

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

Panel Light

Model Name(s):
642243XX-Y

Representative (Tested) Model:
64224301

Model Difference:

1. Product is Color Tunable product, can be tunable from 3000K, 3500K, 4000K and 5000K;
2. Product is Wattage Tunable product, can be tunable from 35W, 40W, 45W and 50W;
3. XX represent Product Code, can be 00-99;
4. Y represents Function, can be blank for dimming, I for dimming with Motion Sensor, EM for dimming with Emergency, I-EM for dimming with Motion Sensor and Emergency;
5. All is the same construction, except Function and Model design.

Prepared by:

Alan Wang

Engineer: Alan Wang
Date: 2022-03-10

Reviewed by:

Vincent Yuan

Technical Lead: Vincent Yuan
Issue Date: 2022-03-21
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 d not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

Laboratory: Dongguan New Testing Centre Co., Ltd

Address: 3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Tel: 86-769-22212079
Website: <http://www.ntc-cert.com>

Client Information:

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

Product Information:

Model Number:	642243XX(XX=00-99)
Product Type:	2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Rating Input:	120-277Vac, 50/60Hz, 35W/40W/45W/50W
Declared CCT:	3000K, 3500K, 4000K and 5000K
Declared Light Output:	6250 lm
LED Manufacturer:	LUMILEDS
LED Model:	L128-3080RB35000F1 and L128-5080RB35000F1
LED Driver Model:	JPB-60LRF-054A

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:	2022-01-24
Quantity of Receipt Samples:	1 pc
Sample Number:	220124003-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 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:

Test Report Form:	LM-79-08_TRF_V1.5
Issued Date of Test Report:	2022-03-21
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR22030108
Remark (If applicable):	N/A

Test Specification:	
Date of Test	2022-03-02
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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, 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:

CCT Setting	Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
3000K	120.0	60	0.4119	49.17	0.9947
3500K	120.0	60	0.4108	49.05	0.9928
4000K	120.0	60	0.4060	48.47	0.9928
5000K	120.0	60	0.4087	48.78	0.9928

Color Data:

CCT Setting	Test CCT (K)	R _a	R ₉	R _r	R _g	R _{cs, hl}	Chromaticity		
							(x, y)	(u', v')	Duv
3000K	3006	83.9	12	85	98	-11%	(0.4353, 0.4014)	(0.2507, 0.5201)	-0.0008
3500K	3562	85.5	19	86	96	-11%	(0.4012, 0.3870)	(0.2346, 0.5091)	-0.0007
4000K	4021	85.3	18	85	95	-11%	(0.3800, 0.3780)	(0.2243, 0.5021)	0.0007
5000K	5035	83.7	10	85	95	-12%	(0.3450, 0.3616)	(0.2075, 0.4895)	0.0050

Specify Color Rendering:

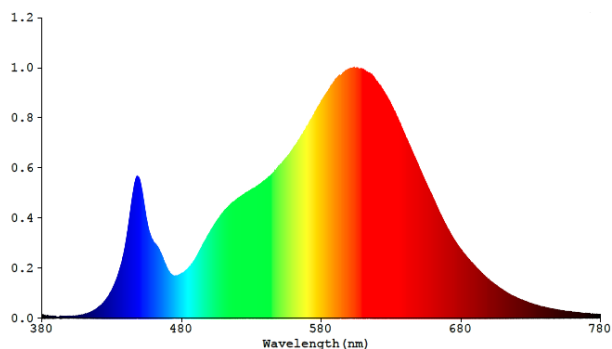
CCT Setting	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
3000K	82	91	97	83	83	90	84	61	12	80	83	76	85	99	75
3500K	84	92	97	84	85	89	86	66	19	81	84	70	87	99	78
4000K	84	91	96	84	84	88	87	68	18	79	84	64	86	98	78
5000K	81	89	94	83	82	85	88	68	10	74	82	61	84	97	76

Output Data:

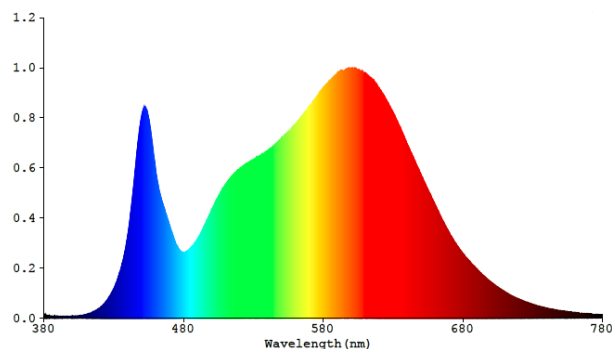
CCT Setting	Luminous (lm)	Efficacy (lm/W)
3000K	6087.1	123.80
3500K	6555.5	133.65
4000K	6751.9	139.30
5000K	6277.3	128.69

Spectrum Diagram:

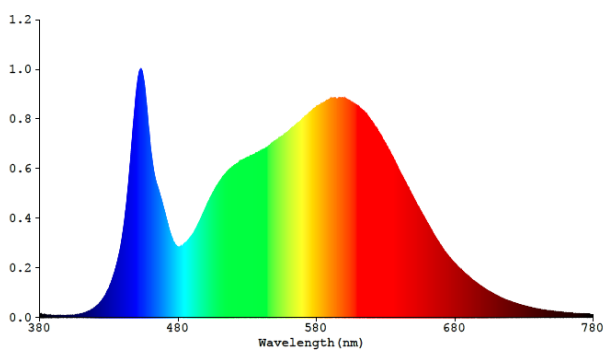
3000K



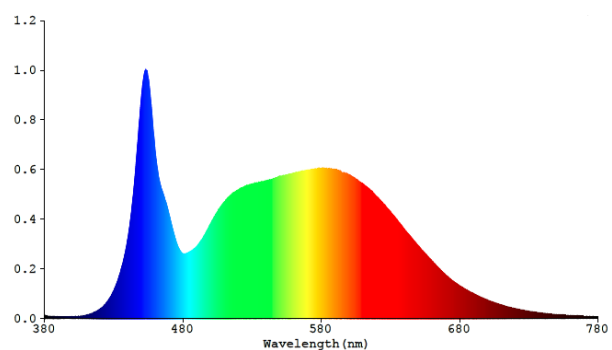
3500K



4000K



5000K



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

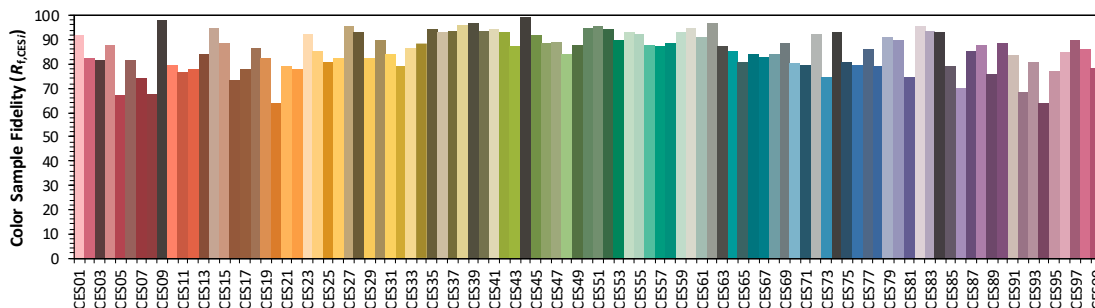
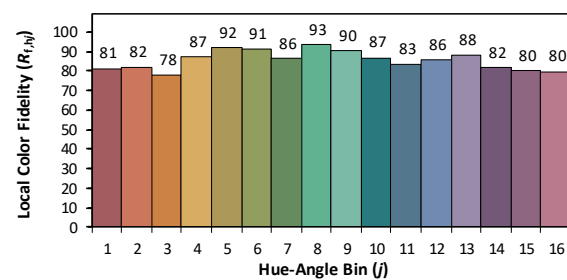
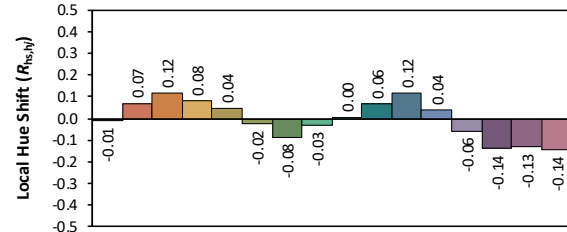
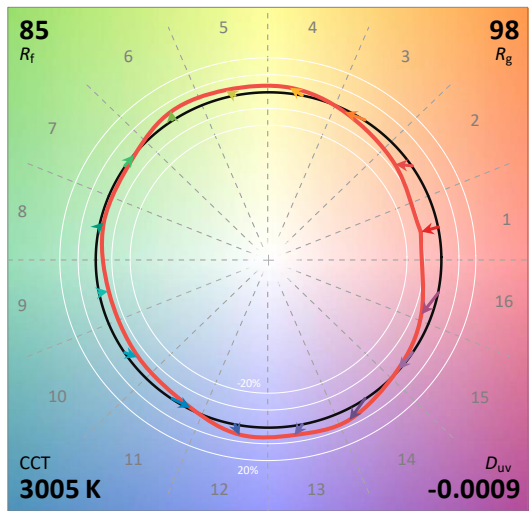
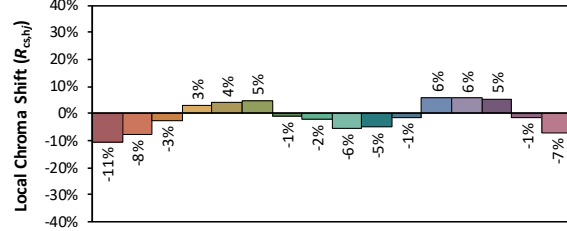
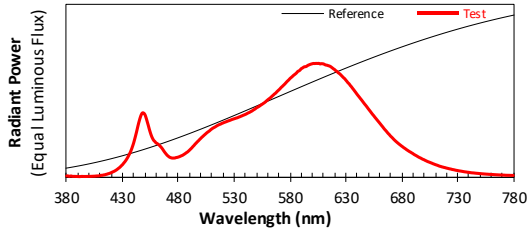
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: ETI Solid State Lighting (2

Date: 2022/3/10

Model: 642243XX-Y



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

x 0.4353
 y 0.4013
 u' 0.2507
 v' 0.5200

CIE 13.3-1995
(CRI)
 R_a 84
 R_g 12

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	0.0111	447	0.5520	514	0.4475	581	0.8732	648	0.6282	715	0.0945
381	0.0121	448	0.5641	515	0.4533	582	0.8817	649	0.6152	716	0.0910
382	0.0079	449	0.5614	516	0.4586	583	0.8911	650	0.6019	717	0.0887
383	0.0093	450	0.5500	517	0.4628	584	0.8988	651	0.5891	718	0.0859
384	0.0109	451	0.5248	518	0.4663	585	0.9065	652	0.5766	719	0.0838
385	0.0080	452	0.4916	519	0.4717	586	0.9156	653	0.5633	720	0.0807
386	0.0073	453	0.4574	520	0.4756	587	0.9269	654	0.5507	721	0.0785
387	0.0074	454	0.4214	521	0.4798	588	0.9320	655	0.5393	722	0.0759
388	0.0071	455	0.3888	522	0.4834	589	0.9390	656	0.5264	723	0.0735
389	0.0066	456	0.3606	523	0.4869	590	0.9506	657	0.5146	724	0.0719
390	0.0063	457	0.3389	524	0.4910	591	0.9560	658	0.5023	725	0.0689
391	0.0057	458	0.3224	525	0.4945	592	0.9628	659	0.4905	726	0.0668
392	0.0057	459	0.3128	526	0.4979	593	0.9680	660	0.4785	727	0.0650
393	0.0069	460	0.3013	527	0.5018	594	0.9690	661	0.4666	728	0.0625
394	0.0072	461	0.2956	528	0.5059	595	0.9732	662	0.4540	729	0.0605
395	0.0066	462	0.2882	529	0.5091	596	0.9800	663	0.4423	730	0.0588
396	0.0066	463	0.2799	530	0.5124	597	0.9844	664	0.4292	731	0.0567
397	0.0065	464	0.2692	531	0.5154	598	0.9884	665	0.4172	732	0.0550
398	0.0068	465	0.2585	532	0.5191	599	0.9918	666	0.4068	733	0.0536
399	0.0071	466	0.2449	533	0.5215	600	0.9946	667	0.3948	734	0.0519
400	0.0077	467	0.2302	534	0.5264	601	0.9969	668	0.3832	735	0.0501
401	0.0073	468	0.2165	535	0.5298	602	0.9964	669	0.3735	736	0.0483
402	0.0079	469	0.2043	536	0.5341	603	0.9973	670	0.3613	737	0.0467
403	0.0082	470	0.1926	537	0.5382	604	0.9975	671	0.3523	738	0.0456
404	0.0088	471	0.1844	538	0.5426	605	0.9970	672	0.3424	739	0.0439
405	0.0091	472	0.1765	539	0.5463	606	0.9978	673	0.3316	740	0.0430
406	0.0102	473	0.1723	540	0.5506	607	0.9928	674	0.3221	741	0.0415
407	0.0110	474	0.1689	541	0.5551	608	0.9951	675	0.3132	742	0.0396
408	0.0115	475	0.1678	542	0.5610	609	0.9945	676	0.3047	743	0.0386
409	0.0122	476	0.1682	543	0.5653	610	0.9929	677	0.2965	744	0.0379
410	0.0140	477	0.1689	544	0.5700	611	0.9881	678	0.2884	745	0.0369
411	0.0168	478	0.1724	545	0.5757	612	0.9836	679	0.2808	746	0.0357
412	0.0171	479	0.1739	546	0.5807	613	0.9821	680	0.2731	747	0.0347
413	0.0199	480	0.1769	547	0.5880	614	0.9786	681	0.2661	748	0.0339
414	0.0211	481	0.1803	548	0.5938	615	0.9756	682	0.2583	749	0.0330
415	0.0242	482	0.1847	549	0.6001	616	0.9717	683	0.2523	750	0.0316
416	0.0266	483	0.1890	550	0.6081	617	0.9651	684	0.2447	751	0.0312
417	0.0301	484	0.1933	551	0.6135	618	0.9575	685	0.2379	752	0.0302
418	0.0327	485	0.2000	552	0.6191	619	0.9497	686	0.2314	753	0.0294
419	0.0364	486	0.2060	553	0.6256	620	0.9433	687	0.2250	754	0.0285
420	0.0409	487	0.2137	554	0.6329	621	0.9338	688	0.2199	755	0.0279
421	0.0455	488	0.2199	555	0.6390	622	0.9278	689	0.2134	756	0.0270
422	0.0497	489	0.2280	556	0.6460	623	0.9173	690	0.2079	757	0.0266
423	0.0547	490	0.2373	557	0.6525	624	0.9105	691	0.2005	758	0.0256
424	0.0606	491	0.2470	558	0.6602	625	0.9023	692	0.1949	759	0.0251
425	0.0671	492	0.2566	559	0.6691	626	0.8921	693	0.1896	760	0.0246
426	0.0750	493	0.2682	560	0.6775	627	0.8821	694	0.1837	761	0.0241
427	0.0823	494	0.2780	561	0.6855	628	0.8718	695	0.1778	762	0.0234
428	0.0908	495	0.2898	562	0.6926	629	0.8635	696	0.1724	763	0.0227
429	0.1012	496	0.2996	563	0.7012	630	0.8512	697	0.1681	764	0.0221
430	0.1102	497	0.3103	564	0.7106	631	0.8399	698	0.1626	765	0.0214
431	0.1227	498	0.3195	565	0.7191	632	0.8273	699	0.1573	766	0.0210
432	0.1344	499	0.3301	566	0.7288	633	0.8184	700	0.1537	767	0.0204
433	0.1477	500	0.3395	567	0.7358	634	0.8044	701	0.1481	768	0.0200
434	0.1631	501	0.3497	568	0.7462	635	0.7934	702	0.1437	769	0.0198
435	0.1802	502	0.3581	569	0.7561	636	0.7801	703	0.1388	770	0.0191
436	0.1992	503	0.3675	570	0.7650	637	0.7676	704	0.1349	771	0.0185
437	0.2189	504	0.3759	571	0.7745	638	0.7546	705	0.1313	772	0.0183
438	0.2436	505	0.3848	572	0.7857	639	0.7415	706	0.1272	773	0.0175
439	0.2710	506	0.3932	573	0.7946	640	0.7280	707	0.1236	774	0.0171
440	0.3012	507	0.4000	574	0.8042	641	0.7154	708	0.1190	775	0.0170
441	0.3372	508	0.4072	575	0.8135	642	0.7033	709	0.1154	776	0.0167
442	0.3742	509	0.4163	576	0.8238	643	0.6906	710	0.1114	777	0.0166
443	0.4147	510	0.4236	577	0.8349	644	0.6785	711	0.1081	778	0.0160
444	0.4564	511	0.4304	578	0.8447	645	0.6656	712	0.1048	779	0.0159
445	0.4937	512	0.4360	579	0.8538	646	0.6524	713	0.1008	780	0.0159
446	0.5265	513	0.4410	580	0.8649	647	0.6397	714	0.0968	N/A	N/A

IES TM-30-18 Color Rendition Result (3500K):

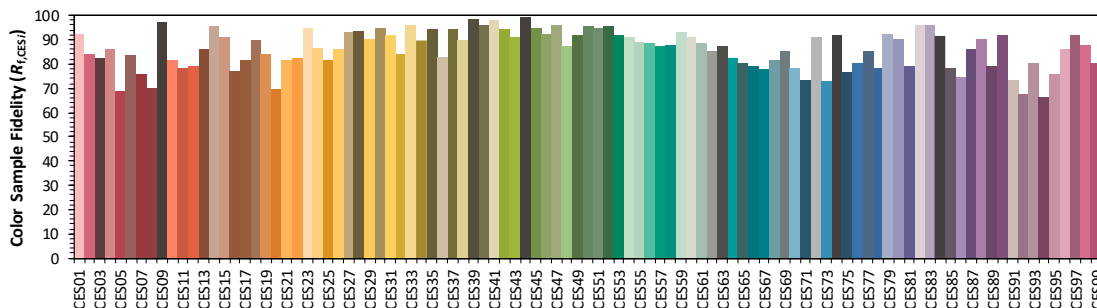
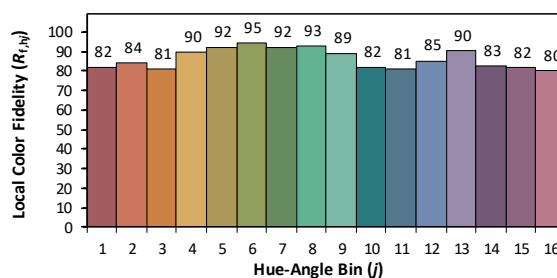
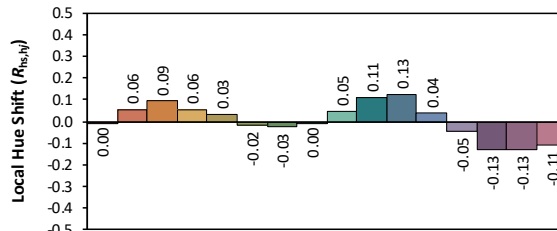
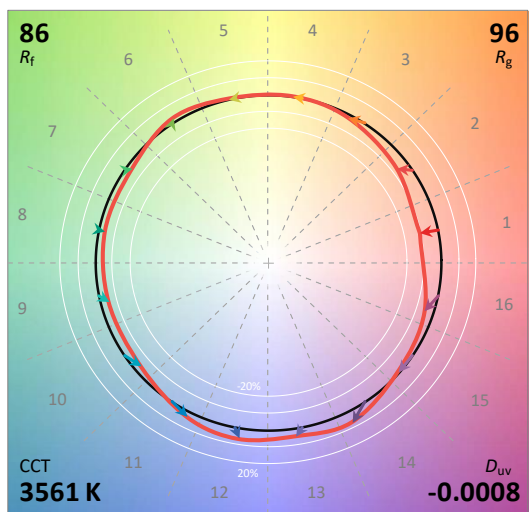
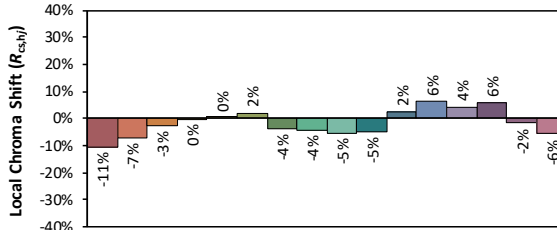
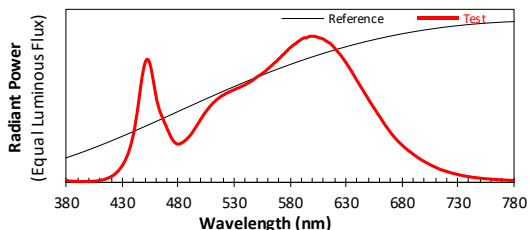
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: ETI Solid State Lighting (2

Date: 2022/3/10

Model: 642243XX-Y



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

x 0.4012
 y 0.3868
 u' 0.2346
 v' 0.5090

CIE 13.3-1995
(CRI)
 R_a 85
 R_g 19

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

Spectrum Data (3500K):

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0165	447	0.6930	514	0.5637	581	0.9259	648	0.5977	715	0.0896
381	0.0138	448	0.7403	515	0.5693	582	0.9325	649	0.5858	716	0.0869
382	0.0111	449	0.7807	516	0.5753	583	0.9378	650	0.5730	717	0.0842
383	0.0103	450	0.8130	517	0.5814	584	0.9441	651	0.5605	718	0.0821
384	0.0105	451	0.8327	518	0.5870	585	0.9481	652	0.5472	719	0.0793
385	0.0096	452	0.8415	519	0.5924	586	0.9545	653	0.5368	720	0.0767
386	0.0084	453	0.8372	520	0.5959	587	0.9612	654	0.5242	721	0.0749
387	0.0094	454	0.8240	521	0.5995	588	0.9657	655	0.5124	722	0.0721
388	0.0088	455	0.7979	522	0.6060	589	0.9709	656	0.5006	723	0.0699
389	0.0089	456	0.7634	523	0.6099	590	0.9773	657	0.4898	724	0.0681
390	0.0078	457	0.7206	524	0.6123	591	0.9817	658	0.4763	725	0.0649
391	0.0070	458	0.6775	525	0.6182	592	0.9855	659	0.4652	726	0.0639
392	0.0075	459	0.6332	526	0.6200	593	0.9889	660	0.4544	727	0.0616
393	0.0070	460	0.5903	527	0.6237	594	0.9877	661	0.4431	728	0.0599
394	0.0077	461	0.5535	528	0.6272	595	0.9880	662	0.4312	729	0.0577
395	0.0080	462	0.5254	529	0.6310	596	0.9934	663	0.4189	730	0.0559
396	0.0081	463	0.4978	530	0.6336	597	0.9954	664	0.4071	731	0.0540
397	0.0077	464	0.4761	531	0.6372	598	0.9986	665	0.3948	732	0.0526
398	0.0079	465	0.4580	532	0.6423	599	0.9987	666	0.3853	733	0.0507
399	0.0080	466	0.4401	533	0.6442	600	0.9984	667	0.3741	734	0.0491
400	0.0096	467	0.4206	534	0.6475	601	0.9993	668	0.3640	735	0.0475
401	0.0087	468	0.4034	535	0.6497	602	0.9971	669	0.3536	736	0.0459
402	0.0090	469	0.3865	536	0.6550	603	0.9980	670	0.3435	737	0.0450
403	0.0093	470	0.3679	537	0.6573	604	0.9935	671	0.3324	738	0.0432
404	0.0095	471	0.3504	538	0.6614	605	0.9914	672	0.3246	739	0.0418
405	0.0104	472	0.3347	539	0.6648	606	0.9889	673	0.3150	740	0.0409
406	0.0107	473	0.3165	540	0.6675	607	0.9855	674	0.3058	741	0.0394
407	0.0112	474	0.3027	541	0.6733	608	0.9858	675	0.2974	742	0.0384
408	0.0128	475	0.2908	542	0.6786	609	0.9817	676	0.2884	743	0.0370
409	0.0139	476	0.2809	543	0.6807	610	0.9785	677	0.2812	744	0.0358
410	0.0147	477	0.2721	544	0.6859	611	0.9743	678	0.2727	745	0.0350
411	0.0173	478	0.2670	545	0.6900	612	0.9681	679	0.2660	746	0.0341
412	0.0189	479	0.2634	546	0.6957	613	0.9641	680	0.2585	747	0.0334
413	0.0196	480	0.2631	547	0.7003	614	0.9596	681	0.2522	748	0.0323
414	0.0219	481	0.2633	548	0.7066	615	0.9539	682	0.2444	749	0.0316
415	0.0258	482	0.2675	549	0.7124	616	0.9515	683	0.2385	750	0.0304
416	0.0280	483	0.2699	550	0.7188	617	0.9422	684	0.2320	751	0.0297
417	0.0313	484	0.2751	551	0.7244	618	0.9359	685	0.2257	752	0.0291
418	0.0344	485	0.2809	552	0.7289	619	0.9266	686	0.2192	753	0.0280
419	0.0383	486	0.2865	553	0.7335	620	0.9182	687	0.2134	754	0.0271
420	0.0415	487	0.2929	554	0.7382	621	0.9091	688	0.2076	755	0.0267
421	0.0467	488	0.3013	555	0.7441	622	0.8999	689	0.2022	756	0.0256
422	0.0512	489	0.3082	556	0.7486	623	0.8910	690	0.1965	757	0.0255
423	0.0567	490	0.3172	557	0.7543	624	0.8827	691	0.1898	758	0.0249
424	0.0641	491	0.3265	558	0.7603	625	0.8737	692	0.1853	759	0.0242
425	0.0710	492	0.3359	559	0.7683	626	0.8633	693	0.1799	760	0.0235
426	0.0787	493	0.3474	560	0.7749	627	0.8531	694	0.1739	761	0.0231
427	0.0878	494	0.3589	561	0.7804	628	0.8422	695	0.1688	762	0.0226
428	0.0975	495	0.3717	562	0.7887	629	0.8314	696	0.1641	763	0.0219
429	0.1070	496	0.3821	563	0.7942	630	0.8209	697	0.1590	764	0.0214
430	0.1188	497	0.3946	564	0.8019	631	0.8091	698	0.1536	765	0.0210
431	0.1318	498	0.4074	565	0.8091	632	0.7965	699	0.1497	766	0.0203
432	0.1452	499	0.4175	566	0.8159	633	0.7862	700	0.1452	767	0.0199
433	0.1618	500	0.4319	567	0.8218	634	0.7729	701	0.1409	768	0.0193
434	0.1799	501	0.4424	568	0.8287	635	0.7623	702	0.1366	769	0.0189
435	0.1977	502	0.4546	569	0.8364	636	0.7482	703	0.1325	770	0.0186
436	0.2207	503	0.4664	570	0.8450	637	0.7359	704	0.1278	771	0.0182
437	0.2453	504	0.4776	571	0.8510	638	0.7231	705	0.1246	772	0.0176
438	0.2715	505	0.4875	572	0.8593	639	0.7097	706	0.1205	773	0.0171
439	0.3045	506	0.4974	573	0.8683	640	0.6960	707	0.1165	774	0.0170
440	0.3375	507	0.5074	574	0.8741	641	0.6848	708	0.1130	775	0.0167
441	0.3777	508	0.5165	575	0.8810	642	0.6719	709	0.1098	776	0.0164
442	0.4255	509	0.5253	576	0.8894	643	0.6589	710	0.1063	777	0.0160
443	0.4724	510	0.5343	577	0.8971	644	0.6476	711	0.1022	778	0.0155
444	0.5259	511	0.5418	578	0.9045	645	0.6355	712	0.0996	779	0.0153
445	0.5828	512	0.5494	579	0.9132	646	0.6225	713	0.0954	780	0.0153
446	0.6385	513	0.5558	580	0.9201	647	0.6099	714	0.0924	N/A	N/A

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

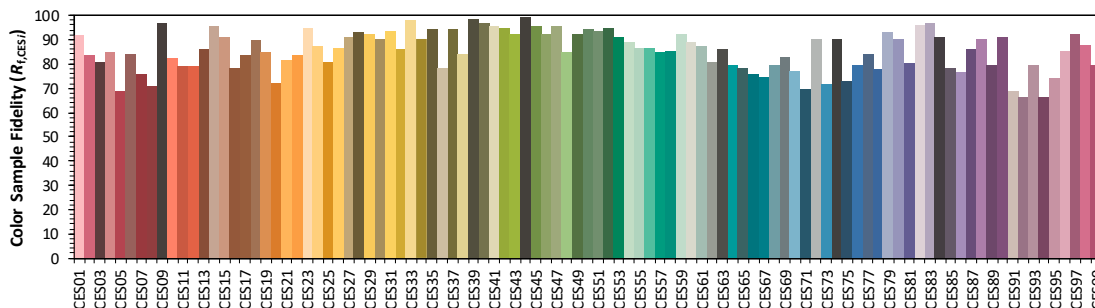
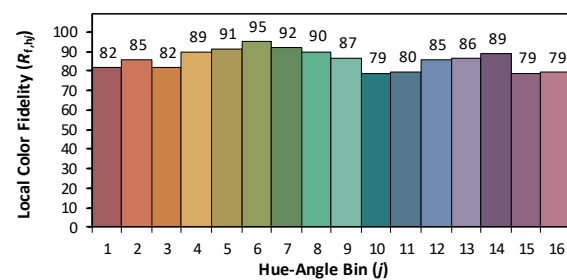
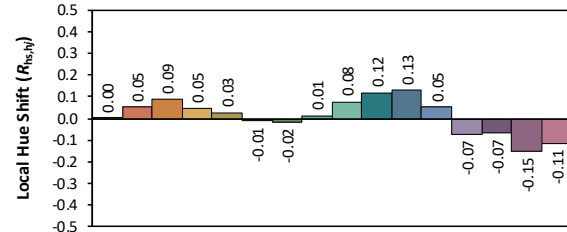
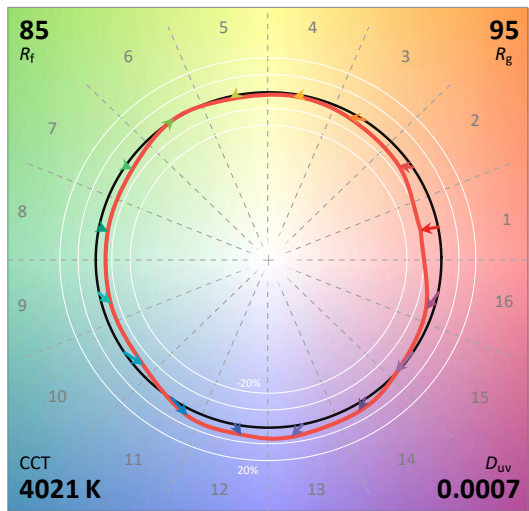
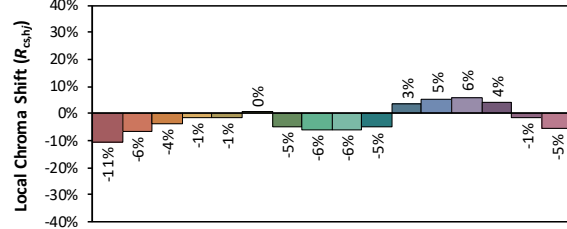
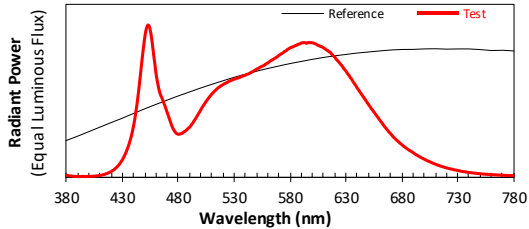
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: ETI Solid State Lighting (2

Date: 2022/3/10

Model: 642243XX-Y



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

x 0.3800
 y 0.3779
 u' 0.2243
 v' 0.5020

CIE 13.3-1995
(CRI)

R_a 85
 R_g 18

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	0.0158	447	0.7387	514	0.5771	581	0.8521	648	0.5047	715	0.0758
381	0.0142	448	0.8045	515	0.5841	582	0.8553	649	0.4930	716	0.0731
382	0.0110	449	0.8660	516	0.5899	583	0.8586	650	0.4835	717	0.0707
383	0.0120	450	0.9223	517	0.5952	584	0.8614	651	0.4722	718	0.0690
384	0.0113	451	0.9640	518	0.6001	585	0.8654	652	0.4622	719	0.0663
385	0.0099	452	0.9905	519	0.6052	586	0.8675	653	0.4505	720	0.0648
386	0.0082	453	0.9997	520	0.6093	587	0.8726	654	0.4425	721	0.0627
387	0.0095	454	0.9902	521	0.6142	588	0.8740	655	0.4313	722	0.0606
388	0.0079	455	0.9599	522	0.6179	589	0.8773	656	0.4224	723	0.0589
389	0.0073	456	0.9171	523	0.6209	590	0.8808	657	0.4116	724	0.0573
390	0.0080	457	0.8599	524	0.6243	591	0.8834	658	0.4020	725	0.0551
391	0.0070	458	0.7988	525	0.6304	592	0.8838	659	0.3919	726	0.0536
392	0.0078	459	0.7437	526	0.6332	593	0.8848	660	0.3815	727	0.0518
393	0.0072	460	0.6829	527	0.6356	594	0.8818	661	0.3716	728	0.0503
394	0.0086	461	0.6390	528	0.6386	595	0.8800	662	0.3622	729	0.0490
395	0.0084	462	0.6009	529	0.6419	596	0.8843	663	0.3526	730	0.0475
396	0.0077	463	0.5684	530	0.6450	597	0.8846	664	0.3420	731	0.0460
397	0.0074	464	0.5443	531	0.6468	598	0.8842	665	0.3318	732	0.0445
398	0.0076	465	0.5272	532	0.6503	599	0.8842	666	0.3235	733	0.0429
399	0.0084	466	0.5088	533	0.6516	600	0.8832	667	0.3139	734	0.0413
400	0.0089	467	0.4891	534	0.6545	601	0.8820	668	0.3057	735	0.0402
401	0.0086	468	0.4703	535	0.6560	602	0.8786	669	0.2960	736	0.0392
402	0.0086	469	0.4488	536	0.6612	603	0.8760	670	0.2888	737	0.0381
403	0.0090	470	0.4278	537	0.6637	604	0.8716	671	0.2805	738	0.0365
404	0.0104	471	0.4067	538	0.6667	605	0.8672	672	0.2716	739	0.0356
405	0.0099	472	0.3848	539	0.6685	606	0.8652	673	0.2635	740	0.0343
406	0.0107	473	0.3639	540	0.6709	607	0.8604	674	0.2565	741	0.0332
407	0.0121	474	0.3431	541	0.6758	608	0.8592	675	0.2498	742	0.0324
408	0.0121	475	0.3261	542	0.6778	609	0.8554	676	0.2424	743	0.0315
409	0.0140	476	0.3118	543	0.6799	610	0.8508	677	0.2363	744	0.0306
410	0.0146	477	0.3004	544	0.6845	611	0.8460	678	0.2298	745	0.0295
411	0.0162	478	0.2918	545	0.6887	612	0.8399	679	0.2234	746	0.0289
412	0.0186	479	0.2869	546	0.6921	613	0.8353	680	0.2173	747	0.0284
413	0.0198	480	0.2843	547	0.6960	614	0.8314	681	0.2111	748	0.0276
414	0.0217	481	0.2843	548	0.7013	615	0.8244	682	0.2047	749	0.0270
415	0.0251	482	0.2880	549	0.7055	616	0.8216	683	0.1996	750	0.0257
416	0.0265	483	0.2885	550	0.7104	617	0.8119	684	0.1942	751	0.0252
417	0.0304	484	0.2946	551	0.7137	618	0.8045	685	0.1889	752	0.0243
418	0.0335	485	0.2998	552	0.7169	619	0.7962	686	0.1837	753	0.0239
419	0.0373	486	0.3034	553	0.7221	620	0.7903	687	0.1787	754	0.0232
420	0.0405	487	0.3100	554	0.7260	621	0.7800	688	0.1744	755	0.0225
421	0.0460	488	0.3169	555	0.7297	622	0.7710	689	0.1698	756	0.0220
422	0.0502	489	0.3236	556	0.7323	623	0.7630	690	0.1655	757	0.0216
423	0.0562	490	0.3299	557	0.7367	624	0.7556	691	0.1597	758	0.0212
424	0.0630	491	0.3385	558	0.7425	625	0.7458	692	0.1552	759	0.0205
425	0.0695	492	0.3489	559	0.7467	626	0.7374	693	0.1501	760	0.0205
426	0.0772	493	0.3588	560	0.7516	627	0.7284	694	0.1463	761	0.0195
427	0.0861	494	0.3704	561	0.7558	628	0.7163	695	0.1417	762	0.0193
428	0.0959	495	0.3814	562	0.7619	629	0.7083	696	0.1376	763	0.0187
429	0.1074	496	0.3934	563	0.7665	630	0.6991	697	0.1337	764	0.0183
430	0.1182	497	0.4050	564	0.7708	631	0.6877	698	0.1294	765	0.0182
431	0.1322	498	0.4183	565	0.7751	632	0.6770	699	0.1261	766	0.0175
432	0.1471	499	0.4299	566	0.7802	633	0.6689	700	0.1222	767	0.0172
433	0.1634	500	0.4422	567	0.7842	634	0.6556	701	0.1181	768	0.0166
434	0.1816	501	0.4563	568	0.7894	635	0.6471	702	0.1146	769	0.0163
435	0.2016	502	0.4673	569	0.7936	636	0.6348	703	0.1111	770	0.0157
436	0.2229	503	0.4785	570	0.8007	637	0.6233	704	0.1075	771	0.0155
437	0.2489	504	0.4899	571	0.8051	638	0.6137	705	0.1052	772	0.0152
438	0.2750	505	0.5005	572	0.8104	639	0.6019	706	0.1013	773	0.0150
439	0.3078	506	0.5104	573	0.8141	640	0.5898	707	0.0981	774	0.0146
440	0.3430	507	0.5207	574	0.8188	641	0.5788	708	0.0948	775	0.0143
441	0.3840	508	0.5296	575	0.8256	642	0.5691	709	0.0918	776	0.0138
442	0.4324	509	0.5386	576	0.8292	643	0.5574	710	0.0896	777	0.0139
443	0.4827	510	0.5481	577	0.8339	644	0.5472	711	0.0863	778	0.0135
444	0.5407	511	0.5549	578	0.8413	645	0.5366	712	0.0835	779	0.0133
445	0.6041	512	0.5633	579	0.8438	646	0.5262	713	0.0805	780	0.0133
446	0.6697	513	0.5706	580	0.8503	647	0.5159	714	0.0780	N/A	N/A

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

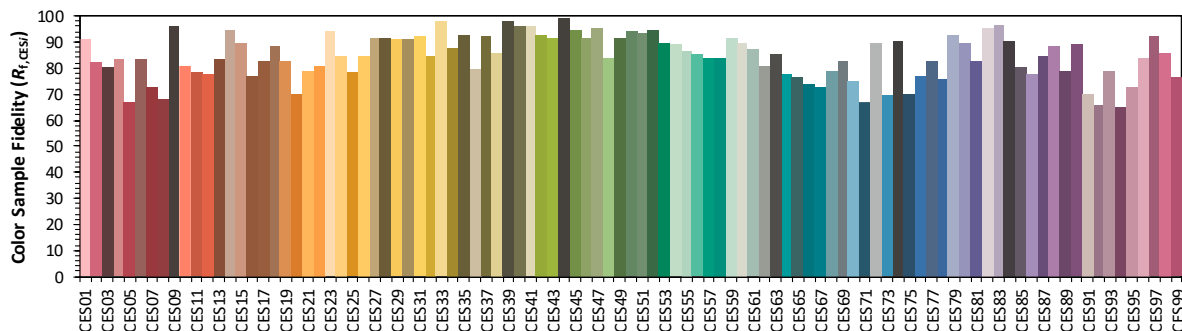
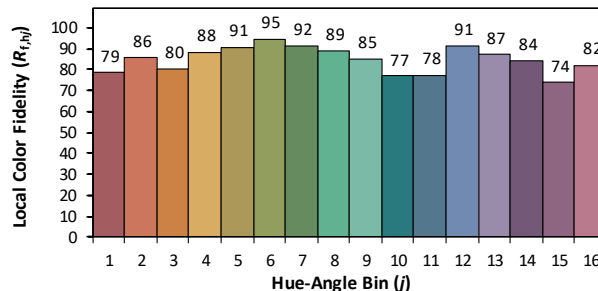
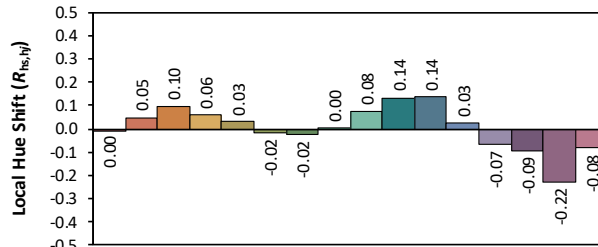
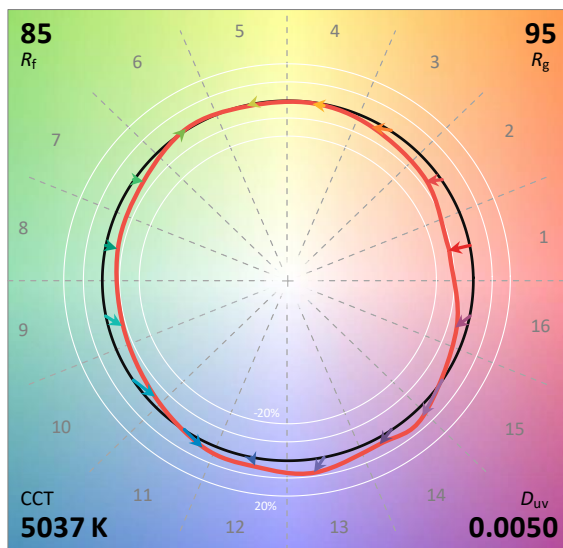
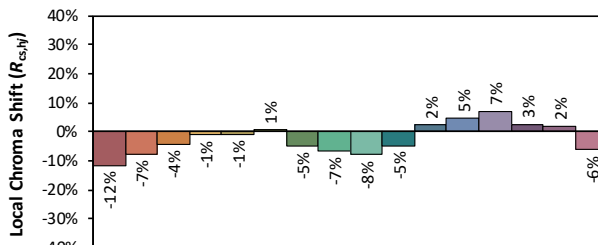
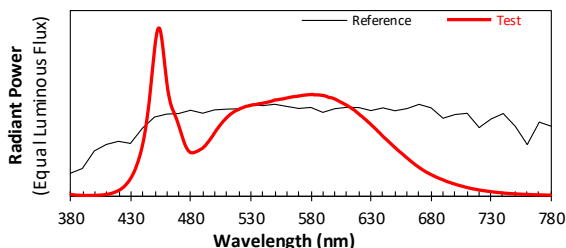
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Date: 2022/3/10

Manufacturer: ETI Solid State Lighting (Z

Model: 642243XX-Y



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

x 0.3450
 y 0.3615
 u' 0.2076
 v' 0.4894

CIE 13.3-1995
(CRI)

R_a 84
 R_g 10

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	0.0130	447	0.6913	514	0.4934	581	0.6062	648	0.3055	715	0.0464
381	0.0111	448	0.7615	515	0.4985	582	0.6049	649	0.2987	716	0.0449
382	0.0106	449	0.8294	516	0.5036	583	0.6027	650	0.2922	717	0.0437
383	0.0097	450	0.8958	517	0.5076	584	0.6038	651	0.2865	718	0.0423
384	0.0087	451	0.9479	518	0.5110	585	0.6030	652	0.2792	719	0.0411
385	0.0083	452	0.9848	519	0.5144	586	0.6030	653	0.2734	720	0.0399
386	0.0080	453	0.9996	520	0.5168	587	0.6031	654	0.2671	721	0.0386
387	0.0080	454	0.9951	521	0.5217	588	0.6014	655	0.2609	722	0.0374
388	0.0071	455	0.9646	522	0.5242	589	0.6013	656	0.2556	723	0.0363
389	0.0075	456	0.9159	523	0.5266	590	0.5995	657	0.2495	724	0.0351
390	0.0066	457	0.8563	524	0.5297	591	0.5994	658	0.2431	725	0.0343
391	0.0070	458	0.7904	525	0.5325	592	0.5964	659	0.2371	726	0.0334
392	0.0066	459	0.7285	526	0.5354	593	0.5950	660	0.2310	727	0.0322
393	0.0069	460	0.6681	527	0.5362	594	0.5922	661	0.2250	728	0.0312
394	0.0065	461	0.6199	528	0.5378	595	0.5874	662	0.2193	729	0.0304
395	0.0067	462	0.5829	529	0.5395	596	0.5878	663	0.2124	730	0.0292
396	0.0067	463	0.5525	530	0.5411	597	0.5861	664	0.2072	731	0.0284
397	0.0070	464	0.5288	531	0.5429	598	0.5846	665	0.2013	732	0.0275
398	0.0069	465	0.5117	532	0.5453	599	0.5815	666	0.1958	733	0.0265
399	0.0075	466	0.4952	533	0.5450	600	0.5790	667	0.1901	734	0.0260
400	0.0073	467	0.4766	534	0.5455	601	0.5756	668	0.1846	735	0.0252
401	0.0077	468	0.4592	535	0.5475	602	0.5714	669	0.1799	736	0.0244
402	0.0080	469	0.4386	536	0.5492	603	0.5682	670	0.1745	737	0.0236
403	0.0086	470	0.4170	537	0.5514	604	0.5639	671	0.1696	738	0.0228
404	0.0088	471	0.3950	538	0.5514	605	0.5598	672	0.1652	739	0.0222
405	0.0092	472	0.3718	539	0.5525	606	0.5575	673	0.1598	740	0.0216
406	0.0099	473	0.3497	540	0.5538	607	0.5523	674	0.1554	741	0.0209
407	0.0102	474	0.3278	541	0.5555	608	0.5494	675	0.1510	742	0.0201
408	0.0115	475	0.3085	542	0.5572	609	0.5448	676	0.1465	743	0.0198
409	0.0122	476	0.2933	543	0.5583	610	0.5418	677	0.1427	744	0.0190
410	0.0134	477	0.2807	544	0.5599	611	0.5370	678	0.1392	745	0.0185
411	0.0150	478	0.2709	545	0.5620	612	0.5329	679	0.1355	746	0.0182
412	0.0161	479	0.2642	546	0.5628	613	0.5280	680	0.1313	747	0.0177
413	0.0175	480	0.2604	547	0.5654	614	0.5240	681	0.1279	748	0.0173
414	0.0201	481	0.2601	548	0.5672	615	0.5181	682	0.1247	749	0.0168
415	0.0221	482	0.2602	549	0.5702	616	0.5149	683	0.1210	750	0.0163
416	0.0254	483	0.2625	550	0.5730	617	0.5084	684	0.1175	751	0.0159
417	0.0273	484	0.2652	551	0.5734	618	0.5027	685	0.1145	752	0.0156
418	0.0305	485	0.2682	552	0.5742	619	0.4963	686	0.1115	753	0.0150
419	0.0339	486	0.2716	553	0.5758	620	0.4907	687	0.1081	754	0.0148
420	0.0378	487	0.2754	554	0.5767	621	0.4841	688	0.1055	755	0.0145
421	0.0416	488	0.2801	555	0.5776	622	0.4785	689	0.1032	756	0.0140
422	0.0463	489	0.2838	556	0.5787	623	0.4737	690	0.1004	757	0.0136
423	0.0526	490	0.2888	557	0.5797	624	0.4670	691	0.0968	758	0.0135
424	0.0573	491	0.2963	558	0.5815	625	0.4604	692	0.0941	759	0.0132
425	0.0653	492	0.3027	559	0.5833	626	0.4551	693	0.0912	760	0.0130
426	0.0727	493	0.3120	560	0.5848	627	0.4482	694	0.0881	761	0.0125
427	0.0811	494	0.3203	561	0.5858	628	0.4416	695	0.0860	762	0.0123
428	0.0900	495	0.3298	562	0.5884	629	0.4357	696	0.0836	763	0.0119
429	0.1006	496	0.3390	563	0.5885	630	0.4289	697	0.0814	764	0.0118
430	0.1117	497	0.3494	564	0.5910	631	0.4212	698	0.0787	765	0.0112
431	0.1246	498	0.3588	565	0.5914	632	0.4155	699	0.0767	766	0.0112
432	0.1388	499	0.3707	566	0.5932	633	0.4086	700	0.0745	767	0.0109
433	0.1535	500	0.3808	567	0.5936	634	0.4016	701	0.0719	768	0.0106
434	0.1717	501	0.3921	568	0.5939	635	0.3952	702	0.0698	769	0.0105
435	0.1913	502	0.4017	569	0.5950	636	0.3873	703	0.0679	770	0.0104
436	0.2111	503	0.4111	570	0.5973	637	0.3809	704	0.0658	771	0.0103
437	0.2346	504	0.4208	571	0.5971	638	0.3738	705	0.0640	772	0.0098
438	0.2589	505	0.4297	572	0.5988	639	0.3658	706	0.0619	773	0.0097
439	0.2883	506	0.4387	573	0.6001	640	0.3588	707	0.0603	774	0.0095
440	0.3197	507	0.4469	574	0.6009	641	0.3514	708	0.0579	775	0.0093
441	0.3563	508	0.4544	575	0.6018	642	0.3452	709	0.0564	776	0.0092
442	0.3982	509	0.4623	576	0.6029	643	0.3389	710	0.0547	777	0.0089
443	0.4451	510	0.4695	577	0.6030	644	0.3326	711	0.0527	778	0.0088
444	0.4977	511	0.4762	578	0.6045	645	0.3255	712	0.0513	779	0.0089
445	0.5537	512	0.4822	579	0.6046	646	0.3191	713	0.0492	780	0.0089
446	0.6209	513	0.4882	580	0.6047	647	0.3120	714	0.0477	N/A	N/A

Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.0	45.3	Face Down	90	25

Electrical Data:

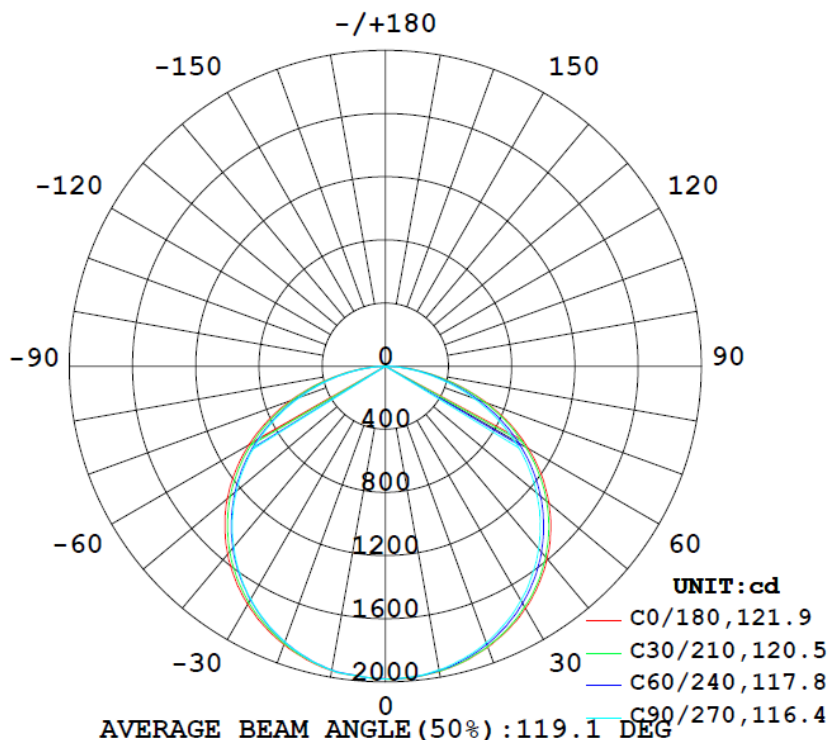
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.4119	49.17	0.9947

Goniophotometer Data:

Parameter	Results	
Total Luminous (lm)	6087.1	
Luminous Efficacy (lm/W)	123.80	
Zonal Lumens Distribution (0-60°)	77.2%	
Beam Angle (°)	119.1	
Spacing Criterion	0-180°	90-270°
	1.34	1.30
UGR	Viewed Crosswise	Viewed Endwise
	20.8	20.0

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

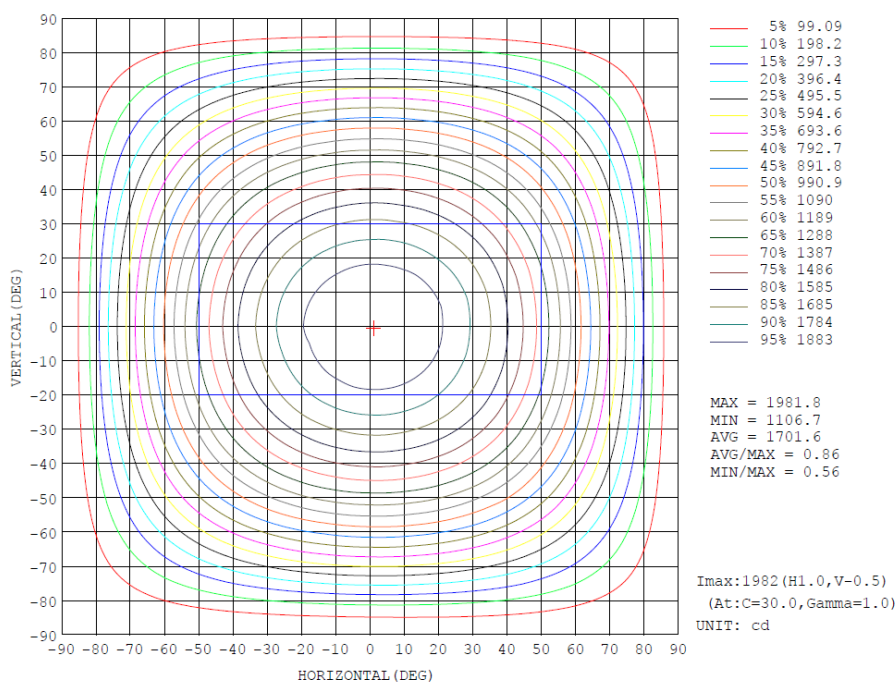


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	Ilum, lamp
10	1965	1958	1953	1950	1958	1954	1956	1966	0- 10	187.9	187.9	3.09,3.09
20	1894	1883	1863	1863	1875	1862	1858	1884	10- 20	543.0	730.8	12,12
30	1771	1748	1714	1721	1743	1719	1704	1744	20- 30	834.8	1566	25.7,25.7
40	1591	1558	1509	1526	1554	1517	1494	1548	30- 40	1028	2593	42.6,42.6
50	1352	1309	1250	1270	1307	1261	1232	1296	40- 50	1093	3687	60.6,60.6
60	1046	1001	942.3	962.0	999.1	953.9	922.5	984.9	50- 60	1015	4702	77.2,77.2
70	682.7	646.5	595.7	610.9	639.1	604.0	578.7	629.1	60- 70	795.1	5497	90.3,90.3
80	289.5	279.0	239.7	250.8	263.0	251.6	237.5	264.0	70- 80	463.1	5960	97.9,97.9
90	11.93	11.83	5.119	2.930	0.6487	2.304	1.675	1.137	80- 90	122.2	6082	99.9,99.9
100	0.3522	0.3279	0.3336	0.3605	0.6690	0.6605	0.6432	0.6422	90-100	0.8532	6083	99.9,99.9
110	0.4383	0.3726	0.4057	0.4767	0.7277	0.7228	0.7270	0.7271	100-110	0.5759	6083	99.9,99.9
120	0.6027	0.4578	0.5274	0.6312	0.8663	0.8163	0.8100	0.8201	110-120	0.6097	6084	99.9,99.9
130	0.7846	0.6437	0.6716	0.8167	1.071	1.135	1.130	1.028	120-130	0.7101	6085	100,100
140	0.9082	0.7974	0.8447	0.9086	1.128	1.233	1.302	1.189	130-140	0.7586	6085	100,100
150	1.004	0.9122	0.8669	0.9384	1.284	1.329	1.387	1.353	140-150	0.6822	6086	100,100
160	1.236	1.068	0.8605	1.064	1.491	1.437	1.385	1.427	150-160	0.5511	6087	100,100
170	1.477	1.378	1.087	1.325	1.589	1.631	1.470	1.435	160-170	0.3798	6087	100,100
180	1.555	1.511	1.374	1.392	1.560	1.561	1.420	1.365	170-180	0.1396	6087	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	UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H Y=2H	9.9	11.6	10.3	11.9	12.2	9.3	11.0	9.7	11.3	11.6
3H	11.9	13.4	12.3	13.7	14.1	11.2	12.7	11.6	13.0	13.4
4H	12.6	14.1	13.0	14.4	14.8	11.9	13.3	12.3	13.7	14.0
6H	13.2	14.5	13.6	14.9	15.3	12.4	13.7	12.8	14.1	14.4
8H	13.4	14.6	13.8	15.0	15.4	12.5	13.8	12.9	14.2	14.6
12H	13.5	14.7	13.9	15.1	15.5	12.6	13.8	13.0	14.2	14.6
4H 2H	10.5	12.0	10.9	12.3	12.7	10.1	11.5	10.5	11.8	12.2
3H	12.7	13.9	13.1	14.3	14.7	12.1	13.3	12.6	13.7	14.1
4H	13.6	14.7	14.0	15.1	15.6	12.9	14.0	13.4	14.5	14.9
6H	14.3	15.3	14.8	15.7	16.1	13.6	14.5	14.0	14.9	15.4
8H	14.5	15.4	15.0	15.9	16.3	13.7	14.6	14.2	15.1	15.5
12H	14.7	15.5	15.1	16.0	16.4	13.8	14.7	14.3	15.1	15.6
8H 4H	13.9	14.8	14.4	15.3	15.7	13.3	14.2	13.8	14.7	15.1
6H	14.7	15.5	15.2	16.0	16.4	14.0	14.8	14.5	15.3	15.7
8H	15.0	15.7	15.5	16.2	16.7	14.3	14.9	14.8	15.4	15.9
12H	15.3	15.8	15.8	16.3	16.9	14.5	15.1	15.0	15.5	16.1
12H 4H	13.9	14.8	14.4	15.2	15.7	13.4	14.2	13.8	14.6	15.1
6H	14.8	15.5	15.3	15.9	16.5	14.1	14.8	14.6	15.2	15.8
8H	15.1	15.7	15.6	16.2	16.8	14.4	15.0	14.9	15.5	16.0

Maximum UGR = 16.9

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	UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H Y=2H	16.2	17.9	16.6	18.2	18.5	15.6	17.3	16.0	17.6	17.9
3H	18.2	19.7	18.6	20.0	20.4	17.5	19.0	17.9	19.3	19.7
4H	18.9	20.4	19.3	20.7	21.1	18.2	19.6	18.6	20.0	20.3
6H	19.5	20.8	19.9	21.2	21.6	18.7	20.0	19.1	20.4	20.7
8H	19.7	20.9	20.1	21.3	21.7	18.8	20.1	19.2	20.5	20.9
12H	19.8	21.0	20.2	21.4	21.8	18.9	20.1	19.3	20.5	20.9
4H 2H	16.8	18.3	17.2	18.6	19.0	16.4	17.8	16.8	18.1	18.5
3H	19.0	20.2	19.4	20.6	21.0	18.4	19.6	18.9	20.0	20.4
4H	19.9	21.0	20.3	21.4	21.9	19.2	20.3	19.7	20.8	21.2
6H	20.6	21.6	21.1	22.0	22.4	19.9	20.8	20.3	21.2	21.7
8H	20.8	21.7	21.3	22.2	22.6	20.0	20.9	20.5	21.4	21.8
12H	21.0	21.8	21.4	22.3	22.7	20.1	21.0	20.6	21.4	21.9
8H 4H	20.2	21.1	20.7	21.6	22.0	19.6	20.5	20.1	21.0	21.4
6H	21.0	21.8	21.5	22.3	22.7	20.3	21.1	20.8	21.6	22.0
8H	21.3	22.0	21.8	22.5	23.0	20.6	21.2	21.1	21.7	22.2
12H	21.6	22.1	22.1	22.6	23.2	20.8	21.4	21.3	21.8	22.4
12H 4H	20.2	21.1	20.7	21.5	22.0	19.7	20.5	20.1	20.9	21.4
6H	21.1	21.8	21.6	22.2	22.8	20.4	21.1	20.9	21.5	22.1
8H	21.4	22.0	21.9	22.5	23.1	20.7	21.3	21.2	21.8	22.3

Maximum UGR = 23.2

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	1980	1979	1981	1982	1980	1980	1982	1979	1981	1980	1980	1980	1979	1981	1982	1980	1980	1980
5	1978	1978	1978	1978	1977	1976	1975	1973	1971	1972	1971	1971	1972	1972	1971	1970	1971	1972	1971
10	1965	1963	1963	1958	1957	1956	1953	1951	1949	1950	1948	1948	1958	1957	1956	1954	1954	1953	1956
15	1935	1936	1934	1927	1922	1920	1917	1914	1913	1913	1913	1915	1926	1922	1918	1917	1913	1913	1914
20	1894	1894	1890	1883	1876	1869	1863	1862	1861	1863	1865	1868	1875	1874	1870	1862	1861	1857	1858
25	1840	1839	1833	1824	1815	1803	1796	1795	1795	1799	1805	1806	1816	1813	1805	1799	1791	1788	1788
30	1771	1771	1761	1748	1735	1722	1714	1712	1714	1721	1728	1732	1743	1737	1730	1719	1710	1702	1704
35	1689	1687	1678	1660	1644	1629	1618	1617	1620	1632	1639	1646	1654	1649	1638	1625	1613	1607	1606
40	1591	1589	1579	1558	1538	1519	1509	1506	1512	1526	1536	1543	1554	1548	1533	1517	1502	1494	1494
45	1480	1476	1463	1439	1417	1397	1386	1383	1391	1403	1417	1426	1437	1431	1413	1396	1379	1370	1369
50	1352	1347	1332	1309	1283	1261	1250	1248	1256	1270	1285	1296	1307	1297	1281	1261	1243	1232	1232
55	1207	1203	1186	1161	1134	1113	1101	1099	1107	1122	1139	1151	1159	1151	1135	1114	1095	1083	1082
60	1046	1043	1026	1001	976	954	942	936	948	962	978	991	999	991	975	954	935	924	923
65	872	869	855	831	806	786	774	771	779	793	808	819	824	817	802	782	765	754	754
70	683	681	667	647	624	607	596	594	600	611	623	634	639	633	620	604	589	579	579
75	485	485	475	459	442	426	415	413	418	427	436	444	449	445	436	424	412	404	403
80	290	292	288	279	262	248	240	237	242	251	257	259	263	262	258	252	244	239	238
85	120	124	123	116	109	101	95.2	92.7	93.3	96.2	99.9	102	103	103	102	98.6	93.9	89.9	89.0
90	11.9	13.5	12.8	11.8	10.5	8.70	5.12	3.94	3.18	2.93	2.96	3.88	0.65	1.23	1.85	2.30	2.16	2.05	1.68
95	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.29	0.30	0.30	0.30	0.30	0.57	0.57	0.57	0.57	0.56	0.55	0.54
100	0.35	0.34	0.33	0.33	0.33	0.33	0.33	0.34	0.35	0.36	0.36	0.37	0.67	0.66	0.66	0.66	0.66	0.65	0.64
105	0.40	0.39	0.36	0.36	0.37	0.37	0.37	0.38	0.40	0.41	0.41	0.41	0.73	0.72	0.72	0.72	0.72	0.71	0.71
110	0.44	0.41	0.38	0.37	0.38	0.39	0.41	0.43	0.46	0.48	0.47	0.46	0.73	0.72	0.72	0.72	0.73	0.72	0.73
115	0.51	0.45	0.43	0.40	0.41	0.44	0.46	0.50	0.53	0.54	0.54	0.52	0.74	0.73	0.73	0.73	0.73	0.73	0.75
120	0.60	0.52	0.50	0.46	0.46	0.50	0.53	0.57	0.61	0.63	0.64	0.61	0.87	0.84	0.83	0.82	0.79	0.79	0.81
125	0.70	0.62	0.57	0.55	0.54	0.56	0.60	0.63	0.69	0.74	0.72	0.70	1.00	1.00	0.99	0.98	0.95	0.93	0.93
130	0.78	0.72	0.66	0.64	0.65	0.65	0.67	0.72	0.80	0.82	0.80	0.79	1.07	1.10	1.10	1.13	1.12	1.12	1.13
135	0.86	0.81	0.75	0.72	0.74	0.76	0.79	0.81	0.88	0.87	0.86	0.86	1.10	1.13	1.16	1.20	1.23	1.25	1.27
140	0.91	0.88	0.84	0.80	0.79	0.83	0.84	0.86	0.91	0.91	0.89	0.90	1.13	1.14	1.17	1.23	1.26	1.30	1.30
145	0.96	0.96	0.91	0.86	0.84	0.87	0.88	0.89	0.95	0.93	0.92	0.94	1.21	1.20	1.22	1.28	1.30	1.34	1.37
150	1.00	1.02	0.97	0.91	0.86	0.89	0.87	0.88	0.94	0.94	0.93	0.97	1.28	1.28	1.27	1.33	1.34	1.38	1.39
155	1.10	1.14	1.10	0.98	0.94	0.96	0.88	0.91	0.98	0.98	1.02	1.04	1.35	1.34	1.35	1.37	1.38	1.41	1.37
160	1.24	1.27	1.20	1.07	0.97	0.97	0.86	0.94	1.02	1.06	1.10	1.19	1.49	1.48	1.45	1.44	1.45	1.42	1.39
165	1.36	1.41	1.34	1.24	1.07	1.04	0.94	1.03	1.16	1.22	1.29	1.33	1.54	1.54	1.55	1.54	1.54	1.48	1.43
170	1.48	1.52	1.48	1.38	1.17	1.15	1.09	1.11	1.26	1.32	1.39	1.45	1.59	1.59	1.63	1.63	1.64	1.56	1.47
175	1.56	1.60	1.58	1.54	1.35	1.34	1.26	1.23	1.37	1.39	1.44	1.50	1.61	1.61	1.65	1.65	1.61	1.60	1.48
180	1.56	1.59	1.55	1.51	1.44	1.42	1.37	1.34	1.37	1.39	1.43	1.49	1.56	1.56	1.60	1.56	1.52	1.46	1.42

Table--2

UNIT: cd

C (DEG)	285	300	315	330	345														
γ (DEG)	0	1982	1979	1981	1980	1980													
5	1971	1973	1976	1975	1977														
10	1958	1960	1966	1964	1964														
15	1919	1926	1932	1937	1941														
20	1865	1875	1884	1892	1902														
25	1798	1807	1822	1834	1844														
30	1712	1726	1744	1761	1773														
35	1616	1633	1654	1676	1689														
40	1504	1524	1548	1574	1591														
45	1381	1401	1430	1457	1477														
50	1243	1266	1296	1326	1347														
55	1094	1118	1147	1178	1202														
60	934	956	985	1016	1039														
65	764	785	812	840	864														
70	588	605	629	654	674														
75	410	424	443	463	478														
80	243	253	264	275	285														
85	91.6	97.4	105	112	117														
90	1.41	1.28	1.14	1.04	1.67														
95	0.54	0.54	0.55	0.55	0.55														
100	0.64	0.64	0.64	0.64	0.64														
105	0.71	0.71	0.71	0.72	0.71														
110	0.72	0.73	0.73	0.73	0.72														
115	0.74	0.75	0.75	0.74	0.73														
120	0.80	0.80	0.82	0.82	0.83														
125	0.91	0.91	0.92	0.92	0.96														
130	1.09	1.05	1.03	1.03	1.04														
135	1.21	1.15	1.11	1.10	1.08														
140	1.24	1.23	1.19	1.16	1.13														
145	1.31	1.31	1.29	1.24	1.23														
150	1.36	1.36	1.35	1.33	1.33														
155	1.40	1.39	1.39	1.44	1.42														
160	1.40	1.42	1.43	1.52	1.53														
165	1.39	1.42	1.45	1.55	1.57														
170	1.46	1.42	1.43	1.55	1.59														
175	1.50	1.52	1.41	1.55	1.56														
180	1.39	1.34	1.37	1.41	1.44														

THD and PF Measurement Test Results:

Electrical Measurement:

CCT Setting	Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
3000K	120.0	60	0.4119	49.17	0.9947	7.33
	277.0	60	0.1904	48.69	0.9232	16.32
3500K	120.0	60	0.4117	49.05	0.9928	7.06
	277.0	60	0.1898	48.55	0.9235	15.98
4000K	120.0	60	0.4068	48.47	0.9928	7.28
	277.0	60	0.1882	48.06	0.9218	15.91
5000K	120.0	60	0.4130	49.36	0.9959	7.36
	277.0	60	0.1910	48.79	0.9221	16.15

Annex:

ANSI CCT Quadrangle (omit any outside product range)/Worst-Case Value	Actual CCT (K)	Power Consumption (W)	Lumen Output (lm)	Efficacy (lm/W)	Input Control Signal Applied
3000K	3006	49.17	6087.1	123.80	Set Switch 0% to 3000K
3500K	3562	49.05	6555.5	133.65	Set Switch 33% to 3500K
4000K	4021	48.47	6751.9	139.30	Set Switch 66% to 4000K
5000K	5035	48.78	6277.3	128.69	Set Switch 100% to 5000K
Lowest Efficacy	123.80 lm/W (@3000K)				
Maximum Power	49.17 W				

Photo of Sample:



Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2021-11-10	2022-11-09
NTC-F01-006	2.0 meter Integrating Sphere	2021-11-10	2022-11-09
NTC-F01-012	Standard Lamp	2021-11-10	2022-11-09
NTC-F01-013	Standard Lamp	2021-11-10	2022-11-09
NTC-F01-031	Digital Power Meter	2021-08-22	2022-08-21
NTC-F01-020	Temperature & Humidity Meter	2021-11-15	2022-11-14

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