

LM-79-08 Test Report

For

Beyond LED Technology

(Brand Name: Beyond LED Technology)

1939 Parker Court, Stone Mountain, GA 30087

Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Architectural Flood and Spot Luminaries

Model name(s): BLT-S-G22-300WBT3T4T5DC1-BR10SPW30/40/50

Remark: "a" can be any two letters for Lamp colors; "b" can be "AM", "AM1", "AM2", "AM3", "DM1", "DM2", "DM3", "DM4", "DM5", "DM6", "YM", "YM1", "YM2", "A&D" or "FM" for bracket type; "c" can be "3RP", "3NP", "5RP", "5NP", "7RP", "7NP" or blank for Photocontrol type provided or not; "d" can be "10SP", "20SP" or blank for Surge Protector type provided or not; W for wattage adjustable, "f" can be "DM", "DP" or blank for DC Sensor provided or not; "g" can be any digits for CCT.

Representative (Tested) Model:

AST-S-G22-300WBT3/T4/T5DC1-abcdWf30(Setting at T3)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf40(Setting at T3)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf50(Setting at T3)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf30(Setting at T4)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf40(Setting at T4)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf50(Setting at T4)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf30(Setting at T5)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf40(Setting at T5)
AST-S-G22-300WBT3/T4/T5DC1-abcdWf50(Setting at T5)

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

Test & Report By:

Review By:



Laboratory: UTEST TECHNICAL LABORATORY CO.LTD A2LA Certificate# 4810.01
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Report Format Number BL-FM-SA-012



Report No.: UTU2409028E-Q

Engineer: Winny Wu

Manager: Jason Luo

Date: 2024-10-17

1.1 Product Information:

Organization Name	AS MART LIGHT CO., LTD	
Brand Name	AS MART	
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abcdWfg	
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 Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	120-347Vac, 50/60 Hz	
Nominal Power	300W(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	UTU2409028E-Q1	
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	2024-09-25
Date of Test	2024-09-27
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 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-G22-300WBT3/T4/T5DC1-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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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.

Laboratory: UTEST TECHNICAL LABORATORY CO.LTD A2LA Certificate# 4810.01

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Report Format Number BL-FM-SA-012

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2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf30(Setting at T3)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.521	302.25	0.999	2.81
8E-Q1	347.0	60	0.870	292.63	0.969	7.73
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

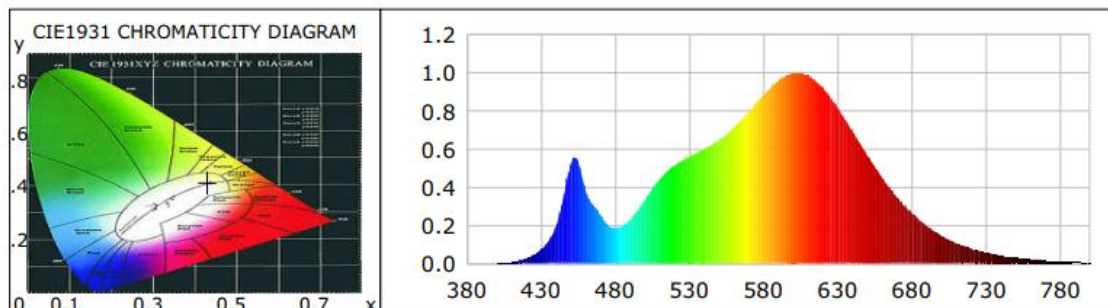
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	5
Frequency (Hz)	60	R2	89	R10	76
CCT (K)	3135	R3	97	R11	81
Duv	0.0030	R4	82	R12	66
Chromaticity (x, y)	x=0.4317 y=0.4098	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2448v'=0.5228	R6	88	R14	99
Color Rendering Index (CRI)	83	R7	84	R15	73
R9	6	R8	60	--	--
Rf	85	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-11				

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	44551.7	44415.0	>=10000(-10%)
Luminous Efficacy (lm/W)	147.40	151.78	Premium: >= 120(-3%)
Most worst Luminous/Highest	146.95		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	2.6	--	<=10(+3)
Beam Angle (°)	111.4	--	--
Center Beam Candle Power (cd)	9172	--	--

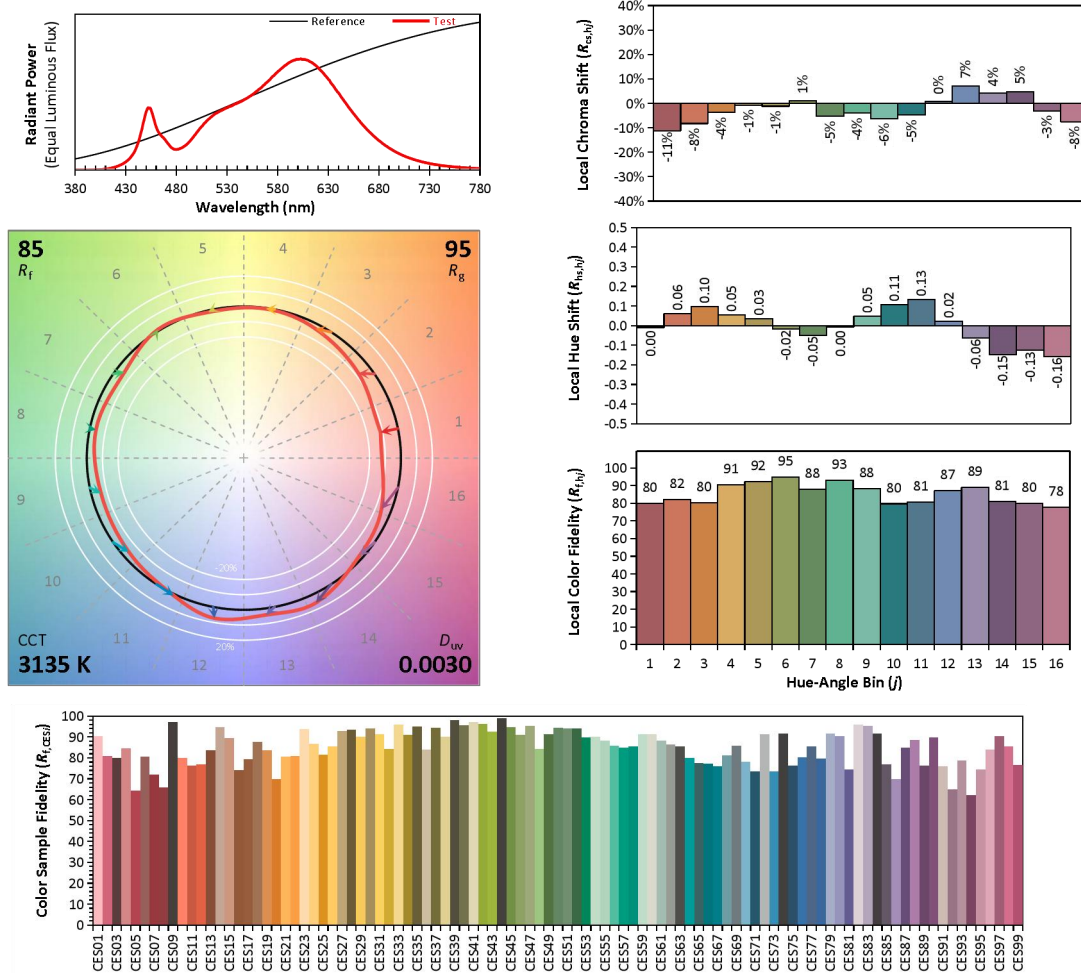
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0010	0.8216	535	0.5370	446.9223	690	0.3480	289.6737
385	0.0003	0.2136	540	0.5587	465.0024	695	0.3044	253.3457
390	0.0005	0.4340	545	0.5782	481.2347	700	0.2640	219.7548
395	0.0007	0.5764	550	0.6017	500.7600	705	0.2292	190.7297
400	0.0015	1.2705	555	0.6218	517.4778	710	0.1974	164.2551
405	0.0032	2.6908	560	0.6471	538.5804	715	0.1699	141.4274
410	0.0073	6.1120	565	0.6773	563.7323	720	0.1458	121.3558
415	0.0155	12.9140	570	0.7131	593.5398	725	0.1253	104.3252
420	0.0270	22.4314	575	0.7518	625.7134	730	0.1074	89.3907
425	0.0449	37.3629	580	0.7930	660.0128	735	0.0923	76.7801
430	0.0724	60.2380	585	0.8417	700.5640	740	0.0792	65.9534
435	0.1163	96.7538	590	0.8840	735.7611	745	0.0675	56.1927
440	0.1923	160.0300	595	0.9221	767.4890	750	0.0576	47.9235
445	0.3374	280.8369	600	0.9581	797.4105	755	0.0487	40.5169
450	0.5213	433.8710	605	0.9834	818.4354	760	0.0414	34.4967
455	0.5378	447.5848	610	0.9965	829.3512	765	0.0354	29.4967
460	0.3869	321.9923	615	0.9953	828.3780	770	0.0318	26.4725
465	0.3080	256.3556	620	0.9863	820.8870	775	0.0271	22.5728
470	0.2551	212.2989	625	0.9589	798.1239	780	0.0217	18.0262
475	0.2007	167.0805	630	0.9210	766.5681	785	0.0188	15.6683
480	0.1833	152.5383	635	0.8728	726.3859	790	0.0158	13.1697
485	0.1975	164.3747	640	0.8167	679.7335	795	0.0133	11.1045
490	0.2276	189.3886	645	0.7567	629.8225	800	0.0127	10.6082
495	0.2771	230.6466	650	0.6946	578.1172			
500	0.3359	279.6052	655	0.6291	523.6269			
505	0.3905	324.9746	660	0.5658	470.8746			
510	0.4427	368.4885	665	0.5066	421.6318			
515	0.4814	400.6319	670	0.4492	373.8475			
520	0.5122	426.2688	675	0.3960	329.5623			
525	0.5370	446.9223	680	0.3480	289.6737			
530	0.5587	465.0024	685	0.3044	253.3457			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.4318
 y 0.4098
 u' 0.2448
 v' 0.5228

CIE 13.3-1995
(CRI)

R_a 83
 R_9 6

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

Zonal Lumen Tabulation

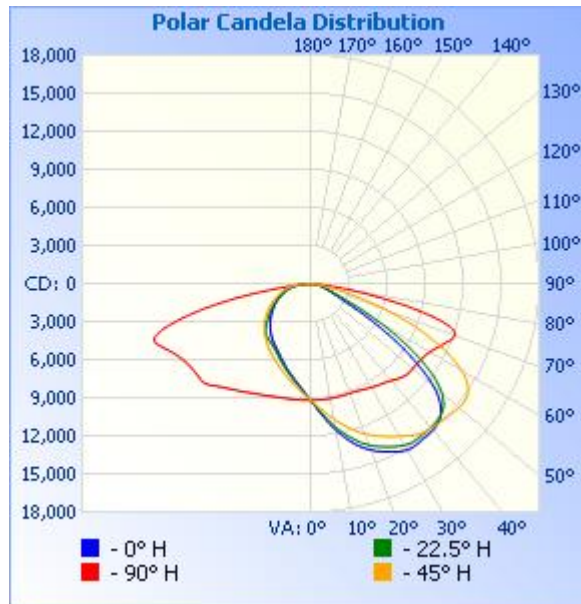
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	8,269.5	18.6%	18.6%
0-40	14,724.6	33.1%	33.1%
0-60	30,861.0	69.3%	69.3%
60-90	13,688.6	30.7%	30.7%
70-100	6,505.9	14.6%	14.6%
90-120	0	0%	0%
0-90	44,549.6	100%	100%
90-180	0	0%	0%
0-180	44,549.6	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	890.9	2.0%	90-100	0	0%
10-20	2,743.9	6.2%	100-110	0	0%
20-30	4,634.7	10.4%	110-120	0	0%
30-40	6,455.1	14.5%	120-130	0	0%
40-50	7,946.5	17.8%	130-140	0	0%
50-60	8,189.8	18.4%	140-150	0	0%
60-70	7,182.7	16.1%	150-160	0	0%
70-80	5,340.7	12.0%	160-170	0	0%
80-90	1,165.1	2.6%	170-180	0	0%

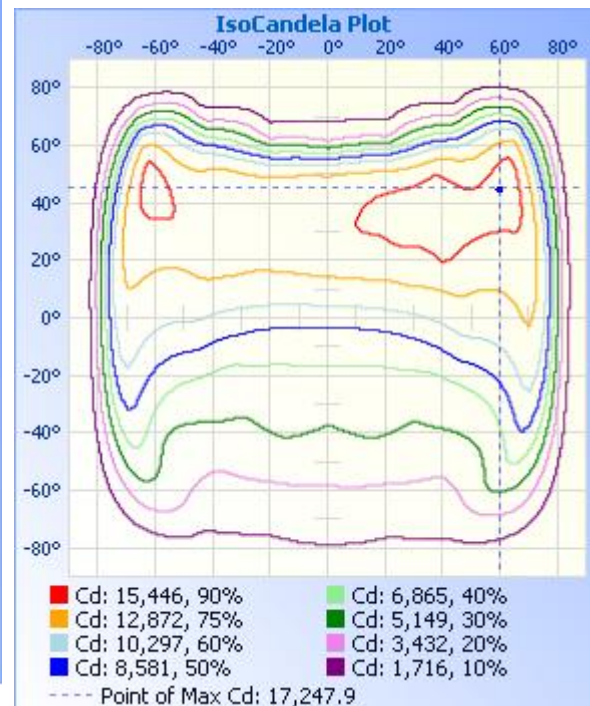
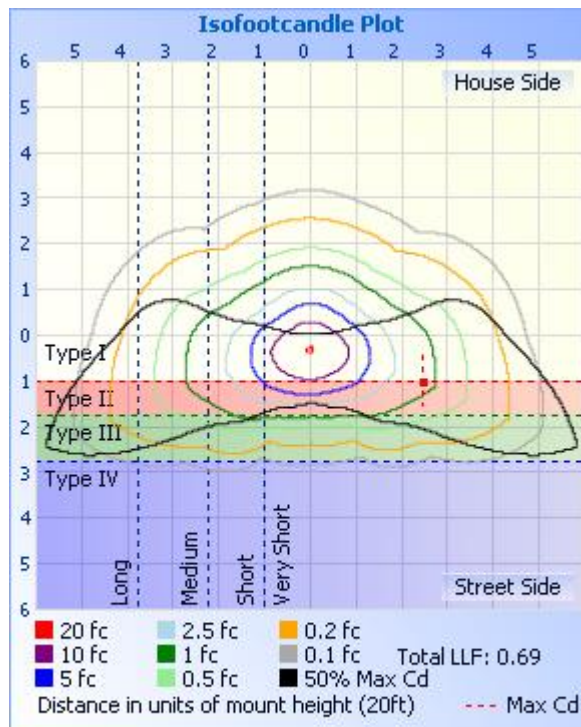
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	31.7 fc	35.0 ft	121.1 ft
34.0ft	7.93 fc	70.0 ft	242.1 ft
51.0ft	3.53 fc	105.0 ft	363.2 ft
68.0ft	1.98 fc	140.0 ft	484.2 ft
85.0ft	1.27 fc	175.0 ft	605.3 ft
102.0ft	0.88 fc	210.0 ft	726.3 ft

■ Vert. Spread: 91.7°
■ Horiz. Spread: 148.6°



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	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172	9172
1	9413	9372	9324	9257	9172	9138	9058	9015	9003	9003	9054	9090	9172	9276	9352	9400	9413
2	9622	9582	9481	9336	9172	9037	8904	8822	8795	8815	8903	9032	9172	9373	9521	9620	9622
3	9889	9798	9640	9418	9172	8952	8768	8654	8619	8651	8775	8992	9171	9468	9694	9850	9889
4	10139	10041	9806	9494	9172	8871	8636	8495	8435	8497	8649	8906	9171	9573	9887	10081	10139
5	10398	10280	9978	9576	9172	8796	8511	8342	8270	8351	8527	8824	9194	9672	10054	10325	10398
6	10665	10517	10163	9660	9172	8719	8394	8189	8127	8212	8413	8751	9195	9768	10265	10577	10665
7	10960	10753	10338	9752	9172	8643	8272	8056	7986	8068	8290	8683	9203	9869	10457	10849	10960
8	11231	11005	10520	9840	9172	8573	8166	7931	7851	7945	8189	8617	9210	9972	10660	11111	11231
9	11506	11255	10701	9932	9172	8504	8061	7809	7724	7817	8080	8553	9217	10078	10869	11377	11506
10	11766	11495	10879	10023	9172	8436	7956	7688	7585	7697	7980	8479	9228	10197	11079	11645	11766
11	12023	11752	11055	10117	9172	8364	7850	7561	7464	7577	7879	8415	9236	10312	11283	11893	12023
12	12270	11976	11246	10206	9172	8296	7753	7446	7342	7465	7784	8349	9243	10431	11501	12140	12270
13	12539	12201	11423	10309	9172	8219	7647	7335	7231	7339	7679	8293	9258	10545	11698	12402	12539
14	12778	12418	11599	10407	9172	8151	7553	7226	7122	7235	7585	8228	9271	10669	11902	12629	12778
15	12988	12626	11771	10499	9172	8090	7462	7114	7007	7126	7494	8166	9283	10794	12115	12867	12988
16	13224	12824	11941	10604	9172	8024	7369	7015	6890	7022	7407	8103	9302	10944	12319	13068	13224
17	13425	13031	12102	10707	9172	7957	7277	6899	6785	6916	7319	8041	9327	11080	12518	13274	13425
18	13607	13212	12285	10819	9173	7895	7187	6801	6677	6817	7227	7984	9355	11218	12699	13489	13607
19	13783	13379	12439	10920	9172	7826	7089	6702	6572	6708	7134	7935	9389	11367	12896	13674	13783
20	13943	13542	12588	11037	9172	7760	7001	6601	6459	6609	7052	7881	9425	11512	13085	13862	13943
21	14108	13690	12731	11149	9173	7699	6912	6504	6369	6513	6966	7834	9464	11662	13268	14029	14108
22	14243	13820	12872	11257	9173	7643	6822	6412	6265	6421	6884	7772	9504	11819	13452	14181	14243
23	14367	13958	13016	11373	9196	7579	6740	6311	6166	6325	6799	7720	9541	11973	13628	14336	14367
24	14493	14083	13148	11487	9232	7525	6647	6224	6076	6236	6714	7672	9580	12130	13802	14476	14493
25	14612	14194	13269	11617	9265	7465	6570	6141	5986	6146	6636	7625	9625	12284	13964	14616	14612
26	14724	14310	13394	11734	9300	7414	6491	6049	5899	6069	6562	7573	9673	12444	14120	14757	14724

27	14849	14423	13516	11852	9335	7358	6411	5974	5821	5992	6491	7522	9726	12604	14274	14886	14849
28	14969	14521	13626	11959	9374	7311	6336	5901	5751	5920	6418	7479	9779	12761	14434	15006	14969
29	15070	14621	13767	12096	9410	7255	6253	5838	5678	5856	6336	7430	9834	12935	14599	15151	15070
30	15142	14713	13877	12221	9447	7199	6179	5776	5608	5791	6261	7386	9900	13086	14748	15277	15142
31	15192	14781	14011	12349	9494	7145	6107	5729	5543	5735	6194	7338	9966	13235	14908	15387	15192
32	15199	14828	14141	12467	9544	7091	6037	5685	5474	5692	6127	7288	10034	13398	15081	15468	15199
33	15184	14844	14280	12581	9587	7040	5962	5643	5410	5646	6055	7243	10105	13555	15260	15524	15184
34	15153	14846	14414	12716	9621	6992	5883	5600	5346	5607	5986	7194	10178	13715	15441	15551	15153
35	15124	14832	14524	12850	9657	6931	5807	5568	5281	5572	5907	7147	10251	13875	15614	15562	15124
36	15098	14814	14617	13007	9699	6882	5728	5536	5214	5532	5833	7100	10323	14037	15761	15561	15098
37	15092	14804	14695	13145	9754	6830	5657	5501	5139	5499	5760	7054	10404	14194	15874	15552	15092
38	15076	14788	14764	13296	9809	6781	5571	5463	5065	5464	5685	7008	10497	14377	15995	15549	15076
39	15061	14775	14807	13457	9877	6736	5490	5424	4990	5423	5602	6968	10590	14578	16079	15540	15061
40	15033	14762	14844	13640	9949	6687	5407	5378	4916	5384	5526	6937	10678	14789	16139	15527	15033
41	14986	14743	14888	13830	10023	6647	5327	5324	4840	5332	5450	6906	10775	15006	16190	15518	14986
42	14901	14718	14910	14012	10120	6605	5248	5264	4763	5278	5370	6880	10897	15208	16227	15495	14901
43	14822	14686	14934	14148	10207	6564	5175	5193	4678	5214	5292	6853	11013	15404	16256	15480	14822
44	14696	14623	14969	14259	10282	6516	5095	5104	4594	5131	5213	6827	11151	15565	16275	15453	14696
45	14515	14542	15015	14317	10350	6465	5016	5006	4516	5037	5145	6797	11287	15664	16290	15395	14515
46	14279	14440	15054	14334	10404	6410	4937	4892	4436	4929	5073	6763	11397	15705	16301	15320	14279
47	13998	14302	15096	14332	10436	6344	4857	4776	4345	4811	4999	6720	11470	15708	16312	15192	13998
48	13642	14118	15143	14328	10462	6275	4776	4633	4260	4689	4922	6659	11496	15686	16344	15041	13642
49	13221	13831	15186	14323	10470	6192	4678	4508	4178	4565	4831	6590	11491	15651	16384	14826	13221
50	12708	13543	15231	14348	10466	6113	4582	4391	4098	4436	4742	6509	11479	15633	16412	14547	12708
51	12097	13114	15265	14382	10456	6035	4488	4270	4006	4323	4650	6418	11473	15620	16422	14178	12097
52	11342	12669	15265	14429	10464	5951	4388	4144	3922	4212	4552	6340	11473	15628	16428	13729	11342
53	10596	12148	15247	14492	10474	5879	4277	4036	3842	4102	4444	6264	11466	15654	16435	13225	10596
54	9795	11488	15201	14568	10492	5795	4177	3929	3757	4001	4344	6204	11487	15692	16424	12629	9795
55	8972	10802	15111	14648	10530	5725	4077	3828	3675	3891	4242	6144	11504	15733	16372	11854	8972
56	8075	10053	14963	14740	10564	5664	3983	3720	3586	3794	4148	6083	11536	15789	16266	11136	8075
57	7220	9298	14773	14837	10617	5597	3874	3615	3503	3693	4040	6036	11586	15862	16123	10303	7220

58	6298	8507	14500	14964	10666	5537	3776	3511	3420	3591	3945	5986	11642	15930	15924	9390	6298
59	5482	7691	14172	15098	10732	5472	3679	3412	3339	3481	3846	5938	11705	16010	15678	8532	5482
60	4719	6885	13779	15252	10816	5418	3577	3309	3259	3379	3747	5904	11779	16109	15342	7536	4719
61	4032	6005	13266	15411	10906	5368	3481	3194	3167	3277	3651	5875	11864	16205	14895	6712	4032
62	3437	5231	12734	15586	11014	5320	3373	3095	3089	3176	3543	5855	11968	16311	14414	5804	3437
63	2912	4506	12152	15798	11145	5282	3274	2995	3007	3067	3449	5849	12089	16418	13850	4952	2912
64	2563	3765	11541	16005	11277	5252	3166	2893	2919	2963	3351	5858	12237	16551	13251	4191	2563
65	2309	3188	10820	16218	11409	5242	3071	2786	2824	2863	3254	5887	12390	16678	12522	3577	2309
66	2109	2715	10141	16430	11567	5248	2967	2689	2733	2766	3155	5940	12560	16821	11805	2998	2109
67	1940	2350	9416	16617	11717	5274	2860	2590	2649	2673	3045	6016	12734	16949	10990	2573	1940
68	1776	2080	8662	16765	11879	5320	2756	2499	2564	2569	2948	6123	12930	17079	10082	2266	1776
69	1653	1853	7840	16839	12004	5386	2652	2388	2468	2474	2849	6251	13080	17203	9125	2001	1653
70	1530	1683	7077	16840	12078	5458	2552	2286	2392	2372	2750	6393	13124	17248	8218	1798	1530
71	1418	1531	6231	16776	12035	5541	2446	2183	2324	2272	2643	6547	13008	17246	7257	1635	1418
72	1292	1392	5474	16664	11846	5582	2348	2084	2263	2154	2549	6662	12645	17154	6433	1500	1292
73	1195	1240	4704	16440	11416	5565	2252	1976	2210	2053	2456	6647	12074	16958	5563	1350	1195
74	1098	1119	3938	16109	10762	5498	2150	1882	2171	1954	2365	6439	11302	16582	4864	1207	1098
75	1009	1016	3260	15565	9880	5338	2050	1792	2129	1852	2269	6080	10470	16071	4091	1093	1009
76	919	922	2671	14862	8809	5082	1947	1706	2065	1767	2173	5599	9482	15365	3441	994	919
77	839	820	2133	13866	7663	4717	1840	1626	1969	1685	2080	5109	8433	14505	2823	889	839
78	757	740	1700	12503	6388	4257	1726	1542	1818	1613	1986	4584	7220	13470	2226	809	757
79	675	661	1332	10912	5295	3740	1613	1471	1657	1536	1885	4107	5993	12101	1730	723	675
80	608	593	1081	9004	4265	3163	1503	1401	1488	1459	1763	3618	4834	10524	1372	648	608
81	530	513	889	7270	3198	2650	1395	1317	1294	1392	1656	3040	3599	8634	1091	568	530
82	461	448	717	5595	2314	2140	1262	1211	1106	1307	1539	2497	2700	6985	895	487	461
83	394	390	585	3882	1606	1653	1130	1084	926	1206	1403	1997	1957	5367	737	435	394
84	335	328	463	2595	1104	1184	958	966	750	1085	1229	1549	1462	3857	590	377	335
85	271	265	369	1675	717	808	778	827	584	934	1051	1139	1038	2576	472	308	271
86	210	208	274	975	401	473	598	689	402	800	877	793	704	1584	365	252	210
87	153	149	185	459	212	222	349	469	254	613	627	459	452	868	263	189	153
88	100	97	114	213	82	60	102	190	117	380	341	234	271	417	179	138	100

89	54	53	65	75	29	26	17	18	26	46	87	90	145	210	119	84	54
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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
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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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103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	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
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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135	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
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141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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149	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
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157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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
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168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	5159.4	11.6	11.6
FM (30-60)	15810.6	35.5	35.5
FH (60-80)	8166.4	18.3	18.3
FVH (80-90)	642.5	1.4	1.4
BL (0-30)	3109.7	7.0	7.0
BM (30-60)	6784.7	15.2	15.2
BH (60-80)	4355.9	9.8	9.8
BVH (80-90)	522.5	1.2	1.2
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	44551.7	100.0	100.0
BUG Rating	B4-U0-G4		

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf40(Setting at T3)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.446	292.94	0.998	2.93
8E-Q1	347.0	60	0.841	282.95	0.97	7.79
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

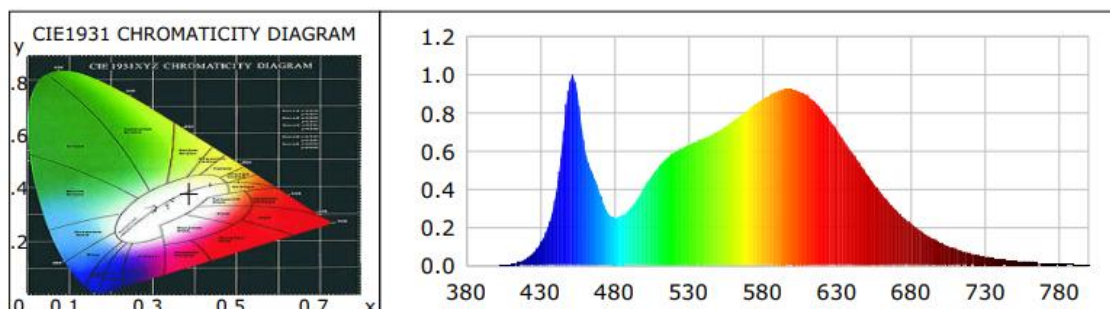
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	11
Frequency (Hz)	60	R2	90	R10	77
CCT (K)	3833	R3	96	R11	82
Duv	-0.0006	R4	83	R12	63
Chromaticity (x, y)	x=0.3877 y=0.3800	R5	83	R13	84
Chromaticity (u', v')	u(u')=0.2286v'=0.5041	R6	87	R14	98
Color Rendering Index (CRI)	84	R7	85	R15	76
R9	11	R8	65	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	45977.0	45668.1	>=10000(-10%)
Luminous Efficacy (lm/W)	156.95	161.40	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	155.90		

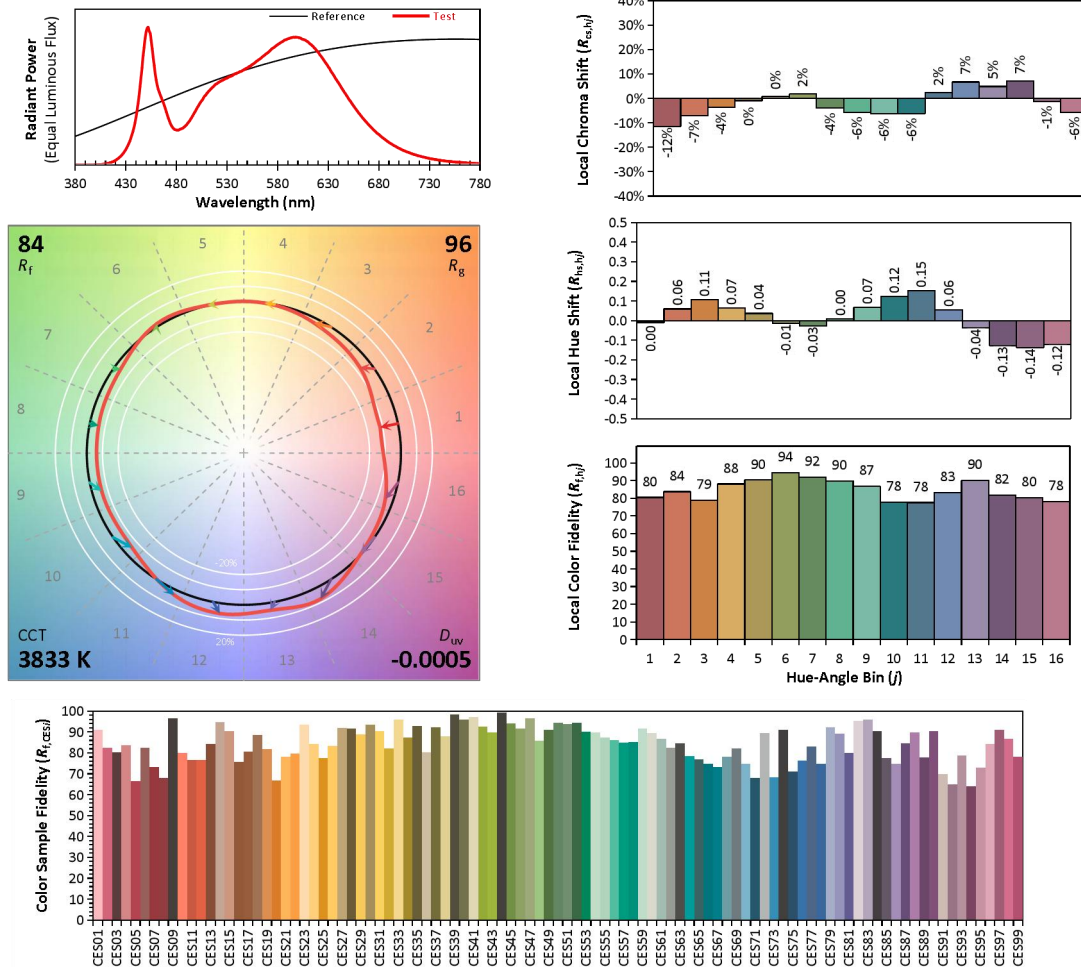
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0005	0.4285	535	0.6123	533.1730	690	0.2904	252.9143
385	0.0006	0.5512	540	0.6296	548.2995	695	0.2519	219.3619
390	0.0007	0.5917	545	0.6468	563.2563	700	0.2207	192.1792
395	0.0010	0.8896	550	0.6676	581.3518	705	0.1904	165.8192
400	0.0017	1.4508	555	0.6843	595.9315	710	0.1629	141.8731
405	0.0030	2.6067	560	0.7036	612.7209	715	0.1398	121.7086
410	0.0077	6.7210	565	0.7289	634.7176	720	0.1203	104.7301
415	0.0171	14.9080	570	0.7558	658.1880	725	0.1030	89.6692
420	0.0333	29.0067	575	0.7850	683.5976	730	0.0887	77.2501
425	0.0625	54.4171	580	0.8121	707.2307	735	0.0754	65.6708
430	0.1124	97.8863	585	0.8465	737.1939	740	0.0643	56.0065
435	0.1957	170.4583	590	0.8734	760.5635	745	0.0552	48.0419
440	0.3438	299.3678	595	0.8957	779.9747	750	0.0466	40.5952
445	0.6364	554.1856	600	0.9152	796.9497	755	0.0395	34.3852
450	0.9647	840.0671	605	0.9254	805.8742	760	0.0341	29.7352
455	0.9040	787.2323	610	0.9254	805.8985	765	0.0285	24.7776
460	0.6162	536.6527	615	0.9107	793.1112	770	0.0245	21.3285
465	0.4895	426.2773	620	0.8932	777.8586	775	0.0212	18.4190
470	0.3836	334.0704	625	0.8598	748.7686	780	0.0190	16.5580
475	0.2850	248.1862	630	0.8172	711.6694	785	0.0160	13.8956
480	0.2526	220.0001	635	0.7670	667.9097	790	0.0133	11.5928
485	0.2624	228.5416	640	0.7114	619.4806	795	0.0109	9.4542
490	0.2908	253.2256	645	0.6544	569.8518	800	0.0103	8.9598
495	0.3431	298.7622	650	0.5968	519.7075			
500	0.4080	355.2587	655	0.5377	468.2250			
505	0.4661	405.9018	660	0.4806	418.5309			
510	0.5190	451.9666	665	0.4286	373.2754			
515	0.5588	486.5958	670	0.3772	328.4426			
520	0.5892	513.1400	675	0.3320	289.1001			
525	0.6123	533.1730	680	0.2904	252.9143			
530	0.6296	548.2995	685	0.2519	219.3619			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes:

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

x 0.3877
 y 0.3800
 u' 0.2286
 v' 0.5041

CIE 13.3-1995
(CRI)

R_a 84
 R_9 11

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

2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf50(Setting at T3)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.525	302.45	0.998	2.81
8E-Q1	347.0	60	0.871	293.1	0.97	7.83
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

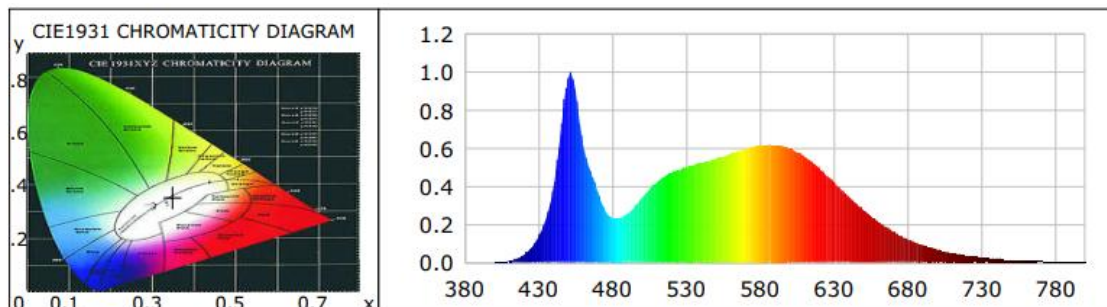
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	89	R10	73
CCT (K)	4878	R3	93	R11	80
Duv	-0.0006	R4	82	R12	58
Chromaticity (x, y)	x=0.3485 y=0.3531	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2131 v'=0.4859	R6	84	R14	97
Color Rendering Index (CRI)	83	R7	86	R15	76
R9	7	R8	66	--	--
Rf	83	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-13				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	45536.9	45339.6	>=10000(-10%)
Luminous Efficacy (lm/W)	150.56	154.69	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	149.91		

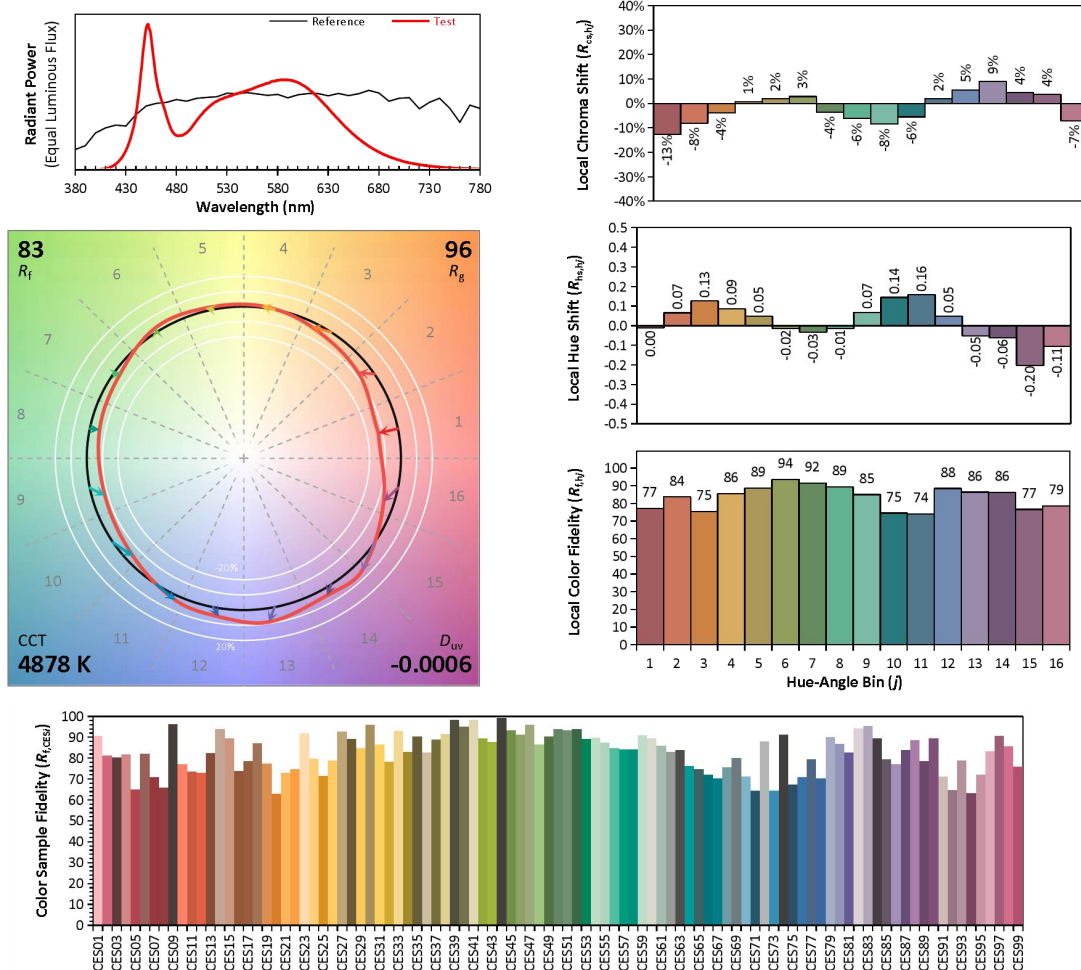
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.5041	535	0.4874	573.5362	690	0.1629	191.7431
385	0.0009	1.0704	540	0.5011	589.7370	695	0.1419	166.9978
390	0.0002	0.2937	545	0.5119	602.4473	700	0.1231	144.8978
395	0.0005	0.6027	550	0.5246	617.3655	705	0.1061	124.9099
400	0.0015	1.7937	555	0.5326	626.8111	710	0.0917	107.8917
405	0.0039	4.5648	560	0.5450	641.3983	715	0.0790	92.9720
410	0.0088	10.3514	565	0.5571	655.5877	720	0.0676	79.5663
415	0.0201	23.6740	570	0.5717	672.7316	725	0.0571	67.1720
420	0.0402	47.2925	575	0.5848	688.1872	730	0.0486	57.2227
425	0.0744	87.5810	580	0.5945	699.6392	735	0.0422	49.6645
430	0.1322	155.5938	585	0.6086	716.2273	740	0.0369	43.3960
435	0.2263	266.3507	590	0.6151	723.8285	745	0.0308	36.2876
440	0.3836	451.3625	595	0.6172	726.3201	750	0.0265	31.1973
445	0.6712	789.8516	600	0.6187	728.1076	755	0.0232	27.3354
450	0.9700	1141.4967	605	0.6111	719.1119	760	0.0193	22.7455
455	0.9068	1067.1285	610	0.5998	705.8696	765	0.0161	18.8962
460	0.6287	739.8052	615	0.5815	684.2893	770	0.0135	15.8832
465	0.4849	570.6400	620	0.5587	657.4649	775	0.0117	13.8004
470	0.3738	439.9034	625	0.5302	623.8904	780	0.0100	11.7754
475	0.2755	324.1814	630	0.4970	584.8355	785	0.0090	10.6081
480	0.2361	277.8570	635	0.4591	540.2106	790	0.0075	8.8332
485	0.2361	277.8738	640	0.4221	496.6745	795	0.0075	8.8130
490	0.2549	300.0175	645	0.3839	451.8153	800	0.0052	6.1655
495	0.2922	343.9138	650	0.3475	408.8849			
500	0.3391	399.0802	655	0.3101	364.8924			
505	0.3812	448.6458	660	0.2759	324.6331			
510	0.4198	494.0470	665	0.2429	285.8417			
515	0.4497	529.2016	670	0.2148	252.7690			
520	0.4714	554.7346	675	0.1870	220.0930			
525	0.4874	573.5362	680	0.1629	191.7431			
530	0.5011	589.7370	685	0.1419	166.9978			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.3485
 y 0.3531
 u' 0.2131
 v' 0.4859

CIE 13.3-1995
(CRI)

R_a 83
 R_9 7

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

2.4 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf30(Setting at T4)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.452	293.99	0.999	2.88
8E-Q1	347.0	60	0.851	285.62	0.967	7.19
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

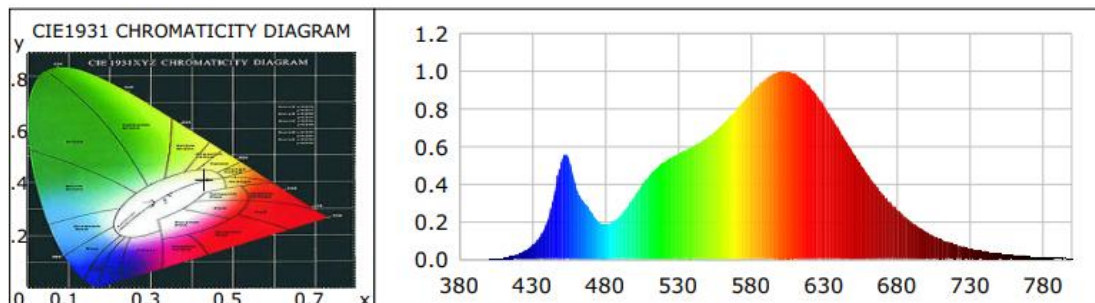
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	6
Frequency (Hz)	60	R2	89	R10	76
CCT (K)	3136	R3	97	R11	81
Duv	0.0030	R4	82	R12	66
Chromaticity (x, y)	x=0.4317 y=0.4097	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2448 v'=0.5228	R6	88	R14	99
Color Rendering Index (CRI)	83	R7	84	R15	73
R9	6	R8	60	--	--
Rf	85	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-11				

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	44469.2	44383.7	>=10000(-10%)
Luminous Efficacy (lm/W)	151.26	155.39	Premium: >= 120(-3%)
Most worst Luminous/Highest	150.97		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	4.4	--	<=10(+3)
Beam Angle (°)	134.2	--	--
Center Beam Candle Power (cd)	8901	--	--

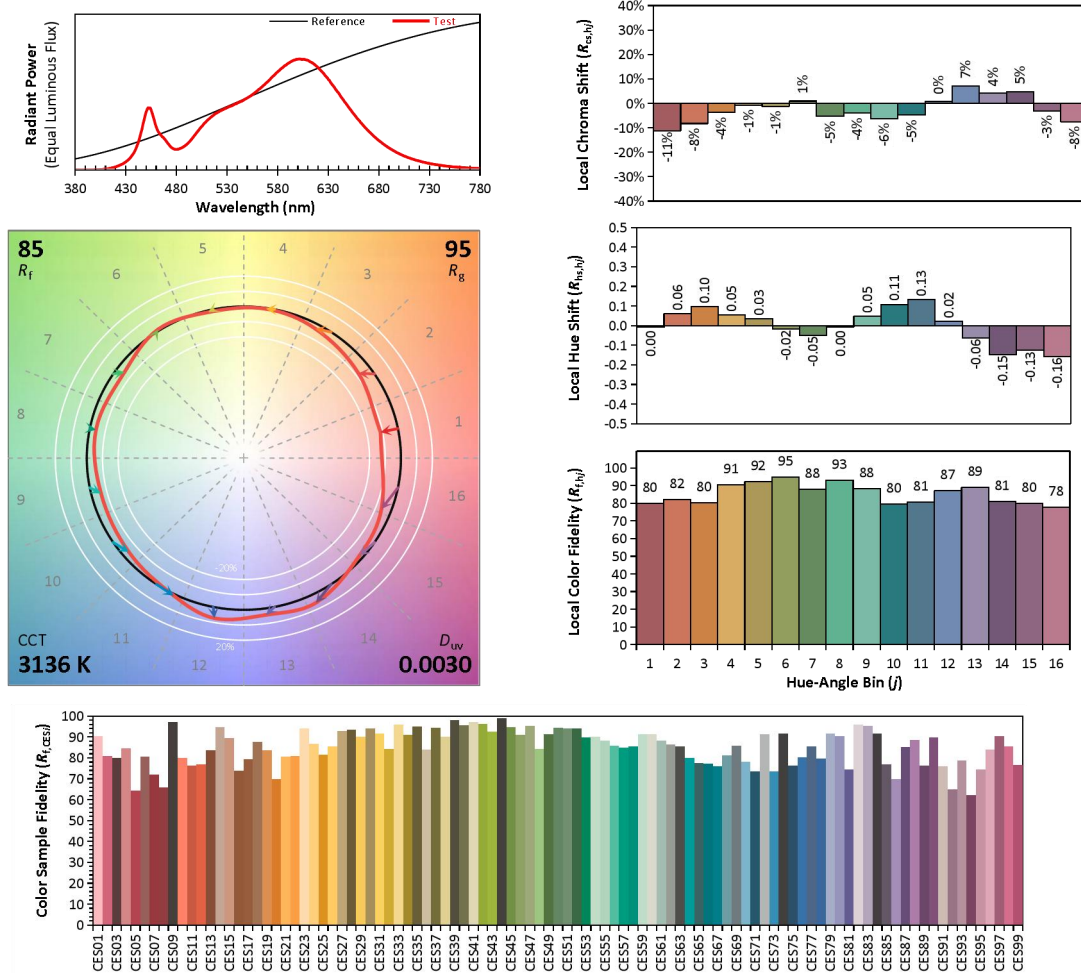
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0008	0.6660	535	0.5389	447.4707	690	0.3481	289.0254
385	0.0002	0.1492	540	0.5604	465.3265	695	0.3036	252.0582
390	0.0007	0.5693	545	0.5797	481.3341	700	0.2648	219.8918
395	0.0006	0.5336	550	0.6024	500.2003	705	0.2293	190.3828
400	0.0014	1.1317	555	0.6215	516.0518	710	0.1981	164.5160
405	0.0033	2.7111	560	0.6487	538.6755	715	0.1709	141.8716
410	0.0075	6.2006	565	0.6786	563.4757	720	0.1463	121.4901
415	0.0156	12.9625	570	0.7144	593.2168	725	0.1242	103.1438
420	0.0271	22.5164	575	0.7528	625.0747	730	0.1080	89.6387
425	0.0458	38.0477	580	0.7937	659.0385	735	0.0932	77.3824
430	0.0726	60.3032	585	0.8415	698.7504	740	0.0799	66.3646
435	0.1162	96.4697	590	0.8846	734.4913	745	0.0677	56.2470
440	0.1928	160.0698	595	0.9229	766.3504	750	0.0581	48.2565
445	0.3370	279.8498	600	0.9594	796.6256	755	0.0492	40.8779
450	0.5209	432.4946	605	0.9848	817.7373	760	0.0420	34.8749
455	0.5393	447.8180	610	0.9986	829.1497	765	0.0359	29.8497
460	0.3883	322.4280	615	0.9978	828.4762	770	0.0306	25.3913
465	0.3095	256.9951	620	0.9877	820.0832	775	0.0262	21.7471
470	0.2569	213.3401	625	0.9614	798.3060	780	0.0224	18.5860
475	0.2024	168.0475	630	0.9221	765.6150	785	0.0204	16.9311
480	0.1839	152.7144	635	0.8745	726.1102	790	0.0167	13.8852
485	0.1982	164.6107	640	0.8166	678.0599	795	0.0141	11.7415
490	0.2283	189.5291	645	0.7568	628.3956	800	0.0119	9.8447
495	0.2773	230.2630	650	0.6958	577.7396			
500	0.3359	278.9049	655	0.6296	522.7636			
505	0.3911	324.7258	660	0.5670	470.8346			
510	0.4431	367.8939	665	0.5067	420.7590			
515	0.4822	400.3958	670	0.4501	373.7138			
520	0.5136	426.4190	675	0.3965	329.1865			
525	0.5389	447.4707	680	0.3481	289.0254			
530	0.5604	465.3265	685	0.3036	252.0582			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.4317
 y 0.4097
 u' 0.2448
 v' 0.5228

CIE 13.3-1995
(CRI)

R_a 83
 R_9 6

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

Zonal Lumen Tabulation

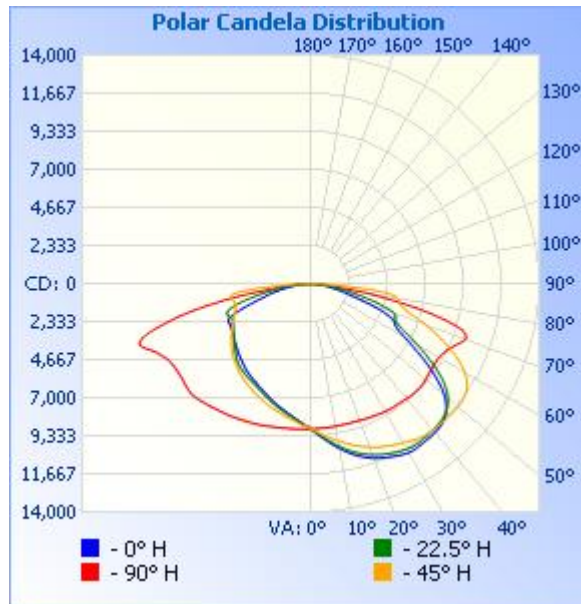
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	7,779.1	17.5%	17.5%
0-40	13,686.1	30.8%	30.8%
0-60	28,541.4	64.2%	64.2%
60-90	15,926.6	35.8%	35.8%
70-100	8,380.4	18.8%	18.8%
90-120	0	0%	0%
0-90	44,467.9	100%	100%
90-180	0	0%	0%
0-180	44,467.9	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	858.0	1.9%	90-100	0	0%
10-20	2,601.4	5.9%	100-110	0	0%
20-30	4,319.6	9.7%	110-120	0	0%
30-40	5,907.0	13.3%	120-130	0	0%
40-50	7,179.2	16.1%	130-140	0	0%
50-60	7,676.1	17.3%	140-150	0	0%
60-70	7,546.2	17.0%	150-160	0	0%
70-80	6,405.2	14.4%	160-170	0	0%
80-90	1,975.1	4.4%	170-180	0	0%

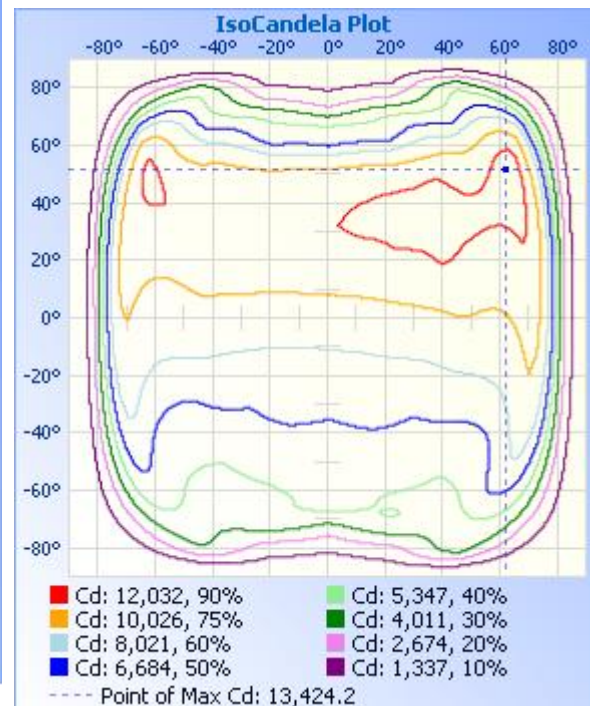
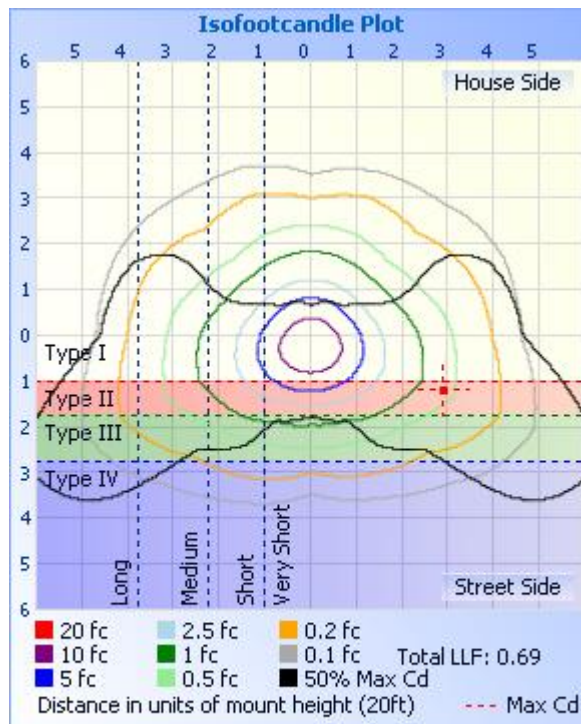
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	30.8 fc	74.9 ft	114.9 ft
34.0ft	7.70 fc	149.8 ft	229.9 ft
51.0ft	3.42 fc	224.7 ft	344.8 ft
68.0ft	1.93 fc	299.6 ft	459.8 ft
85.0ft	1.23 fc	374.5 ft	574.7 ft
102.0ft	0.86 fc	449.4 ft	689.6 ft

■ Vert. Spread: 131.2°
■ Horiz. Spread: 147.0°



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	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901	8901
1	9026	9003	8978	8937	8899	8853	8813	8778	8777	8793	8814	8858	8910	8954	8990	9012	9026
2	9151	9117	9060	8981	8896	8796	8753	8721	8719	8731	8739	8817	8920	9009	9083	9126	9151
3	9283	9240	9144	9020	8888	8758	8692	8624	8617	8650	8738	8774	8927	9061	9182	9247	9283
4	9412	9359	9239	9060	8886	8758	8607	8529	8522	8553	8646	8727	8931	9115	9278	9368	9412
5	9549	9479	9330	9101	8882	8703	8539	8448	8435	8476	8582	8714	8938	9170	9377	9501	9549
6	9687	9607	9421	9149	8879	8656	8474	8371	8346	8401	8523	8714	8949	9228	9481	9645	9687
7	9842	9732	9510	9190	8878	8613	8407	8293	8273	8337	8462	8714	8963	9292	9581	9774	9842
8	9988	9854	9608	9239	8875	8575	8349	8220	8202	8262	8408	8664	8971	9347	9689	9912	9988
9	10131	10002	9701	9286	8875	8540	8291	8152	8126	8197	8361	8632	8983	9416	9805	10053	10131
10	10264	10128	9795	9333	8873	8497	8236	8089	8061	8133	8311	8600	8997	9478	9917	10192	10264
11	10399	10250	9899	9382	8872	8461	8179	8022	7985	8072	8263	8577	9013	9544	10032	10326	10399
12	10537	10371	9987	9437	8873	8420	8123	7958	7922	8010	8214	8548	9029	9615	10145	10462	10537
13	10660	10495	10080	9484	8867	8388	8070	7891	7859	7953	8167	8525	9046	9691	10251	10585	10660
14	10776	10606	10172	9539	8870	8354	8015	7830	7795	7887	8117	8500	9061	9764	10360	10706	10776
15	10895	10706	10259	9590	8869	8323	7964	7768	7731	7832	8073	8472	9082	9833	10468	10826	10895
16	11006	10811	10344	9640	8873	8287	7913	7710	7671	7766	8026	8453	9099	9906	10588	10940	11006
17	11106	10906	10424	9694	8876	8255	7865	7650	7603	7711	7981	8428	9121	9990	10689	11042	11106
18	11204	10994	10511	9756	8882	8226	7817	7593	7535	7653	7935	8405	9144	10065	10786	11143	11204
19	11304	11083	10585	9807	8893	8195	7758	7526	7474	7591	7889	8386	9174	10141	10883	11237	11304
20	11381	11166	10658	9869	8908	8159	7711	7470	7414	7527	7842	8369	9200	10233	10976	11328	11381
21	11452	11240	10732	9922	8920	8129	7656	7410	7349	7470	7798	8342	9224	10303	11076	11415	11452
22	11523	11308	10795	9979	8937	8101	7605	7354	7290	7417	7751	8323	9253	10393	11159	11491	11523
23	11584	11366	10872	10042	8951	8078	7559	7298	7228	7357	7702	8292	9270	10472	11252	11569	11584
24	11644	11426	10929	10097	8964	8047	7509	7245	7173	7304	7653	8272	9290	10548	11338	11643	11644
25	11707	11476	10987	10160	8980	8017	7458	7192	7119	7249	7607	8245	9313	10636	11415	11713	11707
26	11759	11534	11048	10219	8999	7983	7413	7140	7065	7199	7565	8217	9337	10718	11500	11776	11759
27	11826	11585	11108	10271	9009	7958	7358	7088	7017	7154	7520	8189	9360	10793	11578	11831	11826
28	11882	11634	11159	10330	9033	7930	7314	7047	6970	7109	7472	8161	9383	10874	11642	11897	11882

29	11934	11681	11214	10385	9044	7895	7268	7002	6923	7068	7429	8132	9410	10953	11716	11958	11934
30	11972	11721	11272	10444	9062	7863	7218	6971	6883	7034	7377	8105	9442	11024	11794	12021	11972
31	11990	11754	11333	10503	9084	7826	7174	6937	6843	7002	7337	8073	9467	11102	11864	12075	11990
32	12003	11782	11393	10561	9100	7787	7128	6913	6800	6969	7296	8044	9500	11179	11948	12117	12003
33	11990	11788	11454	10613	9112	7753	7086	6881	6761	6939	7252	8007	9527	11250	12032	12146	11990
34	11969	11781	11516	10670	9112	7717	7041	6860	6720	6907	7207	7972	9550	11324	12116	12151	11969
35	11952	11773	11566	10733	9116	7679	6987	6823	6678	6883	7153	7938	9572	11393	12191	12158	11952
36	11938	11753	11611	10790	9120	7640	6932	6796	6629	6845	7102	7901	9594	11478	12255	12149	11938
37	11922	11749	11646	10850	9126	7594	6880	6767	6585	6813	7054	7868	9627	11548	12326	12147	11922
38	11913	11733	11669	10917	9146	7557	6822	6731	6527	6782	7008	7831	9666	11627	12368	12139	11913
39	11908	11720	11680	10992	9162	7520	6761	6687	6479	6742	6952	7797	9697	11709	12401	12127	11908
40	11890	11697	11695	11077	9180	7485	6702	6644	6429	6712	6887	7771	9730	11804	12428	12115	11890
41	11865	11679	11704	11162	9198	7448	6638	6597	6382	6668	6832	7750	9767	11908	12448	12092	11865
42	11824	11650	11706	11237	9225	7411	6577	6548	6331	6614	6774	7722	9797	12009	12458	12078	11824
43	11779	11627	11709	11298	9244	7362	6521	6499	6285	6565	6720	7694	9836	12101	12464	12059	11779
44	11708	11586	11718	11344	9248	7318	6466	6431	6238	6511	6657	7659	9880	12173	12469	12041	11708
45	11618	11538	11729	11355	9247	7264	6404	6361	6192	6441	6609	7623	9918	12211	12469	12001	11618
46	11513	11473	11735	11349	9250	7207	6342	6284	6145	6369	6556	7578	9944	12219	12470	11958	11513
47	11362	11397	11746	11328	9243	7141	6274	6206	6093	6296	6499	7530	9968	12200	12480	11887	11362
48	11187	11283	11757	11299	9231	7081	6206	6125	6047	6221	6437	7470	9953	12178	12478	11804	11187
49	10982	11152	11760	11276	9212	7022	6136	6039	5996	6147	6366	7410	9926	12145	12486	11694	10982
50	10727	10984	11761	11266	9182	6949	6050	5970	5962	6063	6294	7352	9896	12123	12478	11546	10727
51	10421	10790	11761	11264	9145	6888	5974	5894	5923	5997	6222	7286	9872	12098	12467	11366	10421
52	10053	10564	11745	11271	9120	6823	5900	5828	5874	5930	6148	7229	9843	12090	12449	11150	10053
53	9674	10298	11723	11281	9094	6762	5821	5753	5827	5864	6074	7160	9812	12095	12436	10904	9674
54	9272	9996	11682	11301	9079	6700	5741	5691	5788	5809	5990	7114	9791	12099	12416	10601	9272
55	8837	9624	11625	11328	9065	6638	5661	5632	5755	5747	5920	7065	9780	12121	12384	10252	8837
56	8428	9260	11545	11360	9054	6579	5587	5573	5712	5686	5847	7012	9772	12130	12320	9863	8428
57	7954	8859	11438	11393	9055	6521	5514	5510	5672	5626	5780	6970	9774	12163	12239	9424	7954
58	7527	8428	11301	11434	9052	6463	5441	5457	5639	5576	5709	6932	9780	12186	12141	8988	7527
59	7123	8028	11121	11487	9057	6418	5357	5400	5608	5522	5636	6891	9800	12223	11991	8556	7123

60	6750	7621	10919	11551	9077	6365	5283	5350	5583	5473	5562	6855	9825	12259	11818	8109	6750
61	6409	7226	10672	11626	9112	6309	5212	5303	5562	5419	5496	6832	9867	12309	11609	7666	6409
62	6107	6848	10385	11708	9165	6266	5136	5263	5545	5376	5418	6809	9919	12358	11349	7214	6107
63	5903	6497	10102	11795	9230	6236	5062	5229	5540	5336	5356	6807	9995	12422	11065	6834	5903
64	5767	6157	9763	11898	9303	6212	4988	5210	5550	5307	5293	6813	10116	12484	10740	6505	5767
65	5677	5918	9410	12019	9401	6194	4919	5195	5567	5294	5226	6833	10232	12559	10382	6205	5677
66	5568	5739	9069	12139	9521	6206	4853	5208	5530	5296	5161	6887	10356	12655	10035	6005	5568
67	5386	5636	8735	12254	9652	6227	4784	5248	5408	5321	5099	6958	10524	12766	9634	5876	5386
68	5083	5599	8331	12366	9796	6268	4717	5310	5180	5379	5038	7068	10741	12886	9170	5817	5083
69	4710	5572	7964	12454	9954	6339	4654	5361	4825	5435	4977	7192	10950	13014	8745	5805	4710
70	4235	5479	7572	12504	10065	6421	4593	5363	4432	5456	4925	7376	11113	13144	8260	5772	4235
71	3784	5299	7197	12545	10075	6517	4548	5264	4018	5409	4873	7576	11098	13262	7781	5662	3784
72	3311	4984	6827	12571	9973	6616	4497	5061	3629	5282	4830	7762	10869	13369	7404	5461	3311
73	2914	4604	6474	12559	9717	6667	4464	4775	3295	5066	4798	7850	10418	13424	7027	5139	2914
74	2586	4197	6181	12464	9174	6681	4437	4430	2984	4791	4776	7752	9779	13355	6710	4703	2586
75	2277	3724	5938	12248	8483	6608	4410	4018	2746	4449	4770	7473	9039	13093	6418	4210	2277
76	2019	3276	5764	11882	7610	6435	4382	3620	2520	4043	4781	7037	8344	12650	6197	3711	2019
77	1767	2865	5622	11284	6682	6079	4366	3244	2295	3600	4813	6546	7509	11971	6018	3230	1767
78	1573	2469	5555	10453	5642	5607	4373	2885	2042	3207	4852	6037	6541	11160	5884	2818	1573
79	1396	2154	5503	9298	4744	5027	4374	2560	1812	2848	4890	5463	5549	10164	5806	2421	1396
80	1219	1852	5449	8052	3906	4396	4375	2246	1591	2532	4933	4910	4496	9073	5755	2089	1219
81	1030	1559	5346	6722	3108	3691	4322	1987	1377	2219	4952	4282	3547	7790	5704	1793	1030
82	879	1332	5119	5345	2290	3030	4152	1728	1145	1948	4888	3579	2680	6486	5620	1512	879
83	736	1130	4657	4117	1663	2380	3787	1471	944	1700	4623	2916	2052	5158	5362	1278	736
84	606	927	3962	3002	1192	1814	3163	1232	766	1460	3970	2247	1548	3959	4725	1095	606
85	474	753	3093	2171	818	1268	2234	1024	590	1234	3153	1689	1180	2812	3814	893	474
86	366	583	1998	1478	501	799	1448	808	420	992	2242	1197	824	1931	2789	721	366
87	265	432	1159	864	258	410	695	560	259	728	1332	727	552	1230	1808	553	265
88	172	294	508	429	96	123	177	230	124	438	523	386	319	702	981	395	172
89	89	150	178	113	36	36	37	34	29	84	120	143	171	355	452	237	89
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	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
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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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
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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
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170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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)	4427.8	10.0	10.0
FM (30-60)	12800.6	28.8	28.8
FH (60-80)	8138.4	18.3	18.3
FVH (80-90)	1104.3	2.5	2.5
BL (0-30)	3351.0	7.5	7.5
BM (30-60)	7965.2	17.9	17.9
BH (60-80)	5811.4	13.1	13.1
BVH (80-90)	870.5	2.0	2.0
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	44469.2	100.1	100.0
BUG Rating	B5-U0-G5		

2.5 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf40(Setting at T4)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.375	284.76	0.999	2.82
8E-Q1	347.0	60	0.822	276.12	0.968	7.22
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

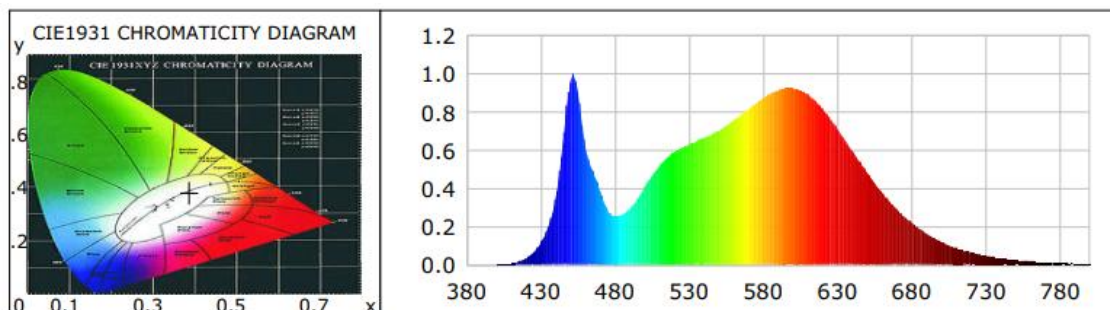
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	11
Frequency (Hz)	60	R2	90	R10	77
CCT (K)	3834	R3	96	R11	82
Duv	-0.0006	R4	83	R12	63
Chromaticity (x, y)	x=0.3876 y=0.3799	R5	83	R13	85
Chromaticity (u', v')	u(u')=0.2285v'=0.5040	R6	87	R14	98
Color Rendering Index (CRI)	84	R7	85	R15	76
R9	11	R8	65	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	45505.8	45206.5	>=10000(-10%)
Luminous Efficacy (lm/W)	159.80	163.72	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	158.75		

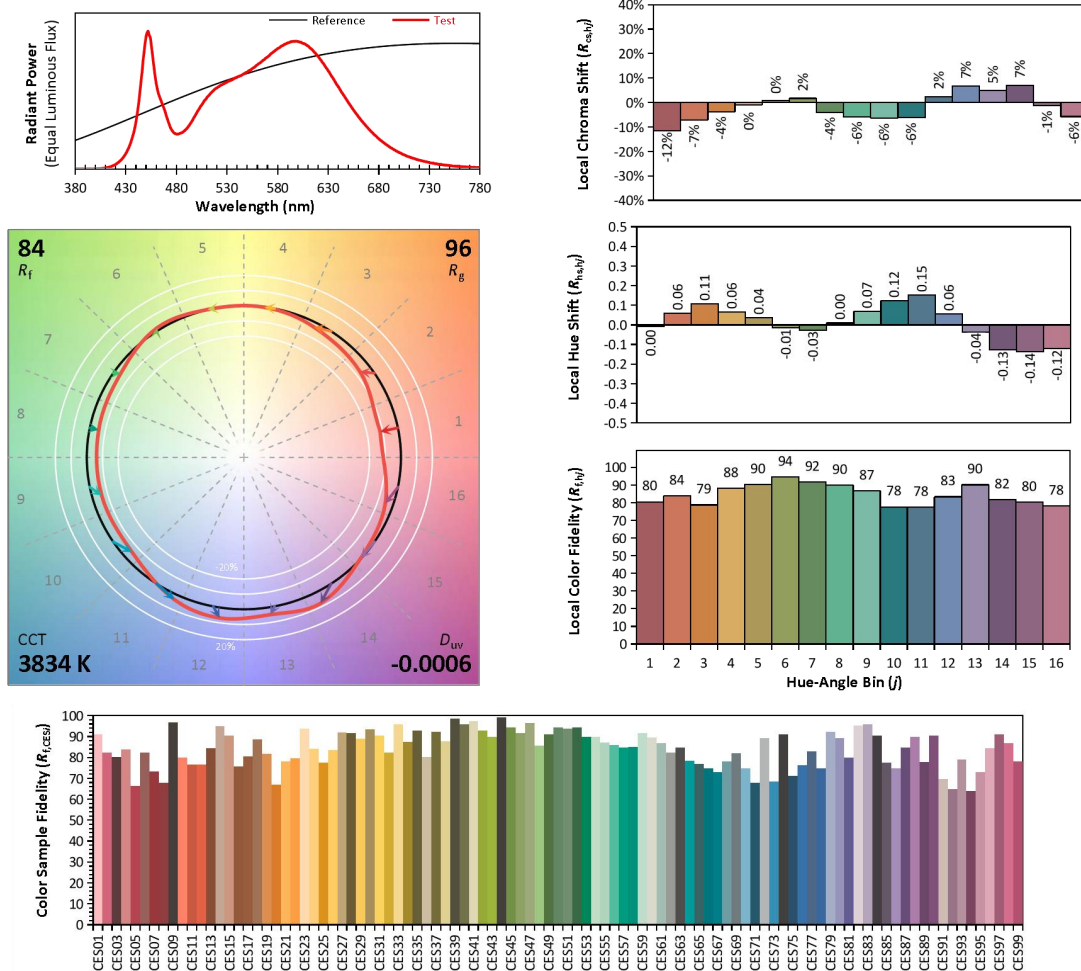
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0008	0.6700	535	0.6115	531.5954	690	0.2899	252.0154
385	0.0008	0.6674	540	0.6312	548.7311	695	0.2524	219.4449
390	0.0004	0.3667	545	0.6476	562.9546	700	0.2194	190.7531
395	0.0007	0.5973	550	0.6671	579.9495	705	0.1896	164.8554
400	0.0014	1.1925	555	0.6832	593.9205	710	0.1634	142.0349
405	0.0029	2.5381	560	0.7035	611.5313	715	0.1406	122.2703
410	0.0080	6.9460	565	0.7288	633.5502	720	0.1198	104.1067
415	0.0171	14.8344	570	0.7565	657.6266	725	0.1030	89.5812
420	0.0337	29.2929	575	0.7848	682.2244	730	0.0883	76.7976
425	0.0633	55.0647	580	0.8125	706.3149	735	0.0756	65.7618
430	0.1123	97.6091	585	0.8454	734.9101	740	0.0637	55.4108
435	0.1961	170.4711	590	0.8739	759.6780	745	0.0549	47.7433
440	0.3436	298.7302	595	0.8954	778.4081	750	0.0471	40.9453
445	0.6345	551.6163	600	0.9161	796.4266	755	0.0394	34.2427
450	0.9619	836.1675	605	0.9253	804.4088	760	0.0341	29.6534
455	0.9075	788.9142	610	0.9250	804.1146	765	0.0286	24.8673
460	0.6223	540.9709	615	0.9115	792.3862	770	0.0241	20.9307
465	0.4920	427.7306	620	0.8928	776.1401	775	0.0211	18.3686
470	0.3851	334.8056	625	0.8585	746.3089	780	0.0182	15.7911
475	0.2873	249.7273	630	0.8165	709.8431	785	0.0159	13.7832
480	0.2535	220.3878	635	0.7670	666.7499	790	0.0129	11.1951
485	0.2629	228.5461	640	0.7112	618.2683	795	0.0112	9.7705
490	0.2916	253.4550	645	0.6551	569.5337	800	0.0104	9.0161
495	0.3437	298.7639	650	0.5961	518.1762			
500	0.4078	354.5008	655	0.5381	467.7466			
505	0.4648	404.0682	660	0.4810	418.1612			
510	0.5186	450.8468	665	0.4276	371.7491			
515	0.5582	485.3005	670	0.3775	328.1869			
520	0.5884	511.5465	675	0.3320	288.5814			
525	0.6115	531.5954	680	0.2899	252.0154			
530	0.6312	548.7311	685	0.2524	219.4449			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.3876
 y 0.3799
 u' 0.2286
 v' 0.5040

CIE 13.3-1995
(CRI)

R_a 84
 R_9 11

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

2.6 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf50(Setting at T4)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.455	294.33	0.999	3.02
8E-Q1	347.0	60	0.853	285.76	0.966	7.18
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

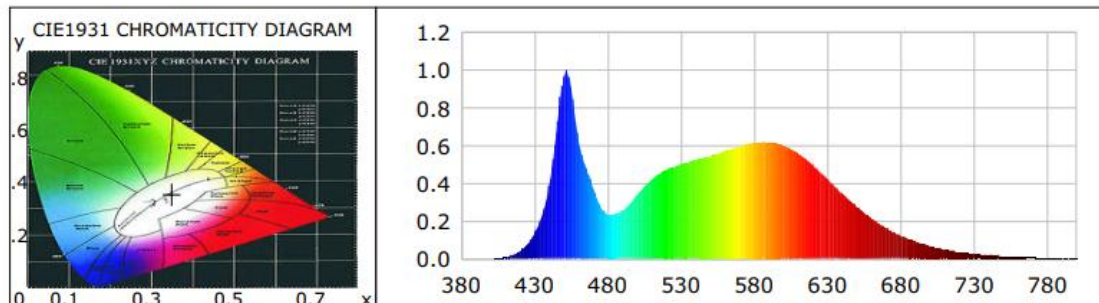
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	89	R10	73
CCT (K)	4878	R3	93	R11	80
Duv	-0.0006	R4	82	R12	58
Chromaticity (x, y)	x=0.3485 y=0.3531	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2131 v'=0.4859	R6	84	R14	97
Color Rendering Index (CRI)	83	R7	86	R15	76
R9	7	R8	66	--	--
Rf	83	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-13				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	45737.3	45536.5	>=10000(-10%)
Luminous Efficacy (lm/W)	155.39	159.35	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	154.71		

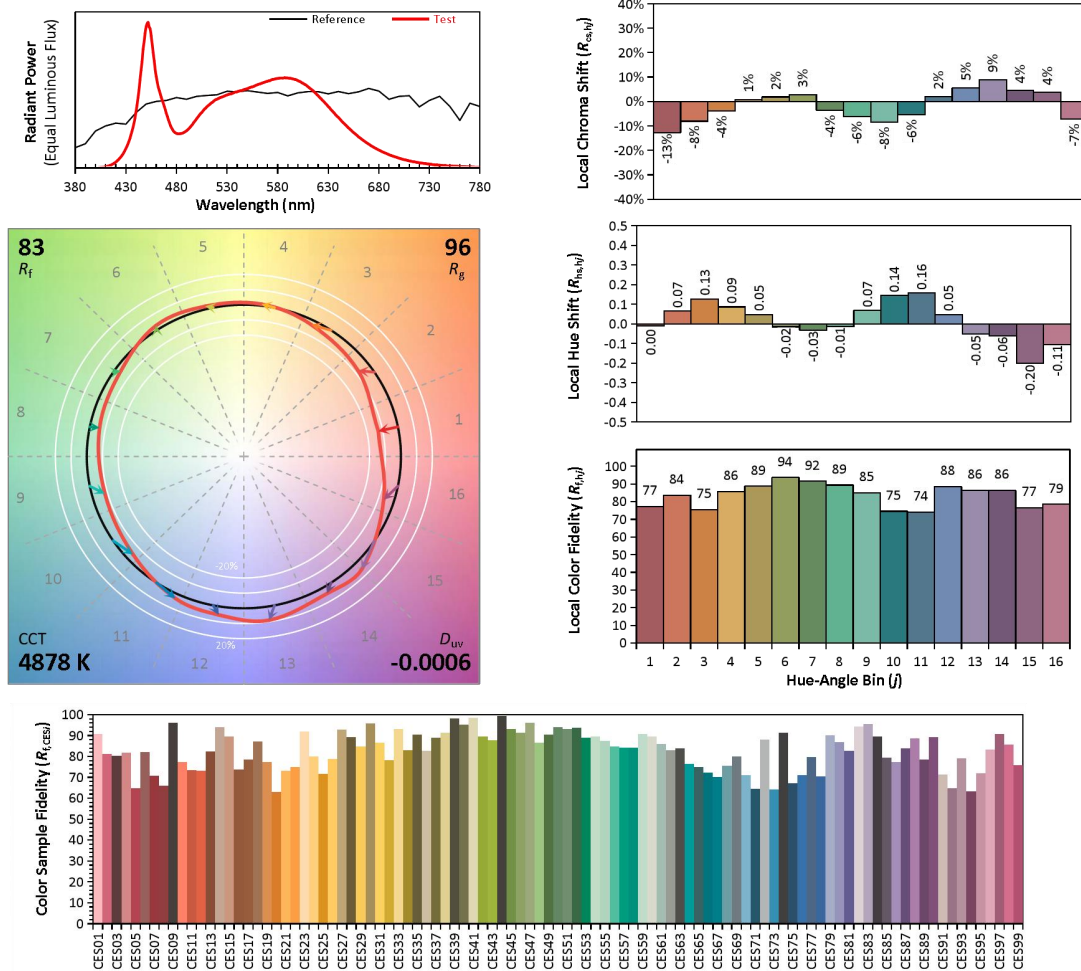
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.1790	535	0.4878	573.5247	690	0.1640	192.8412
385	0.0007	0.7854	540	0.5016	589.7397	695	0.1422	167.1683
390	0.0002	0.2649	545	0.5116	601.4917	700	0.1230	144.6277
395	0.0006	0.7004	550	0.5240	616.1056	705	0.1070	125.8170
400	0.0011	1.3363	555	0.5329	626.5345	710	0.0923	108.4805
405	0.0035	4.1096	560	0.5443	639.9350	715	0.0793	93.2522
410	0.0090	10.6257	565	0.5572	655.1454	720	0.0675	79.3174
415	0.0200	23.4855	570	0.5713	671.6931	725	0.0573	67.3919
420	0.0401	47.0961	575	0.5843	687.0419	730	0.0487	57.2073
425	0.0749	88.0814	580	0.5953	699.9912	735	0.0426	50.0886
430	0.1330	156.3587	585	0.6085	715.5321	740	0.0365	42.9129
435	0.2267	266.6015	590	0.6148	722.8375	745	0.0314	36.9372
440	0.3844	451.9944	595	0.6177	726.2322	750	0.0265	31.1597
445	0.6695	787.1968	600	0.6182	726.8505	755	0.0218	25.6706
450	0.9683	1138.5603	605	0.6119	719.4546	760	0.0198	23.2739
455	0.9072	1066.6542	610	0.6004	705.9099	765	0.0175	20.6116
460	0.6295	740.1469	615	0.5820	684.3233	770	0.0142	16.6698
465	0.4856	570.9459	620	0.5583	656.4885	775	0.0125	14.7258
470	0.3746	440.5087	625	0.5307	624.0305	780	0.0104	12.2681
475	0.2776	326.3651	630	0.4965	583.7743	785	0.0097	11.4428
480	0.2372	278.8636	635	0.4610	542.0682	790	0.0080	9.4205
485	0.2377	279.4673	640	0.4216	495.7544	795	0.0057	6.7116
490	0.2554	300.3138	645	0.3836	451.0547	800	0.0061	7.1624
495	0.2920	343.3589	650	0.3479	409.0179			
500	0.3392	398.7990	655	0.3097	364.1884			
505	0.3807	447.5965	660	0.2753	323.6595			
510	0.4206	494.5084	665	0.2440	286.8829			
515	0.4489	527.8607	670	0.2129	250.3066			
520	0.4718	554.7680	675	0.1874	220.3159			
525	0.4878	573.5247	680	0.1640	192.8412			
530	0.5016	589.7397	685	0.1422	167.1683			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.3485
 y 0.3531
 u' 0.2131
 v' 0.4859

CIE 13.3-1995
(CRI)

R_a 83
 R_9 7

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

2.7 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf30(Setting at T5)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.509	300.83	0.999	2.85
8E-Q1	347.0	60	0.870	292.31	0.968	7.8
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

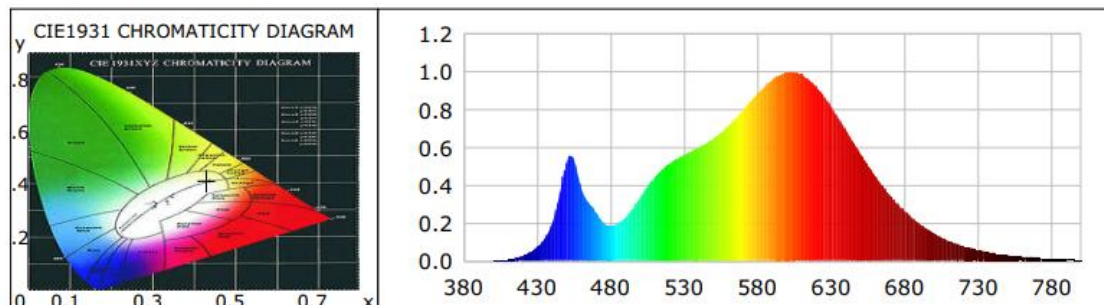
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	89	R10	76
CCT (K)	3137	R3	97	R11	81
Duv	0.0030	R4	82	R12	66
Chromaticity (x, y)	x=0.4316 y=0.4097	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2448v'=0.5228	R6	88	R14	99
Color Rendering Index (CRI)	83	R7	84	R15	73
R9	6	R8	60	--	--
Rf	85	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-11				

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	44101.8	43919.6	>=10000(-10%)
Luminous Efficacy (lm/W)	146.60	150.25	Premium: >= 120(-3%)
Most worst Luminous/Highest	145.99		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	6.3	--	<=10(+3)
Beam Angle (°)	151.9	--	--
Center Beam Candle Power (cd)	8538	--	--

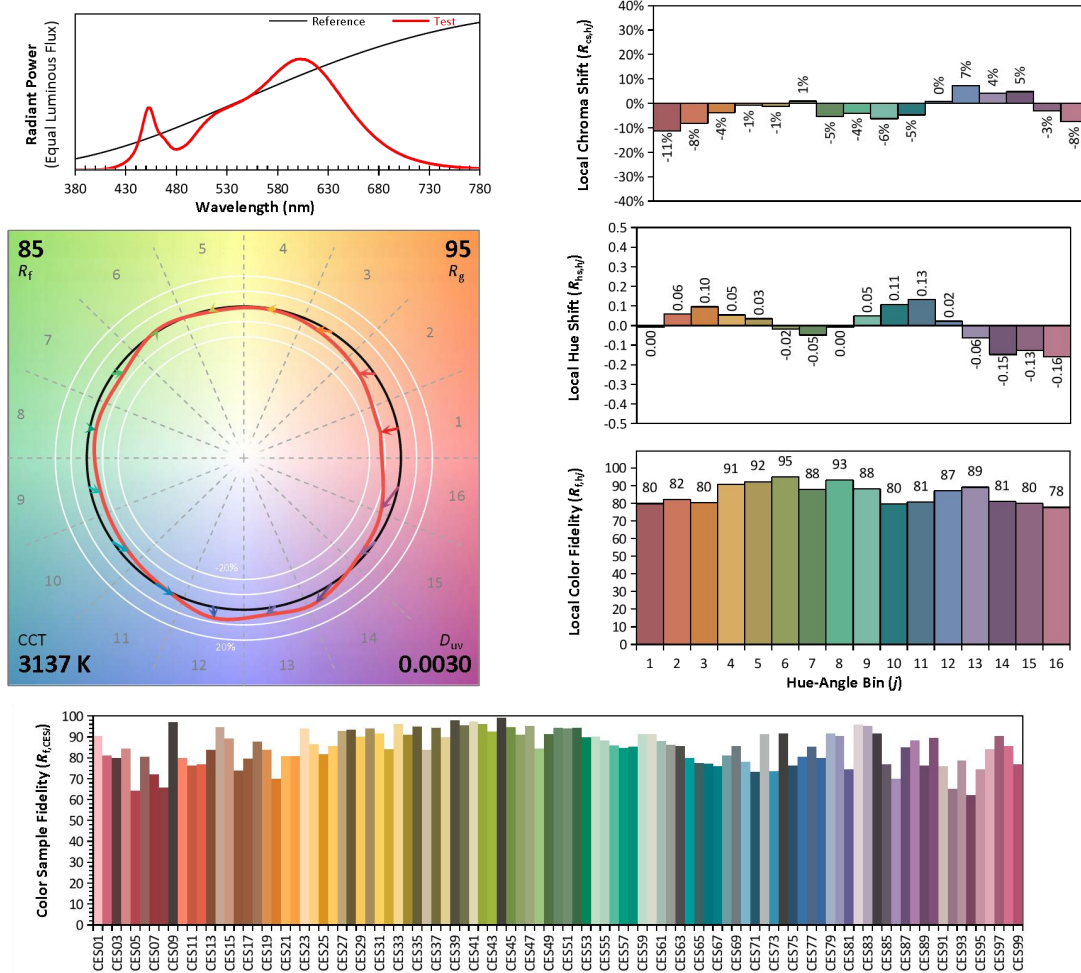
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0010	0.8655	535	0.5381	446.7444	690	0.3479	288.8138
385	0.0009	0.7492	540	0.5597	464.6903	695	0.3036	252.0860
390	0.0003	0.2096	545	0.5786	480.3651	700	0.2647	219.7294
395	0.0009	0.7865	550	0.6018	499.5768	705	0.2298	190.7525
400	0.0015	1.2188	555	0.6219	516.3409	710	0.1984	164.7461
405	0.0031	2.5352	560	0.6483	538.2025	715	0.1710	141.9917
410	0.0078	6.4846	565	0.6789	563.6497	720	0.1462	121.3904
415	0.0155	12.8845	570	0.7140	592.7413	725	0.1245	103.3435
420	0.0273	22.6635	575	0.7525	624.7427	730	0.1072	88.9992
425	0.0455	37.7438	580	0.7934	658.6722	735	0.0920	76.3720
430	0.0726	60.2638	585	0.8410	698.2016	740	0.0789	65.4701
435	0.1165	96.7413	590	0.8851	734.8257	745	0.0672	55.7566
440	0.1924	159.7596	595	0.9226	765.9604	750	0.0572	47.4570
445	0.3352	278.3025	600	0.9592	796.3400	755	0.0482	40.0038
450	0.5200	431.6739	605	0.9852	817.8708	760	0.0416	34.5265
455	0.5393	447.7286	610	0.9978	828.3682	765	0.0362	30.0164
460	0.3895	323.3469	615	0.9974	828.0056	770	0.0312	25.8687
465	0.3102	257.5074	620	0.9863	818.8549	775	0.0260	21.6072
470	0.2568	213.1637	625	0.9601	797.1066	780	0.0233	19.3236
475	0.2021	167.7674	630	0.9205	764.2061	785	0.0185	15.3283
480	0.1841	152.8156	635	0.8726	724.4384	790	0.0156	12.9847
485	0.1983	164.6638	640	0.8159	677.3463	795	0.0143	11.8676
490	0.2277	189.0015	645	0.7581	629.3452	800	0.0127	10.5511
495	0.2765	229.5435	650	0.6934	575.6530			
500	0.3358	278.8095	655	0.6290	522.2334			
505	0.3904	324.0800	660	0.5663	470.1283			
510	0.4430	367.8073	665	0.5060	420.0499			
515	0.4817	399.9233	670	0.4493	372.9865			
520	0.5128	425.7161	675	0.3974	329.9102			
525	0.5381	446.7444	680	0.3479	288.8138			
530	0.5597	464.6903	685	0.3036	252.0860			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.4316
 y 0.4097
 u' 0.2448
 v' 0.5228

CIE 13.3-1995
(CRI)

R_a 83
 R_9 6

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

Zonal Lumen Tabulation

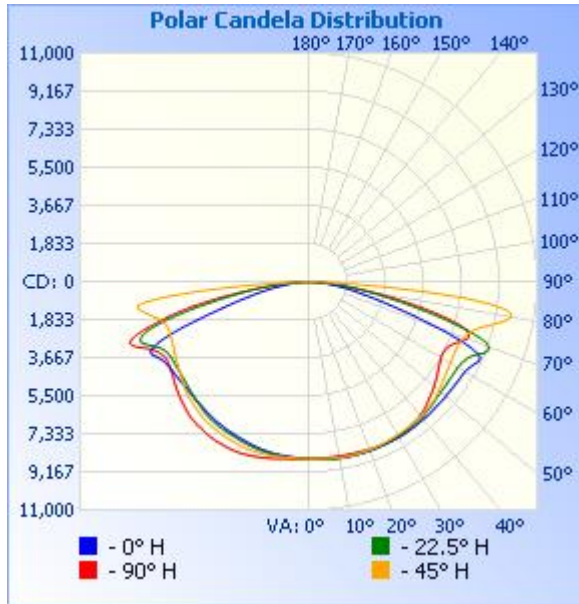
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	7,213.9	16.4%	16.4%
0-40	12,526.9	28.4%	28.4%
0-60	26,007.7	59%	59%
60-90	18,093.6	41%	41%
70-100	10,211.9	23.2%	23.2%
90-120	0	0%	0%
0-90	44,101.3	100%	100%
90-180	0	0%	0%
0-180	44,101.3	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	816.3	1.9%	90-100	0	0%
10-20	2,433.3	5.5%	100-110	0	0%
20-30	3,964.3	9.0%	110-120	0	0%
30-40	5,312.9	12.0%	120-130	0	0%
40-50	6,368.7	14.4%	130-140	0	0%
50-60	7,112.2	16.1%	140-150	0	0%
60-70	7,881.7	17.9%	150-160	0	0%
70-80	7,439.3	16.9%	160-170	0	0%
80-90	2,772.5	6.3%	170-180	0	0%

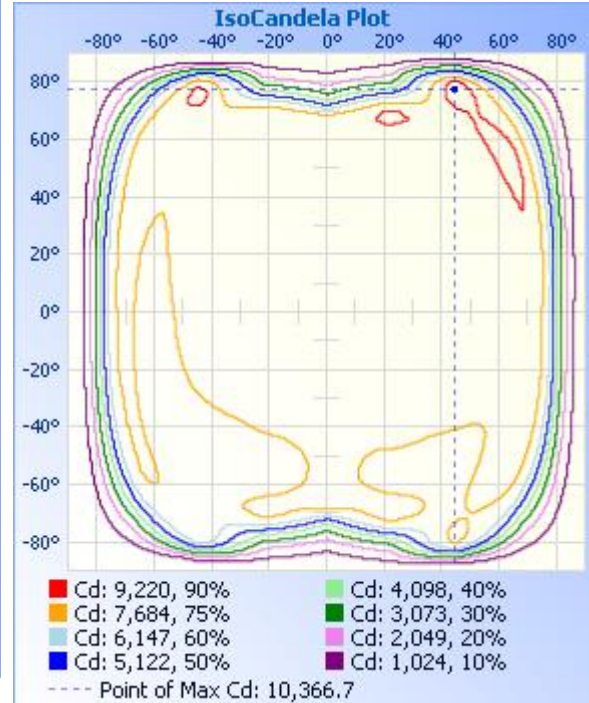
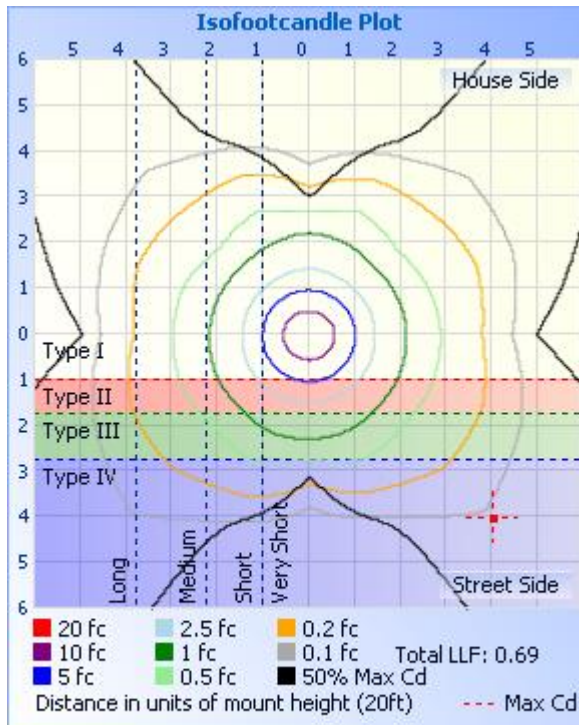
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	29.5 fc	306.9 ft	11.1 ft
34.0ft	7.39 fc	613.9 ft	22.1 ft
51.0ft	3.28 fc	920.8 ft	33.2 ft
68.0ft	1.85 fc	1,227.8 ft	44.2 ft
85.0ft	1.18 fc	1,534.7 ft	55.3 ft
102.0ft	0.82 fc	1,841.6 ft	66.3 ft

■ Vert. Spread: 167.4°
■ Horiz. Spread: 36.0°



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	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538	8538
1	8548	8542	8544	8540	8534	8533	8528	8525	8527	8532	8538	8536	8545	8543	8546	8545	8548
2	8559	8552	8548	8540	8532	8526	8516	8514	8516	8527	8536	8539	8548	8556	8558	8556	8559
3	8570	8561	8551	8538	8528	8520	8508	8504	8509	8520	8535	8543	8552	8563	8565	8571	8570
4	8583	8570	8559	8541	8527	8516	8502	8498	8497	8515	8534	8547	8560	8573	8573	8578	8583
5	8593	8580	8564	8546	8523	8506	8489	8484	8490	8509	8536	8555	8573	8588	8584	8587	8593
6	8600	8588	8571	8548	8524	8499	8480	8474	8485	8504	8535	8566	8585	8600	8599	8596	8600
7	8610	8595	8582	8548	8525	8494	8469	8463	8476	8502	8543	8578	8600	8612	8614	8610	8610
8	8618	8602	8590	8550	8526	8491	8459	8455	8470	8502	8544	8592	8616	8630	8624	8618	8618
9	8628	8612	8598	8552	8526	8490	8451	8441	8462	8496	8548	8607	8635	8646	8635	8627	8628
10	8633	8620	8603	8559	8527	8487	8442	8435	8454	8490	8560	8626	8658	8663	8651	8640	8633
11	8639	8625	8611	8566	8528	8483	8431	8423	8446	8487	8568	8640	8682	8684	8663	8648	8639
12	8645	8630	8615	8568	8533	8482	8422	8410	8435	8482	8570	8661	8703	8705	8681	8657	8645
13	8648	8637	8619	8573	8533	8481	8417	8396	8422	8474	8571	8676	8726	8728	8698	8665	8648
14	8649	8642	8620	8576	8537	8483	8409	8384	8407	8466	8578	8688	8744	8744	8708	8668	8649
15	8646	8647	8621	8582	8544	8487	8407	8372	8394	8457	8582	8709	8766	8764	8718	8678	8646
16	8650	8648	8617	8585	8547	8489	8399	8357	8377	8444	8583	8723	8786	8780	8727	8684	8650
17	8650	8647	8615	8593	8558	8493	8395	8338	8360	8434	8582	8734	8806	8796	8735	8685	8650
18	8657	8649	8611	8593	8563	8499	8387	8327	8342	8419	8582	8749	8828	8809	8740	8688	8657
19	8661	8649	8606	8597	8575	8500	8378	8305	8321	8405	8578	8765	8846	8826	8747	8688	8661
20	8659	8643	8605	8602	8587	8504	8364	8288	8301	8387	8570	8774	8861	8833	8754	8687	8659
21	8661	8642	8602	8608	8599	8509	8352	8272	8276	8370	8567	8783	8878	8841	8754	8690	8661
22	8660	8637	8592	8607	8612	8510	8338	8254	8257	8352	8557	8785	8890	8853	8758	8689	8660
23	8657	8637	8589	8607	8621	8515	8322	8234	8240	8333	8547	8792	8893	8862	8754	8691	8657
24	8661	8632	8584	8607	8621	8516	8307	8216	8222	8312	8533	8796	8897	8869	8756	8690	8661
25	8658	8623	8576	8608	8627	8515	8291	8197	8203	8295	8523	8793	8899	8875	8753	8686	8658
26	8657	8616	8564	8608	8624	8514	8275	8180	8186	8279	8511	8782	8895	8874	8746	8685	8657
27	8661	8614	8557	8601	8625	8508	8259	8165	8169	8258	8499	8778	8893	8874	8747	8682	8661
28	8662	8610	8550	8595	8620	8504	8241	8154	8156	8247	8483	8772	8884	8875	8739	8681	8662

Laboratory: UTEST TECHNICAL LABORATORY CO.LTD A2LA Certificate# 4810.01

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Report Format Number BL-FM-SA-012

29	8660	8607	8542	8586	8615	8493	8227	8142	8134	8233	8461	8768	8879	8874	8734	8680	8660
30	8663	8606	8533	8577	8605	8479	8211	8127	8113	8225	8447	8757	8870	8867	8730	8675	8663
31	8677	8601	8525	8572	8597	8464	8192	8119	8098	8215	8431	8748	8856	8863	8716	8678	8677
32	8671	8597	8517	8558	8588	8445	8180	8111	8084	8201	8411	8735	8852	8855	8703	8681	8671
33	8665	8597	8504	8545	8572	8427	8165	8096	8072	8183	8396	8713	8833	8849	8699	8682	8665
34	8662	8594	8497	8530	8546	8406	8144	8079	8052	8161	8381	8691	8811	8840	8703	8680	8662
35	8650	8586	8493	8521	8511	8378	8124	8060	8031	8140	8359	8670	8789	8828	8699	8677	8650
36	8643	8572	8482	8494	8485	8356	8095	8029	8011	8118	8335	8645	8761	8820	8698	8666	8643
37	8634	8559	8471	8478	8454	8331	8062	7999	7983	8092	8312	8625	8740	8803	8690	8661	8634
38	8631	8545	8459	8464	8431	8304	8028	7964	7957	8063	8281	8603	8728	8791	8675	8652	8631
39	8631	8523	8440	8448	8408	8274	7990	7930	7937	8028	8252	8576	8705	8782	8665	8639	8631
40	8626	8510	8420	8434	8376	8250	7951	7887	7915	7993	8219	8563	8683	8774	8654	8625	8626
41	8626	8489	8403	8421	8340	8220	7912	7849	7891	7955	8182	8548	8648	8768	8639	8608	8626
42	8627	8464	8388	8409	8303	8190	7878	7811	7874	7917	8145	8519	8619	8764	8630	8587	8627
43	8621	8440	8368	8399	8254	8143	7836	7769	7862	7886	8109	8489	8574	8758	8616	8571	8621
44	8608	8418	8348	8366	8193	8097	7803	7737	7856	7849	8071	8451	8525	8749	8600	8553	8608
45	8614	8399	8336	8333	8136	8044	7764	7697	7845	7812	8046	8403	8478	8729	8586	8538	8614
46	8607	8376	8318	8285	8078	7993	7713	7662	7835	7788	8024	8344	8424	8700	8583	8527	8607
47	8608	8354	8296	8241	8029	7943	7670	7632	7824	7759	7979	8294	8385	8662	8572	8510	8608
48	8609	8332	8262	8192	7979	7890	7618	7597	7815	7729	7931	8242	8338	8621	8551	8497	8609
49	8607	8318	8222	8153	7926	7836	7563	7571	7804	7699	7882	8197	8285	8587	8520	8486	8607
50	8608	8305	8183	8105	7874	7789	7503	7537	7812	7675	7833	8152	8236	8551	8489	8477	8608
51	8609	8294	8144	8066	7816	7741	7445	7515	7817	7652	7773	8103	8184	8523	8452	8468	8609
52	8612	8281	8108	8031	7762	7692	7389	7493	7813	7634	7725	8067	8133	8495	8414	8461	8612
53	8614	8280	8069	7998	7709	7644	7333	7472	7812	7611	7679	8021	8078	8471	8383	8459	8614
54	8621	8272	8034	7961	7649	7592	7283	7454	7813	7600	7628	7984	8028	8452	8351	8464	8621
55	8624	8266	8001	7925	7593	7540	7232	7442	7828	7588	7583	7938	7978	8435	8325	8471	8624
56	8636	8265	7968	7889	7542	7496	7178	7422	7839	7574	7535	7903	7931	8421	8306	8477	8636
57	8650	8265	7939	7863	7493	7444	7127	7415	7844	7561	7493	7868	7890	8400	8275	8484	8650
58	8653	8265	7918	7833	7440	7397	7086	7409	7854	7557	7453	7835	7862	8384	8261	8494	8653
59	8668	8278	7895	7806	7389	7352	7031	7405	7879	7551	7418	7800	7832	8373	8237	8510	8668

60	8695	8286	7872	7782	7358	7312	6989	7406	7914	7555	7374	7772	7811	8365	8222	8534	8695
61	8734	8313	7857	7755	7329	7266	6935	7419	7956	7561	7338	7743	7801	8358	8209	8562	8734
62	8787	8346	7843	7740	7326	7223	6889	7448	8017	7581	7300	7729	7818	8354	8195	8601	8787
63	8868	8396	7829	7725	7338	7202	6850	7484	8094	7608	7273	7723	7849	8357	8184	8661	8868
64	8960	8473	7819	7719	7367	7182	6815	7544	8202	7660	7235	7732	7918	8371	8178	8739	8960
65	9049	8573	7818	7735	7417	7180	6772	7632	8314	7727	7209	7757	8009	8402	8183	8846	9049
66	9047	8716	7826	7765	7501	7200	6737	7761	8338	7834	7182	7805	8129	8456	8188	8997	9047
67	8845	8931	7834	7807	7618	7223	6706	7929	8147	8004	7163	7876	8296	8532	8198	9207	8845
68	8391	9143	7857	7873	7786	7274	6688	8166	7767	8199	7145	8001	8527	8641	8217	9397	8391
69	7701	9245	7895	7979	7949	7356	6666	8361	7200	8420	7130	8141	8800	8785	8247	9604	7701
70	6941	9246	7947	8086	8089	7466	6656	8447	6495	8578	7125	8341	9020	8974	8285	9730	6941
71	6079	9059	8011	8232	8154	7589	6659	8352	5662	8577	7126	8578	9109	9231	8336	9664	6079
72	5330	8604	8086	8389	8114	7729	6670	8001	4953	8426	7141	8858	8958	9448	8400	9389	5330
73	4632	7984	8203	8567	7945	7857	6705	7514	4334	8135	7169	9030	8600	9736	8488	8853	4632
74	4056	7210	8361	8715	7587	7930	6756	6918	3813	7638	7231	9033	8080	9935	8608	8144	4056
75	3518	6448	8562	8784	7009	7920	6807	6180	3331	7043	7320	8830	7508	9949	8776	7293	3518
76	3083	5683	8829	8745	6344	7790	6866	5470	2944	6319	7433	8442	6948	9709	9000	6338	3083
77	2708	4948	9123	8556	5634	7493	6960	4799	2596	5592	7590	7903	6344	9240	9227	5489	2708
78	2384	4272	9445	8197	4902	7014	7090	4167	2274	4880	7787	7358	5695	8664	9593	4805	2384
79	2073	3626	9717	7600	4198	6300	7222	3599	1976	4166	7970	6792	4929	8066	9950	4095	2073
80	1794	3101	9896	6860	3493	5554	7332	3098	1681	3600	8156	6180	4176	7418	10209	3510	1794
81	1529	2642	9879	5930	2889	4785	7334	2617	1426	3101	8320	5376	3373	6676	10362	2969	1529
82	1277	2209	9574	5095	2301	3982	7091	2209	1191	2639	8307	4535	2643	5758	10367	2523	1277
83	1055	1853	8790	4262	1752	3105	6450	1825	974	2230	7871	3720	2092	4859	9985	2117	1055
84	857	1533	7543	3397	1278	2412	5314	1513	765	1825	6818	2960	1645	3923	8916	1766	857
85	685	1238	5718	2645	903	1789	3809	1200	583	1501	5359	2177	1269	3109	7021	1464	685
86	527	959	3806	1961	570	1173	2253	923	413	1210	3687	1554	942	2303	5090	1157	527
87	381	727	2154	1188	317	590	981	626	256	845	1936	1012	616	1561	3223	887	381
88	234	495	920	595	106	160	227	296	122	498	758	559	368	1001	1807	628	234
89	130	252	259	161	33	44	47	36	38	96	166	209	204	522	744	388	130
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	3648.6	8.3	8.3
FM (30-60)	9684.7	22.0	22.0
FH (60-80)	8050.7	18.3	18.3
FVH (80-90)	1554.0	3.5	3.5
BL (0-30)	3565.1	8.1	8.1
BM (30-60)	9112.1	20.7	20.7
BH (60-80)	7268.4	16.5	16.5
BVH (80-90)	1218.0	2.8	2.8
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	44101.6	100.2	100.0
BUG Rating	B5-U0-G5		

2.8 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf40(Setting at T5)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.434	291.52	0.998	2.7
8E-Q1	347.0	60	0.843	283.33	0.969	7.68
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

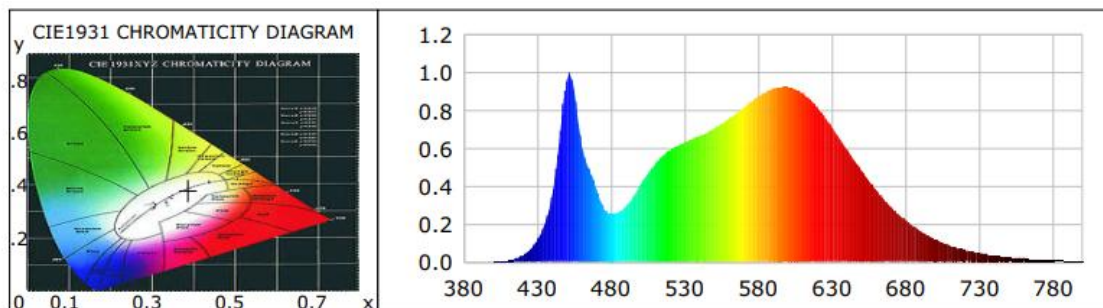
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	11
Frequency (Hz)	60	R2	90	R10	77
CCT (K)	3836	R3	96	R11	82
Duv	-0.0006	R4	83	R12	63
Chromaticity (x, y)	x=0.3875 y=0.3798	R5	83	R13	85
Chromaticity (u', v')	u(u')=0.2285 v'=0.5040	R6	87	R14	98
Color Rendering Index (CRI)	84	R7	85	R15	76
R9	11	R8	65	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	45357.6	45058.0	>=10000(-10%)
Luminous Efficacy (lm/W)	155.59	159.03	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	154.56		

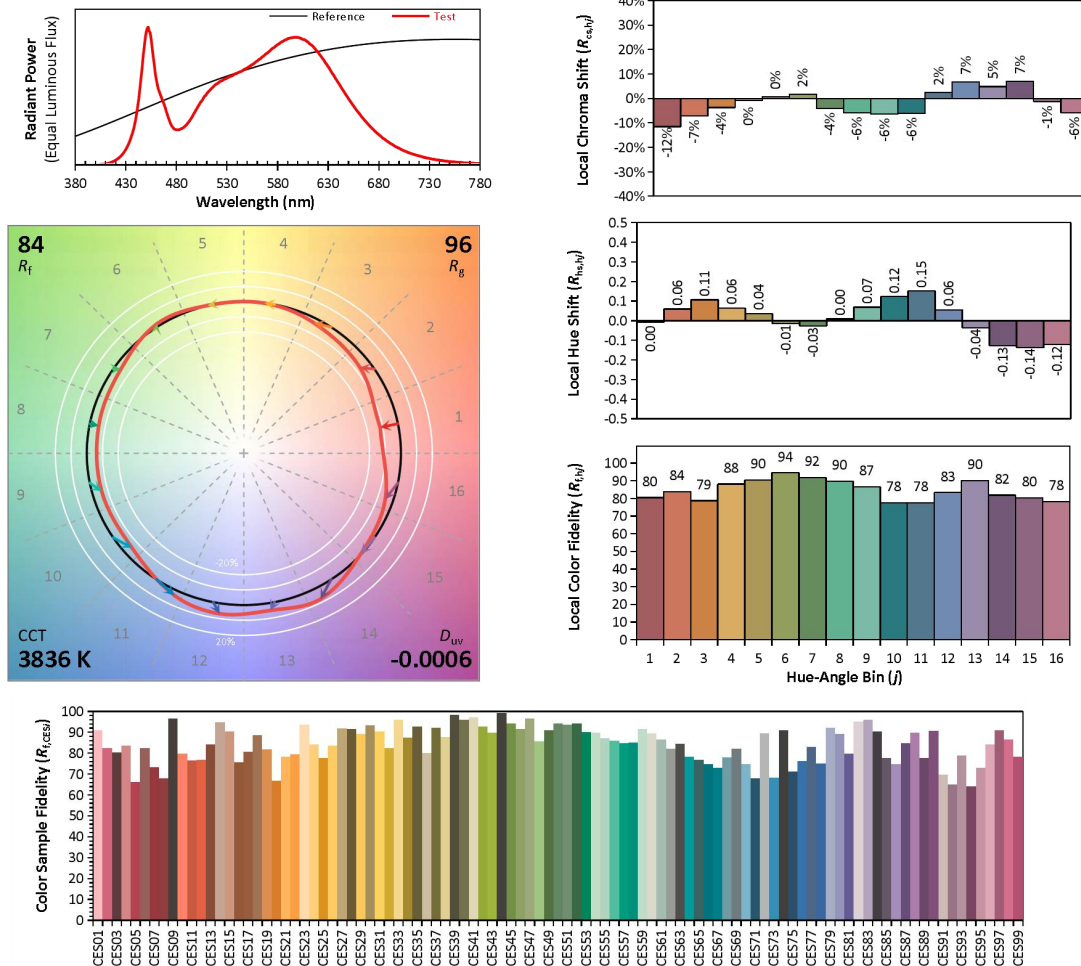
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0005	0.4761	535	0.6117	531.0555	690	0.2908	252.4274
385	0.0006	0.5323	540	0.6310	547.8213	695	0.2536	220.1695
390	0.0004	0.3560	545	0.6469	561.6160	700	0.2195	190.6047
395	0.0005	0.4321	550	0.6671	579.1288	705	0.1900	164.9254
400	0.0016	1.4188	555	0.6827	592.6855	710	0.1637	142.1043
405	0.0034	2.9507	560	0.7050	612.0340	715	0.1401	121.6644
410	0.0075	6.4782	565	0.7286	632.5640	720	0.1216	105.5557
415	0.0176	15.2918	570	0.7553	655.7763	725	0.1025	88.9511
420	0.0340	29.5213	575	0.7855	681.9555	730	0.0878	76.2205
425	0.0635	55.1300	580	0.8130	705.8127	735	0.0762	66.1329
430	0.1131	98.1714	585	0.8471	735.4385	740	0.0648	56.2739
435	0.1969	170.9133	590	0.8739	758.7215	745	0.0552	47.9545
440	0.3433	298.0325	595	0.8963	778.1644	750	0.0468	40.6443
445	0.6324	549.0432	600	0.9167	795.8844	755	0.0405	35.1832
450	0.9592	832.7737	605	0.9243	802.4644	760	0.0347	30.1644
455	0.9095	789.6248	610	0.9254	803.4400	765	0.0288	25.0353
460	0.6243	541.9641	615	0.9121	791.8826	770	0.0246	21.3600
465	0.4927	427.7137	620	0.8926	774.9799	775	0.0218	18.9227
470	0.3874	336.3106	625	0.8599	746.5106	780	0.0200	17.3773
475	0.2879	249.9068	630	0.8168	709.1055	785	0.0154	13.3613
480	0.2544	220.9004	635	0.7674	666.2570	790	0.0130	11.2448
485	0.2636	228.8822	640	0.7115	617.6900	795	0.0106	9.1976
490	0.2920	253.4699	645	0.6548	568.4937	800	0.0098	8.4992
495	0.3435	298.2148	650	0.5965	517.8304			
500	0.4077	353.9236	655	0.5372	466.3970			
505	0.4649	403.5980	660	0.4809	417.4714			
510	0.5184	450.0664	665	0.4287	372.1820			
515	0.5581	484.5054	670	0.3783	328.4392			
520	0.5878	510.3064	675	0.3323	288.4793			
525	0.6117	531.0555	680	0.2908	252.4274			
530	0.6310	547.8213	685	0.2536	220.1695			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.3875
 y 0.3798
 u' 0.2285
 v' 0.5040

CIE 13.3-1995
(CRI)
 R_a 84
 R_9 11

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

2.9 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-27	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AST-S-G22-300WBT3/T4/T5DC1-abc dWf50(Setting at T5)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU240902	120.0	60	2.510	300.94	0.999	2.96
8E-Q1	347.0	60	0.871	292.72	0.968	7.85
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

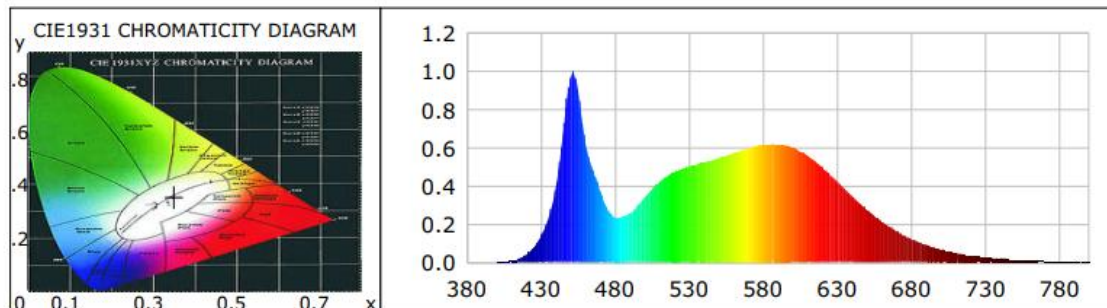
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	89	R10	73
CCT (K)	4880	R3	93	R11	80
Duv	-0.0006	R4	82	R12	58
Chromaticity (x, y)	x=0.3484 y=0.3530	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2131 v'=0.4859	R6	84	R14	97
Color Rendering Index (CRI)	83	R7	86	R15	76
R9	7	R8	66	--	--
Rf	83	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-13				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	347.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	45384.8	45254.5	>=10000(-10%)
Luminous Efficacy (lm/W)	150.81	154.60	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	150.38		

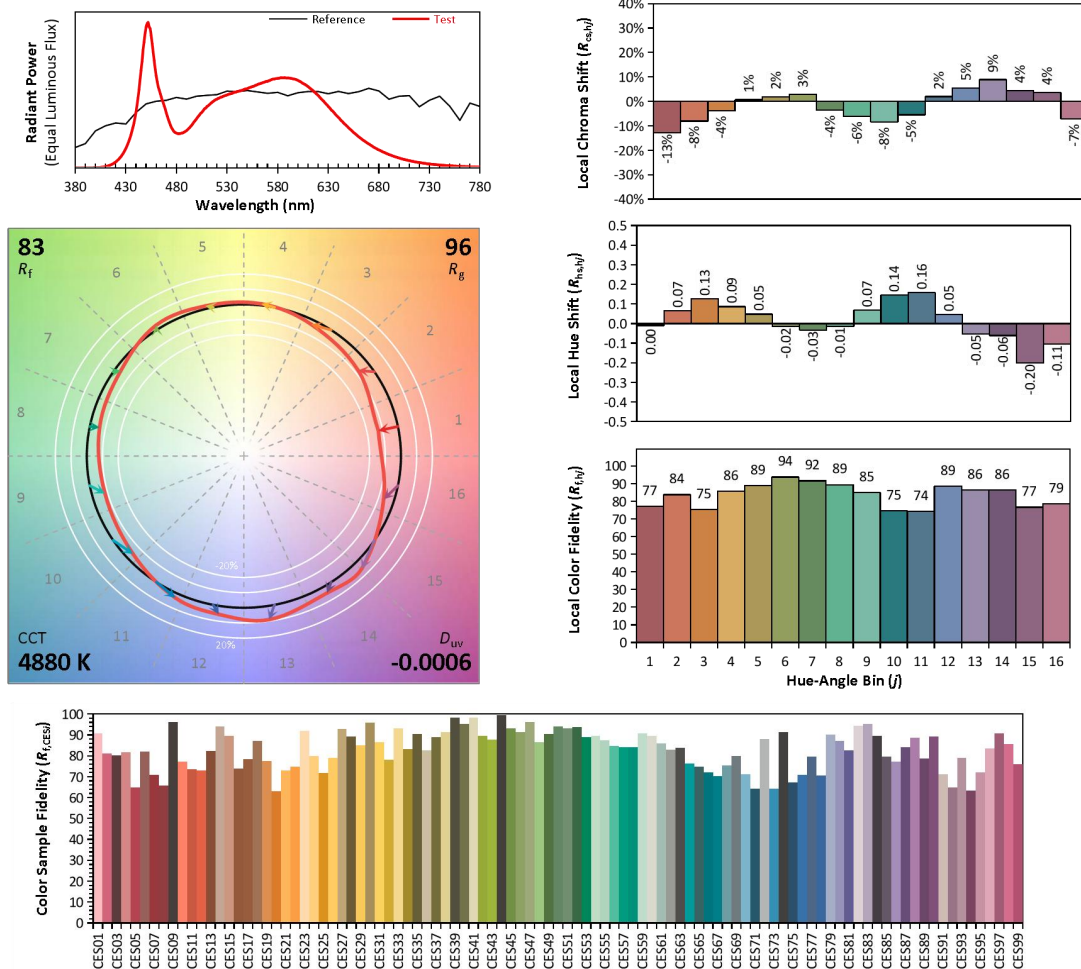
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.0772	535	0.4875	572.0345	690	0.1640	192.3759
385	0.0005	0.6109	540	0.5014	588.2992	695	0.1413	165.7518
390	0.0004	0.4204	545	0.5121	600.8252	700	0.1233	144.7283
395	0.0008	0.9752	550	0.5253	616.3405	705	0.1067	125.1573
400	0.0014	1.6060	555	0.5336	626.1256	710	0.0910	106.7361
405	0.0033	3.8946	560	0.5449	639.3186	715	0.0786	92.2157
410	0.0092	10.7925	565	0.5590	655.8658	720	0.0679	79.6516
415	0.0203	23.8411	570	0.5721	671.3124	725	0.0577	67.6526
420	0.0404	47.4138	575	0.5851	686.5224	730	0.0495	58.1067
425	0.0752	88.2645	580	0.5943	697.2929	735	0.0420	49.3175
430	0.1332	156.2766	585	0.6098	715.5159	740	0.0367	43.0336
435	0.2260	265.2247	590	0.6153	721.9353	745	0.0310	36.3822
440	0.3835	449.9996	595	0.6188	726.0584	750	0.0270	31.7036
445	0.6690	784.9184	600	0.6181	725.1881	755	0.0223	26.2087
450	0.9683	1136.0844	605	0.6123	718.4418	760	0.0190	22.3506
455	0.9092	1066.8509	610	0.6017	706.0491	765	0.0168	19.7670
460	0.6322	741.7743	615	0.5807	681.3145	770	0.0137	16.1015
465	0.4878	572.3202	620	0.5590	655.9431	775	0.0126	14.7272
470	0.3766	441.8943	625	0.5312	623.2845	780	0.0103	12.0999
475	0.2778	325.9760	630	0.4985	584.9441	785	0.0093	10.9115
480	0.2381	279.3643	635	0.4614	541.3921	790	0.0067	7.8427
485	0.2387	280.0452	640	0.4217	494.8149	795	0.0065	7.6295
490	0.2559	300.2214	645	0.3850	451.7744	800	0.0056	6.5426
495	0.2926	343.3610	650	0.3473	407.5260			
500	0.3392	397.9452	655	0.3101	363.8443			
505	0.3812	447.2329	660	0.2762	324.0433			
510	0.4209	493.9078	665	0.2433	285.4969			
515	0.4499	527.9322	670	0.2140	251.0694			
520	0.4717	553.5207	675	0.1874	219.8616			
525	0.4875	572.0345	680	0.1640	192.3759			
530	0.5014	588.2992	685	0.1413	165.7518			

TM30

ANSI/IES TM-30-18 Color Rendition Report



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

x 0.3484
 y 0.3530
 u' 0.2131
 v' 0.4859

CIE 13.3-1995
(CRI)
 R_a 83
 R_9 7

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

3. Test Equipment

Equipment Name	Model No.	Serial No.	Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2024-01-09
AC Power Source	CHP-500C	DYBWD010159	2024-01-08
Standard Lamp*	24V/150W	DYJYR040040	2024-01-17
Standard Lamp**	24V/100W	DYBWR030014	2024-01-17
Digital Power Meter	WT500	DYDWQ20010	2024-01-08
Integral Sphere (2M)	2M	DYJCE120067	2024-01-09
Digital Power Meter	WT500	DYDWQ200006	2024-01-08
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2024-01-09

* 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 *****