



Report No.: BLC2204023E-A

LM-79-08 Test Report

For

ASmart LIGHT CO., LTD

(Brand Name: ASmart)

506 N GARFIELD AVE SUITE#210 ALHAMBRA CA 91801

Replacement Lamps for High Bay Luminaires (UL Type B)

Model name(s): AST-CLW08E-200WBCZA1-acK

Remark: Z=Sensor type. "N" for none sensor, with interface of dimming connection, "M" for Motion Microwave sensor, "P" for Motion PIR sensor, "C" for Continuous dimming knob.
a= the lamp base type, can be E for E39 lamp base, EX for EX39 lamp base.
c= CCT, can be any two digital.

Representative (Tested) Model:
AST-CLW08E-200WBCZA1-a30K
AST-CLW08E-200WBCZA1-a65K

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

Test & Report By:

Sophie Yang

Engineer: Sophie Yang

Date: 2022-05-14

Review By:

Jason Luo

Manager: Jason Luo

1.1 Product Information:

Organization Name	ASmart LIGHT CO., LTD	
Brand Name	ASmart	
Model Number	AST-CLW08E-200WBCZA1-acK	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Replacement Lamps for High Bay Luminaires (UL Type B)	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	200W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K, 3500K, 4000K, 4500K, 5000K, 5700K, 6500K	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-XX80RA35000H1	
Sample Number	BLC2204023E-A1(3000K), A2 (6500K)	
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	2022-04-18
Date of Test	2022-04-22
Test item	<ol style="list-style-type: none"> Total Luminous Flux Luminous Distribution Intensity Luminous Efficacy Correlated Color Temperature Color Rendering Index Chromaticity Coordinate Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, 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 $\text{fl}'=1.42\%$, 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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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.

Self-absorption:

AST-CLW08E-200WBCZA1-a30K:1.0359

AST-CLW08E-200WBCZA1-a65K:1.0360

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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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 A2LA Certificate# 4810.01

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Report Format Number BL-FM-SA-012

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-04-22	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-CLW08E-200WBCZA1-a30K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC220402	120.0	60	1.693	202.3	0.996	5.26
3E-A1	277.0	60	0.769	197.81	0.929	15.93
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

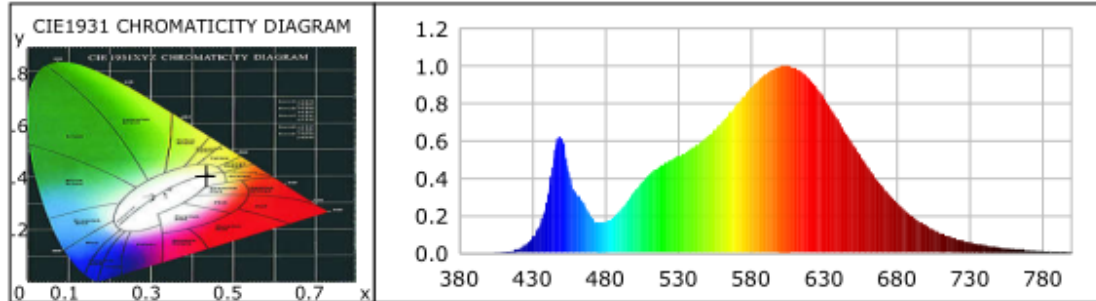
Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia THD 400S A15 TB:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	6
Frequency (Hz)	60	R2	90	R10	77
CCT (K)	3038	R3	97	R11	80
Duv	-0.0002	R4	81	R12	70
Chromaticity (x, y)	x=0.4339 y=0.4024	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2493 v'=-0.5203	R6	88	R14	99
Color Rendering Index (CRI)	82	R7	82	R15	73
R9	6	R8	59	--	--
Rf	84	--	--	--	--
Rg	97	--	--	--	--
Rcs,h1(%)	-11				

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	24332.6	24297.0	>=10000(-10%)
Luminous Efficacy (lm/W)	120.28	122.83	Standard: >= 120(-3%)
Most worst Luminous/Highest	120.10		
Zonal lumens in the 20-50 °zone (%)	42.00	--	>=30(-10)
Beam Angle (°)	131.8	--	--
Center Beam Candle Power (cd)	3609	--	--

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	0.2024	535	0.4966	243.9092	690	0.3546	174.1677
385	0.0001	0.0676	540	0.5169	253.8497	695	0.3082	151.3793
390	0.0002	0.1052	545	0.5363	263.3802	700	0.2687	131.9680
395	0.0005	0.2458	550	0.5620	276.0181	705	0.2321	113.9826
400	0.0006	0.2940	555	0.5890	289.2522	710	0.2004	98.4051
405	0.0017	0.8337	560	0.6199	304.4436	715	0.1713	84.1167
410	0.0044	2.1472	565	0.6559	322.1442	720	0.1476	72.5031
415	0.0096	4.6910	570	0.6974	342.5132	725	0.1259	61.8529
420	0.0209	10.2415	575	0.7416	364.2362	730	0.1074	52.7596
425	0.0415	20.4050	580	0.7865	386.2648	735	0.0917	45.0168
430	0.0789	38.7525	585	0.8333	409.2363	740	0.0784	38.4812
435	0.1446	71.0062	590	0.8809	432.6158	745	0.0666	32.7292
440	0.2762	135.6626	595	0.9205	452.1055	750	0.0558	27.4141
445	0.5117	251.2900	600	0.9551	469.1006	755	0.0480	23.5761
450	0.6134	301.2545	605	0.9820	482.3127	760	0.0412	20.2567
455	0.4348	213.5629	610	0.9975	489.8885	765	0.0348	17.0850
460	0.3211	157.6776	615	0.9999	491.0871	770	0.0295	14.5031
465	0.2697	132.4587	620	0.9876	485.0319	775	0.0250	12.2959
470	0.1972	96.8687	625	0.9670	474.9068	780	0.0215	10.5598
475	0.1636	80.3441	630	0.9290	456.2837	785	0.0183	9.0046
480	0.1684	82.7080	635	0.8821	433.2023	790	0.0153	7.5240
485	0.1875	92.0857	640	0.8289	407.1107	795	0.0135	6.6210
490	0.2237	109.8634	645	0.7699	378.1223	800	0.0111	5.4311
495	0.2745	134.8130	650	0.7070	347.2341			
500	0.3286	161.3865	655	0.6413	314.9614			
505	0.3740	183.6998	660	0.5782	283.9790			
510	0.4162	204.4051	665	0.5174	254.1002			
515	0.4471	219.5865	670	0.4585	225.1766			
520	0.4735	232.5589	675	0.4042	198.5116			
525	0.4966	243.9092	680	0.3546	174.1677			
530	0.5169	253.8497	685	0.3082	151.3793			

TM30

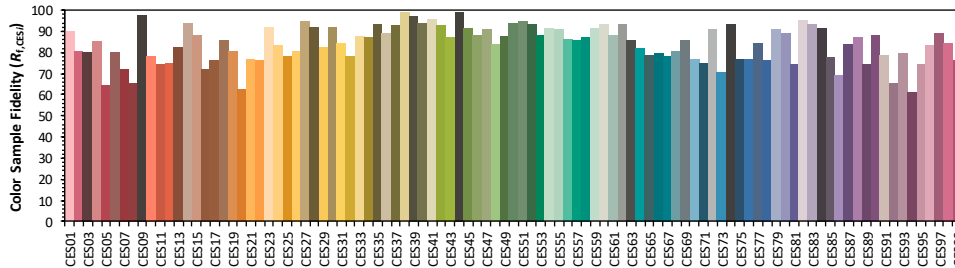
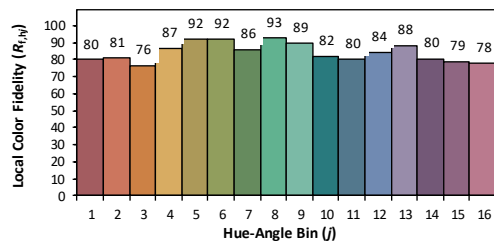
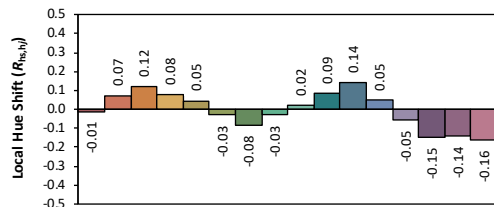
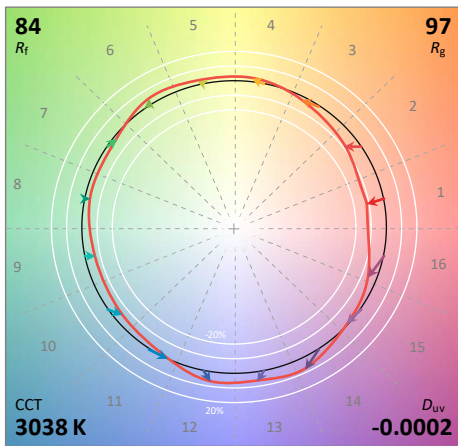
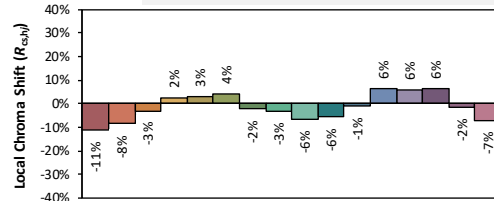
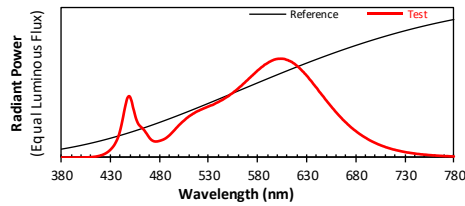
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1

Manufacturer: ASmart LIGHT CO., LTD

Date: 2022/4/22

Model: AST-CLW08E-200WBCZA1-a30K



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

x 0.4339
 y 0.4024
 u' 0.2493
 v' 0.5203

CIE 13.3-1995 (CRI)	
R_a	82
R_g	6

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

Zonal Lumen Tabulation

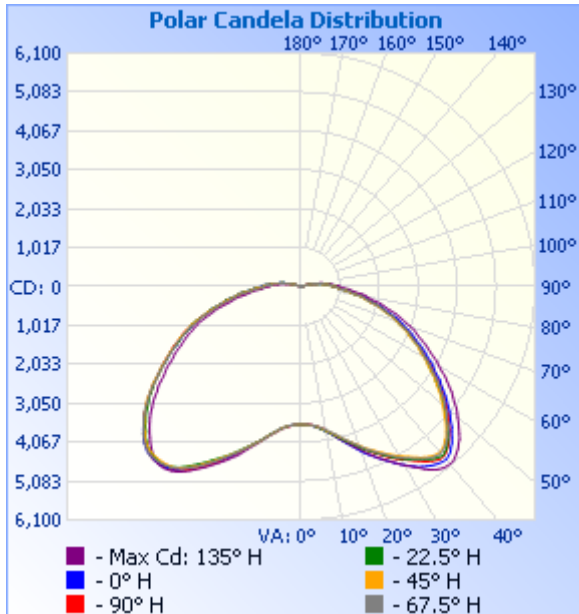
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	3,849.3	15.8%	15.8%
0-40	7,431.3	30.5%	30.5%
0-60	15,871.2	65.2%	65.2%
60-90	7,331.1	30.1%	30.1%
70-100	4,696.1	19.3%	19.3%
90-120	1,076.5	4.4%	4.4%
0-90	23,202.4	95.4%	95.4%
90-180	1,129.6	4.6%	4.6%
0-180	24,332.0	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	354.7	1.5%	90-100	787.1	3.2%
10-20	1,192.6	4.9%	100-110	273.5	1.1%
20-30	2,302.0	9.5%	110-120	15.9	0.1%
30-40	3,582.0	14.7%	120-130	10.4	0%
40-50	4,323.1	17.8%	130-140	11.4	0%
50-60	4,116.9	16.9%	140-150	11.8	0%
60-70	3,422.1	14.1%	150-160	10.6	0%
70-80	2,470.0	10.2%	160-170	6.8	0%
80-90	1,439.1	5.9%	170-180	2.2	0%

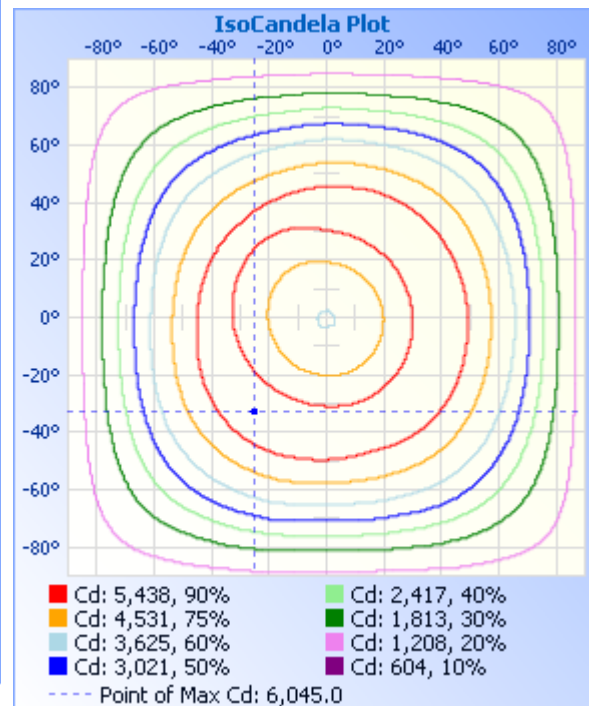
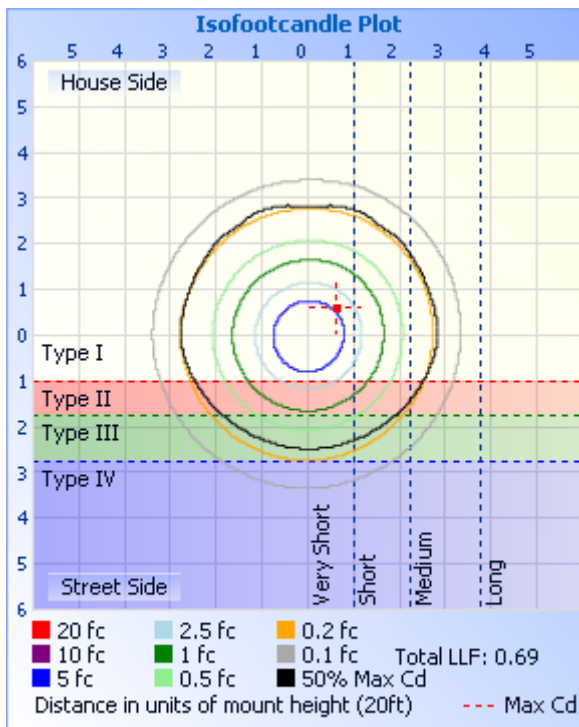
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	12.5 fc	75.5 ft	76.0 ft
34.0ft	3.12 fc	151.1 ft	151.9 ft
51.0ft	1.39 fc	226.6 ft	227.9 ft
68.0ft	0.78 fc	302.1 ft	303.9 ft
85.0ft	0.50 fc	377.7 ft	379.8 ft
102.0ft	0.35 fc	453.2 ft	455.8 ft

■ Vert. Spread: 131.5°
■ Horiz. Spread: 131.8°



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	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609	3609
1	3608	3611	3608	3604	3608	3611	3605	3609	3616	3609	3609	3612	3613	3616	3610	3612	3608
2	3617	3620	3614	3612	3610	3615	3616	3614	3618	3619	3617	3615	3618	3621	3616	3616	3617
3	3625	3630	3623	3616	3615	3617	3614	3618	3620	3621	3622	3621	3627	3630	3626	3628	3625
4	3636	3639	3632	3624	3626	3628	3627	3633	3627	3636	3632	3635	3643	3648	3639	3639	3636
5	3655	3650	3644	3637	3643	3647	3643	3651	3653	3648	3651	3652	3658	3664	3660	3657	3655
6	3680	3679	3668	3661	3663	3666	3671	3669	3674	3676	3677	3678	3688	3692	3687	3684	3680
7	3716	3713	3698	3687	3692	3695	3701	3703	3709	3707	3706	3712	3715	3720	3721	3719	3716
8	3757	3752	3735	3722	3731	3740	3737	3742	3744	3745	3746	3757	3760	3766	3762	3763	3757
9	3800	3795	3776	3762	3770	3781	3776	3779	3789	3790	3796	3800	3809	3814	3808	3803	3800
10	3848	3840	3822	3806	3825	3838	3836	3840	3851	3847	3854	3863	3861	3864	3857	3858	3848
11	3899	3894	3876	3852	3885	3889	3883	3890	3903	3902	3910	3915	3914	3916	3915	3907	3899
12	3954	3942	3920	3906	3936	3950	3942	3945	3963	3958	3970	3975	3970	3969	3981	3968	3954
13	4025	4004	3975	3957	3993	4016	4015	4014	4038	4031	4037	4049	4035	4046	4052	4041	4025
14	4096	4063	4031	4016	4070	4096	4089	4092	4112	4103	4118	4123	4109	4106	4123	4118	4096
15	4170	4128	4091	4086	4129	4159	4157	4161	4183	4175	4186	4184	4180	4187	4205	4196	4170
16	4247	4189	4160	4153	4195	4232	4228	4239	4253	4237	4248	4250	4250	4266	4285	4276	4247
17	4324	4250	4223	4218	4266	4303	4302	4312	4335	4312	4323	4322	4325	4346	4367	4348	4324
18	4397	4320	4278	4282	4335	4373	4387	4393	4405	4378	4392	4398	4403	4431	4450	4433	4397
19	4486	4392	4344	4354	4400	4448	4461	4465	4485	4449	4470	4478	4489	4520	4545	4523	4486
20	4579	4468	4412	4430	4470	4530	4534	4556	4563	4526	4549	4551	4589	4614	4655	4619	4579
21	4663	4550	4493	4508	4542	4621	4629	4641	4651	4608	4628	4631	4669	4699	4745	4718	4663
22	4740	4614	4565	4581	4616	4704	4716	4728	4734	4694	4699	4709	4757	4795	4823	4806	4740
23	4813	4674	4625	4653	4695	4783	4798	4816	4828	4776	4782	4802	4844	4880	4914	4887	4813
24	4897	4747	4689	4721	4768	4860	4887	4896	4906	4853	4863	4889	4942	4961	4991	4973	4897
25	4974	4817	4760	4792	4840	4937	4967	4971	4984	4929	4954	4978	5036	5049	5077	5056	4974
26	5053	4895	4827	4868	4920	5015	5045	5060	5057	5010	5042	5072	5120	5140	5163	5136	5053
27	5134	4966	4896	4935	5001	5094	5130	5139	5143	5090	5128	5157	5214	5234	5254	5219	5134
28	5221	5048	4968	5013	5076	5171	5211	5231	5231	5181	5214	5257	5303	5320	5341	5301	5221

29	5299	5120	5040	5087	5146	5247	5302	5320	5309	5265	5305	5342	5396	5425	5427	5382	5299
30	5386	5188	5105	5149	5216	5318	5387	5413	5391	5352	5404	5430	5485	5511	5512	5464	5386
31	5459	5256	5174	5225	5278	5400	5474	5503	5477	5438	5483	5507	5569	5607	5606	5545	5459
32	5535	5329	5239	5287	5346	5475	5555	5604	5572	5531	5564	5588	5650	5681	5687	5632	5535
33	5620	5398	5308	5357	5425	5557	5644	5689	5655	5617	5641	5668	5728	5754	5769	5705	5620
34	5675	5463	5380	5427	5501	5645	5749	5778	5738	5701	5712	5730	5787	5815	5834	5771	5675
35	5727	5526	5451	5495	5581	5735	5842	5848	5810	5760	5765	5783	5836	5853	5879	5820	5727
36	5780	5584	5508	5553	5649	5820	5914	5907	5862	5813	5798	5822	5874	5887	5915	5865	5780
37	5820	5644	5561	5603	5707	5882	5972	5953	5906	5848	5822	5852	5899	5906	5942	5897	5820
38	5852	5692	5602	5639	5754	5937	6016	5982	5931	5865	5836	5875	5916	5919	5951	5916	5852
39	5879	5731	5634	5669	5793	5981	6041	6008	5943	5885	5843	5899	5926	5924	5950	5928	5879
40	5893	5755	5642	5669	5779	5996	6045	6014	5940	5872	5843	5916	5939	5922	5916	5933	5893
41	5858	5723	5612	5651	5752	5960	6042	6005	5930	5863	5838	5916	5939	5868	5873	5882	5858
42	5821	5683	5573	5613	5696	5910	6000	5998	5913	5837	5830	5917	5902	5841	5808	5836	5821
43	5731	5594	5493	5546	5639	5849	5945	5970	5889	5810	5812	5872	5868	5761	5735	5757	5731
44	5668	5521	5443	5499	5559	5763	5890	5910	5834	5773	5779	5831	5810	5717	5667	5681	5668
45	5565	5420	5340	5394	5474	5685	5809	5868	5785	5698	5721	5783	5746	5627	5576	5589	5565
46	5460	5307	5251	5324	5396	5589	5744	5782	5716	5642	5665	5704	5705	5548	5494	5485	5460
47	5380	5200	5151	5214	5279	5500	5642	5695	5623	5530	5575	5647	5599	5487	5410	5413	5380
48	5252	5057	5025	5112	5169	5390	5538	5603	5547	5465	5514	5531	5537	5369	5313	5287	5252
49	5151	4971	4934	5029	5078	5280	5442	5500	5442	5365	5412	5456	5436	5301	5221	5181	5151
50	5058	4868	4817	4904	4959	5200	5332	5429	5364	5286	5340	5365	5343	5207	5126	5087	5058
51	4925	4742	4713	4811	4858	5067	5242	5302	5262	5199	5266	5252	5262	5082	5000	4936	4925
52	4825	4649	4626	4709	4754	4961	5142	5208	5136	5078	5148	5166	5124	4988	4907	4843	4825
53	4709	4544	4488	4566	4623	4876	4999	5116	5039	4987	5057	5031	5026	4884	4781	4742	4709
54	4575	4402	4377	4472	4519	4747	4897	4978	4925	4892	4962	4911	4929	4743	4642	4580	4575
55	4450	4290	4275	4364	4431	4632	4797	4869	4806	4765	4817	4810	4777	4640	4558	4471	4450
56	4373	4192	4172	4238	4278	4539	4661	4777	4696	4652	4711	4686	4675	4524	4419	4369	4373
57	4215	4050	4027	4116	4161	4406	4542	4626	4581	4563	4603	4537	4557	4374	4270	4218	4215
58	4097	3948	3904	3995	4049	4270	4431	4503	4433	4409	4446	4417	4415	4267	4178	4104	4097
59	4009	3842	3816	3889	3942	4177	4275	4409	4317	4293	4321	4310	4306	4148	4078	4011	4009

60	3898	3743	3705	3752	3795	4048	4156	4274	4209	4203	4222	4168	4198	4043	3928	3898	3898
61	3757	3619	3581	3643	3683	3903	4057	4130	4047	4049	4073	4059	4098	3920	3815	3753	3757
62	3669	3520	3494	3546	3594	3804	3920	4030	3939	3944	3964	3956	3973	3809	3732	3667	3669
63	3561	3441	3409	3457	3482	3690	3788	3934	3846	3843	3862	3827	3856	3724	3610	3572	3561
64	3432	3303	3265	3313	3351	3560	3680	3790	3720	3749	3757	3716	3765	3596	3484	3428	3432
65	3311	3187	3144	3205	3255	3434	3582	3660	3583	3587	3622	3621	3666	3489	3388	3315	3311
66	3210	3085	3059	3121	3156	3341	3453	3568	3482	3482	3520	3523	3532	3385	3291	3228	3210
67	3127	3005	2983	3039	3068	3242	3330	3483	3394	3405	3448	3387	3424	3312	3194	3141	3127
68	3004	2890	2839	2892	2931	3131	3239	3343	3271	3303	3317	3289	3334	3185	3069	3014	3004
69	2874	2758	2735	2785	2820	2993	3152	3232	3152	3164	3204	3189	3243	3070	2977	2898	2874
70	2794	2671	2647	2699	2730	2896	3028	3149	3063	3077	3107	3084	3078	2958	2874	2809	2794
71	2712	2589	2561	2617	2656	2797	2895	3076	2986	3004	3020	2911	2957	2868	2777	2723	2712
72	2605	2494	2443	2487	2509	2691	2779	2902	2843	2885	2852	2795	2858	2739	2615	2590	2605
73	2446	2331	2317	2355	2389	2539	2679	2769	2712	2708	2713	2692	2738	2578	2499	2439	2446
74	2330	2241	2212	2248	2269	2417	2561	2677	2595	2604	2609	2586	2577	2464	2373	2327	2330
75	2242	2161	2123	2155	2192	2317	2413	2579	2512	2511	2514	2415	2438	2352	2288	2241	2242
76	2139	2080	2038	2070	2096	2231	2292	2412	2393	2408	2367	2301	2334	2247	2155	2140	2139
77	1970	1919	1877	1907	1950	2116	2201	2287	2246	2241	2223	2203	2233	2091	2001	1975	1970
78	1852	1800	1778	1799	1838	1967	2118	2184	2128	2133	2125	2115	2090	1962	1877	1850	1852
79	1764	1714	1692	1718	1754	1864	1957	2111	2050	2047	2048	1958	1950	1861	1796	1770	1764
80	1702	1650	1631	1656	1695	1786	1841	1993	1977	1979	1933	1844	1854	1781	1727	1707	1702
81	1606	1555	1551	1582	1606	1712	1760	1838	1806	1802	1784	1758	1772	1691	1581	1572	1606
82	1435	1385	1386	1417	1445	1591	1701	1755	1707	1707	1703	1682	1682	1529	1451	1423	1435
83	1363	1313	1303	1331	1378	1460	1618	1701	1650	1643	1639	1597	1517	1422	1374	1361	1363
84	1304	1263	1253	1284	1313	1379	1451	1631	1594	1586	1573	1432	1413	1353	1315	1300	1304
85	1248	1202	1196	1226	1252	1311	1363	1442	1451	1447	1386	1338	1339	1293	1251	1233	1248
86	1091	1069	1083	1126	1135	1248	1296	1358	1324	1305	1305	1272	1275	1169	1077	1076	1091
87	1008	976	968	984	1002	1104	1242	1304	1264	1256	1249	1194	1148	1034	1008	1000	1008
88	999	966	951	955	979	1011	1118	1258	1221	1207	1190	1064	1022	993	988	986	999
89	982	950	939	944	972	994	1022	1123	1152	1135	1057	981	988	979	976	971	982
90	925	922	926	932	958	988	1009	1043	1012	997	991	974	976	958	884	909	925

91	810	792	791	815	822	950	994	1037	1002	981	977	949	931	813	799	799	810
92	800	779	769	769	783	824	948	1018	984	971	962	885	822	792	789	794	800
93	786	769	755	760	779	791	831	955	946	932	879	779	788	788	785	780	786
94	761	744	740	750	766	783	804	836	814	797	795	772	773	768	754	746	761
95	660	674	681	705	714	758	787	823	797	783	781	748	747	680	616	622	660
96	599	589	585	602	604	693	758	801	778	762	754	700	658	596	594	597	599
97	588	572	574	576	573	595	678	750	737	724	691	591	588	586	585	581	588
98	565	554	552	561	564	581	593	646	652	632	596	568	570	569	560	555	565
99	512	510	524	527	528	552	581	607	588	577	574	546	549	520	493	490	512
100	415	424	449	480	474	525	560	582	570	556	540	503	503	424	402	410	415
101	392	393	392	402	396	439	512	541	528	522	504	418	402	396	393	397	392
102	378	371	370	379	374	384	423	481	480	457	407	374	379	375	370	368	378
103	323	337	347	361	348	370	386	397	382	384	375	351	361	341	327	321	323
104	244	271	301	319	310	333	367	384	361	356	347	319	319	271	240	230	244
105	194	204	214	248	250	285	323	335	335	337	300	245	218	202	202	200	194
106	158	177	181	186	183	198	250	276	279	266	216	182	182	177	159	155	158
107	121	137	151	173	168	173	193	205	190	188	178	154	155	142	124	115	121
108	50	71	117	133	123	142	154	164	156	167	143	104	98	67	48	47	50
109	31	42	48	62	62	93	127	127	122	121	90	37	31	29	45	31	31
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113	11	22	29	20	11	14	25	24	13	22	12	18	10	14	15	18	11
114	0	19	18	20	0	12	19	18	12	16	18	9	12	14	19	16	0
115	0	16	21	20	10	0	17	16	0	15	15	13	0	13	18	12	0
116	0	14	16	13	0	0	16	16	0	13	13	12	13	13	14	15	0
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121	0	13	19	15	0	0	11	15	0	12	10	14	14	13	18	14	0

122	0	16	20	18	0	14	9	14	0	13	16	14	12	14	14	13	0
123	9	13	16	20	0	0	14	15	0	14	16	17	0	9	21	18	9
124	0	13	16	13	0	14	12	17	0	14	16	14	10	11	18	15	0
125	9	13	18	15	12	19	11	15	0	11	18	0	14	12	19	15	9
126	13	15	19	19	0	9	16	0	0	13	17	13	11	16	19	11	13
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128	0	15	17	10	0	12	0	16	0	14	15	0	10	14	17	13	0
129	0	16	21	20	0	0	19	16	0	13	13	16	10	16	18	20	0
130	14	22	15	13	0	14	14	20	0	13	13	18	9	15	19	18	14
131	14	18	15	16	0	15	11	21	11	10	16	15	13	12	13	17	14
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133	0	19	23	19	0	10	18	18	10	15	16	16	14	15	20	16	0
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143	16	22	21	12	11	13	19	17	16	23	24	16	14	18	25	16	16
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145	0	25	25	17	13	14	22	25	19	24	28	18	14	19	24	25	0
146	19	20	27	19	12	17	22	24	18	20	23	19	16	15	29	21	19
147	15	24	24	18	12	13	22	19	16	22	24	19	18	18	24	23	15
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149	14	25	31	19	12	16	24	21	18	21	24	19	14	16	25	28	14
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151	12	25	26	17	16	16	24	33	18	24	26	21	17	21	28	18	12
152	16	32	25	22	0	16	25	25	18	24	29	15	19	22	27	26	16

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154	16	28	27	21	16	15	24	24	21	28	29	22	19	27	26	21	16
155	20	32	20	25	15	14	25	32	19	30	26	20	18	24	32	31	20
156	18	34	26	20	15	11	23	41	21	30	25	16	19	19	30	26	18
157	21	26	34	24	13	16	27	27	17	35	26	21	17	18	27	18	21
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164	19	36	26	21	14	17	27	34	17	29	27	26	17	23	27	20	19
165	21	27	32	24	11	24	27	32	19	24	30	23	19	14	31	24	21
166	19	30	33	27	12	20	25	28	22	33	35	22	18	30	26	27	19
167	21	31	21	29	13	21	25	23	20	32	27	25	17	26	30	29	21
168	20	28	29	26	17	0	28	32	24	32	30	25	18	22	23	28	20
169	19	25	22	25	11	18	29	25	23	29	33	25	20	24	25	23	19
170	18	26	31	24	12	21	26	29	19	17	30	25	22	21	18	25	18
171	15	30	29	29	15	20	25	20	22	26	27	27	17	23	29	22	15
172	19	27	28	24	16	22	29	24	25	25	29	28	20	19	31	21	19
173	18	28	24	25	16	20	26	20	21	31	25	29	20	23	24	21	18
174	20	16	19	26	18	24	23	25	18	26	24	28	21	17	27	25	20
175	20	22	25	24	14	20	26	23	20	24	22	18	22	22	30	21	20
176	22	23	23	21	16	19	25	24	11	24	26	26	17	24	23	21	22
177	15	20	20	27	11	19	24	27	17	22	26	20	18	21	25	23	15
178	12	20	19	22	12	16	23	24	14	23	25	21	16	10	21	22	12
179	15	21	23	21	11	16	22	20	17	22	28	21	18	18	25	21	15
180	17	20	22	20	17	19	17	21	15	18	26	20	17	20	26	17	17

BUG Rating

Lum. Classification System (LCS)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	1920.7	7.9	7.9
FM (30-60)	5888.7	24.2	24.2
FH (60-80)	2823.8	11.6	11.6
FVH (80-90)	672.8	2.8	2.8
BL (0-30)	1928.1	7.9	7.9
BM (30-60)	6135.3	25.2	25.2
BH (60-80)	3067.7	12.6	12.6
BVH(80-90)	766.0	3.1	3.1
UL (90-100)	786.9	3.2	3.2
UH (100-180)	342.5	1.4	1.4
Total	24332.5	99.9	100.0
BUG Rating	B4-U4-G5		

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-04-22	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-CLW08E-200WBCZA1-a65K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC220402	120.0	60	1.697	202.57	0.995	5.31
3E-A2	277.0	60	0.770	197.94	0.928	16.07
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

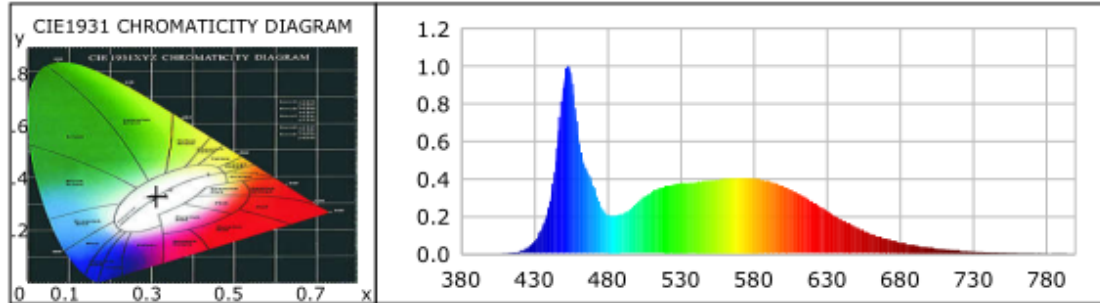
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	0
Frequency (Hz)	60	R2	89	R10	73
CCT (K)	6485	R3	93	R11	80
Duv	0.0031	R4	80	R12	54
Chromaticity (x, y)	x=0.3130 y=0.3292	R5	81	R13	84
Chromaticity (u', v')	u(u')=0.1980 v'(v')=0.4685	R6	83	R14	96
Color Rendering Index (CRI)	82	R7	86	R15	76
R9	0	R8	67	--	--
Rf	81	--	--	--	--
Rg	93	--	--	--	--
Rcs,h1(%)	-14				

Photometric Measurement –Sphere-Spectroradiometer Method in Lithonia THD

400S A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	26133.6	25989.5	>=10000(-10%)
Luminous Efficacy (lm/W)	129.01	131.30	Standard: >= 120(-3%)
Most worst Luminous/Highest Watts	128.30		

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	0.6028	535	0.3689	368.7528	690	0.0818	81.7852
385	0.0002	0.1882	540	0.3733	373.0931	695	0.0706	70.5467
390	0.0007	0.6818	545	0.3761	375.9619	700	0.0605	60.5091
395	0.0002	0.1752	550	0.3818	381.5770	705	0.0522	52.2184
400	0.0004	0.3892	555	0.3851	384.9130	710	0.0448	44.7625
405	0.0009	0.9276	560	0.3894	389.1950	715	0.0377	37.7182
410	0.0026	2.5712	565	0.3929	392.7481	720	0.0332	33.2148
415	0.0057	5.6972	570	0.3988	398.5718	725	0.0270	26.9851
420	0.0137	13.7321	575	0.4026	402.3947	730	0.0242	24.1528
425	0.0303	30.2989	580	0.4034	403.1995	735	0.0208	20.7583
430	0.0647	64.6864	585	0.4041	403.9416	740	0.0176	17.5792
435	0.1308	130.7019	590	0.4015	401.3462	745	0.0146	14.5573
440	0.2513	251.2110	595	0.3954	395.2032	750	0.0117	11.6722
445	0.5003	500.0749	600	0.3883	388.1517	755	0.0105	10.5318
450	0.8909	890.4363	605	0.3766	376.4305	760	0.0090	8.9699
455	0.9677	967.2638	610	0.3611	360.9328	765	0.0082	8.1793
460	0.6436	643.3027	615	0.3443	344.1429	770	0.0074	7.3677
465	0.4635	463.3174	620	0.3241	323.9388	775	0.0053	5.2920
470	0.3713	371.0840	625	0.3020	301.8513	780	0.0046	4.5964
475	0.2617	261.6210	630	0.2775	277.3375	785	0.0036	3.5831
480	0.2085	208.3987	635	0.2534	253.3227	790	0.0032	3.1549
485	0.2035	203.4263	640	0.2297	229.5817	795	0.0033	3.3005
490	0.2133	213.2240	645	0.2069	206.8065	800	0.0028	2.8095
495	0.2348	234.6742	650	0.1822	182.0633			
500	0.2692	269.0442	655	0.1612	161.1675			
505	0.3008	300.6632	660	0.1423	142.2559			
510	0.3278	327.6328	665	0.1245	124.4057			
515	0.3470	346.8306	670	0.1086	108.5908			
520	0.3605	360.3140	675	0.0944	94.3967			
525	0.3689	368.7528	680	0.0818	81.7852			
530	0.3733	373.0931	685	0.0706	70.5467			

TM30

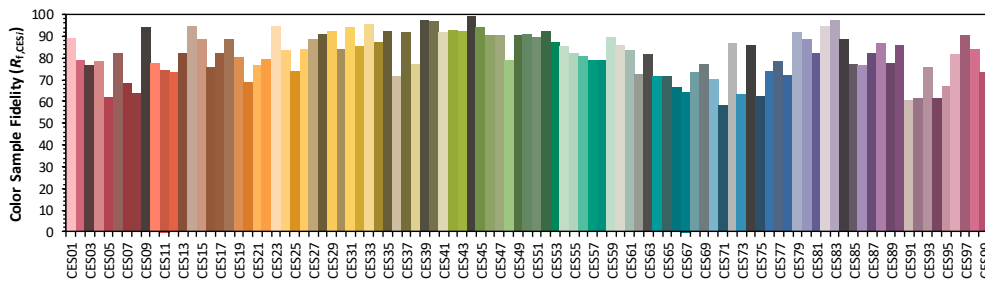
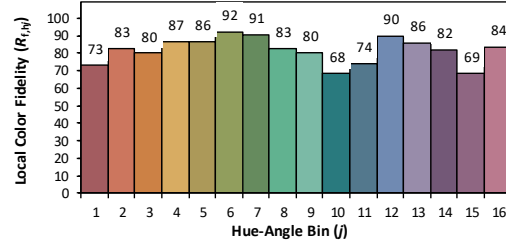
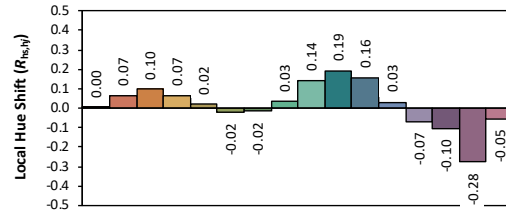
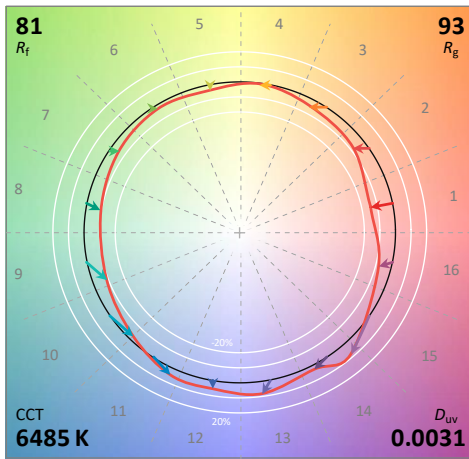
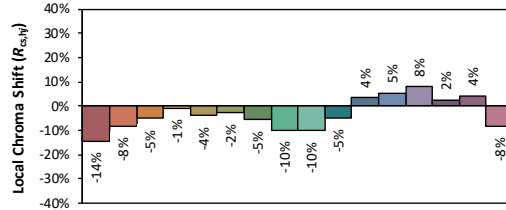
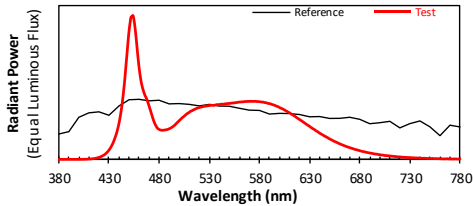
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1

Manufacturer: AS MART LIGHT CO., LTD

Date: 2022/4/22

Model: AST-CLW08E-200WBCZA1-a65K



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

x 0.3130
 y 0.3292
 u' 0.1980
 v' 0.4685

CIE 13.3-1995 (CRI)
 R_a 82
 R_g 0

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

Calculated Efficacy Data for family models:

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-CLW08E-200WBCZA1-a30K	24332.6	202.3	120.28
AST-CLW08E-200WBCZA1-a35K	24589.9	202.44	121.47
AST-CLW08E-200WBCZA1-a40K	24847.2	202.44	122.74
AST-CLW08E-200WBCZA1-a45K	25067.7	202.44	123.83
AST-CLW08E-200WBCZA1-a50K	25288.2	202.44	124.92
AST-CLW08E-200WBCZA1-a57K	25508.8	202.44	126.01
AST-CLW08E-200WBCZA1-a65K	26133.6	202.57	129.01

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

$$24589.9 = (26133.6 - 24332.6) / 7 + 24332.6$$

$$24847.2 = (26133.6 - 24332.6) / 7 + 24589.9$$

$$25067.7 = (26133.6 - 24332.6) / 7 + 24847.2$$

$$25288.2 = (26133.6 - 24332.6) / 7 + 25067.7$$

$$25508.8 = (26133.6 - 24332.6) / 7 + 25288.2$$

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

$$202.44 = (202.57 + 202.3) / 2$$

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

$$121.47 = 24589.9 / 202.44$$

$$122.74 = 24847.2 / 202.44$$

$$123.83 = 25067.7 / 202.44$$

$$124.92 = 25288.2 / 202.44$$

$$126.01 = 25508.8 / 202.44$$

3. Test Equipment

Equipment Name	Model No.	Serial No.	Calibration Date
Goniophotometric 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 *****