LM-79-08 Test Report

For

RAB Lighting Inc.

(Brand Name:RAB Lighting)

408 W 14th St, New York, NY 10014 United States
Xiao Xiang,15921313292,Gary.Xiao@rablighting.com

Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Model name(s): AL22-150[blank, SF, WM, UNV][blank, W]/480[blank, /PIR,/MVS, /LCBS, /LCBS/MVS]

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Winny Wu

Engineer: Winny Wu

Date: 2024-03-26

Review By:

Jason Luo

Manager: Jason Luo

1.1 Product Information:

Organization Name	RAB Lighting Inc.	
Brand Name	RAB Lighting	
Model Number	AL22-150[blank, SF, WM, UNV][blank, W]/480[blank, /PIR,/MVS, /LCBS, /LCBS/MVS]	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	
Rated Voltage / Frequency	277-480Vac, 50/60 Hz	
Nominal Power	150W(Power adjustable)	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K, 5000K (Color tunable)	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-2880RC35005A1 L128-5780RC35005A1	
Sample Number	UTU2503014E-B1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		

1.2 Test Specifications:

Date of Receipt	2024-03-10
Date of Test	2024-03-12
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. Electrical Parameters
Reference Standard	1. IES LM-79-2019 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	BL-QP-033

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.
Goniophotometer far field detector f1'=1.42%, Test distance: 14.14m

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º 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 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.Use 2m diameter integrated sphere (94-98% coating reflectance) and 4π geometry.
Self-absorption:
AST-S-GE12-150WBT3/T4/T5DH1-abcdWfg:1.2434

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25º C ± 1º C. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-03-12	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AL22-150/480 (Setting at 3000K T3)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU250301	277.0	60	0.536	148.04	0.998	2.71
4E-B1	480.0	60	0.326	148.87	0.952	6.73
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

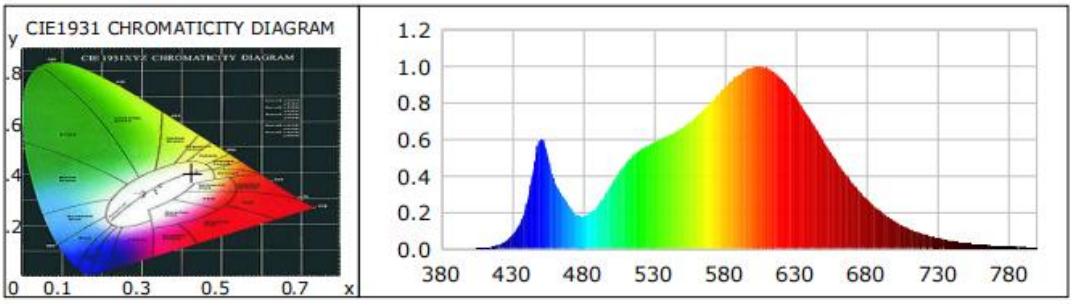
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
CCT (K)	3192
Duv	0.0030
Chromaticity (x, y)	x=0.4278 y=0.4081
Chromaticity (u', v')	u'=0.243 v'=0.5216
Color Rendering Index (CRI)	83
R9	10
Rf	86
Rg	96
Rcs,h1(%)	-11

Special Color Rendering Indices			
R1	82	R9	10
R2	89	R10	76
R3	97	R11	83
R4	83	R12	66
R5	81	R13	83
R6	87	R14	98
R7	86	R15	74
R8	62	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	21706.3	22034.9	>=10000(-10%)
Luminous Efficacy (lm/W)	146.62	148.01	Premium: >= 120(-3%)
Most worst Luminous/Highest	145.81		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	3.0	--	<=10(+3)
Beam Angle (°)	116.5	--	--
Center Beam Candle Power (cd)	5192	--	--

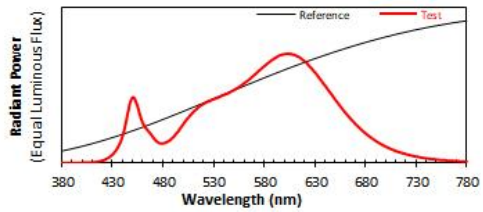
Spectral Power Distribution & Chromaticity Diagram

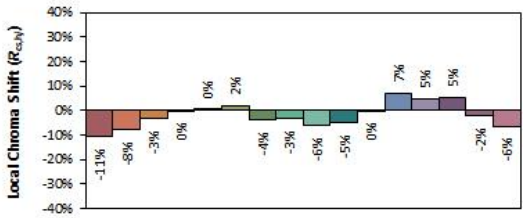


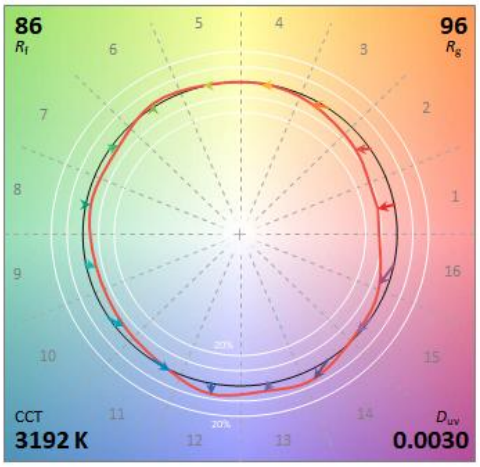
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.1478	535	0.5637	229.4222	690	0.3565	145.0985
385	0.0001	0.0472	540	0.5822	236.9740	695	0.3123	127.0873
390	0.0004	0.1459	545	0.6007	244.4903	700	0.2701	109.9257
395	0.0004	0.1790	550	0.6213	252.8636	705	0.2348	95.5484
400	0.0011	0.4541	555	0.6414	261.0409	710	0.2017	82.0963
405	0.0018	0.7420	560	0.6659	271.0271	715	0.1738	70.7188
410	0.0044	1.7781	565	0.6946	282.6922	720	0.1491	60.6763
415	0.0098	3.9730	570	0.7281	296.3304	725	0.1272	51.7721
420	0.0203	8.2585	575	0.7633	310.6689	730	0.1084	44.1140
425	0.0399	16.2420	580	0.8028	326.7521	735	0.0926	37.6722
430	0.0752	30.6125	585	0.8459	344.2789	740	0.0802	32.6278
435	0.1360	55.3595	590	0.8862	360.6645	745	0.0680	27.6722
440	0.2437	99.1980	595	0.9224	375.4053	750	0.0583	23.7249
445	0.4481	182.3818	600	0.9582	389.9975	755	0.0486	19.7916
450	0.6005	244.4233	605	0.9847	400.7836	760	0.0413	16.8031
455	0.5108	207.9116	610	0.9963	405.4799	765	0.0351	14.2790
460	0.3656	148.7889	615	1.0000	407.0012	770	0.0305	12.4252
465	0.2958	120.4094	620	0.9886	402.3419	775	0.0259	10.5231
470	0.2352	95.7470	625	0.9654	392.9084	780	0.0225	9.1616
475	0.1879	76.4659	630	0.9304	378.6835	785	0.0189	7.7001
480	0.1782	72.5120	635	0.8834	359.5361	790	0.0164	6.6653
485	0.1966	80.0124	640	0.8296	337.6600	795	0.0132	5.3786
490	0.2335	95.0416	645	0.7689	312.9575	800	0.0112	4.5659
495	0.2886	117.4537	650	0.7083	288.2697			
500	0.3544	144.2289	655	0.6453	262.6335			
505	0.4144	168.6452	660	0.5808	236.3980			
510	0.4669	190.0437	665	0.5203	211.7676			
515	0.5082	206.8284	670	0.4621	188.0716			
520	0.5395	219.5808	675	0.4069	165.6186			
525	0.5637	229.4222	680	0.3565	145.0985			
530	0.5822	236.9740	685	0.3123	127.0873			

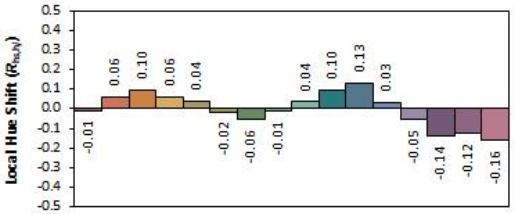
TM30

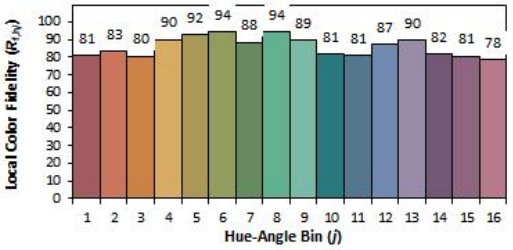
ANSI/IES TM-30-18 Color Rendition Report

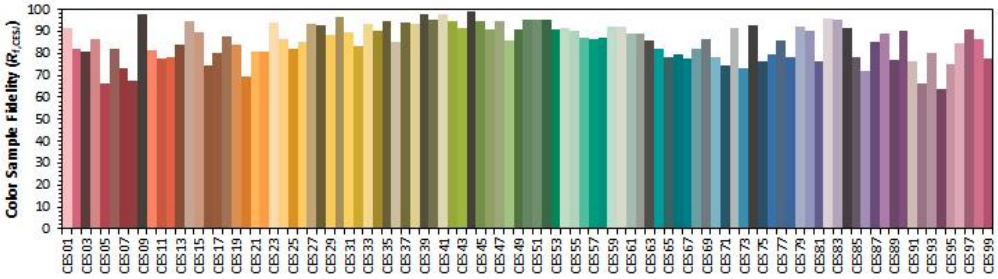












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4278
y	0.4081
u'	0.2430
v'	0.5216

CIE 13.3-1995 (CRI)

R_a	83
R_9	10

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

Zonal Lumen Tabulation

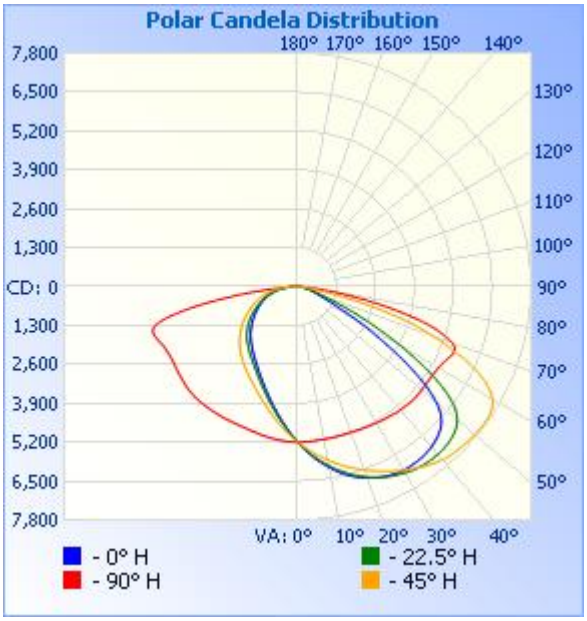
Zonal Lumen Summary

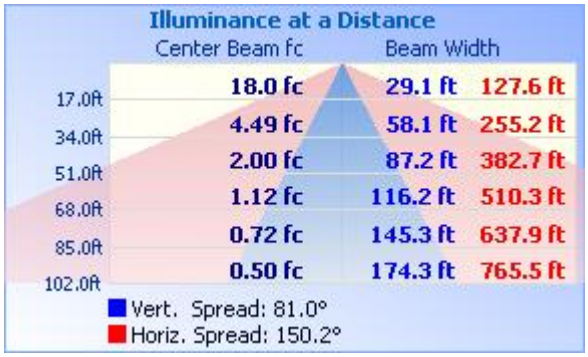
Zone	Lumens	% Lamp	% Luminaire
0-30	4,300.7	19.8%	19.8%
0-40	7,459.1	34.4%	34.4%
0-60	15,159.5	69.8%	69.8%
60-90	6,545.6	30.2%	30.2%
70-100	3,150.9	14.5%	14.5%
90-120	0	0%	0%
0-90	21,705.1	100%	100%
90-180	0	0%	0%
0-180	21,705.1	100%	100%

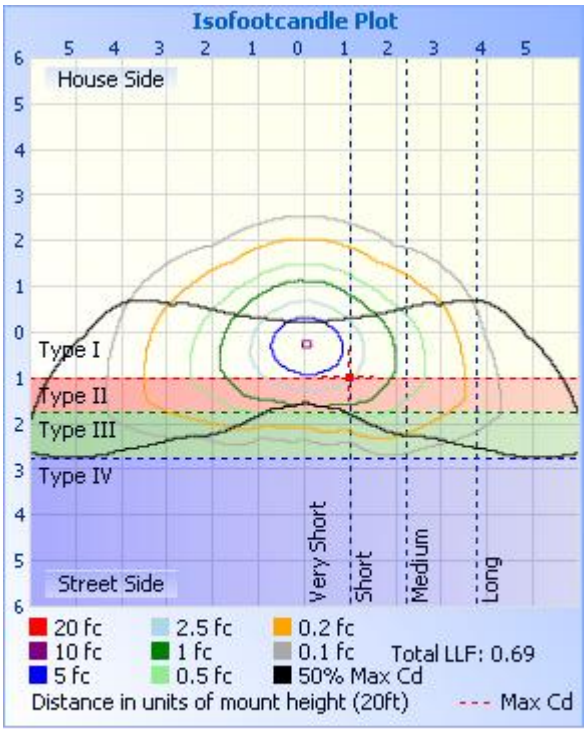
Lumens Per Zone

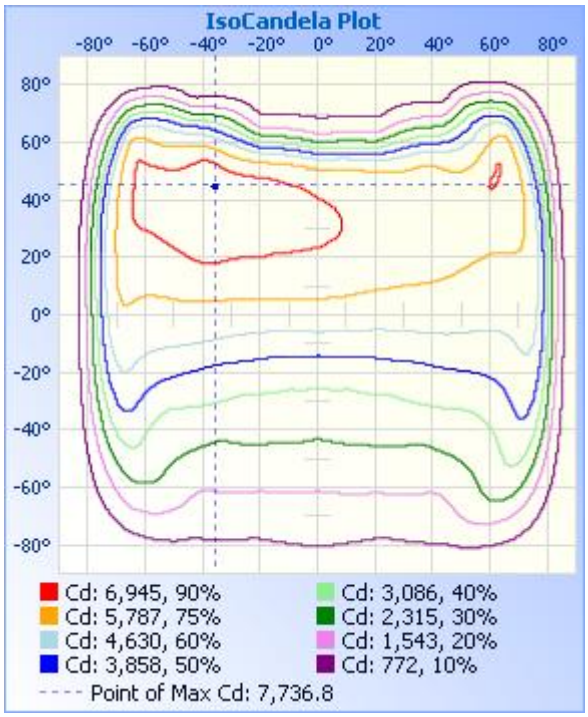
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	494.0	2.3%	90-100	0	0%
10-20	1,454.6	6.7%	100-110	0	0%
20-30	2,352.2	10.8%	110-120	0	0%
30-40	3,158.3	14.6%	120-130	0	0%
40-50	3,783.5	17.4%	130-140	0	0%
50-60	3,916.9	18.0%	140-150	0	0%
60-70	3,394.7	15.6%	150-160	0	0%
70-80	2,506.6	11.5%	160-170	0	0%
80-90	644.3	3.0%	170-180	0	0%

Photometric Data









Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192
1	5296	5286	5264	5235	5192	5153	5119	5097	5089	5099	5121	5150	5192	5224	5266	5288	5296
2	5396	5377	5336	5269	5191	5113	5046	5002	4986	5000	5045	5117	5191	5261	5334	5380	5396
3	5497	5471	5406	5307	5188	5067	4971	4905	4883	4904	4971	5074	5186	5296	5404	5471	5497
4	5597	5561	5475	5344	5186	5026	4897	4810	4781	4809	4897	5032	5182	5330	5471	5563	5597
5	5693	5652	5545	5380	5185	4984	4821	4714	4678	4713	4822	4988	5175	5363	5539	5650	5693
6	5789	5740	5616	5419	5182	4942	4748	4620	4578	4621	4748	4946	5169	5395	5603	5737	5789
7	5880	5829	5685	5457	5180	4901	4673	4528	4479	4528	4675	4902	5163	5427	5666	5823	5880
8	5970	5915	5753	5494	5177	4859	4599	4437	4380	4438	4600	4857	5154	5455	5727	5905	5970
9	6055	5999	5821	5530	5174	4818	4527	4348	4285	4347	4528	4813	5146	5484	5785	5987	6055
10	6140	6079	5888	5568	5174	4776	4455	4261	4192	4260	4456	4768	5136	5510	5842	6063	6140
11	6223	6160	5956	5608	5173	4736	4385	4176	4102	4173	4385	4725	5125	5535	5897	6137	6223
12	6305	6238	6023	5647	5173	4695	4317	4092	4013	4089	4316	4679	5115	5560	5947	6207	6305
13	6383	6316	6090	5686	5172	4653	4250	4011	3928	4008	4249	4638	5106	5583	5994	6276	6383
14	6454	6388	6155	5724	5172	4612	4183	3932	3843	3929	4182	4593	5095	5608	6039	6339	6454
15	6520	6458	6218	5764	5172	4573	4117	3855	3761	3851	4116	4550	5085	5631	6084	6398	6520
16	6585	6526	6280	5803	5173	4535	4052	3781	3685	3777	4053	4507	5074	5652	6129	6453	6585
17	6643	6590	6344	5843	5174	4498	3989	3708	3610	3705	3990	4465	5065	5673	6170	6507	6643
18	6700	6650	6404	5884	5175	4462	3929	3638	3539	3635	3930	4426	5056	5691	6208	6556	6700
19	6752	6709	6462	5925	5178	4426	3870	3569	3468	3565	3870	4388	5048	5711	6243	6602	6752
20	6802	6766	6520	5968	5182	4390	3814	3504	3400	3501	3812	4350	5040	5732	6275	6643	6802
21	6845	6820	6578	6014	5187	4356	3758	3440	3334	3437	3757	4313	5035	5751	6307	6682	6845
22	6888	6871	6636	6061	5194	4322	3703	3378	3270	3374	3703	4278	5031	5772	6338	6717	6888
23	6925	6917	6691	6108	5202	4290	3652	3318	3208	3315	3651	4245	5027	5794	6365	6748	6925
24	6960	6965	6745	6154	5208	4257	3600	3261	3148	3258	3602	4214	5026	5817	6391	6778	6960
25	6990	7010	6801	6201	5214	4227	3551	3205	3090	3203	3554	4182	5027	5840	6419	6804	6990
26	7015	7050	6859	6248	5219	4197	3505	3152	3034	3149	3508	4153	5025	5863	6447	6826	7015
27	7039	7089	6914	6297	5229	4167	3461	3101	2979	3099	3463	4125	5025	5887	6475	6848	7039
28	7061	7120	6968	6347	5239	4134	3415	3051	2928	3049	3420	4097	5024	5911	6499	6865	7061

29	7074	7149	7024	6397	5248	4105	3370	3003	2878	3002	3379	4068	5025	5933	6523	6878	7074
30	7084	7181	7080	6446	5255	4076	3328	2956	2831	2958	3338	4040	5026	5958	6543	6884	7084
31	7089	7211	7132	6499	5265	4048	3285	2912	2785	2914	3298	4012	5026	5986	6563	6884	7089
32	7089	7234	7186	6550	5278	4021	3242	2870	2741	2874	3258	3985	5029	6015	6578	6881	7089
33	7084	7255	7238	6601	5288	3994	3198	2829	2697	2833	3217	3958	5030	6042	6591	6875	7084
34	7079	7270	7288	6651	5298	3965	3155	2789	2656	2796	3180	3932	5033	6069	6605	6872	7079
35	7069	7285	7336	6701	5307	3937	3111	2749	2614	2758	3142	3904	5033	6096	6619	6865	7069
36	7056	7292	7384	6752	5319	3907	3067	2711	2574	2720	3103	3877	5036	6123	6627	6851	7056
37	7040	7300	7427	6803	5331	3879	3025	2673	2534	2684	3064	3849	5037	6153	6633	6836	7040
38	7021	7305	7468	6851	5342	3850	2981	2635	2495	2649	3025	3822	5039	6178	6640	6821	7021
39	6999	7305	7508	6902	5353	3823	2937	2599	2456	2613	2986	3794	5039	6202	6646	6804	6999
40	6970	7305	7544	6947	5363	3795	2894	2562	2417	2578	2945	3765	5040	6228	6649	6783	6970
41	6939	7299	7576	6993	5371	3764	2850	2525	2377	2541	2904	3737	5037	6251	6650	6758	6939
42	6903	7287	7601	7036	5381	3734	2804	2488	2337	2505	2861	3709	5033	6272	6648	6729	6903
43	6858	7269	7622	7079	5388	3703	2761	2451	2298	2468	2820	3680	5032	6291	6653	6694	6858
44	6807	7249	7638	7116	5395	3669	2717	2412	2259	2432	2779	3650	5028	6308	6658	6660	6807
45	6745	7227	7653	7146	5399	3638	2672	2372	2218	2393	2736	3618	5023	6325	6659	6619	6745
46	6668	7198	7665	7171	5403	3603	2628	2332	2177	2354	2692	3586	5015	6341	6662	6572	6668
47	6572	7160	7677	7191	5405	3566	2583	2291	2136	2314	2648	3550	5007	6349	6662	6515	6572
48	6445	7111	7689	7207	5402	3528	2539	2249	2094	2273	2602	3516	4995	6355	6667	6446	6445
49	6292	7048	7697	7219	5399	3490	2494	2205	2051	2231	2556	3482	4983	6367	6667	6358	6292
50	6085	6963	7709	7231	5395	3450	2447	2161	2009	2187	2511	3444	4968	6374	6667	6245	6085
51	5830	6852	7720	7241	5392	3409	2401	2117	1966	2145	2463	3406	4953	6380	6669	6097	5830
52	5526	6703	7727	7252	5388	3365	2357	2070	1922	2099	2415	3368	4941	6389	6664	5908	5526
53	5173	6508	7734	7265	5382	3323	2309	2023	1879	2054	2365	3328	4929	6402	6658	5673	5173
54	4788	6265	**7737**	7278	5382	3282	2261	1977	1836	2007	2317	3289	4917	6412	6645	5395	4788
55	4375	5969	**7737**	7296	5384	3238	2213	1927	1792	1961	2267	3251	4903	6424	6621	5072	4375
56	3967	5634	7724	7310	5389	3195	2164	1879	1749	1913	2217	3212	4888	6441	6585	4719	3967
57	3552	5253	7703	7328	5394	3154	2115	1829	1706	1864	2166	3172	4876	6462	6524	4337	3552
58	3154	4857	7666	7345	5404	3115	2065	1779	1663	1813	2115	3134	4866	6483	6439	3952	3154
59	2773	4451	7608	7362	5414	3076	2015	1729	1620	1763	2062	3097	4856	6509	6324	3561	2773

60	2410	4037	7521	7379	5431	3040	1963	1678	1578	1713	2009	3060	4852	6537	6166	3172	2410
61	2125	3628	7404	7398	5452	3006	1911	1630	1537	1662	1956	3023	4850	6568	5977	2796	2125
62	1842	3220	7250	7426	5478	2973	1859	1579	1495	1610	1903	2989	4852	6606	5743	2448	1842
63	1558	2828	7057	7452	5510	2944	1806	1529	1454	1558	1850	2957	4859	6650	5479	2163	1558
64	1347	2461	6820	7489	5549	2917	1753	1479	1413	1506	1796	2927	4868	6701	5187	1878	1347
65	1179	2155	6543	7531	5590	2893	1701	1430	1372	1455	1741	2899	4883	6760	4864	1593	1179
66	1039	1850	6243	7578	5630	2873	1647	1382	1330	1402	1688	2875	4901	6823	4539	1376	1039
67	927	1544	5905	7633	5656	2858	1594	1333	1289	1351	1635	2854	4928	6891	4183	1191	927
68	837	1307	5555	7666	5659	2848	1539	1284	1248	1300	1582	2840	4960	6962	3819	1042	837
69	760	1113	5194	7662	5622	2843	1486	1234	1207	1248	1529	2838	4995	7023	3445	919	760
70	693	961	4822	7597	5522	2836	1431	1184	1166	1197	1472	2840	5027	7080	3070	817	693
71	635	835	4443	7482	5291	2819	1378	1132	1126	1145	1416	2847	5052	7104	2720	731	635
72	581	734	4041	7342	5059	2782	1322	1081	1088	1092	1361	2854	5066	7106	2385	657	581
73	532	648	3585	7217	4827	2715	1265	1029	1050	1038	1307	2862	5059	7077	2097	592	532
74	486	574	3085	7095	4474	2618	1210	978	1012	984	1256	2865	5017	7023	1810	534	486
75	443	511	2605	6959	4074	2502	1156	926	977	928	1205	2851	4899	6946	1522	481	443
76	402	454	2171	6773	3619	2367	1103	875	945	871	1154	2803	4680	6829	1280	434	402
77	361	403	1738	6484	3169	2216	1049	828	914	817	1103	2709	4359	6625	1065	389	361
78	324	358	1305	6021	2707	2041	985	781	879	766	1048	2562	3973	6279	887	348	324
79	288	316	979	5367	2269	1852	913	734	837	718	987	2376	3531	5781	735	309	288
80	253	277	735	4609	1842	1645	836	686	784	670	919	2153	3008	5090	609	272	253
81	220	243	548	3773	1458	1424	764	638	720	625	855	1883	2462	4293	503	240	220
82	188	209	415	2905	1125	1199	699	591	647	580	799	1593	2030	3478	414	207	188
83	156	174	310	2225	843	971	634	543	565	527	732	1318	1600	2713	333	175	156
84	126	141	231	1548	640	757	551	477	483	475	655	1086	1170	2111	259	145	126
85	98	111	169	872	437	572	466	411	401	422	561	849	846	1508	203	116	98
86	71	82	108	468	235	388	382	345	319	366	467	633	565	907	148	88	71
87	47	54	64	212	124	204	266	269	234	294	373	418	337	533	92	62	47
88	25	28	30	116	57	88	152	192	152	213	254	203	230	248	51	36	25
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180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BUG Rating

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	2605.2	12.0	12.0
FM (30-60)	7367.3	33.9	33.9
FH (60-80)	3776.6	17.4	17.4
FVH (80-90)	335.1	1.5	1.5
BL (0-30)	1695.5	7.8	7.8
BM (30-60)	3493.3	16.1	16.1
BH (60-80)	2124.2	9.8	9.8
BVH (80-90)	309.0	1.4	1.4
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	21706.2	99.9	100.0
BUG Rating	**B3-U0-G3**		

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-03-12	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AL22-150/480 (Setting at 3000K T4)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU250301	277.0	60	0.512	141.53	0.997	2.39
4E-B1	480.0	60	0.313	142.87	0.952	6.86
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

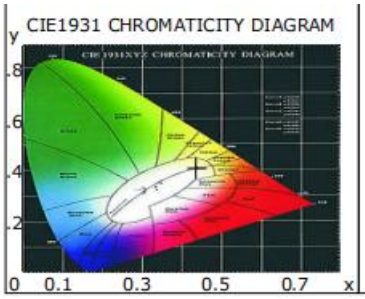
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
CCT (K)	3053
Duv	0.0039
Chromaticity (x, y)	x=0.4387 y=0.4145
Chromaticity (u', v')	u'=0.2473 v'=0.5257
Color Rendering Index (CRI)	83
R9	9
Rf	86
Rg	95
Rcs,h1(%)	-11

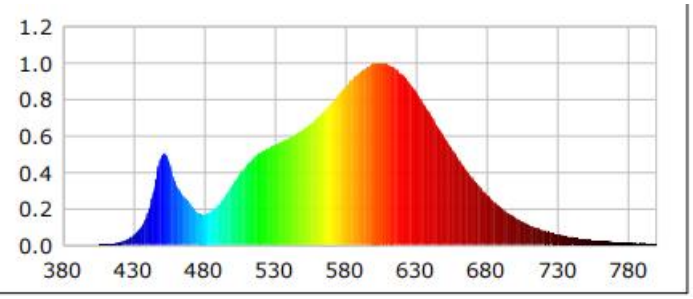
Special Color Rendering Indices			
R1	81	R9	9
R2	90	R10	77
R3	98	R11	82
R4	82	R12	66
R5	81	R13	83
R6	88	R14	99
R7	85	R15	73
R8	61	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	22168.8	22336.8	>=10000(-10%)
Luminous Efficacy (lm/W)	156.64	156.34	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	155.17		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	3.8	--	<=10(+3)
Beam Angle (°)	142.1	--	--
Center Beam Candle Power (cd)	4865	--	--

Spectral Power Distribution & Chromaticity Diagram

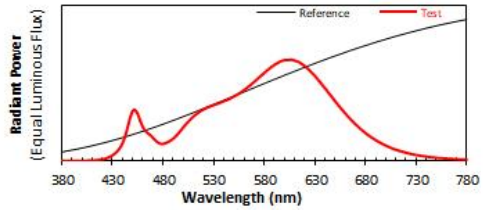


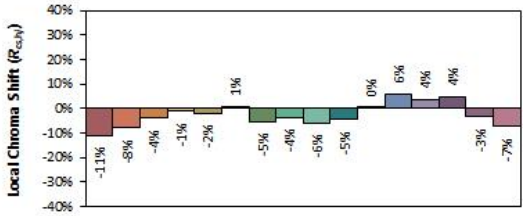


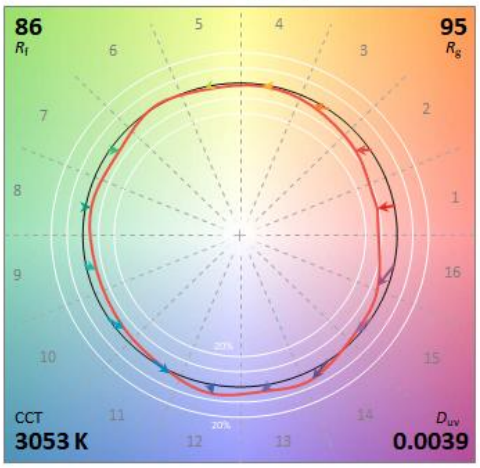
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.1594	535	0.5317	226.7040	690	0.3629	154.7258
385	0.0004	0.1579	540	0.5494	234.2383	695	0.3174	135.3437
390	0.0010	0.4368	545	0.5686	242.4379	700	0.2748	117.1546
395	0.0001	0.0380	550	0.5886	250.9549	705	0.2382	101.5566
400	0.0006	0.2413	555	0.6097	259.9688	710	0.2054	87.5817
405	0.0011	0.4659	560	0.6347	270.6139	715	0.1765	75.2540
410	0.0032	1.3722	565	0.6648	283.4364	720	0.1516	64.6536
415	0.0071	3.0166	570	0.6998	298.3565	725	0.1288	54.9213
420	0.0148	6.3259	575	0.7378	314.5496	730	0.1100	46.8983
425	0.0289	12.3057	580	0.7794	332.3153	735	0.0943	40.1893
430	0.0542	23.1169	585	0.8254	351.9174	740	0.0806	34.3656
435	0.0973	41.4646	590	0.8705	371.1458	745	0.0684	29.1455
440	0.1744	74.3678	595	0.9107	388.3045	750	0.0582	24.8012
445	0.3311	141.1677	600	0.9495	404.8227	755	0.0493	21.0168
450	0.4934	210.3466	605	0.9776	416.7986	760	0.0426	18.1506
455	0.4619	196.9269	610	0.9957	424.5473	765	0.0358	15.2586
460	0.3355	143.0579	615	1.0000	426.3614	770	0.0310	13.2026
465	0.2741	116.8540	620	0.9935	423.5922	775	0.0265	11.2954
470	0.2276	97.0394	625	0.9716	414.2703	780	0.0217	9.2617
475	0.1809	77.1165	630	0.9385	400.1234	785	0.0197	8.3818
480	0.1683	71.7466	635	0.8924	380.4685	790	0.0162	6.8971
485	0.1858	79.2342	640	0.8405	358.3644	795	0.0134	5.7162
490	0.2192	93.4469	645	0.7805	332.7604	800	0.0118	5.0177
495	0.2701	115.1664	650	0.7181	306.1768			
500	0.3302	140.8045	655	0.6535	278.6210			
505	0.3874	165.1572	660	0.5896	251.3737			
510	0.4386	187.0015	665	0.5291	225.5781			
515	0.4761	202.9707	670	0.4707	200.6804			
520	0.5080	216.5796	675	0.4137	176.3855			
525	0.5317	226.7040	680	0.3629	154.7258			
530	0.5494	234.2383	685	0.3174	135.3437			

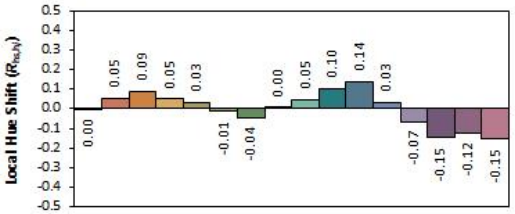
TM30

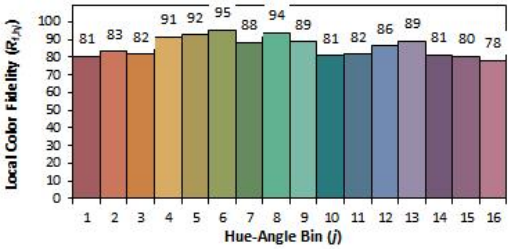
ANSI/IES TM-30-18 Color Rendition Report

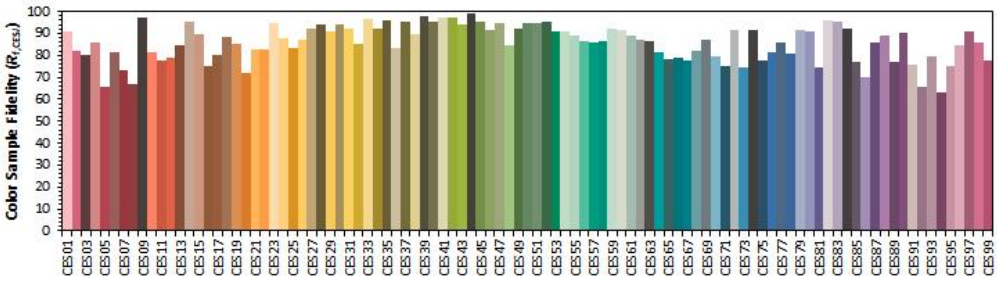












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4387
y	0.4145
u'	0.2473
v'	0.5257

CIE 13.3-1995 (CRI)

R_a	83
R_9	9

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

Zonal Lumen Tabulation

Zonal Lumen Summary

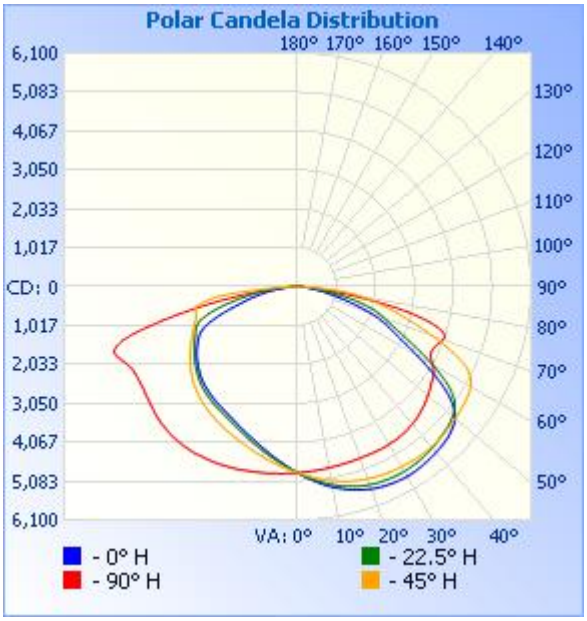
Zone	Lumens	% Lamp	% Luminaire
0-30	4,084.6	18.4%	18.4%
0-40	7,095.5	32%	32%
0-60	14,609.4	65.9%	65.9%
60-90	7,558.5	34.1%	34.1%
70-100	3,840.3	17.3%	17.3%
90-120	0	0%	0%
0-90	22,167.9	100%	100%
90-180	0	0%	0%
0-180	22,167.9	100%	100%

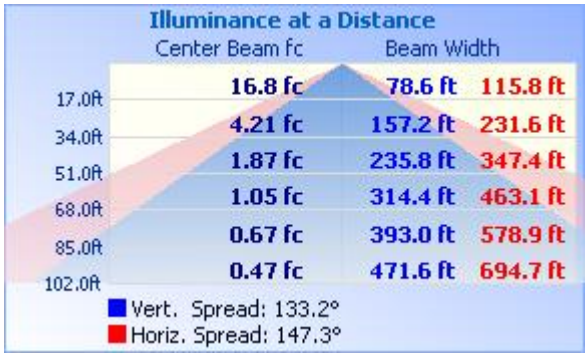
Lumens Per Zone

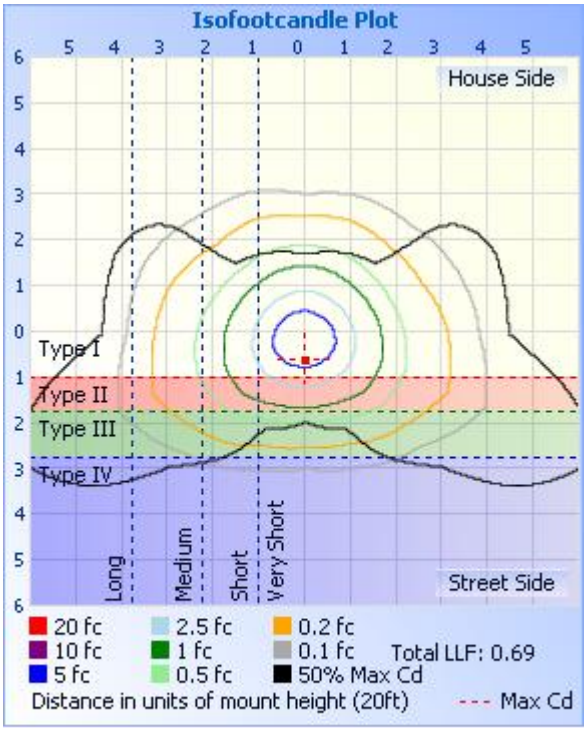
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	464.6	2.1%	90-100	0	0%
10-20	1,378.5	6.2%	100-110	0	0%
20-30	2,241.5	10.1%	110-120	0	0%
30-40	3,010.9	13.6%	120-130	0	0%
40-50	3,610.9	16.3%	130-140	0	0%
50-60	3,902.9	17.6%	140-150	0	0%
60-70	3,718.3	16.8%	150-160	0	0%
70-80	2,994.4	13.5%	160-170	0	0%
80-90	845.9	3.8%	170-180	0	0%

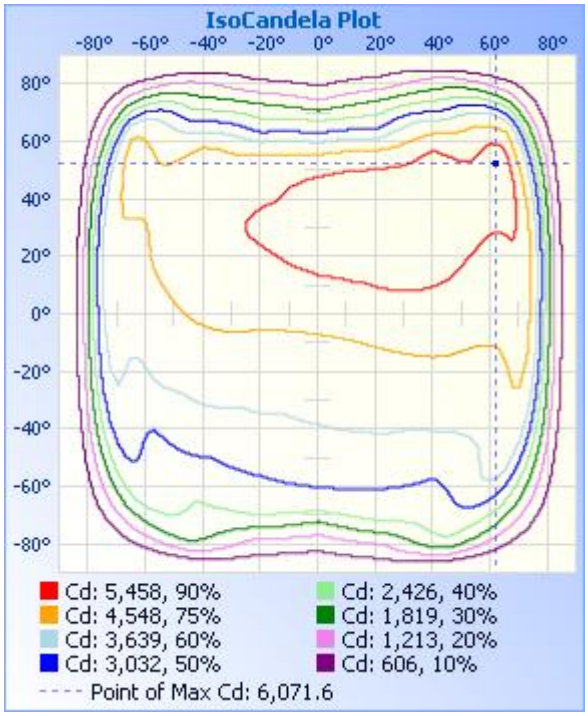
Certificate#4810.01

Photometric Data









Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865	4865
1	4916	4903	4892	4879	4858	4842	4824	4813	4815	4822	4833	4853	4868	4888	4903	4909	4916
2	4965	4945	4922	4889	4850	4814	4783	4766	4768	4776	4807	4841	4876	4911	4943	4956	4965
3	5011	4989	4950	4900	4846	4793	4749	4724	4724	4737	4778	4831	4888	4943	4982	5008	5011
4	5057	5028	4979	4913	4840	4768	4709	4674	4674	4698	4753	4821	4894	4969	5026	5050	5057
5	5102	5069	5006	4925	4831	4746	4672	4629	4624	4656	4723	4810	4903	4995	5064	5098	5102
6	5148	5109	5039	4938	4824	4721	4634	4586	4579	4617	4692	4801	4909	5021	5102	5145	5148
7	5195	5146	5067	4950	4819	4697	4597	4539	4535	4575	4668	4788	4915	5047	5140	5188	5195
8	5239	5181	5093	4965	4816	4673	4563	4496	4493	4534	4637	4779	4930	5071	5180	5233	5239
9	5279	5221	5123	4977	4809	4652	4526	4454	4447	4499	4610	4769	4934	5096	5215	5273	5279
10	5321	5254	5147	4988	4802	4625	4493	4409	4399	4459	4586	4757	4942	5125	5255	5313	5321
11	5359	5289	5172	5001	4800	4605	4455	4370	4360	4424	4555	4745	4950	5149	5287	5354	5359
12	5392	5322	5198	5010	4791	4586	4420	4330	4317	4385	4528	4735	4959	5173	5325	5395	5392
13	5432	5355	5221	5021	4791	4563	4386	4283	4279	4349	4500	4722	4968	5199	5355	5428	5432
14	5466	5378	5241	5031	4784	4542	4355	4247	4238	4309	4476	4714	4976	5222	5389	5464	5466
15	5499	5407	5266	5045	4782	4525	4322	4208	4202	4273	4448	4704	4983	5248	5420	5498	5499
16	5522	5431	5283	5057	4778	4503	4288	4169	4162	4241	4423	4697	4997	5275	5453	5528	5522
17	5550	5454	5302	5069	4777	4485	4258	4132	4128	4205	4400	4686	5007	5304	5483	5554	5550
18	5578	5476	5315	5080	4774	4468	4225	4093	4094	4173	4374	4678	5018	5327	5515	5577	5578
19	5601	5491	5335	5091	4769	4452	4193	4061	4060	4142	4351	4671	5027	5354	5540	5603	5601
20	5625	5509	5349	5107	4770	4433	4163	4028	4026	4105	4328	4662	5038	5382	5567	5626	5625
21	5644	5522	5359	5117	4767	4417	4133	3995	3999	4078	4303	4655	5044	5404	5593	5644	5644
22	5661	5534	5374	5129	4767	4402	4106	3964	3967	4047	4280	4646	5050	5431	5616	5663	5661
23	5676	5547	5383	5139	4769	4387	4075	3933	3939	4021	4260	4635	5059	5457	5642	5683	5676
24	5687	5552	5392	5150	4766	4373	4049	3902	3909	3993	4239	4629	5070	5479	5665	5697	5687
25	5697	5562	5402	5159	4769	4357	4021	3876	3886	3968	4215	4617	5075	5502	5688	5710	5697
26	5708	5564	5409	5174	4768	4343	3996	3851	3858	3943	4195	4607	5083	5529	5711	5722	5708
27	5715	5571	5415	5179	4771	4326	3973	3822	3834	3919	4175	4597	5087	5556	5728	5735	5715
28	5723	5576	5422	5190	4771	4313	3949	3795	3814	3898	4155	4587	5089	5578	5754	5744	5723

29	5727	5573	5427	5202	4767	4297	3923	3772	3791	3878	4134	4579	5096	5601	5774	5753	5727
30	5727	5574	5431	5210	4760	4285	3901	3753	3774	3861	4114	4566	5104	5627	5800	5758	5727
31	5728	5573	5438	5217	4757	4264	3878	3735	3756	3837	4095	4549	5110	5645	5816	5768	5728
32	5723	5568	5444	5224	4757	4248	3861	3716	3735	3823	4073	4541	5117	5666	5835	5768	5723
33	5717	5562	5447	5230	4752	4230	3837	3696	3719	3803	4056	4524	5113	5686	5852	5774	5717
34	5707	5556	5453	5235	4744	4214	3817	3677	3706	3788	4034	4508	5114	5705	5862	5771	5707
35	5699	5550	5455	5241	4735	4195	3789	3661	3690	3773	4013	4493	5116	5722	5876	5776	5699
36	5687	5536	5456	5240	4728	4169	3765	3640	3673	3755	3992	4478	5116	5741	5891	5772	5687
37	5678	5527	5458	5245	4719	4151	3745	3623	3655	3737	3973	4463	5111	5755	5902	5769	5678
38	5668	5513	5456	5248	4702	4129	3717	3604	3638	3721	3948	4445	5106	5772	5919	5763	5668
39	5657	5501	5457	5252	4685	4107	3694	3586	3620	3704	3923	4427	5102	5788	5930	5751	5657
40	5643	5487	5454	5249	4670	4082	3670	3571	3602	3685	3899	4407	5097	5799	5938	5743	5643
41	5629	5473	5449	5245	4655	4054	3640	3550	3586	3667	3873	4389	5088	5810	5944	5734	5629
42	5615	5454	5445	5241	4642	4031	3611	3530	3564	3648	3846	4370	5076	5821	5949	5725	5615
43	5598	5436	5437	5236	4617	4000	3585	3507	3542	3626	3823	4347	5064	5828	5953	5712	5598
44	5583	5419	5431	5231	4597	3969	3553	3486	3525	3605	3797	4321	5053	5831	5957	5704	5583
45	5561	5404	5419	5221	4573	3935	3526	3460	3502	3581	3767	4291	5041	5833	5954	5687	5561
46	5534	5384	5410	5214	4547	3903	3500	3433	3479	3554	3739	4266	5025	5832	5952	5672	5534
47	5503	5366	5401	5200	4525	3870	3468	3403	3456	3527	3712	4240	5010	5830	5944	5659	5503
48	5468	5342	5390	5188	4496	3836	3436	3376	3426	3501	3681	4208	4994	5825	5940	5639	5468
49	5428	5315	5379	5172	4472	3800	3403	3346	3399	3473	3642	4174	4971	5819	5936	5618	5428
50	5371	5286	5368	5161	4435	3760	3371	3318	3369	3443	3607	4147	4947	5809	5932	5591	5371
51	5294	5248	5357	5145	4409	3723	3338	3289	3342	3411	3572	4112	4929	5802	5930	5557	5294
52	5189	5204	5348	5129	4382	3687	3303	3258	3310	3381	3541	4076	4910	5795	5922	5514	5189
53	5066	5147	5336	5113	4351	3650	3260	3216	3280	3352	3505	4043	4887	5783	5917	5458	5066
54	4909	5070	5325	5098	4319	3608	3230	3183	3246	3317	3466	4011	4876	5772	5913	5385	4909
55	4729	4953	5318	5086	4289	3570	3190	3150	3216	3282	3426	3979	4861	5766	5908	5288	4729
56	4523	4826	5304	5077	4257	3530	3155	3117	3174	3251	3388	3948	4843	5760	5904	5144	4523
57	4308	4664	5288	5062	4235	3491	3111	3081	3142	3214	3348	3920	4829	5755	5900	4980	4308
58	4062	4472	5276	5053	4194	3455	3070	3044	3104	3182	3310	3893	4824	5750	5898	4795	4062
59	3844	4273	5253	5038	4147	3410	3028	3010	3064	3144	3266	3869	4822	5746	5887	4590	3844

60	3622	4068	5222	5013	4081	3364	2989	2972	3024	3111	3232	3844	4813	5742	5877	4374	3622
61	3416	3861	5176	4971	4004	3312	2950	2939	2984	3076	3193	3827	4812	5741	5847	4149	3416
62	3206	3655	5119	4907	3942	3253	2907	2900	2942	3043	3150	3809	4814	5745	5804	3897	3206
63	3031	3434	5043	4839	3903	3173	2868	2868	2900	3011	3111	3791	4824	5747	5736	3677	3031
64	2877	3247	4947	4785	3887	3103	2826	2837	2850	2979	3072	3779	4844	5750	5645	3463	2877
65	2743	3073	4803	4757	3890	3043	2784	2803	2783	2951	3033	3768	4877	5755	5530	3250	2743
66	2609	2910	4623	4752	3907	3003	2744	2767	2703	2923	3002	3773	4913	5766	5399	3077	2609
67	2501	2760	4418	4764	3934	2980	2703	2731	2599	2894	2967	3780	4964	5782	5234	2918	2501
68	2368	2616	4195	4793	3967	2969	2652	2690	2470	2863	2931	3803	5015	5813	5058	2774	2368
69	2228	2518	3960	4827	4009	2966	2586	2633	2311	2820	2899	3835	5067	5857	4849	2651	2228
70	2050	2412	3743	4869	4045	2969	2517	2557	2146	2763	2868	3879	5092	5915	4636	2556	2050
71	1872	2318	3528	4908	4060	2976	2442	2447	1976	2684	2832	3919	5061	5968	4409	2464	1872
72	1691	2210	3319	4951	4035	2986	2399	2315	1812	2566	2801	3938	4958	6016	4153	2363	1691
73	1511	2087	3117	4994	3940	2992	2372	2170	1642	2438	2775	3935	4769	6061	3883	2253	1511
74	1344	1941	2903	5021	3787	2986	2347	1999	1508	2292	2760	3866	4462	**6072**	3598	2123	1344
75	1174	1786	2722	5010	3569	2939	2331	1835	1384	2129	2751	3724	4058	6004	3360	1973	1174
76	1030	1638	2542	4971	3292	2868	2317	1667	1268	1955	2747	3479	3629	5798	3136	1805	1030
77	893	1465	2359	4883	2978	2752	2296	1510	1153	1767	2743	3190	3181	5464	2904	1639	893
78	782	1299	2187	4681	2577	2606	2264	1347	1035	1600	2726	2874	2720	5100	2691	1466	782
79	674	1120	2027	4318	2139	2400	2196	1171	923	1441	2684	2559	2337	4688	2495	1292	674
80	567	952	1877	3800	1744	2111	2105	1034	826	1298	2576	2286	1962	4244	2296	1114	567
81	482	789	1721	3162	1402	1784	2010	905	714	1143	2424	1992	1566	3608	2063	957	482
82	401	664	1584	2554	1109	1516	1861	811	617	1013	2275	1677	1238	2943	1851	827	401
83	317	547	1374	1972	843	1249	1621	705	514	883	2078	1392	968	2287	1687	680	317
84	250	440	1159	1428	561	945	1325	594	416	766	1731	1026	691	1694	1485	563	250
85	185	342	889	945	375	627	991	481	331	616	1320	750	495	1180	1160	441	185
86	128	258	570	559	193	378	626	387	244	490	868	500	321	795	772	325	128
87	78	153	319	282	86	193	327	269	159	372	494	284	191	443	461	208	78
88	38	63	130	74	29	57	89	126	71	211	180	121	100	217	215	103	38
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96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BUG Rating

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	2254.2	10.2	10.2
FM (30-60)	6170.3	27.8	27.8
FH (60-80)	3786.7	17.1	17.1
FVH (80-90)	438.5	2.0	2.0
BL (0-30)	1830.3	8.3	8.3
BM (30-60)	4356.3	19.7	19.7
BH (60-80)	2925.3	13.2	13.2
BVH (80-90)	407.2	1.8	1.8
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	22168.8	100.1	100.0
BUG Rating	**B4-U0-G4**		

2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-03-12	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AL22-150/480 (Setting at 3000K T5)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU250301	277.0	60	0.534	147.5	0.998	2.52
4E-B1	480.0	60	0.324	148.79	0.956	5.79
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

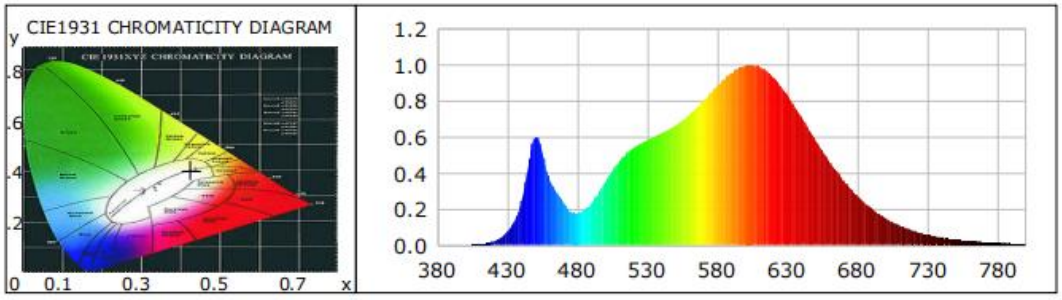
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
CCT (K)	3192
Duv	0.0030
Chromaticity (x, y)	x=0.4278 y=0.4081
Chromaticity (u', v')	u'=0.243 v'=0.5216
Color Rendering Index (CRI)	83
R9	9
Rf	86
Rg	96
Rcs,h1(%)	-11

Special Color Rendering Indices			
R1	82	R9	9
R2	89	R10	76
R3	97	R11	83
R4	83	R12	66
R5	81	R13	83
R6	87	R14	98
R7	86	R15	74
R8	62	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	21061.4	21113.8	>=10000(-10%)
Luminous Efficacy (lm/W)	142.79	141.90	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	141.55		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	4.9	--	<=10(+3)
Beam Angle (°)	150.6	--	--
Center Beam Candle Power (cd)	4274	--	--

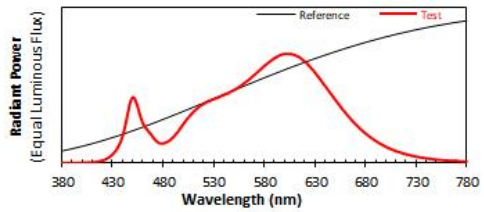
Spectral Power Distribution & Chromaticity Diagram

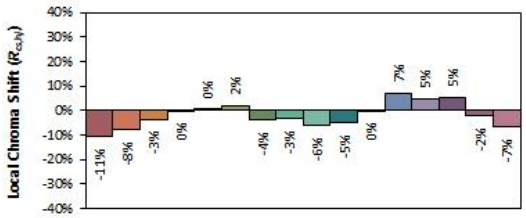


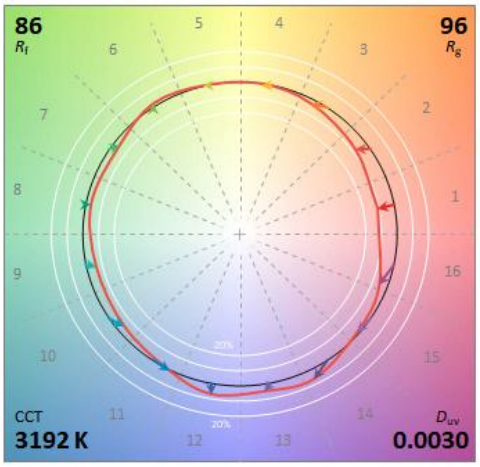
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.1338	535	0.5643	229.7705	690	0.3570	145.3652
385	0.0002	0.0707	540	0.5825	237.1884	695	0.3114	126.7701
390	0.0003	0.1292	545	0.6012	244.8045	700	0.2694	109.6977
395	0.0004	0.1774	550	0.6215	253.0379	705	0.2345	95.4779
400	0.0011	0.4388	555	0.6403	260.6947	710	0.2019	82.2168
405	0.0018	0.7384	560	0.6662	271.2553	715	0.1733	70.5715
410	0.0043	1.7677	565	0.6951	282.9978	720	0.1483	60.3804
415	0.0100	4.0815	570	0.7286	296.6489	725	0.1269	51.6676
420	0.0205	8.3514	575	0.7634	310.8237	730	0.1079	43.9216
425	0.0408	16.6066	580	0.8031	326.9938	735	0.0929	37.8409
430	0.0754	30.7101	585	0.8461	344.4851	740	0.0795	32.3627
435	0.1358	55.2851	590	0.8894	362.1449	745	0.0674	27.4372
440	0.2435	99.1339	595	0.9238	376.1509	750	0.0568	23.1361
445	0.4472	182.0674	600	0.9598	390.7906	755	0.0489	19.8924
450	0.6017	244.9727	605	0.9847	400.9423	760	0.0419	17.0436
455	0.5116	208.2965	610	0.9985	406.5542	765	0.0358	14.5797
460	0.3660	149.0046	615	1.0000	407.1612	770	0.0304	12.3660
465	0.2964	120.6802	620	0.9901	403.1157	775	0.0263	10.6953
470	0.2355	95.8663	625	0.9664	393.4766	780	0.0214	8.6968
475	0.1880	76.5437	630	0.9298	378.5619	785	0.0190	7.7493
480	0.1778	72.3919	635	0.8833	359.6472	790	0.0167	6.7950
485	0.1960	79.8188	640	0.8299	337.9230	795	0.0126	5.1430
490	0.2333	94.9941	645	0.7694	313.2649	800	0.0122	4.9704
495	0.2891	117.7161	650	0.7069	287.8134			
500	0.3542	144.2176	655	0.6435	261.9885			
505	0.4142	168.6302	660	0.5812	236.6356			
510	0.4678	190.4533	665	0.5195	211.5208			
515	0.5076	206.6920	670	0.4623	188.2252			
520	0.5389	219.4245	675	0.4078	166.0330			
525	0.5643	229.7705	680	0.3570	145.3652			
530	0.5825	237.1884	685	0.3114	126.7701			

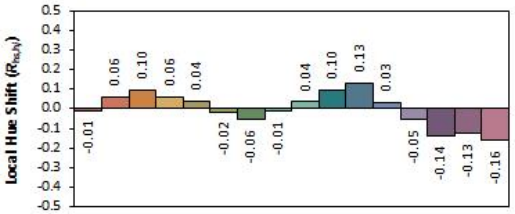
TM30

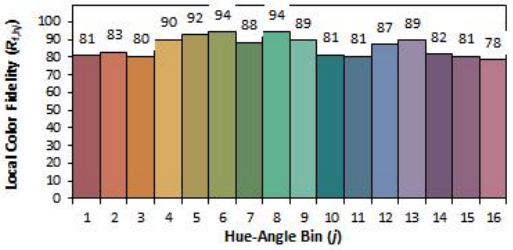
ANSI/IES TM-30-18 Color Rendition Report

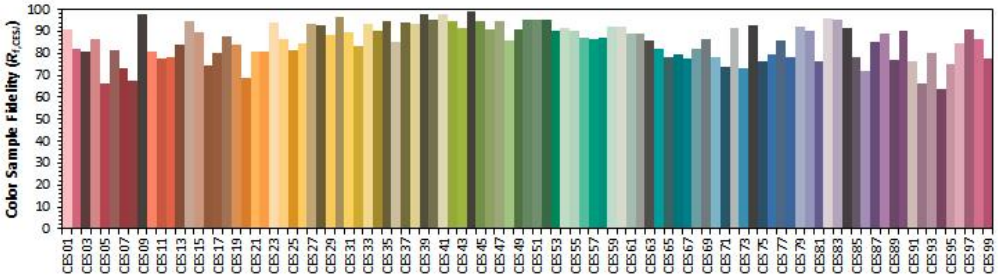












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4278
y	0.4081
u'	0.2430
v'	0.5216

CIE 13.3-1995 (CRI)

R_a	83
R_g	9

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

Zonal Lumen Tabulation

Zonal Lumen Summary

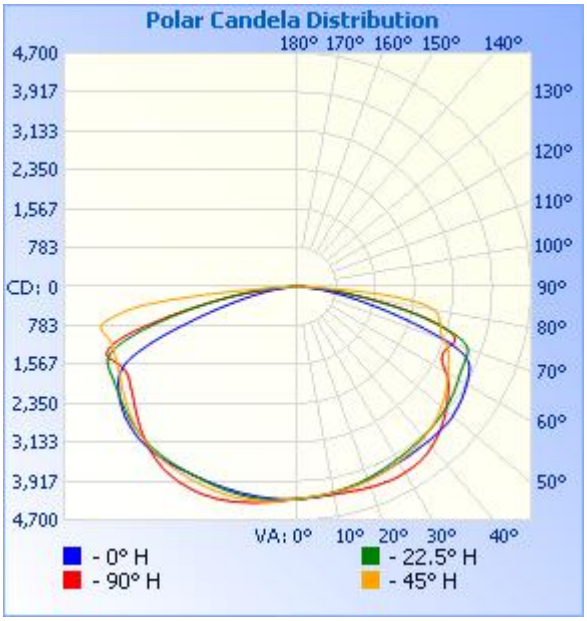
Zone	Lumens	% Lamp	% Luminaire
0-30	3,623.7	17.2%	17.2%
0-40	6,309.3	30%	30%
0-60	13,106.1	62.2%	62.2%
60-90	7,954.8	37.8%	37.8%
70-100	4,253.5	20.2%	20.2%
90-120	0	0%	0%
0-90	21,060.9	100%	100%
90-180	0	0%	0%
0-180	21,060.9	100%	100%

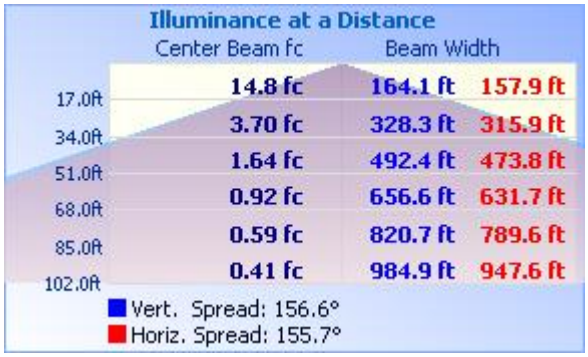
Lumens Per Zone

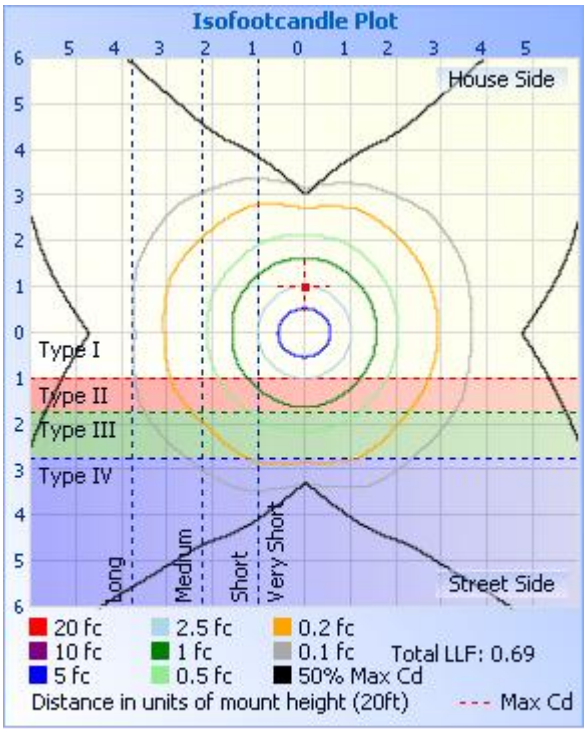
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	409.1	1.9%	90-100	0	0%
10-20	1,220.7	5.8%	100-110	0	0%
20-30	1,993.9	9.5%	110-120	0	0%
30-40	2,685.6	12.8%	120-130	0	0%
40-50	3,231.6	15.3%	130-140	0	0%
50-60	3,565.2	16.9%	140-150	0	0%
60-70	3,701.4	17.6%	150-160	0	0%
70-80	3,216.0	15.3%	160-170	0	0%
80-90	1,037.4	4.9%	170-180	0	0%

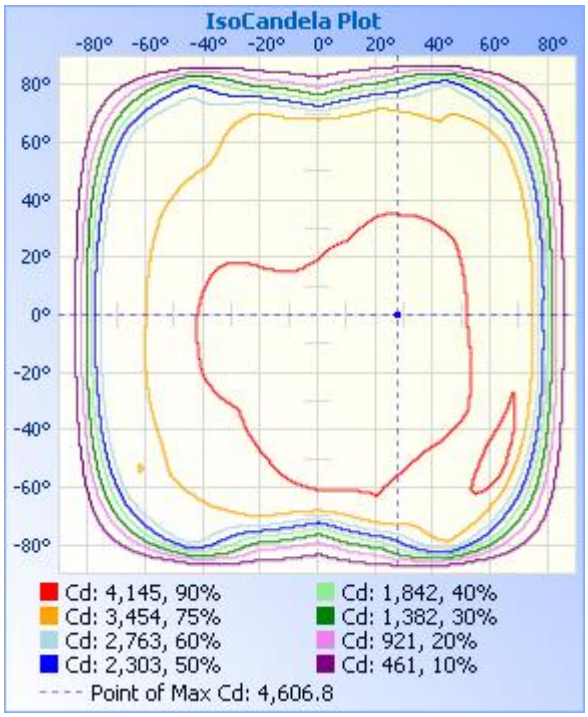
Certificate#4810.01

Photometric Data









Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274	4274
1	4267	4265	4264	4264	4268	4266	4271	4278	4279	4280	4283	4284	4285	4281	4274	4276	4267
2	4265	4257	4256	4255	4263	4262	4267	4275	4283	4287	4294	4297	4294	4288	4281	4274	4265
3	4262	4250	4247	4249	4257	4258	4266	4277	4287	4296	4303	4308	4310	4296	4284	4274	4262
4	4253	4245	4241	4241	4257	4258	4266	4277	4290	4302	4317	4324	4324	4308	4289	4275	4253
5	4248	4236	4234	4237	4251	4256	4262	4278	4293	4310	4328	4340	4340	4318	4295	4277	4248
6	4243	4230	4227	4233	4250	4255	4264	4280	4294	4316	4341	4355	4351	4332	4302	4277	4243
7	4238	4223	4224	4232	4247	4253	4264	4281	4297	4322	4348	4367	4368	4342	4310	4275	4238
8	4234	4217	4218	4227	4248	4251	4266	4281	4299	4327	4361	4385	4381	4358	4314	4272	4234
9	4226	4209	4215	4224	4247	4252	4266	4280	4299	4335	4368	4396	4396	4370	4319	4267	4226
10	4218	4202	4210	4222	4248	4252	4264	4279	4303	4339	4380	4412	4413	4384	4326	4264	4218
11	4211	4192	4204	4223	4247	4258	4265	4279	4301	4340	4389	4425	4432	4395	4328	4263	4211
12	4203	4185	4203	4223	4250	4258	4267	4276	4303	4343	4394	4436	4444	4406	4335	4261	4203
13	4195	4176	4197	4222	4255	4262	4264	4274	4300	4345	4401	4450	4459	4421	4339	4254	4195
14	4188	4169	4194	4221	4258	4265	4267	4273	4304	4346	4409	4467	4476	4435	4345	4249	4188
15	4179	4160	4185	4222	4264	4269	4267	4272	4307	4345	4410	4478	4491	4446	4350	4244	4179
16	4173	4154	4181	4224	4272	4272	4266	4269	4306	4348	4418	4490	4507	4458	4355	4237	4173
17	4164	4145	4176	4224	4276	4279	4265	4267	4305	4346	4423	4502	4523	4470	4354	4231	4164
18	4157	4135	4170	4228	4282	4283	4263	4264	4305	4345	4426	4516	4532	4481	4357	4227	4157
19	4149	4125	4164	4231	4289	4289	4259	4262	4311	4343	4426	4525	4548	4489	4357	4221	4149
20	4142	4114	4157	4236	4294	4293	4257	4260	4313	4344	4429	4535	4559	4502	4358	4210	4142
21	4135	4104	4151	4239	4303	4294	4253	4258	4310	4341	4433	4544	4570	4510	4354	4207	4135
22	4130	4095	4143	4243	4306	4301	4248	4252	4317	4340	4433	4554	4576	4516	4355	4198	4130
23	4123	4081	4134	4244	4313	4303	4241	4252	4315	4338	4434	4558	4585	4524	4352	4188	4123
24	4116	4071	4126	4243	4315	4308	4237	4246	4318	4341	4434	4567	4594	4529	4345	4182	4116
25	4106	4060	4113	4243	4322	4314	4232	4248	4324	4337	4436	4571	4599	4532	4340	4172	4106
26	4103	4048	4108	4242	4329	4313	4227	4246	4325	4336	4433	4575	4603	4536	4337	4163	4103
27	4094	4039	4100	4240	4331	4314	4222	4245	4327	4335	4432	4582	**4607**	4540	4327	4154	4094
28	4090	4029	4089	4241	4332	4315	4220	4249	4333	4337	4433	4580	4604	4544	4325	4147	4090

29	4083	4018	4079	4237	4326	4313	4212	4246	4341	4337	4435	4585	4602	4546	4321	4138	4083
30	4080	4011	4068	4233	4323	4316	4209	4244	4345	4340	4435	4587	4602	4543	4317	4131	4080
31	4078	4004	4061	4223	4318	4311	4207	4248	4353	4341	4433	4584	4605	4537	4313	4125	4078
32	4081	3997	4049	4219	4319	4306	4206	4249	4361	4345	4437	4584	4594	4534	4308	4119	4081
33	4077	3990	4039	4210	4314	4302	4202	4247	4370	4349	4434	4580	4585	4528	4297	4111	4077
34	4077	3982	4034	4201	4302	4295	4198	4247	4375	4353	4431	4576	4574	4520	4291	4104	4077
35	4072	3972	4025	4192	4291	4288	4195	4249	4388	4357	4429	4569	4569	4511	4278	4098	4072
36	4071	3962	4011	4176	4280	4276	4189	4251	4397	4362	4428	4563	4561	4503	4267	4089	4071
37	4071	3957	4001	4163	4267	4267	4180	4251	4401	4364	4425	4557	4543	4488	4257	4082	4071
38	4068	3949	3990	4148	4248	4252	4174	4250	4408	4366	4421	4547	4525	4478	4247	4077	4068
39	4069	3946	3978	4133	4224	4242	4170	4250	4414	4368	4415	4538	4506	4465	4235	4074	4069
40	4073	3938	3966	4118	4202	4227	4162	4254	4417	4366	4408	4528	4485	4450	4221	4063	4073
41	4076	3936	3945	4099	4178	4210	4150	4253	4420	4369	4403	4518	4463	4431	4208	4056	4076
42	4075	3929	3930	4077	4155	4198	4140	4247	4422	4367	4398	4505	4439	4414	4192	4051	4075
43	4075	3922	3916	4055	4126	4175	4128	4242	4425	4365	4389	4490	4414	4397	4174	4046	4075
44	4078	3915	3898	4034	4096	4151	4118	4238	4424	4364	4383	4472	4387	4375	4155	4038	4078
45	4078	3906	3882	4010	4066	4132	4102	4230	4426	4360	4372	4450	4357	4354	4139	4029	4078
46	4079	3897	3862	3982	4033	4107	4093	4220	4427	4351	4359	4430	4324	4328	4124	4022	4079
47	4079	3888	3842	3953	4003	4083	4079	4210	4421	4344	4344	4409	4296	4303	4103	4012	4079
48	4080	3880	3821	3926	3968	4058	4059	4199	4412	4337	4332	4389	4261	4278	4078	3999	4080
49	4077	3871	3797	3897	3936	4029	4040	4188	4400	4326	4314	4366	4226	4249	4054	3984	4077
50	4070	3865	3775	3868	3890	4004	4027	4179	4388	4319	4297	4345	4187	4217	4036	3974	4070
51	4055	3852	3752	3838	3855	3975	4009	4163	4376	4308	4273	4318	4157	4191	4009	3962	4055
52	4047	3844	3723	3800	3821	3949	3988	4150	4363	4299	4256	4297	4125	4165	3982	3950	4047
53	4036	3834	3699	3772	3780	3919	3965	4134	4349	4285	4237	4272	4090	4136	3956	3935	4036
54	4026	3819	3675	3736	3742	3892	3946	4120	4328	4274	4213	4249	4059	4105	3934	3921	4026
55	4013	3807	3645	3709	3698	3866	3921	4106	4309	4259	4193	4228	4026	4078	3905	3907	4013
56	4002	3796	3615	3680	3661	3838	3897	4091	4281	4245	4167	4202	3994	4050	3878	3893	4002
57	3983	3780	3586	3644	3623	3803	3871	4070	4259	4231	4145	4184	3967	4021	3845	3874	3983
58	3967	3766	3559	3612	3580	3775	3845	4053	4228	4219	4124	4163	3944	3998	3814	3861	3967
59	3949	3754	3529	3583	3524	3745	3819	4033	4193	4204	4100	4143	3921	3971	3787	3852	3949

60	3930	3741	3499	3545	3450	3708	3798	4015	4161	4188	4080	4130	3901	3948	3756	3835	3930
61	3913	3723	3469	3503	3379	3666	3771	4001	4125	4178	4057	4117	3877	3928	3725	3823	3913
62	3892	3711	3438	3446	3314	3606	3749	3987	4087	4167	4033	4110	3857	3908	3695	3811	3892
63	3871	3703	3407	3383	3260	3539	3727	3970	4039	4157	4012	4095	3856	3885	3666	3809	3871
64	3847	3694	3381	3318	3237	3477	3700	3957	3980	4150	3992	4088	3860	3872	3639	3803	3847
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67	3700	3685	3302	3205	3241	3373	3629	3909	3628	4140	3948	4103	3945	3850	3561	3808	3700
68	3590	3686	3263	3198	3266	3373	3594	3870	3398	4126	3940	4133	3992	3865	3546	3815	3590
69	3398	3674	3209	3202	3294	3382	3535	3807	3150	4104	3932	4177	4046	3895	3529	3817	3398
70	3175	3646	3142	3212	3331	3394	3474	3707	2871	4033	3926	4228	4081	3936	3513	3803	3175
71	2880	3589	3073	3226	3352	3412	3420	3557	2553	3928	3916	4286	4068	3982	3499	3762	2880
72	2591	3489	3032	3247	3332	3434	3401	3341	2265	3776	3911	4341	3991	4031	3481	3689	2591
73	2307	3338	3013	3271	3260	3459	3395	3110	2000	3581	3912	4366	3842	4070	3463	3582	2307
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76	1537	2670	2956	3213	2714	3371	3449	2313	1339	2788	3996	4003	2993	3850	3415	2962	1537
77	1332	2414	2930	3113	2467	3275	3461	2029	1171	2511	4032	3684	2655	3613	3406	2692	1332
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81	694	1299	2708	2138	1260	2244	3140	1111	646	1499	3691	2390	1426	2401	3205	1578	694
82	575	1093	2580	1790	1015	1928	2914	951	540	1289	3505	2020	1151	2060	2969	1342	575
83	450	909	2293	1447	795	1601	2538	802	441	1100	3183	1690	899	1704	2792	1113	450
84	353	732	1992	1153	555	1193	2091	659	344	911	2653	1292	676	1321	2494	909	353
85	265	564	1587	799	359	840	1527	528	269	732	1969	923	495	990	2006	731	265
86	182	415	1001	540	208	539	938	396	196	574	1238	624	334	719	1362	526	182
87	106	253	543	291	90	269	427	277	133	399	607	392	206	413	766	356	106
88	46	104	201	99	32	67	122	132	50	208	220	171	93	229	326	164	46
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180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BUG Rating

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	1792.9	8.5	8.5
FM (30-60)	4624.9	22.0	22.0
FH (60-80)	3380.8	16.1	16.1
FVH (80-90)	512.9	2.4	2.4
BL (0-30)	1830.7	8.7	8.7
BM (30-60)	4859.1	23.1	23.1
BH (60-80)	3535.8	16.8	16.8
BVH (80-90)	524.4	2.5	2.5
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	21061.5	100.1	100.0
BUG Rating	**B4-U0-G4**		

2.4 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-03-12	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AL22-150/480 (Setting at 4000K T5)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU250301	277.0	60	0.512	141.61	0.999	2.62
4E-B1	480.0	60	0.312	142.96	0.955	5.83
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
CCT (K)	3867
Duv	0.0000
Chromaticity (x, y)	x=0.3865 y=0.3805
Chromaticity (u', v')	u'=0.2276 v'=0.5041
Color Rendering Index (CRI)	84
R9	17
Rf	85
Rg	98
Rcs,h1(%)	-11

Special Color Rendering Indices			
R1	83	R9	17
R2	89	R10	75
R3	94	R11	84
R4	85	R12	64
R5	83	R13	85
R6	86	R14	97
R7	87	R15	78
R8	68	--	--
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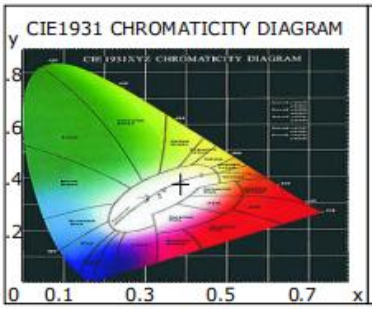
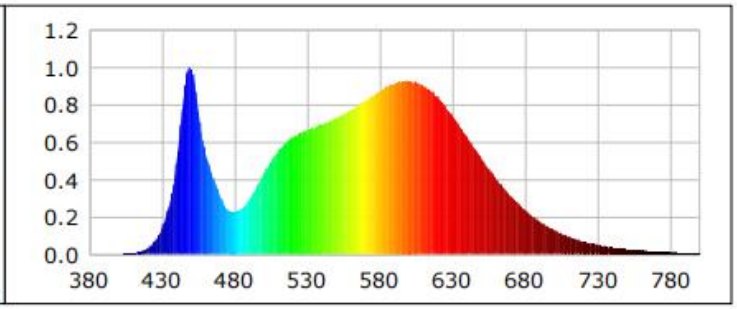
Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	21642.3	21765.7	>=10000(-10%)
Luminous Efficacy (lm/W)	152.83	152.25	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	151.39		

Spectral Power Distribution & Chromaticity Diagram

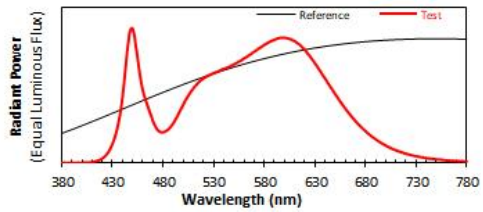


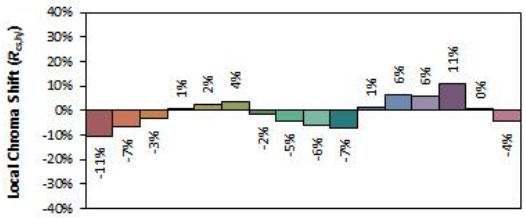


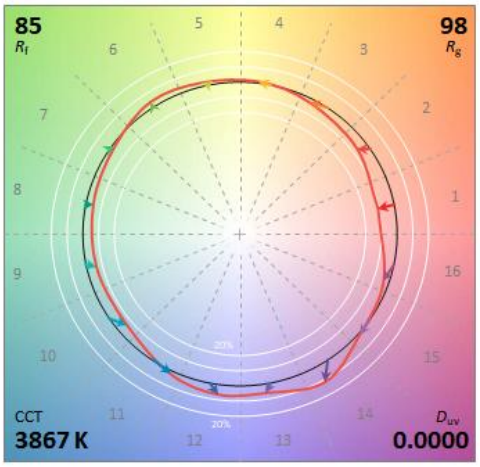
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0006	0.2329	535	0.6487	268.6292	690	0.3103	128.4852
385	0.0007	0.2778	540	0.6639	274.9056	695	0.2711	112.2670
390	0.0006	0.2618	545	0.6793	281.2766	700	0.2349	97.2539
395	0.0007	0.2692	550	0.6958	288.1004	705	0.2031	84.0921
400	0.0010	0.3970	555	0.7101	294.0450	710	0.1750	72.4479
405	0.0023	0.9600	560	0.7301	302.3122	715	0.1497	62.0020
410	0.0061	2.5132	565	0.7516	311.2034	720	0.1282	53.0993
415	0.0142	5.8781	570	0.7741	320.5198	725	0.1091	45.1697
420	0.0324	13.4276	575	0.7987	330.7134	730	0.0936	38.7438
425	0.0688	28.4909	580	0.8239	341.1573	735	0.0799	33.0964
430	0.1388	57.4704	585	0.8496	351.8039	740	0.0680	28.1445
435	0.2634	109.0791	590	0.8761	362.7796	745	0.0579	23.9835
440	0.4902	202.9793	595	0.8947	370.4668	750	0.0499	20.6737
445	0.8554	354.2068	600	0.9137	378.3523	755	0.0422	17.4564
450	0.9949	411.9795	605	0.9267	383.7115	760	0.0356	14.7558
455	0.7691	318.4686	610	0.9273	383.9663	765	0.0309	12.8098
460	0.5381	222.8269	615	0.9195	380.7501	770	0.0262	10.8647
465	0.4179	173.0527	620	0.9029	373.8675	775	0.0229	9.4707
470	0.3113	128.8944	625	0.8763	362.8493	780	0.0191	7.8992
475	0.2407	99.6844	630	0.8389	347.3894	785	0.0157	6.4915
480	0.2270	94.0136	635	0.7915	327.7401	790	0.0139	5.7572
485	0.2466	102.1031	640	0.7387	305.8960	795	0.0125	5.1592
490	0.2918	120.8281	645	0.6836	283.0476	800	0.0099	4.0945
495	0.3581	148.2826	650	0.6259	259.1521			
500	0.4328	179.1940	655	0.5677	235.0894			
505	0.4981	206.2735	660	0.5113	211.7252			
510	0.5537	229.2717	665	0.4554	188.5804			
515	0.5952	246.4513	670	0.4046	167.5548			
520	0.6254	258.9748	675	0.3543	146.6921			
525	0.6487	268.6292	680	0.3103	128.4852			
530	0.6639	274.9056	685	0.2711	112.2670			

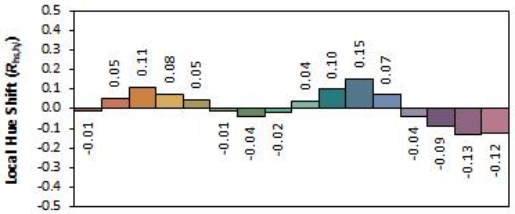
TM30

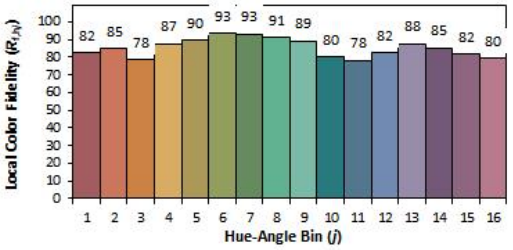
ANSI/IES TM-30-18 Color Rendition Report

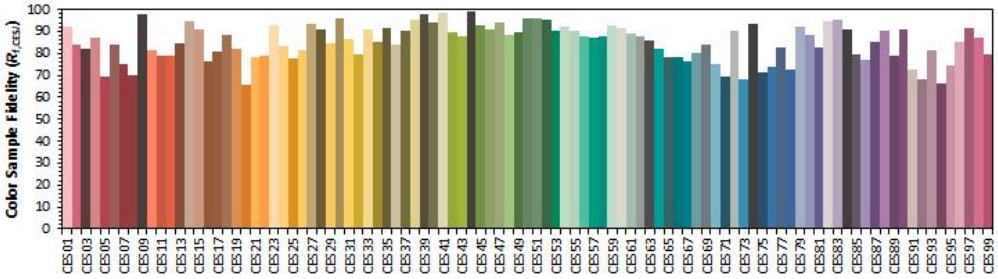












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3865
y	0.3805
u'	0.2276
v'	0.5041

CIE 13.3-1995 (CRI)

R_a	84
R_9	17

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

2.5 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-03-12	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AL22-150/480 (Setting at 5000K T5)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU250301	277.0	60	0.525	145.21	0.998	2.39
4E-B1	480.0	60	0.320	146.8	0.955	5.65
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

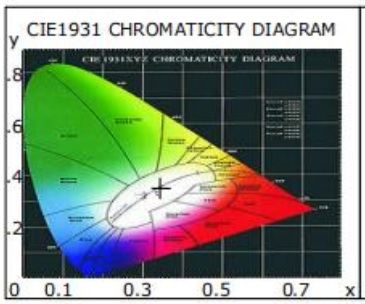
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
CCT (K)	4955
Duv	0.0002
Chromaticity (x, y)	x=0.3464 y=0.3531
Chromaticity (u', v')	u'=0.2117 v'=0.4856
Color Rendering Index (CRI)	83
R9	14
Rf	83
Rg	98
Rcs,h1(%)	-11

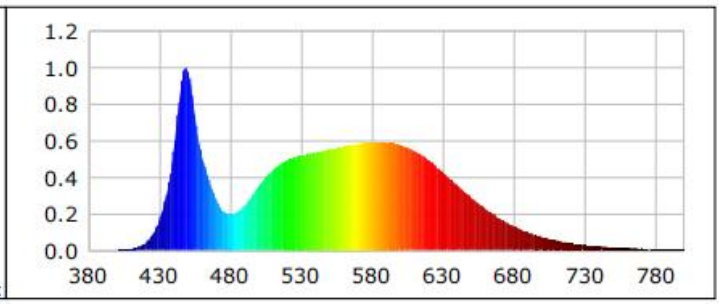
Special Color Rendering Indices			
R1	82	R9	14
R2	87	R10	69
R3	91	R11	83
R4	84	R12	58
R5	82	R13	83
R6	82	R14	95
R7	88	R15	77
R8	70	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	21091.8	21190.6	>=10000(-10%)
Luminous Efficacy (lm/W)	145.25	144.35	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	143.68		

Spectral Power Distribution & Chromaticity Diagram

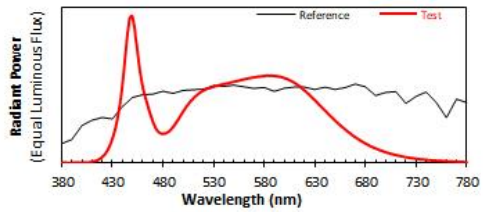


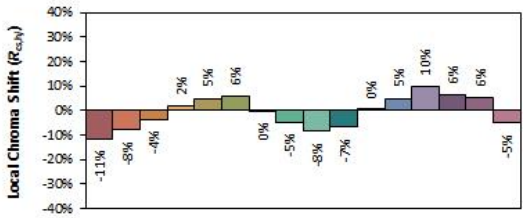


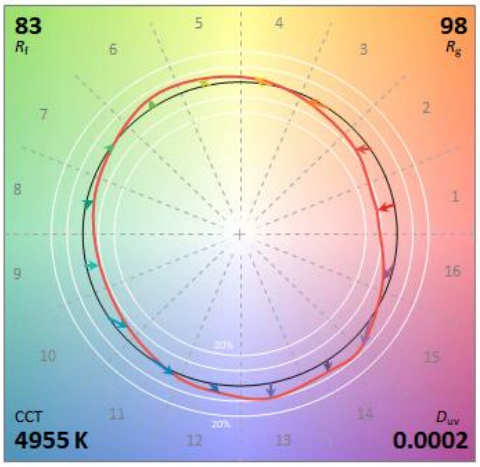
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0009	0.5187	535	0.5071	290.3215	690	0.1740	99.6112
385	0.0006	0.3174	540	0.5170	295.9790	695	0.1513	86.6093
390	0.0009	0.5109	545	0.5270	301.6642	700	0.1311	75.0693
395	0.0009	0.5079	550	0.5363	307.0267	705	0.1130	64.6940
400	0.0007	0.3879	555	0.5423	310.4693	710	0.0981	56.1451
405	0.0028	1.5884	560	0.5514	315.6643	715	0.0835	47.8004
410	0.0072	4.1165	565	0.5598	320.4624	720	0.0722	41.3099
415	0.0175	10.0281	570	0.5682	325.2665	725	0.0617	35.3118
420	0.0396	22.6588	575	0.5747	328.9863	730	0.0534	30.5567
425	0.0829	47.4773	580	0.5809	332.5458	735	0.0451	25.7910
430	0.1643	94.0332	585	0.5870	336.0405	740	0.0386	22.1130
435	0.3028	173.3420	590	0.5922	338.9929	745	0.0333	19.0488
440	0.5390	308.5389	595	0.5919	338.8478	750	0.0280	16.0408
445	0.8852	506.7379	600	0.5921	338.9584	755	0.0239	13.7063
450	0.9866	564.8104	605	0.5868	335.9382	760	0.0203	11.6174
455	0.7418	424.6550	610	0.5770	330.2854	765	0.0173	9.8974
460	0.5151	294.8770	615	0.5618	321.5942	770	0.0149	8.5343
465	0.3869	221.5106	620	0.5440	311.4289	775	0.0128	7.3413
470	0.2789	159.6700	625	0.5203	297.8604	780	0.0111	6.3753
475	0.2140	122.5152	630	0.4926	281.9957	785	0.0096	5.5237
480	0.1975	113.0865	635	0.4608	263.7894	790	0.0072	4.0960
485	0.2105	120.5056	640	0.4258	243.7746	795	0.0073	4.1751
490	0.2445	139.9459	645	0.3903	223.4324	800	0.0050	2.8713
495	0.2946	168.6491	650	0.3563	203.9747			
500	0.3498	200.2511	655	0.3215	184.0694			
505	0.3983	228.0385	660	0.2871	164.3782			
510	0.4394	251.5580	665	0.2554	146.2060			
515	0.4699	268.9704	670	0.2269	129.9188			
520	0.4919	281.5956	675	0.2000	114.5176			
525	0.5071	290.3215	680	0.1740	99.6112			
530	0.5170	295.9790	685	0.1513	86.6093			

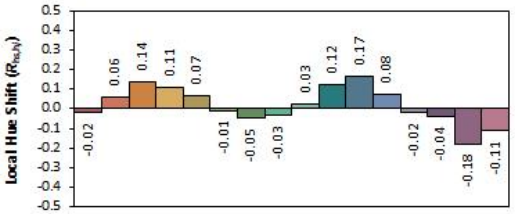
TM30

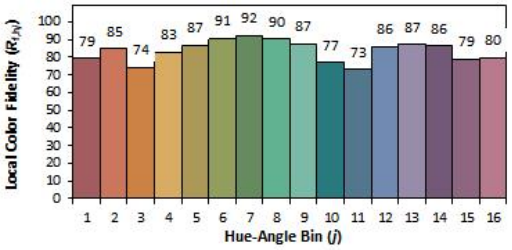
ANSI/IES TM-30-18 Color Rendition Report

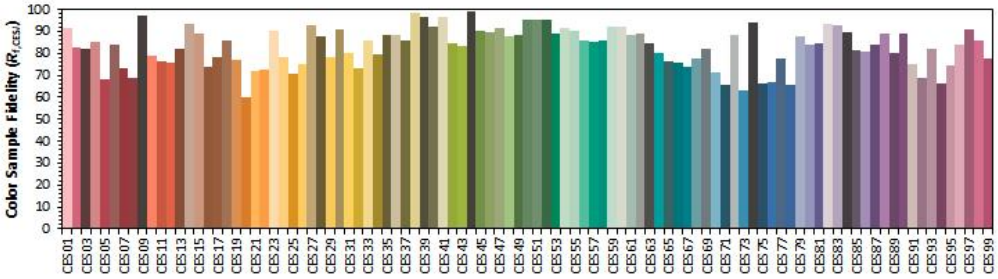












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3464
y	0.3531
u'	0.2117
v'	0.4856

CIE 13.3-1995 (CRI)

R_a	83
R_9	14

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3. Test Equipment

Equipment Name	Model No.	Serial No.	Calibration Date
Goniophotometeric System	GPM-3000	DYHXF120001	2025-01-08
AC Power Source	CHP-500C	DYBWD010159	2025-01-02
Standard Lamp*	24V/150W	DYJYR040040	2025-01-14
Standard Lamp**	24V/100W	DYBWR030014	2025-01-14
Digital Power Meter	WT500	DYDWQ20010	2025-01-02
Integral Sphere (2M)	2M	DYJCE120067	2025-01-08
Digital Power Meter	WT500	DYDWQ200006	2025-01-02
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2025-01-08

* Reference standard lamp (150W incandescent directional lamp) calibrated by Guangzhou Institute of Measurement and Testing Technology.

** Reference standard lamp (100W incandescent omni-directional lamp) calibrated by Guangzhou Institute of Measurement and Testing Technology.

Expand Uncertainty:

Photometric Measurement (Sphere): 2.02%, k=2

Chromaticity Measurement(Sphere):24.8K, k=2

Photometric Measurement(Goniophotometer):2.88%, k=2

****** END OF REPORT ******