7691	677	0.2136	744	0.0256
410	0.0069	477	0.3043	544	0.5764	611	0.7639	678	0.2075	745	0.0250
411	0.0074	478	0.2960	545	0.5794	612	0.7601	679	0.2011	746	0.0245
412	0.0085	479	0.2893	546	0.5820	613	0.7546	680	0.1957	747	0.0236
413	0.0100	480	0.2858	547	0.5852	614	0.7514	681	0.1902	748	0.0227
414	0.0117	481	0.2851	548	0.5898	615	0.7466	682	0.1837	749	0.0223
415	0.0138	482	0.2850	549	0.5924	616	0.7382	683	0.1799	750	0.0214
416	0.0162	483	0.2876	550	0.5979	617	0.7333	684	0.1749	751	0.0208
417	0.0186	484	0.2885	551	0.6020	618	0.7246	685	0.1700	752	0.0199
418	0.0210	485	0.2933	552	0.6063	619	0.7189	686	0.1641	753	0.0193
419	0.0243	486	0.2993	553	0.6097	620	0.7100	687	0.1598	754	0.0189
420	0.0267	487	0.3050	554	0.6140	621	0.7032	688	0.1553	755	0.0182
421	0.0311	488	0.3080	555	0.6170	622	0.6988	689	0.1498	756	0.0178
422	0.0354	489	0.3132	556	0.6217	623	0.6894	690	0.1461	757	0.0170
423	0.0400	490	0.3195	557	0.6240	624	0.6810	691	0.1411	758	0.0166
424	0.0454	491	0.3241	558	0.6283	625	0.6737	692	0.1372	759	0.0159
425	0.0510	492	0.3295	559	0.6315	626	0.6652	693	0.1330	760	0.0156
426	0.0579	493	0.3363	560	0.6352	627	0.6554	694	0.1287	761	0.0151
427	0.0673	494	0.3429	561	0.6416	628	0.6471	695	0.1242	762	0.0145
428	0.0755	495	0.3510	562	0.6450	629	0.6393	696	0.1208	763	0.0140
429	0.0853	496	0.3609	563	0.6515	630	0.6294	697	0.1167	764	0.0134
430	0.0973	497	0.3702	564	0.6550	631	0.6198	698	0.1133	765	0.0135
431	0.1093	498	0.3798	565	0.6604	632	0.6122	699	0.1094	766	0.0129
432	0.1221	499	0.3885	566	0.6647	633	0.6020	700	0.1064	767	0.0125
433	0.1380	500	0.3983	567	0.6694	634	0.5917	701	0.1033	768	0.0122
434	0.1538	501	0.4069	568	0.6754	635	0.5823	702	0.1004	769	0.0117
435	0.1735	502	0.4152	569	0.6809	636	0.5718	703	0.0966	770	0.0113
436	0.1949	503	0.4252	570	0.6858	637	0.5623	704	0.0942	771	0.0110
437	0.2190	504	0.4303	571	0.6903	638	0.5527	705	0.0910	772	0.0106
438	0.2446	505	0.4386	572	0.6948	639	0.5426	706	0.0889	773	0.0104
439	0.2770	506	0.4458	573	0.7003	640	0.5317	707	0.0857	774	0.0099
440	0.3103	507	0.4540	574	0.7038	641	0.5169	708	0.0829	775	0.0097
441	0.3501	508	0.4603	575	0.7092	642	0.5053	709	0.0799	776	0.0093
442	0.3920	509	0.4677	576	0.7138	643	0.4959	710	0.0773	777	0.0091
443	0.4451	510	0.4751	577	0.7198	644	0.4852	711	0.0749	778	0.0088
444	0.4995	511	0.4814	578	0.7236	645	0.4768	712	0.0729	779	0.0089
445	0.5648	512	0.4858	579	0.7289	646	0.4667	713	0.0709	780	0.0089
446	0.6295	513	0.4880	580	0.7347	647	0.4567	714	0.0679	N/A	N/A

IES TM-30-18 Color Rendition Result (5000K):

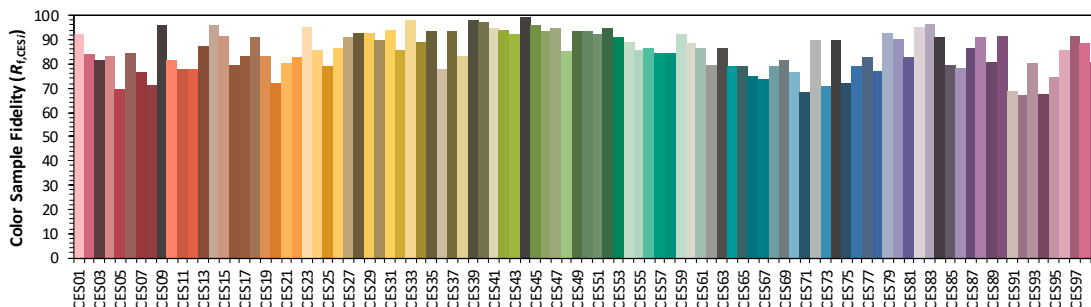
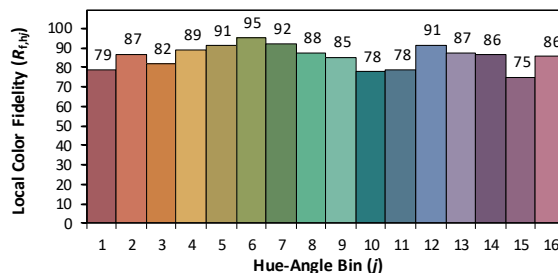
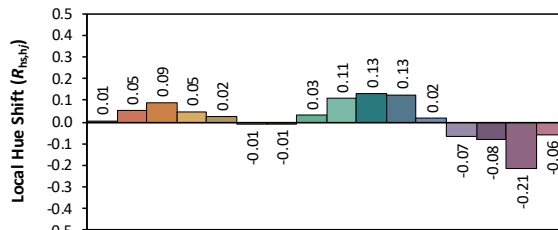
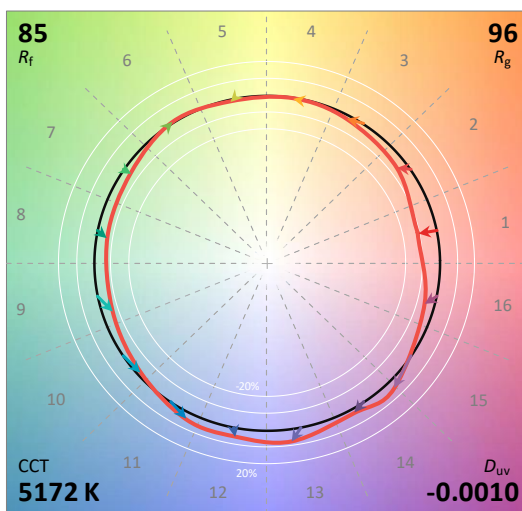
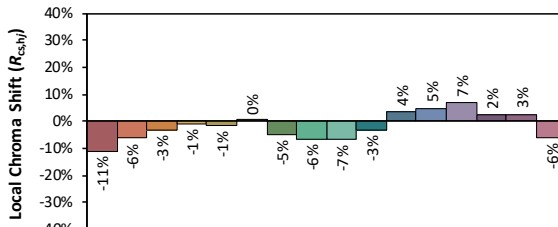
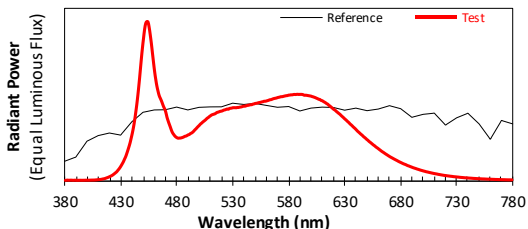
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Date: 2021/7/30

Manufacturer: ETI Solid State Lighting (2

Model: 558061420



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

x 0.3403
 y 0.3457
 u' 0.2105
 v' 0.4810

CIE 13.3-1995
(CRI)
 R_a 87
 R_9 23

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Spectrum Data (5000K):

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0019	447	0.6814	514	0.4192	581	0.5366	648	0.2711	715	0.0387
381	0.0027	448	0.7582	515	0.4238	582	0.5381	649	0.2653	716	0.0374
382	0.0037	449	0.8292	516	0.4282	583	0.5379	650	0.2585	717	0.0360
383	0.0025	450	0.8917	517	0.4298	584	0.5394	651	0.2532	718	0.0349
384	0.0031	451	0.9490	518	0.4328	585	0.5406	652	0.2462	719	0.0336
385	0.0033	452	0.9863	519	0.4350	586	0.5400	653	0.2410	720	0.0326
386	0.0030	453	0.9970	520	0.4362	587	0.5408	654	0.2352	721	0.0319
387	0.0023	454	0.9953	521	0.4390	588	0.5414	655	0.2293	722	0.0307
388	0.0029	455	0.9638	522	0.4425	589	0.5405	656	0.2235	723	0.0298
389	0.0030	456	0.9161	523	0.4440	590	0.5409	657	0.2187	724	0.0289
390	0.0022	457	0.8621	524	0.4468	591	0.5409	658	0.2124	725	0.0278
391	0.0023	458	0.8009	525	0.4492	592	0.5406	659	0.2072	726	0.0272
392	0.0024	459	0.7393	526	0.4476	593	0.5388	660	0.2025	727	0.0262
393	0.0026	460	0.6816	527	0.4525	594	0.5357	661	0.1968	728	0.0252
394	0.0026	461	0.6335	528	0.4540	595	0.5357	662	0.1916	729	0.0246
395	0.0024	462	0.5921	529	0.4550	596	0.5352	663	0.1860	730	0.0239
396	0.0026	463	0.5615	530	0.4573	597	0.5339	664	0.1812	731	0.0231
397	0.0026	464	0.5342	531	0.4575	598	0.5327	665	0.1767	732	0.0225
398	0.0032	465	0.5174	532	0.4576	599	0.5313	666	0.1718	733	0.0215
399	0.0031	466	0.5014	533	0.4571	600	0.5300	667	0.1670	734	0.0208
400	0.0031	467	0.4827	534	0.4588	601	0.5272	668	0.1626	735	0.0202
401	0.0031	468	0.4638	535	0.4587	602	0.5254	669	0.1579	736	0.0196
402	0.0033	469	0.4492	536	0.4606	603	0.5228	670	0.1534	737	0.0189
403	0.0036	470	0.4286	537	0.4617	604	0.5202	671	0.1491	738	0.0183
404	0.0038	471	0.3987	538	0.4632	605	0.5167	672	0.1453	739	0.0179
405	0.0039	472	0.3761	539	0.4658	606	0.5139	673	0.1415	740	0.0173
406	0.0041	473	0.3557	540	0.4669	607	0.5100	674	0.1375	741	0.0168
407	0.0048	474	0.3368	541	0.4671	608	0.5089	675	0.1338	742	0.0162
408	0.0053	475	0.3165	542	0.4696	609	0.5032	676	0.1300	743	0.0158
409	0.0061	476	0.3005	543	0.4719	610	0.5015	677	0.1265	744	0.0153
410	0.0066	477	0.2902	544	0.4727	611	0.4969	678	0.1225	745	0.0147
411	0.0076	478	0.2807	545	0.4746	612	0.4928	679	0.1188	746	0.0142
412	0.0081	479	0.2740	546	0.4761	613	0.4886	680	0.1155	747	0.0139
413	0.0099	480	0.2694	547	0.4765	614	0.4833	681	0.1122	748	0.0134
414	0.0113	481	0.2664	548	0.4798	615	0.4795	682	0.1087	749	0.0130
415	0.0127	482	0.2671	549	0.4812	616	0.4727	683	0.1055	750	0.0125
416	0.0150	483	0.2673	550	0.4839	617	0.4677	684	0.1029	751	0.0121
417	0.0177	484	0.2689	551	0.4848	618	0.4615	685	0.1002	752	0.0118
418	0.0200	485	0.2711	552	0.4864	619	0.4558	686	0.0965	753	0.0113
419	0.0232	486	0.2739	553	0.4886	620	0.4494	687	0.0936	754	0.0110
420	0.0263	487	0.2779	554	0.4901	621	0.4446	688	0.0913	755	0.0109
421	0.0298	488	0.2796	555	0.4916	622	0.4395	689	0.0882	756	0.0105
422	0.0337	489	0.2830	556	0.4937	623	0.4327	690	0.0858	757	0.0101
423	0.0387	490	0.2872	557	0.4952	624	0.4271	691	0.0828	758	0.0097
424	0.0442	491	0.2895	558	0.4977	625	0.4212	692	0.0804	759	0.0095
425	0.0500	492	0.2952	559	0.4979	626	0.4158	693	0.0780	760	0.0091
426	0.0560	493	0.2986	560	0.4994	627	0.4086	694	0.0759	761	0.0091
427	0.0646	494	0.3037	561	0.5017	628	0.4022	695	0.0732	762	0.0088
428	0.0731	495	0.3105	562	0.5037	629	0.3960	696	0.0711	763	0.0084
429	0.0829	496	0.3185	563	0.5068	630	0.3889	697	0.0689	764	0.0083
430	0.0941	497	0.3250	564	0.5078	631	0.3829	698	0.0664	765	0.0078
431	0.1063	498	0.3331	565	0.5100	632	0.3766	699	0.0645	766	0.0076
432	0.1191	499	0.3403	566	0.5130	633	0.3696	700	0.0624	767	0.0075
433	0.1350	500	0.3471	567	0.5151	634	0.3637	701	0.0604	768	0.0071
434	0.1500	501	0.3550	568	0.5165	635	0.3557	702	0.0587	769	0.0069
435	0.1698	502	0.3605	569	0.5180	636	0.3500	703	0.0565	770	0.0067
436	0.1910	503	0.3671	570	0.5206	637	0.3433	704	0.0551	771	0.0066
437	0.2135	504	0.3726	571	0.5224	638	0.3362	705	0.0535	772	0.0063
438	0.2381	505	0.3781	572	0.5239	639	0.3301	706	0.0517	773	0.0062
439	0.2676	506	0.3843	573	0.5262	640	0.3233	707	0.0502	774	0.0060
440	0.2984	507	0.3913	574	0.5265	641	0.3157	708	0.0484	775	0.0057
441	0.3340	508	0.3957	575	0.5279	642	0.3084	709	0.0470	776	0.0055
442	0.3759	509	0.4019	576	0.5298	643	0.3026	710	0.0454	777	0.0053
443	0.4253	510	0.4068	577	0.5314	644	0.2959	711	0.0440	778	0.0054
444	0.4782	511	0.4118	578	0.5328	645	0.2897	712	0.0428	779	0.0052
445	0.5395	512	0.4145	579	0.5336	646	0.2840	713	0.0415	780	0.0052
446	0.6070	513	0.4169	580	0.5361	647	0.2768	714	0.0398	N/A	N/A

Goniophotometer Test Results (3000K):

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.1	52.0	Face Down	90	25

Electrical Data:

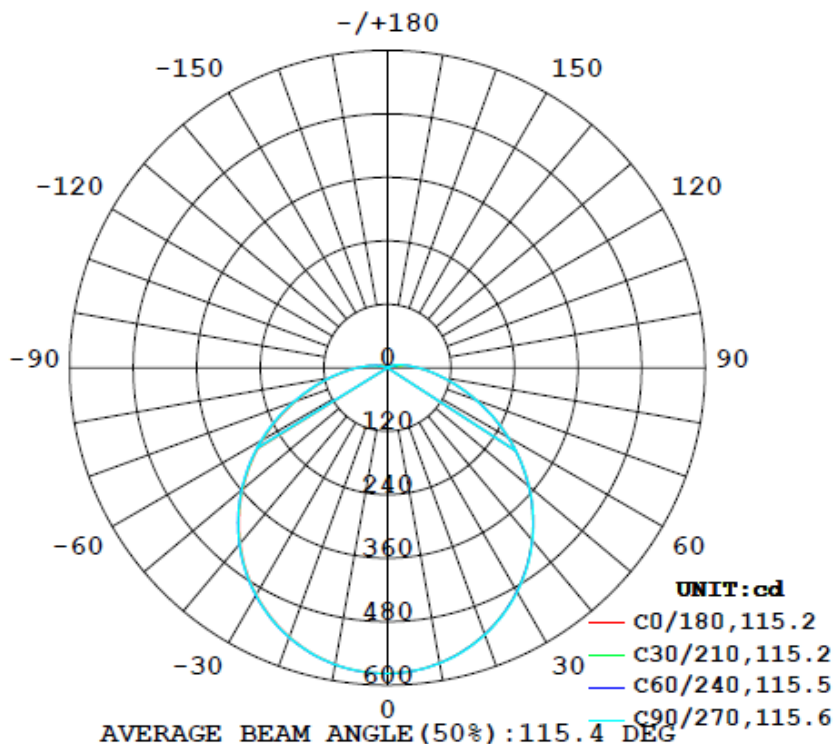
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.1718	20.11	0.9754

Goniophotometer Data:

Parameter	Results
Total Luminous (lm)	1850.4
Luminous Efficacy (lm/w)	92.01
Zonal Lumens Distribution (0-60°)	71.5%
Beam Angle (°)	115.4

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

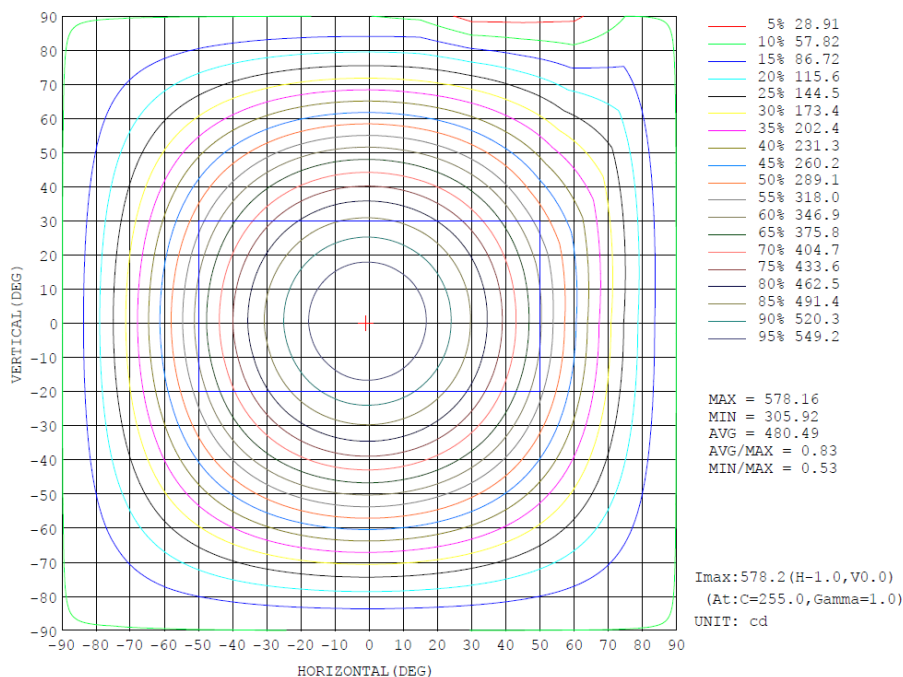


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	%lum, lamp
10	566.9	566.5	567.1	567.9	569.3	569.5	569.4	568.4	0- 10	54.70	54.70	2.96,2.96
20	536.6	536.2	537.3	538.9	541.3	542.4	542.1	539.7	10- 20	157.0	211.7	11.4,11.4
30	489.0	488.2	490.1	492.0	495.2	497.0	496.6	493.8	20- 30	238.9	450.5	24.3,24.3
40	425.9	424.5	426.4	428.7	432.7	435.3	435.1	431.2	30- 40	289.8	740.3	40,40
50	349.4	347.8	349.5	351.9	356.8	359.3	359.8	355.7	40- 50	303.4	1044	56.4,56.4
60	264.9	262.9	264.3	266.3	271.4	274.7	275.6	271.4	50- 60	279.2	1323	71.5,71.5
70	179.6	177.5	178.8	180.6	184.0	187.5	188.4	186.5	60- 70	224.2	1547	83.6,83.6
80	106.9	106.4	106.9	107.2	108.5	111.2	112.1	102.0	70- 80	153.1	1700	91.9,91.9
90	57.13	57.71	58.34	57.21	56.92	57.16	58.17	17.48	80- 90	86.12	1786	96.5,96.5
100	10.27	30.56	32.10	28.18	8.891	26.59	28.07	0	90-100	37.64	1824	98.6,98.6
110	18.34	7.204	16.76	6.749	16.38	6.334	4.533	0	100-110	14.76	1839	99.4,99.4
120	9.615	8.417	0.5021	8.149	8.537	7.047	0	0	110-120	6.463	1845	99.7,99.7
130	3.535	3.985	3.844	3.699	3.339	3.229	0	0	120-130	3.188	1848	99.9,99.9
140	0.8980	0.8847	0.9115	0.6966	0.6325	0.1287	0	0	130-140	1.205	1850	100,100
150	0.4096	0.4119	0.4073	0.4100	0.5823	0	0	0	140-150	0.3215	1850	100,100
160	0.4786	0.4623	0.4385	0.4674	0.6701	0	0	0	150-160	0.2436	1850	100,100
170	0.5403	0.5310	0.4841	0.5188	0.6825	0	0	0	160-170	0.1645	1850	100,100
180	0.6164	0.6224	0.5934	0.5955	0.6155	0	0	0	170-180	0.0598	1850	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Isocandela Diagram:



Luminous Distribution Intensity Data:

Table--1

UNIT: cd

C (DEG) Y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	578	578	578	578	578	578	578	578	578	578	578	578	578	578	578	578	578	578	578
5	575	574	575	575	575	575	575	575	575	575	575	576	576	576	576	576	576	576	576
10	567	567	567	567	567	567	567	568	568	568	568	569	569	569	570	569	570	570	569
15	554	554	554	554	554	554	555	555	556	556	556	556	558	558	558	559	559	559	558
20	537	536	537	536	536	537	537	538	539	539	539	540	541	542	542	542	543	542	542
25	515	515	514	514	515	515	516	516	517	517	518	519	520	521	521	522	522	522	522
30	489	489	488	488	489	489	490	490	491	492	492	493	495	496	497	497	497	497	497
35	459	458	459	458	459	459	460	461	462	463	464	466	467	468	468	468	468	468	468
40	426	425	424	425	425	426	426	427	428	429	429	430	433	434	435	435	436	436	435
45	389	388	388	388	388	389	389	390	391	392	393	393	396	397	398	399	399	400	399
50	349	348	348	348	348	349	350	350	351	352	353	354	357	358	359	359	360	361	360
55	308	307	306	306	306	307	307	308	309	310	311	312	315	316	317	318	319	319	318
60	265	264	263	263	263	264	265	266	266	267	268	271	272	274	275	276	276	276	276
65	222	220	220	220	220	221	221	222	223	224	224	228	229	230	231	232	232	232	232
70	180	179	178	178	178	179	179	180	181	181	182	184	185	186	187	188	189	188	188
75	140	140	140	139	139	140	140	140	141	141	141	142	144	145	146	147	148	148	148
80	107	106	106	106	107	107	107	107	107	107	107	108	108	109	110	111	112	112	112
85	79.0	78.9	79.1	79.2	79.3	79.4	79.7	79.5	79.5	79.3	79.5	78.9	79.7	79.8	80.2	80.7	81.0	81.3	81.5
90	57.1	57.4	57.6	57.7	57.8	58.2	58.3	58.0	57.7	57.2	56.7	56.5	56.9	56.9	57.1	57.2	57.5	57.9	58.2
95	41.5	41.7	42.1	42.3	42.7	42.7	42.8	42.5	42.0	41.5	40.8	40.2	40.0	39.5	39.7	39.8	40.0	40.2	40.5
100	10.3	8.51	17.7	30.6	32.2	32.2	32.1	31.7	31.2	28.2	13.3	11.3	8.89	6.76	17.6	26.6	28.0	28.3	28.1
105	19.5	17.5	13.5	15.9	22.1	24.5	24.7	23.7	20.5	13.8	14.2	18.4	21.8	17.6	12.4	13.2	17.8	19.9	16.3
110	18.3	15.4	17.7	7.20	10.9	15.5	16.8	14.8	9.86	6.75	16.5	13.9	16.4	13.2	14.2	6.33	9.54	12.5	4.53
115	13.2	11.0	13.7	9.09	3.38	3.92	4.65	3.52	3.19	8.39	12.1	9.89	11.6	9.51	11.3	7.08	2.84	5.41	0.00
120	9.62	7.96	9.57	8.42	4.24	1.34	0.50	1.80	4.28	8.15	8.69	7.08	8.54	6.99	8.31	7.05	3.25	0.00	0.00
125	7.04	5.78	6.84	6.02	4.44	2.29	1.88	2.55	4.79	5.70	6.26	5.00	6.18	4.97	5.94	5.27	4.02	0.00	0.00
130	3.53	2.69	4.65	3.98	3.68	3.92	3.84	3.49	3.37	3.70	4.13	2.38	3.34	2.48	3.81	3.23	4.27	0.00	0.00
135	2.23	2.14	2.74	2.24	2.04	2.31	2.51	1.90	1.72	1.96	2.15	1.49	1.70	1.51	1.89	1.63	4.53	0.00	0.00
140	0.90	0.92	1.17	0.88	0.77	0.96	0.91	0.75	0.58	0.70	0.68	0.51	0.63	0.62	0.66	0.13	4.78	0.00	0.00
145	0.40	0.40	0.40	0.39	0.39	0.40	0.39	0.39	0.39	0.39	0.38	0.39	0.55	0.55	0.56	0.00	5.04	0.00	0.00
150	0.41	0.41	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.40	0.39	0.58	0.58	0.59	0.00	5.29	0.00	0.00
155	0.44	0.46	0.47	0.44	0.44	0.44	0.43	0.44	0.45	0.44	0.44	0.42	0.62	0.62	0.62	0.00	5.55	0.00	0.00
160	0.48	0.49	0.49	0.46	0.45	0.45	0.44	0.47	0.47	0.47	0.46	0.46	0.67	0.67	0.64	0.00	5.80	0.00	0.00
165	0.51	0.52	0.52	0.50	0.48	0.47	0.46	0.49	0.50	0.50	0.49	0.49	0.68	0.68	0.67	0.00	6.06	0.00	0.00
170	0.54	0.55	0.54	0.53	0.49	0.49	0.48	0.50	0.51	0.52	0.52	0.52	0.68	0.69	0.70	0.00	6.31	0.00	0.00
175	0.57	0.59	0.59	0.58	0.55	0.53	0.52	0.53	0.55	0.56	0.56	0.57	0.66	0.69	0.72	0.00	6.57	0.00	0.00
180	0.62	0.63	0.63	0.62	0.61	0.60	0.59	0.57	0.59	0.60	0.60	0.61	0.62	0.70	0.75	0.00	6.82	0.00	0.00

Table--2

UNIT: cd

C (DEG) Y (DEG)	285	300	315	330	345														
0	578	578	578	578	578														
5	576	576	576	575	575														
10	569	568	568	568	568														
15	558	557	557	556	555														
20	541	541	540	539	538														
25	521	520	519	518	517														
30	496	495	494	492	492														
35	466	466	465	463	462														
40	434	432	431	430	429														
45	397	397	395	393	392														
50	358	357	356	354	355														
55	317	316	314	313	318														
60	274	273	271	271	281														
65	231	230	229	230	244														
70	187	186	187	188	206														
75	147	144	144	147	169														
80	111	102	102	106	132														
85	80.9	59.2	59.7	64.1	95.0														
90	51.3	16.8	17.5	22.6	57.8														
95	21.8	0.00	0.00	0.00	20.7														
100	0.00	0.00	0.00	0.00	0.00														
105	0.00	0.00	0.00	0.00	0.00														
110	0.00	0.00	0.00	0.00	0.00														
115	0.00	0.00	0.00	0.00	0.00														
120	0.00	0.00	0.00	0.00	0.00														
125	0.00	0.00	0.00	0.00	0.00														
130	0.00	0.00	0.00	0.00	0.00														
135	0.00	0.00	0.00	0.00	0.00														
140	0.00	0.00	0.00	0.00	0.00														
145	0.00	0.00	0.00	0.00	0.00														
150	0.00	0.00	0.00	0.00	0.00														
155	0.00	0.00	0.00	0.00	0.00														
160	0.00	0.00	0.00	0.00	0.00														
165	0.00	0.00	0.00	0.00	0.00														
170	0.00	0.00	0.00	0.00	0.00														
175	0.00	0.00	0.00	0.00	0.00														
180	0.00	0.00	0.00	0.00	0.00														

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*******