LM-79-08 Test Report

For

ASMART LIGHT CO., LTD

(Brand Name: ASMART)

506 N GARFIELD AVE SUITE#210 ALHAMBRA CA 91801

Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Architectural Flood and Spot Luminaires

Model name(s): AST-S-G12C-150WBT3SA1-abcdef

Remark: "a" can be any two letters to represent lamp colors. "b" represent photocontrol, which can be "3RP", "3NP", "5RP", "5NP", "7RP", "7NP" for Photocontrol type provided or blank for no Photocontrol provided. "c" represent surge protector, can be "10SP", "20SP" for Surge-Protective Device type provided or blank for no Surge-Protective Device provided. "d" can be "DM1","DP1", "DM", "DP" or blank for DC Motion Sensor, DC PIR Sensor provided or not. "e" represent bracket, can be "AM", "DM", "DM1", "YM", "A&DM" and "FM". "f" can be any digits to represent CCT.

Representative (Tested) Model:
AST-S-G12C-150WBT3SA1-abcde30
AST-S-G12C-150WBT3SA1-abcde65

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

Test & Report By:

Winny Wu

Engineer: Winny Wu

Date: 2022-12-19

Review By:

Jason Luo

Manager: Jason Luo

1.1 Product Information:

Organization Name	ASMART LIGHT CO., LTD	
Brand Name	ASMART	
Model Number	AST-S-G12C-150WBT3SA1-abcdef	
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	120-277Vac, 50/60 Hz	
Nominal Power	150W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K, 3500K, 4000K, 4500K, 5000K, 5700K, 6500K	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-XX80RC35003P1	
Sample Number	BLC2212018E3-C1~2	
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	2022-12-10
Date of Test	2022-12-19
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-79-2017 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2017 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 25 ºC ±1 ºC. 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.
Self-absorption:
AST-S-G12C-150WBT3SA1-abcde30:1.033
AST-S-G12C-150WBT3SA1-abcde65:1.032

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 ºC ±1 ºC. 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	2022-12-19	Test Ambient:	25.2 ℃
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-S-G12C-150WBT3SA1-abcde30		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC221201 8E3-C1	120.0	60	1.232	147.7	0.999	3.22
	277.0	60	0.535	142.4	0.96	5.81
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

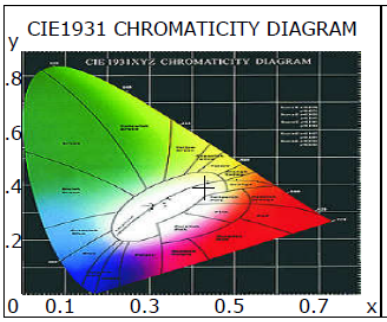
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3077
Duv	-0.0018
Chromaticity (x, y)	x=0.4291 y=0.3968
Chromaticity (u', v')	u(u')=0.2486 v'=0.5173
Color Rendering Index (CRI)	82
R9	5
Rf	83
Rg	98
Rcs,h1(%)	-12

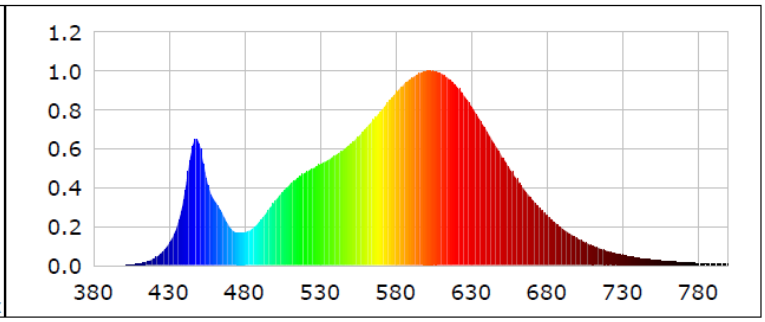
Special Color Rendering Indices			
R1	80	R9	5
R2	90	R10	77
R3	96	R11	80
R4	81	R12	71
R5	81	R13	82
R6	88	R14	98
R7	82	R15	73
R8	58	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	19142.5	18847.3	>=10000(-10%)
Luminous Efficacy (lm/W)	129.63	132.39	Premium: >= 120(-3%)
Most worst Luminous/Highest	127.63		
Zonal lumens in the 0-90 °zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90 °zone (%)	2.9	--	<=10(+3)
Beam Angle (°)	153.3	--	--
Center Beam Candle Power (cd)	4237	--	--

Spectral Power Distribution & Chromaticity Diagram



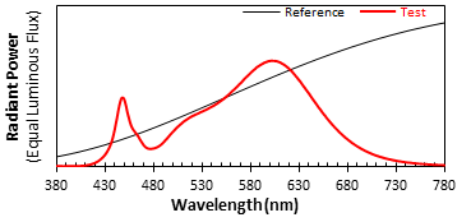


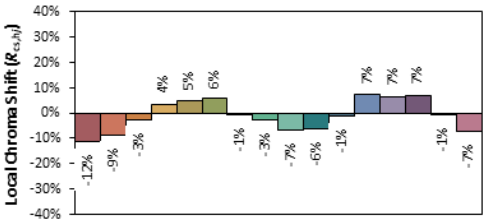
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.1859	535	0.4965	216.0301	690	0.3410	148.3892
385	0.0005	0.2050	540	0.5179	225.3256	695	0.2961	128.8260
390	0.0004	0.1949	545	0.5395	234.7226	700	0.2568	111.7376
395	0.0004	0.1645	550	0.5648	245.7630	705	0.2200	95.7263
400	0.0010	0.4555	555	0.5909	257.0934	710	0.1898	82.5945
405	0.0029	1.2582	560	0.6223	270.7881	715	0.1624	70.6422
410	0.0072	3.1493	565	0.6589	286.6806	720	0.1394	60.6516
415	0.0163	7.0855	570	0.7008	304.9238	725	0.1187	51.6385
420	0.0330	14.3547	575	0.7454	324.3337	730	0.1002	43.6003
425	0.0618	26.8735	580	0.7888	343.2066	735	0.0858	37.3344
430	0.1082	47.0589	585	0.8387	364.9436	740	0.0732	31.8530
435	0.1886	82.0647	590	0.8835	384.4359	745	0.0630	27.4116
440	0.3458	150.4586	595	0.9244	402.1924	750	0.0529	23.0262
445	0.5834	253.8396	600	0.9593	417.3841	755	0.0450	19.5754
450	0.6302	274.1974	605	0.9835	427.9366	760	0.0378	16.4409
455	0.4440	193.1884	610	0.9981	434.2635	765	0.0330	14.3518
460	0.3368	146.5280	615	0.9998	435.0137	770	0.0278	12.1123
465	0.2730	118.7670	620	0.9872	429.5216	775	0.0236	10.2857
470	0.1990	86.6044	625	0.9610	418.1435	780	0.0198	8.6337
475	0.1667	72.5401	630	0.9242	402.1232	785	0.0173	7.5191
480	0.1687	73.4057	635	0.8748	380.6161	790	0.0148	6.4197
485	0.1868	81.2894	640	0.8184	356.0889	795	0.0128	5.5862
490	0.2231	97.0899	645	0.7566	329.2201	800	0.0094	4.0725
495	0.2746	119.5017	650	0.6945	302.1734			
500	0.3265	142.0846	655	0.6273	272.9271			
505	0.3741	162.7562	660	0.5615	244.3209			
510	0.4144	180.3113	665	0.5012	218.0779			
515	0.4473	194.6445	670	0.4438	193.0962			
520	0.4749	206.6197	675	0.3898	169.6256			
525	0.4965	216.0301	680	0.3410	148.3892			
530	0.5179	225.3256	685	0.2961	128.8260			

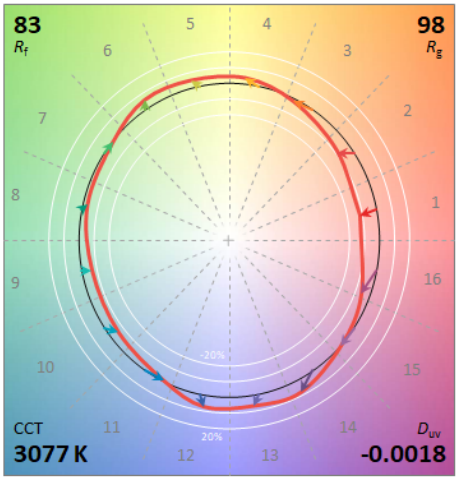
TM30

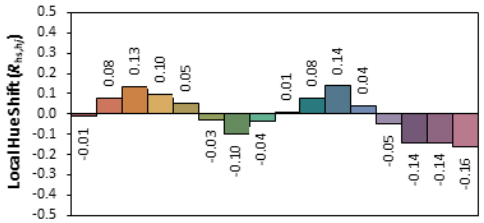
ANSI/IES TM-30-18 Color Rendition Report

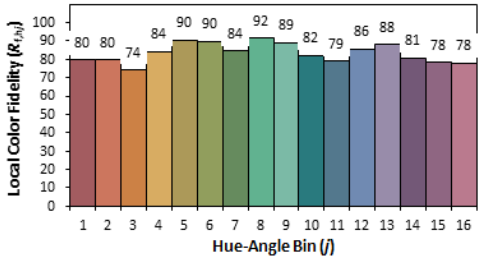
Source:	L128-XX80RC35003P1	**Manufacturer**	ASMART LIGHT CO., LTD
Date:	2022/12/19	**Model:**	AST-S-G12C-150WBT3SA1-abcde30

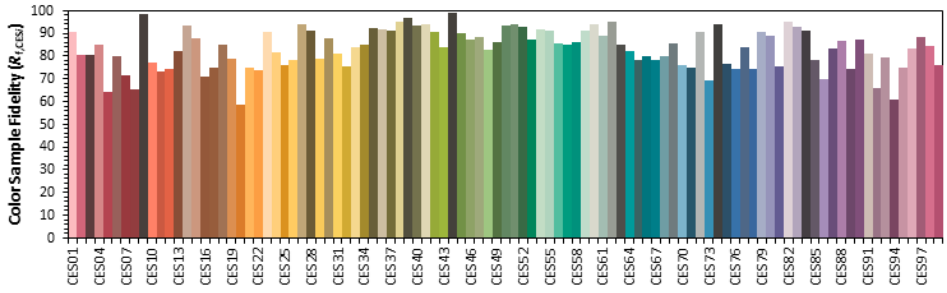












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4291
y	0.3968
u'	0.2486
v'	0.5173

CIE 13.3-1995 (CRI)

R_a	82
R_9	5

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

Zonal Lumen Tabulation

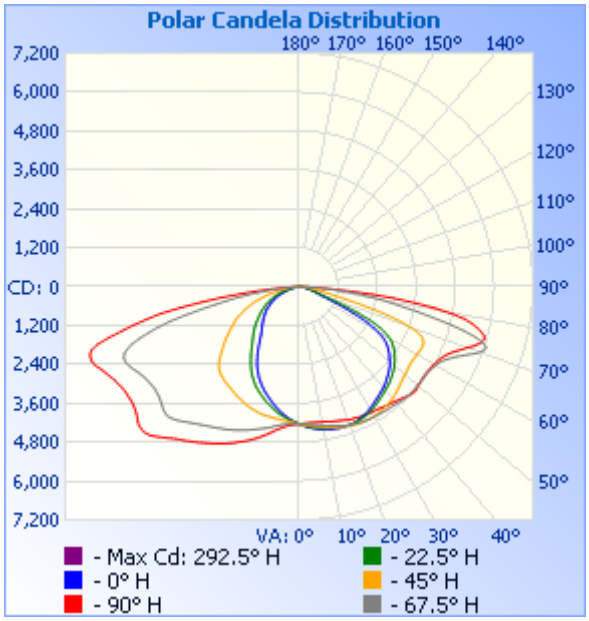
Zonal Lumen Summary

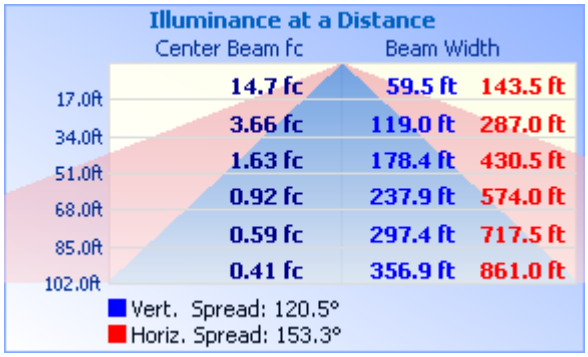
Zone	Lumens	% Lamp	% Luminaire
0-30	3,617.4	18.9%	18.9%
0-40	6,241.0	32.6%	32.6%
0-60	12,757.1	66.6%	66.6%
60-90	6,384.5	33.4%	33.4%
70-100	2,999.0	15.7%	15.7%
90-120	0	0%	0%
0-90	19,141.6	100%	100%
90-180	0	0%	0%
0-180	19,141.6	100%	100%

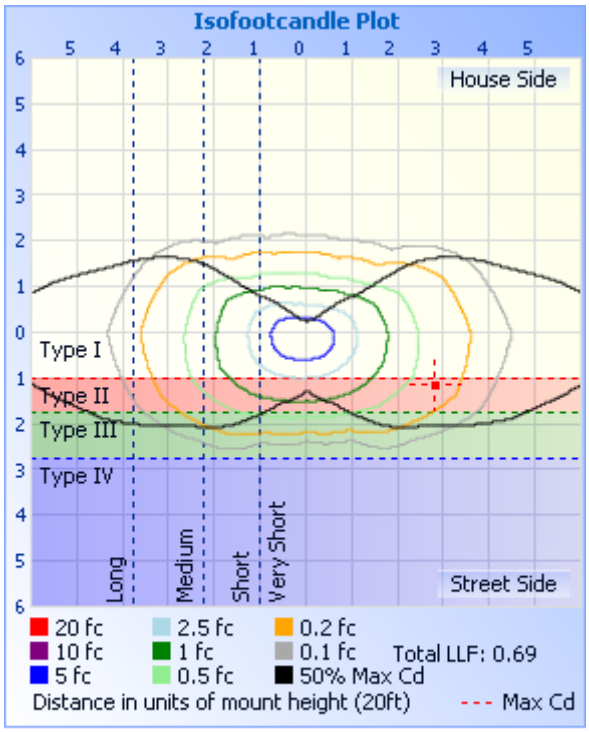
Lumens Per Zone

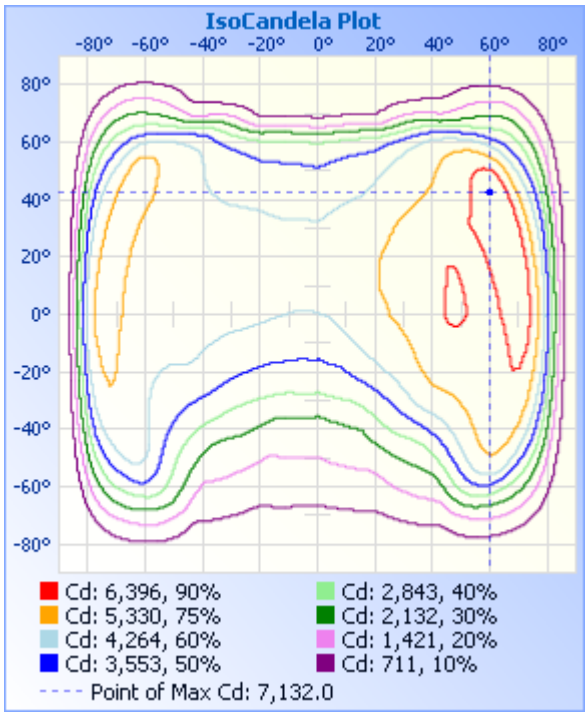
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	406.0	2.1%	90-100	0	0%
10-20	1,220.2	6.4%	100-110	0	0%
20-30	1,991.2	10.4%	110-120	0	0%
30-40	2,623.6	13.7%	120-130	0	0%
40-50	3,137.5	16.4%	130-140	0	0%
50-60	3,378.6	17.7%	140-150	0	0%
60-70	3,385.5	17.7%	150-160	0	0%
70-80	2,436.0	12.7%	160-170	0	0%
80-90	563.0	2.9%	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	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237	4237
1	4266	4266	4253	4238	4226	4213	4207	4201	4203	4204	4220	4236	4245	4264	4267	4275	4266
2	4296	4291	4268	4242	4218	4190	4175	4165	4171	4179	4204	4239	4256	4288	4304	4312	4296
3	4326	4312	4284	4249	4213	4177	4146	4130	4133	4151	4188	4237	4269	4314	4346	4350	4326
4	4354	4334	4300	4258	4212	4166	4118	4091	4095	4121	4172	4244	4289	4346	4381	4378	4354
5	4381	4353	4316	4270	4208	4150	4095	4053	4054	4091	4163	4255	4313	4385	4417	4409	4381
6	4399	4366	4334	4282	4214	4131	4068	4018	4011	4061	4156	4272	4346	4430	4455	4433	4399
7	4421	4385	4350	4297	4217	4126	4041	3978	3967	4030	4147	4292	4385	4474	4497	4463	4421
8	4440	4402	4363	4310	4222	4111	4011	3930	3920	3997	4139	4317	4428	4519	4535	4488	4440
9	4452	4417	4374	4323	4228	4100	3983	3889	3873	3962	4132	4340	4470	4573	4572	4515	4452
10	4467	4430	4393	4345	4232	4097	3952	3841	3821	3929	4127	4369	4527	4628	4613	4535	4467
11	4485	4440	4413	4363	4240	4086	3920	3789	3770	3887	4125	4413	4587	4689	4654	4552	4485
12	4498	4455	4426	4383	4254	4078	3884	3742	3719	3845	4120	4442	4648	4762	4697	4582	4498
13	4513	4464	4440	4404	4269	4073	3860	3700	3662	3804	4113	4476	4702	4826	4742	4596	4513
14	4518	4480	4460	4423	4283	4060	3830	3651	3612	3765	4110	4506	4760	4884	4787	4621	4518
15	4527	4496	4479	4444	4294	4057	3801	3603	3562	3724	4105	4533	4821	4949	4829	4649	4527
16	4538	4502	4496	4462	4305	4049	3768	3558	3511	3685	4100	4568	4874	5002	4874	4673	4538

17	4542	4515	4515	4484	4322	4047	3737	3508	3455	3639	4086	4602	4925	5057	4920	4693	4542
18	4541	4521	4533	4503	4338	4042	3707	3456	3400	3593	4074	4638	4980	5108	4960	4710	4541
19	4545	4527	4543	4523	4356	4040	3677	3403	3342	3548	4062	4670	5030	5157	5004	4719	4545
20	4543	4532	4560	4538	4371	4040	3638	3352	3289	3504	4050	4708	5082	5207	5039	4731	4543
21	4538	4533	4574	4556	4387	4037	3608	3304	3235	3459	4036	4741	5128	5258	5071	4740	4538
22	4530	4528	4587	4572	4396	4036	3568	3253	3174	3420	4022	4773	5183	5299	5101	4746	4530
23	4512	4525	4604	4586	4404	4027	3530	3198	3112	3366	4007	4812	5237	5345	5131	4746	4512
24	4501	4519	4612	4590	4415	4024	3497	3139	3048	3316	3988	4841	5287	5384	5157	4748	4501
25	4478	4510	4616	4604	4429	4016	3468	3074	2975	3261	3968	4875	5344	5433	5181	4739	4478
26	4457	4498	4622	4606	4439	4013	3433	3013	2906	3206	3946	4912	5385	5475	5208	4729	4457
27	4433	4480	4621	4614	4443	4012	3396	2950	2834	3147	3922	4940	5438	5514	5236	4715	4433
28	4411	4460	4621	4623	4454	4008	3362	2886	2756	3077	3905	4970	5481	5558	5254	4705	4411
29	4381	4441	4621	4625	4460	4000	3326	2813	2677	3020	3887	4998	5530	5597	5270	4681	4381
30	4352	4418	4616	4632	4471	4001	3286	2745	2584	2952	3866	5034	5577	5634	5281	4659	4352
31	4319	4391	4606	4637	4474	3996	3249	2657	2500	2885	3842	5066	5625	5670	5294	4636	4319
32	4287	4368	4597	4639	4481	3994	3201	2580	2411	2813	3820	5100	5675	5704	5300	4609	4287
33	4254	4336	4587	4641	4491	3993	3160	2498	2325	2736	3800	5130	5726	5742	5312	4582	4254
34	4221	4308	4586	4650	4511	3994	3125	2417	2234	2658	3778	5170	5775	5777	5308	4550	4221
35	4193	4281	4572	4656	4531	3996	3086	2333	2141	2588	3763	5210	5826	5813	5314	4525	4193

36	4159	4253	4555	4664	4543	3999	3044	2244	2058	2517	3743	5252	5878	5855	5330	4501	4159
37	4128	4226	4541	4669	4558	4002	3001	2160	1983	2445	3723	5292	5935	5902	5343	4476	4128
38	4099	4198	4521	4673	4579	4006	2959	2082	1913	2369	3705	5340	5984	5942	5352	4452	4099
39	4070	4171	4505	4688	4596	4010	2918	2005	1855	2301	3683	5390	6041	5991	5365	4422	4070
40	4045	4145	4484	4700	4620	4018	2875	1940	1799	2238	3660	5441	6110	6043	5374	4392	4045
41	4011	4119	4463	4712	4636	4024	2833	1867	1753	2181	3640	5501	6186	6097	5382	4359	4011
42	3977	4090	4439	4725	4666	4030	2784	1812	1711	2127	3619	5558	6259	6149	5377	4335	3977
43	3939	4068	4411	4732	4692	4043	2735	1760	1672	2076	3584	5605	6334	6210	5364	4301	3939
44	3897	4031	4383	4741	4722	4053	2684	1715	1631	2025	3544	5648	6412	6252	5348	4263	3897
45	3863	4000	4357	4744	4756	4056	2624	1664	1590	1978	3496	5678	6484	6294	5326	4231	3863
46	3823	3965	4327	4754	4777	4057	2574	1621	1548	1931	3434	5686	6529	6319	5308	4207	3823
47	3785	3933	4307	4750	4798	4049	2511	1581	1511	1882	3362	5670	6550	6331	5289	4171	3785
48	3746	3901	4280	4754	4804	4027	2451	1534	1482	1827	3283	5635	6545	6346	5274	4134	3746
49	3702	3862	4256	4755	4799	4010	2389	1500	1442	1775	3200	5593	6534	6346	5249	4101	3702
50	3650	3825	4239	4751	4780	3985	2319	1456	1400	1723	3119	5551	6483	6348	5228	4068	3650
51	3587	3781	4227	4747	4766	3969	2256	1419	1365	1673	3034	5515	6415	6338	5201	4030	3587
52	3526	3736	4208	4746	4754	3943	2202	1378	1330	1613	2958	5488	6362	6324	5186	3988	3526
53	3478	3691	4198	4749	4740	3930	2141	1334	1292	1560	2878	5471	6319	6313	5172	3940	3478
54	3414	3643	4180	4750	4729	3913	2084	1296	1252	1517	2807	5457	6287	6303	5163	3893	3414

55	3346	3588	4171	4746	4738	3915	2021	1262	1210	1473	2730	5450	6266	6305	5149	3842	3346
56	3273	3533	4169	4751	4742	3913	1963	1226	1166	1423	2645	5462	6257	6314	5136	3791	3273
57	3195	3468	4171	4767	4751	3913	1915	1185	1105	1379	2575	5470	6257	6335	5123	3726	3195
58	3099	3405	4167	4789	4765	3916	1860	1137	1066	1321	2499	5486	6255	6361	5122	3653	3099
59	2977	3329	4178	4823	4773	3926	1814	1075	1028	1251	2431	5505	6255	6397	5121	3578	2977
60	2829	3240	4181	4852	4799	3940	1762	1039	994	1214	2359	5542	6278	6452	5119	3488	2829
61	2633	3114	4196	4889	4824	3955	1711	1006	945	1176	2287	5579	6306	6531	5115	3374	2633
62	2412	2972	4208	4936	4852	3976	1660	972	892	1131	2225	5617	6336	6596	5103	3227	2412
63	2155	2789	4215	5007	4890	4006	1618	925	859	1073	2164	5680	6366	6684	5080	3020	2155
64	1843	2563	4219	5091	4937	4046	1570	873	813	1015	2076	5731	6419	6784	5047	2794	1843
65	1531	2264	4213	5192	4994	4098	1492	840	755	981	1946	5778	6474	6898	4993	2516	1531
66	1229	1955	4192	5306	5064	4168	1420	796	719	921	1878	5820	6526	6998	4908	2200	1229
67	962	1608	4141	5447	5159	4235	1377	741	667	857	1814	5834	6592	7079	4773	1839	962
68	784	1257	4039	5596	5267	4292	1331	704	612	815	1733	5822	6665	7132	4567	1439	784
69	667	983	3888	5767	5388	4362	1257	657	571	756	1607	5767	6739	7126	4301	1144	667
70	592	792	3633	5917	5500	4417	1196	613	517	708	1536	5638	6783	7018	3956	933	592
71	532	686	3310	6023	5651	4430	1143	575	464	654	1456	5450	6791	6853	3496	789	532
72	480	607	2896	6062	5770	4391	1058	521	415	602	1332	5159	6773	6501	3028	696	480
73	436	544	2381	5934	5868	4309	1004	466	374	527	1244	4849	6687	6016	2520	618	436

74	395	488	1876	5652	5925	4185	922	422	334	469	1122	4501	6459	5406	2062	559	395
75	362	439	1424	5248	5907	4027	863	382	296	414	1039	4108	6070	4817	1654	498	362
76	325	396	1126	4762	5782	3741	785	353	271	377	929	3569	5608	4218	1362	441	325
77	290	358	924	4220	5631	3379	699	316	211	339	814	3087	5208	3718	1119	401	290
78	263	327	787	3736	5431	3041	602	262	139	275	704	2646	4777	3340	955	360	263
79	236	285	672	3282	5171	2700	533	197	75	196	629	2273	4337	2989	810	315	236
80	204	254	576	2881	4759	2390	478	127	17	128	561	1942	3714	2645	701	283	204
81	179	220	493	2517	4242	2067	407	72	13	78	485	1591	3043	2302	587	243	179
82	152	185	419	2191	3614	1686	353	60	11	62	424	1280	2432	1980	498	209	152
83	134	160	351	1852	2946	1370	292	46	8	62	357	993	1814	1620	414	181	134
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87	47	48	96	505	441	255	55	18	8	21	45	157	301	353	121	56	47
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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)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	1976.1	10.3	10.3
FM (30-60)	5424.4	28.3	28.3
FH (60-80)	3397.8	17.7	17.7
FVH (80-90)	317.5	1.7	1.7
BL (0-30)	1641.2	8.6	8.6
BM (30-60)	3716.8	19.4	19.4
BH (60-80)	2423.2	12.7	12.7
BVH (80-90)	245.4	1.3	1.3
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	19142.4	100.0	100.0
BUG Rating	**B3-U0-G3**		

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-12-19	Test Ambient:	25.2 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-S-G12C-150WBT3SA1-abcde65		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC221201 8E3-C2	120.0	60	1.239	148.5	0.999	3.1
	277.0	60	0.538	143.2	0.961	5.68
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	6686
Duv	0.0011
Chromaticity (x, y)	x=0.3104 y=0.3226
Chromaticity (u', v')	u(u')=0.1987 v'=0.4645
Color Rendering Index (CRI)	82
R9	-4
Rf	81
Rg	92
Rcs,h1(%)	-15

Special Color Rendering Indices			
R1	80	R9	-4
R2	88	R10	71
R3	91	R11	79
R4	80	R12	54
R5	81	R13	83
R6	82	R14	96
R7	86	R15	75
R8	66	--	--
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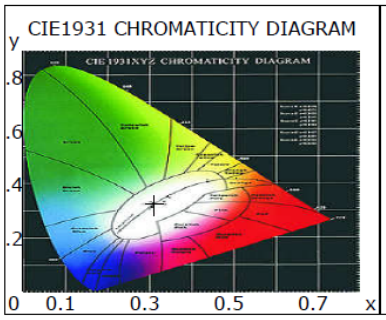
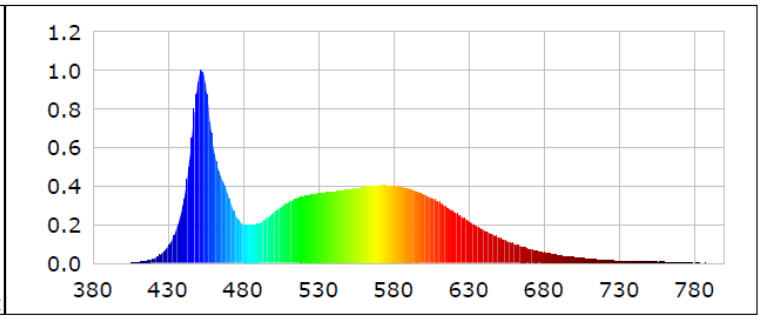
Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	20258.2	19961.9	>=10000(-10%)
Luminous Efficacy (lm/W)	136.41	139.36	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	134.41		

Certificate#4810.01

Spectral Power Distribution & Chromaticity Diagram



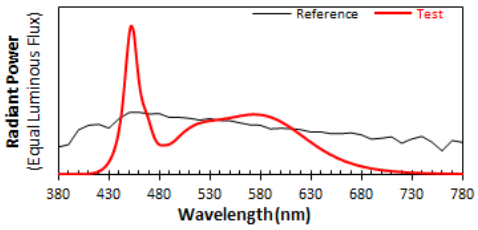


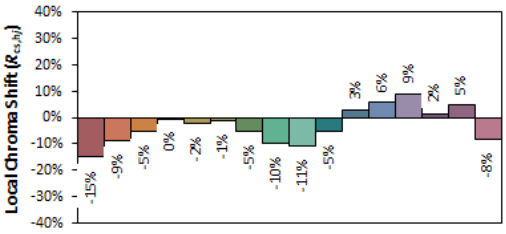
WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0006	0.3123	535	0.3538	178.1578	690	0.0733	36.9278
385	0.0003	0.1354	540	0.3592	180.8815	695	0.0627	31.5569
390	0.0005	0.2324	545	0.3646	183.6274	700	0.0538	27.0825
395	0.0007	0.3615	550	0.3689	185.8014	705	0.0455	22.9253
400	0.0005	0.2610	555	0.3735	188.1103	710	0.0387	19.4674
405	0.0013	0.6531	560	0.3798	191.2612	715	0.0331	16.6715
410	0.0031	1.5677	565	0.3856	194.1778	720	0.0284	14.3238
415	0.0083	4.1580	570	0.3929	197.8765	725	0.0230	11.6026
420	0.0192	9.6805	575	0.3979	200.3922	730	0.0205	10.3158
425	0.0415	20.8935	580	0.4012	202.0372	735	0.0176	8.8648
430	0.0826	41.6059	585	0.4026	202.7490	740	0.0153	7.7161
435	0.1582	79.6681	590	0.4004	201.6669	745	0.0123	6.1808
440	0.2953	148.6983	595	0.3937	198.2718	750	0.0106	5.3483
445	0.5692	286.6292	600	0.3853	194.0296	755	0.0089	4.4952
450	0.9339	470.2991	605	0.3714	187.0607	760	0.0074	3.7164
455	0.9349	470.8388	610	0.3551	178.8435	765	0.0066	3.3359
460	0.6162	310.3167	615	0.3350	168.6928	770	0.0054	2.7428
465	0.4546	228.9293	620	0.3144	158.3366	775	0.0044	2.2345
470	0.3535	178.0483	625	0.2899	146.0169	780	0.0049	2.4498
475	0.2478	124.8142	630	0.2655	133.7143	785	0.0036	1.8251
480	0.2002	100.8337	635	0.2405	121.1063	790	0.0025	1.2763
485	0.1947	98.0735	640	0.2166	109.0901	795	0.0033	1.6410
490	0.2016	101.5389	645	0.1929	97.1577	800	0.0014	0.6953
495	0.2249	113.2676	650	0.1700	85.6187			
500	0.2576	129.7227	655	0.1490	75.0452			
505	0.2873	144.6967	660	0.1308	65.8575			
510	0.3128	157.5062	665	0.1135	57.1517			
515	0.3314	166.8957	670	0.0985	49.6035			
520	0.3446	173.5258	675	0.0843	42.4641			
525	0.3538	178.1578	680	0.0733	36.9278			
530	0.3592	180.8815	685	0.0627	31.5569			

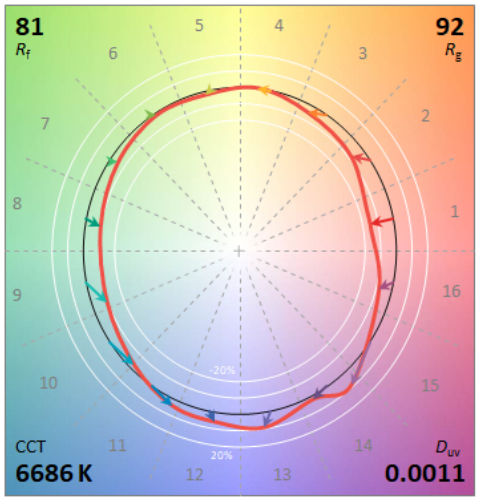
TM30

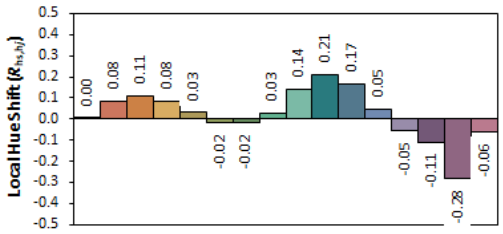
ANSI/IES TM-30-18 Color Rendition Report

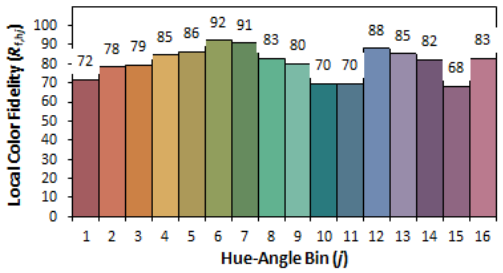
Source:	L128-XX80RC35003P1	**Manufacturer**	ASMART LIGHT CO., LTD
Date:	2022/12/19	**Model:**	AST-S-G12C-150WBT3SA1-abcde65

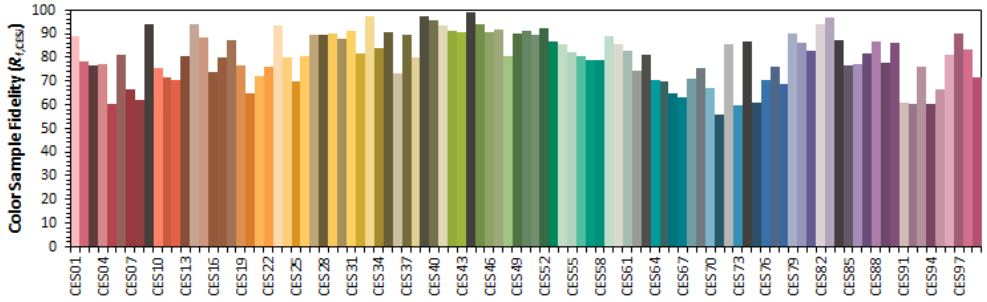












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3104
y	0.3226
u'	0.1987
v'	0.4645

CIE 13.3-1995 (CRI)

R_a	82
R_9	-4

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

Calculated Efficacy Data for family models:

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-S-G12C-150WBT3SA1-abcde30	19142.5	147.7	129.63
AST-S-G12C-150WBT3SA1-abcde35	19328.5	147.83	130.74
AST-S-G12C-150WBT3SA1-abcde40	19514.4	147.97	131.88
AST-S-G12C-150WBT3SA1-abcde45	19700.4	148.10	133.02
AST-S-G12C-150WBT3SA1-abcde50	19886.3	148.23	134.16
AST-S-G12C-150WBT3SA1-abcde57	20072.3	148.37	135.29
AST-S-G12C-150WBT3SA1-abcde65	20258.2	148.5	136.42

*1: This value is calculated and the calculation formula is as below:

19328.5 = (20072.3 -19142.5) / 6 +19142.5
19514.4 = (20072.3 -19142.5) / 6 +19328.5
19700.4 = (20072.3 -19142.5) / 6 +19514.4
19886.3 = (20072.3 -19142.5) / 6 +19700.4
20258.2 = (20072.3 -19142.5) / 6 +19886.3

*2: This value is calculated and the calculation formula is as below:

147.83 = (148.50 -147.70) / 6 +147.70
147.97 = (148.50 -147.70) / 6 +147.83
148.10 = (148.50 -147.70) / 6 +147.97
148.23 = (148.50 -147.70) / 6 +148.10
148.37 = (148.50 -147.70) / 6 +148.23

*3: This value is calculated and the calculation formula is as below:

129.60 = 19142.5 / 147.70
130.74 = 19328.5 / 147.83
131.88 = 19514.4 / 147.97
133.02 = 19700.4 / 148.10
134.16 = 19886.3 / 148.23
135.29 = 20072.3 / 148.37
136.42 = 20258.2 / 148.50

3. Test Equipment

Equipment Name	Model No.	Serial No.	Calibration Date
Goniophotometeric System	GPM-3000	DYHXF120001	2022-01-18
AC Power Source	CHP-500C	DYBWD010159	2022-01-25
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2022-01-25
Digital Power Meter	WT500	DYDWQ20010	2022-01-25
Integral Sphere (2M)	2M	DYJCE120067	2022-01-18
Digital Power Meter	WT500	DYDWQ200006	2022-01-25
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2022-01-18
Expand Uncertainty: Photometric Measurement (Sphere): 2.08%, k=2 Chromaticity Measurement(Sphere):25.6K, k=2 Photometric Measurement(Goniophotometer):2.645%, k=2			

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