

LM-79-08 Test Report

For

RAB LIGHTING INC

(Brand Name: RAB LIGHTING)

408 W 14th St New York, NY 10014 United States

Replacement Lamps for High Bay Luminaires (UL Type B)

Model name(s): HIDFA-120S-EX39-8CCT-BYP/480V

Test & Report By:

Odin Wang

Engineer: Odin Wang

Date:2023-04-04

Review By:

Jason Luo

Manager: Jason Luo

1.1 Product Information:

Organization Name	RAB LIGHTING INC	
Brand Name	RAB LIGHTING	
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V	
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	277-480Vac, 50/60 Hz	
Nominal Power	120W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K,5000K(Color tunable)	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-3080RC35003P1 L128-5080RC35003P1	
Sample Number	UTC2303033E-A1	
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	2023-03-25
Date of Test	2023-03-30
Test item	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. IES LM-79-2008 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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, 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 277 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 $\theta = 1.42\%$, 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 277 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-CLW16-120WBCDH1-ad30K:1.135

AST-CLW16-120WBCDH1-ad40K:1.135

AST-CLW16-120WBCDH1-ad40K:1.135

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 277 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	2023-03-30	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @120W 3000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230303	277.0	60	0.448	120.92	0.974	15.76
3E-A1	480.0	60	0.280	123.48	0.918	15.86
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

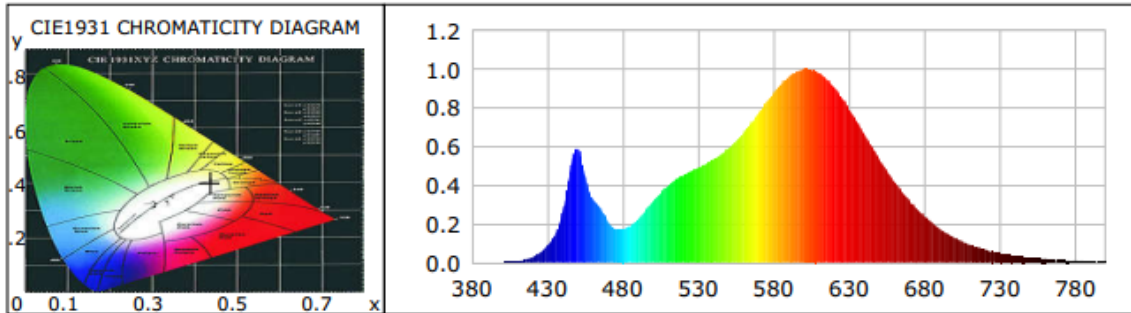
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	79	R9	-2
Frequency (Hz)	60	R2	90	R10	78
CCT (K)	3015	R3	96	R11	79
Duv	-0.0012	R4	79	R12	72
Chromaticity (x, y)	x=0.4341 y=0.4001	R5	80	R13	82
Chromaticity (u', v')	u(u')=0.2505 v'=0.5194	R6	89	R14	98
Color Rendering Index (CRI)	81	R7	80	R15	71
R9	-1	R8	55	--	--
Rf	83	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S

A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	14638.3	14728.9	>=10000(-10%)
Luminous Efficacy (lm/W)	121.06	119.28	Standard: >= 120(-3%)
Most worst Luminous/Highest	118.55		
Zonal lumens in the 20-50° (%)	56.80		>=30%(-10%)
Beam Angle (°)	119.4	--	--
Center Beam Candle Power (cd)	2960	--	--

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	0.0381	535	0.4731	182.4550	690	0.3192	123.1044
385	0.0004	0.1618	540	0.4905	189.1768	695	0.2764	106.6153
390	0.0005	0.2082	545	0.5089	196.2895	700	0.2387	92.0505
395	0.0002	0.0773	550	0.5339	205.9128	705	0.2072	79.8976
400	0.0010	0.4042	555	0.5586	215.4240	710	0.1778	68.5871
405	0.0026	1.0029	560	0.5901	227.6109	715	0.1516	58.4605
410	0.0067	2.5787	565	0.6276	242.0605	720	0.1298	50.0683
415	0.0151	5.8327	570	0.6715	258.9770	725	0.1101	42.4473
420	0.0291	11.2281	575	0.7207	277.9781	730	0.0944	36.3979
425	0.0518	19.9917	580	0.7703	297.1096	735	0.0801	30.9016
430	0.0881	33.9810	585	0.8258	318.5056	740	0.0688	26.5526
435	0.1465	56.5193	590	0.8766	338.0872	745	0.0576	22.2212
440	0.2592	99.9685	595	0.9204	354.9693	750	0.0491	18.9365
445	0.4669	180.0829	600	0.9588	369.7833	755	0.0414	15.9847
450	0.5893	227.3005	605	0.9858	380.2097	760	0.0352	13.5788
455	0.4473	172.5240	610	1.0000	385.6842	765	0.0300	11.5677
460	0.3306	127.5156	615	0.9967	384.4180	770	0.0255	9.8404
465	0.2838	109.4715	620	0.9789	377.5315	775	0.0210	8.1060
470	0.2146	82.7687	625	0.9513	366.8863	780	0.0187	7.1993
475	0.1750	67.5072	630	0.9061	349.4826	785	0.0154	5.9557
480	0.1749	67.4667	635	0.8555	329.9338	790	0.0141	5.4236
485	0.1910	73.6788	640	0.7931	305.8979	795	0.0108	4.1655
490	0.2221	85.6610	645	0.7306	281.7952	800	0.0106	4.0859
495	0.2682	103.4493	650	0.6665	257.0724			
500	0.3172	122.3380	655	0.6001	231.4612			
505	0.3594	138.6229	660	0.5362	206.8137			
510	0.3982	153.5726	665	0.4765	183.7931			
515	0.4282	165.1529	670	0.4192	161.6913			
520	0.4516	174.1672	675	0.3667	141.4307			
525	0.4731	182.4550	680	0.3192	123.1044			
530	0.4905	189.1768	685	0.2764	106.6153			

TM30

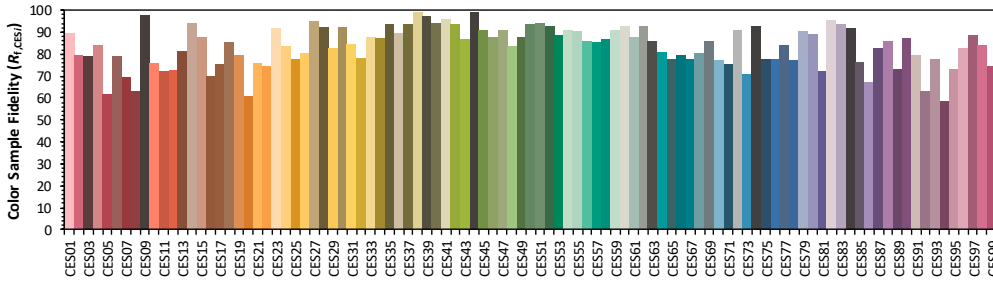
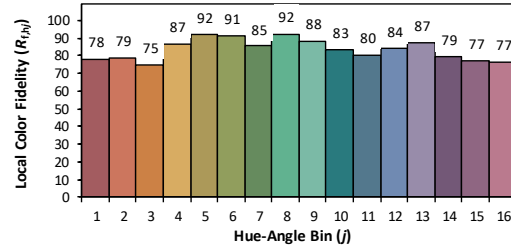
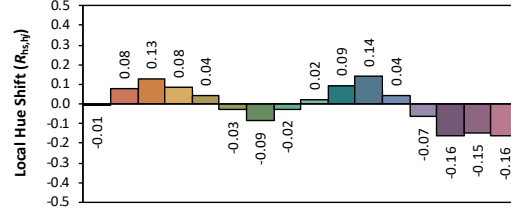
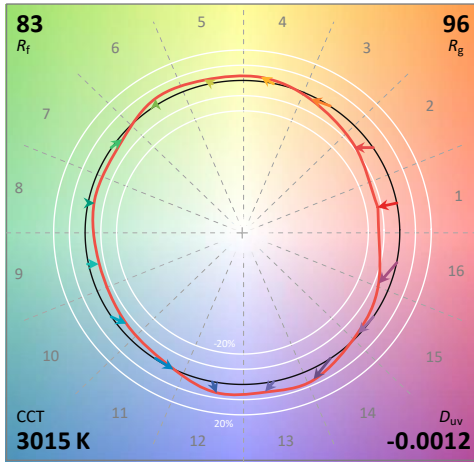
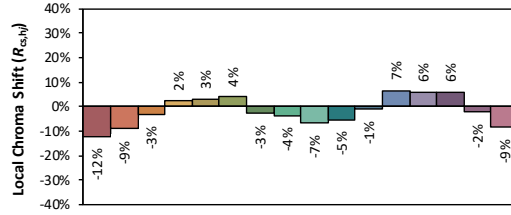
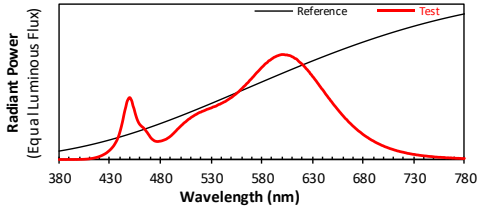
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-3080RC35003P1

Manufacturer: RAB LIGHTING

Date: 2023/3/30

Model: HIDFA-120S-EX39-8CCT-BYP/480V @120W 3000K



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

x 0.4341
 y 0.4001
 u' 0.2505
 v' 0.5194

CIE 13.3-1995 (CRI)
 R_a 81
 R_g -1

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

Zonal Lumen Tabulation

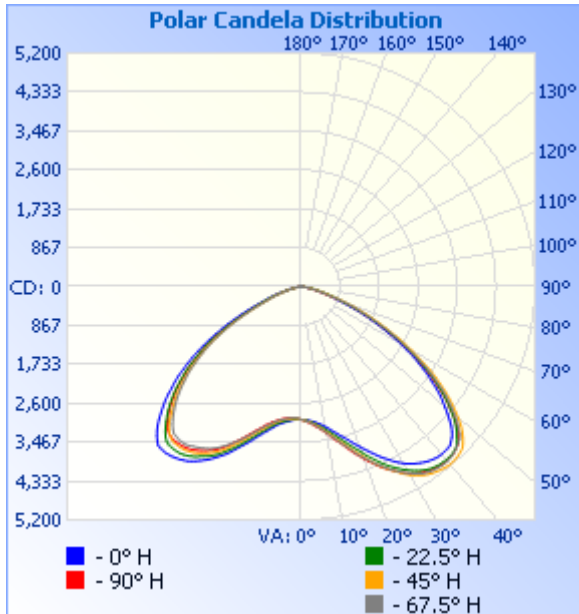
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	3,209.3	21.9%	21.9%
0-40	6,131.8	41.9%	41.9%
0-60	12,490.9	85.3%	85.3%
60-90	2,086.5	14.3%	14.3%
70-100	541.4	3.7%	3.7%
90-120	15.8	0.1%	0.1%
0-90	14,577.5	99.6%	99.6%
90-180	59.5	0.4%	0.4%
0-180	14,636.9	100%	100%

Lumens Per Zone

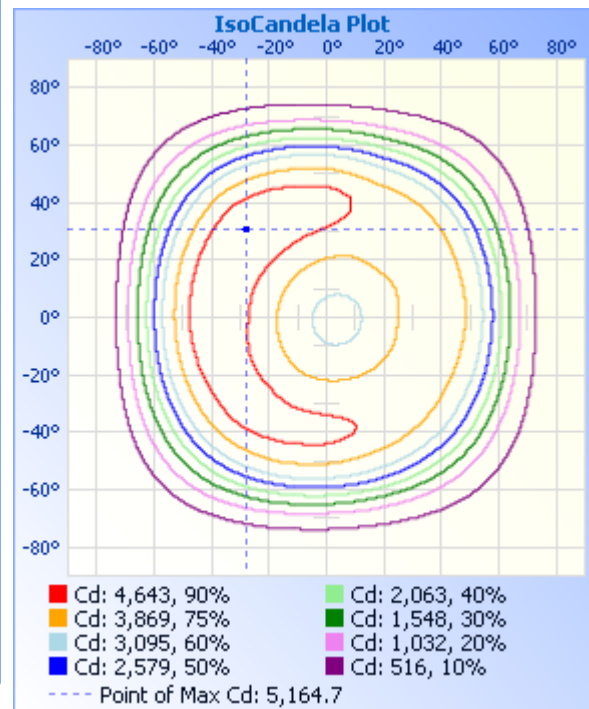
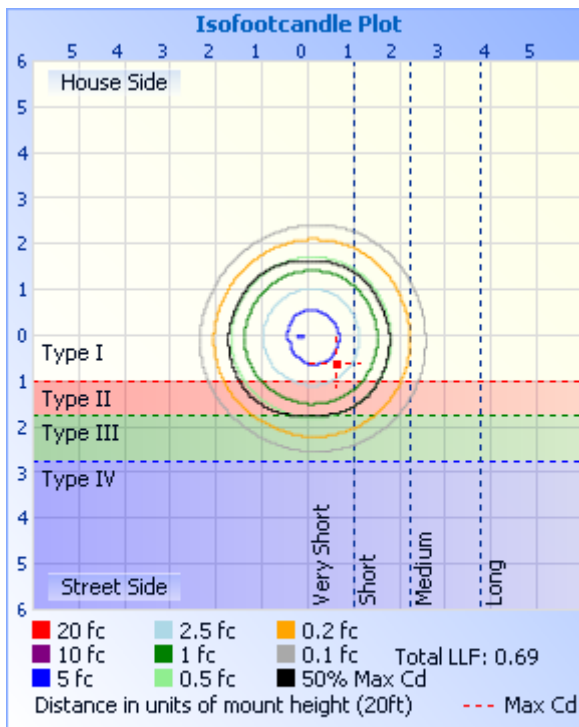
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	292.4	2.0%	90-100	4.0	0%
10-20	986.9	6.7%	100-110	5.3	0%
20-30	1,930.0	13.2%	110-120	6.6	0%
30-40	2,922.5	20.0%	120-130	6.7	0%
40-50	3,460.7	23.6%	130-140	10.0	0.1%
50-60	2,898.4	19.8%	140-150	11.8	0.1%
60-70	1,549.1	10.6%	150-160	8.8	0.1%
70-80	470.7	3.2%	160-170	4.8	0%
80-90	66.7	0.5%	170-180	1.5	0%

Photometric Data



	Illuminance at a Distance	
	Center Beam fc	Beam Width
17.0ft	10.2 fc	50.6 ft 46.4 ft
34.0ft	2.56 fc	101.2 ft 92.8 ft
51.0ft	1.14 fc	151.8 ft 139.2 ft
68.0ft	0.64 fc	202.4 ft 185.6 ft
85.0ft	0.41 fc	253.0 ft 232.0 ft
102.0ft	0.28 fc	303.6 ft 278.4 ft

■ Vert. Spread: 112.2°
■ Horiz. Spread: 107.5°



Candela Table - Type C

Laboratory: UTEST TECHNICAL LABORATORY CO.LTD A2LA Certificate# 4810.01
 Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,
 Guangzhou, People's Republic of China engineer@etk-utest.com

Report Format Number BL-FM-SA-012

	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	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960	2960
1	2965	2967	2974	2975	2981	2979	2970	2969	2958	2955	2951	2943	2948	2951	2955	2957	2965
2	2971	2982	2990	2994	3006	2998	2987	2976	2959	2951	2942	2926	2939	2941	2952	2958	2971
3	2981	2999	3006	3014	3028	3019	3007	2992	2969	2954	2940	2926	2931	2938	2949	2965	2981
4	2998	3021	3033	3044	3043	3045	3030	3011	2983	2968	2949	2934	2935	2939	2953	2975	2998
5	3017	3046	3062	3077	3089	3076	3056	3031	3002	2984	2961	2945	2935	2946	2969	2989	3017
6	3040	3075	3097	3113	3131	3109	3082	3054	3021	2998	2973	2954	2949	2959	2981	3007	3040
7	3068	3115	3138	3157	3167	3146	3112	3082	3044	3014	2986	2971	2961	2974	2997	3034	3068
8	3099	3150	3180	3200	3220	3184	3156	3114	3069	3038	3007	2990	2980	2995	3021	3058	3099
9	3134	3193	3233	3250	3265	3235	3198	3148	3098	3067	3030	3010	2999	3016	3043	3088	3134
10	3175	3243	3292	3309	3319	3292	3249	3190	3134	3098	3060	3038	3027	3040	3073	3122	3175
11	3222	3297	3347	3376	3391	3355	3298	3233	3185	3136	3094	3070	3057	3069	3105	3164	3222
12	3281	3349	3409	3434	3456	3416	3358	3286	3231	3180	3133	3106	3089	3106	3144	3206	3281
13	3332	3414	3482	3505	3519	3478	3414	3349	3287	3230	3179	3150	3132	3146	3188	3256	3332
14	3388	3477	3548	3575	3581	3542	3481	3402	3341	3291	3236	3193	3171	3195	3239	3307	3388
15	3450	3546	3613	3648	3665	3611	3544	3464	3403	3342	3289	3243	3224	3241	3293	3359	3450
16	3508	3616	3692	3719	3747	3695	3612	3526	3464	3400	3341	3298	3286	3293	3353	3417	3508
17	3570	3688	3775	3795	3828	3774	3679	3594	3533	3473	3401	3358	3342	3344	3409	3467	3570
18	3644	3765	3858	3893	3916	3848	3752	3669	3607	3541	3467	3421	3399	3397	3471	3530	3644
19	3718	3847	3939	3975	3995	3911	3827	3741	3681	3613	3538	3494	3471	3451	3540	3592	3718
20	3793	3931	4018	4052	4078	3991	3910	3809	3754	3688	3616	3558	3538	3508	3602	3664	3793
21	3867	4022	4116	4135	4163	4069	3991	3880	3828	3771	3686	3627	3622	3577	3668	3724	3867
22	3944	4104	4210	4216	4232	4147	4067	3952	3909	3846	3758	3700	3694	3633	3738	3784	3944
23	4023	4188	4296	4299	4317	4227	4144	4027	3999	3920	3834	3764	3752	3688	3811	3859	4023
24	4106	4279	4382	4377	4407	4300	4216	4113	4077	3993	3913	3828	3845	3752	3881	3922	4106
25	4186	4365	4464	4452	4470	4365	4284	4187	4149	4068	3996	3897	3921	3810	3951	3991	4186
26	4259	4442	4540	4530	4542	4442	4349	4251	4214	4142	4064	3957	3988	3880	4018	4045	4259
27	4331	4514	4616	4600	4608	4499	4417	4316	4287	4207	4126	4019	4064	3940	4084	4099	4331
28	4408	4584	4693	4671	4680	4554	4479	4377	4354	4268	4186	4075	4121	3995	4136	4156	4408
29	4479	4655	4777	4741	4748	4610	4543	4445	4415	4319	4236	4122	4162	4044	4183	4205	4479
30	4545	4718	4843	4799	4808	4659	4604	4504	4477	4368	4289	4165	4222	4087	4231	4258	4545

31	4604	4779	4902	4857	4844	4708	4658	4555	4533	4413	4335	4199	4264	4131	4271	4300	4604
32	4648	4833	4959	4911	4894	4753	4703	4604	4583	4463	4372	4232	4304	4170	4316	4340	4648
33	4695	4884	5004	4968	4940	4790	4740	4656	4631	4505	4407	4266	4340	4209	4354	4379	4695
34	4737	4924	5041	4994	4956	4818	4772	4698	4666	4538	4434	4291	4375	4243	4386	4410	4737
35	4771	4963	5075	5026	5002	4842	4803	4733	4697	4569	4455	4328	4399	4274	4407	4435	4771
36	4806	4987	5099	5043	5003	4858	4833	4758	4722	4588	4470	4350	4414	4301	4424	4453	4806
37	4828	5008	5121	5057	5031	4873	4851	4777	4744	4596	4481	4360	4428	4321	4438	4468	4828
38	4853	5022	5140	5064	5043	4881	4869	4792	4761	4597	4481	4363	4435	4337	4447	4481	4853
39	4865	5025	5157	5072	5065	4883	4884	4809	4771	4596	4481	4354	4436	4341	4456	4478	4865
40	4869	5028	5165	5069	5040	4879	4890	4814	4773	4589	4470	4339	4432	4339	4456	4471	4869
41	4862	5030	5160	5057	5037	4872	4885	4808	4770	4560	4425	4323	4422	4332	4450	4463	4862
42	4860	5019	5149	5038	5038	4850	4869	4796	4755	4505	4381	4264	4392	4321	4436	4454	4860
43	4848	4994	5131	5012	5007	4824	4844	4777	4692	4430	4318	4193	4353	4298	4421	4439	4848
44	4797	4967	5109	4974	4979	4793	4815	4729	4619	4344	4225	4108	4291	4230	4371	4380	4797
45	4740	4900	5075	4935	4944	4761	4781	4660	4534	4247	4112	4020	4189	4153	4298	4297	4740
46	4662	4817	5007	4895	4868	4699	4707	4573	4434	4143	3995	3918	4104	4072	4200	4204	4662
47	4567	4730	4919	4822	4797	4601	4615	4489	4319	4046	3885	3817	3999	3981	4097	4114	4567
48	4445	4631	4820	4710	4670	4495	4501	4389	4194	3933	3780	3710	3891	3886	3992	4024	4445
49	4317	4519	4708	4601	4545	4378	4369	4263	4072	3817	3667	3592	3766	3779	3882	3920	4317
50	4180	4382	4569	4467	4399	4234	4225	4143	3950	3690	3530	3472	3666	3664	3771	3800	4180
51	4047	4246	4419	4319	4241	4087	4088	4005	3803	3557	3388	3345	3527	3550	3637	3673	4047
52	3916	4099	4272	4178	4105	3941	3938	3871	3643	3416	3270	3224	3378	3413	3483	3530	3916
53	3764	3949	4118	4034	3921	3780	3781	3716	3513	3275	3125	3090	3237	3279	3342	3402	3764
54	3591	3782	3962	3864	3745	3607	3625	3543	3367	3141	2974	2930	3124	3144	3229	3255	3591
55	3453	3626	3780	3666	3575	3433	3450	3383	3198	2977	2829	2791	2967	3010	3061	3102	3453
56	3283	3450	3609	3494	3398	3240	3273	3225	3037	2823	2677	2647	2786	2846	2901	2941	3283
57	3105	3268	3434	3323	3200	3059	3096	3017	2881	2670	2531	2492	2660	2671	2749	2772	3105
58	2950	3091	3216	3120	3024	2883	2928	2843	2697	2505	2378	2360	2500	2528	2586	2616	2950
59	2748	2911	3024	2910	2850	2715	2729	2675	2536	2352	2191	2172	2330	2360	2411	2460	2748
60	2569	2722	2842	2743	2652	2525	2552	2478	2349	2147	2040	1999	2180	2205	2262	2284	2569
61	2401	2555	2646	2541	2476	2328	2385	2325	2161	1977	1852	1845	1984	2027	2080	2139	2401
62	2207	2351	2476	2369	2263	2162	2197	2132	1982	1810	1704	1650	1832	1845	1911	1944	2207

63	2047	2170	2267	2202	2070	1986	2021	1957	1817	1615	1510	1506	1650	1697	1737	1780	2047
64	1849	2006	2081	1984	1918	1822	1834	1798	1642	1459	1362	1326	1497	1528	1583	1632	1849
65	1690	1817	1914	1839	1728	1635	1669	1610	1470	1290	1197	1198	1317	1383	1434	1458	1690
66	1524	1662	1737	1661	1562	1487	1511	1463	1303	1143	1061	1025	1178	1224	1265	1331	1524
67	1367	1490	1577	1502	1414	1352	1352	1278	1128	1013	933	922	1024	1097	1132	1170	1367
68	1200	1328	1397	1370	1261	1199	1214	1157	1009	903	823	817	895	932	965	1037	1200
69	1028	1167	1253	1198	1121	1058	1041	1002	899	816	741	728	785	824	848	884	1028
70	900	1030	1102	1088	946	899	928	879	804	745	671	648	701	743	746	786	900
71	807	902	963	911	817	776	758	760	723	647	586	571	640	667	676	716	807
72	719	803	810	784	673	637	650	672	631	562	506	499	565	602	618	644	719
73	639	700	690	642	558	541	561	590	540	483	443	434	480	522	561	577	639
74	566	618	611	544	477	470	492	507	458	420	381	368	421	439	463	493	566
75	475	542	530	474	416	411	427	421	393	361	322	314	358	377	388	417	475
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79	252	276	273	236	198	194	206	218	199	183	162	152	181	195	203	221	252
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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2023-03-30	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @120W 4000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230303	277.0	60	0.431	116.24	0.973	15.65
3E-A1	480.0	60	0.269	118.62	0.919	15.80
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

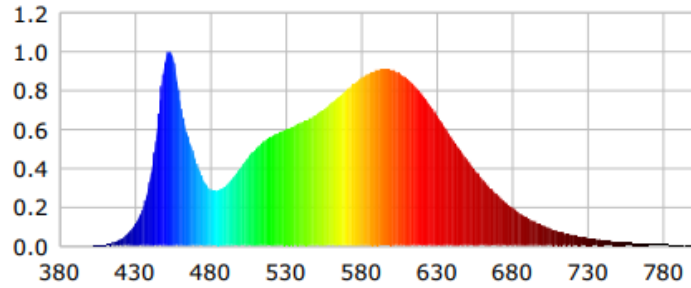
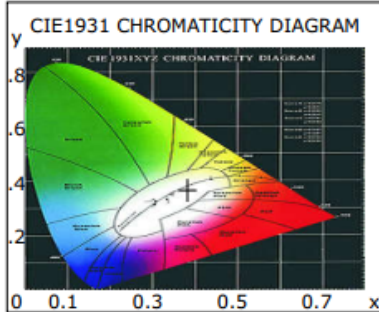
Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia THD 400S A15 TB:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	83	R9	9
Frequency (Hz)	60	R2	92	R10	80
CCT (K)	3935	R3	95	R11	81
Duv	-0.0027	R4	81	R12	65
Chromaticity (x, y)	x=0.3814 y=0.3716	R5	83	R13	85
Chromaticity (u', v')	u(u')=0.2278 v'(v')=0.4994	R6	88	R14	98
Color Rendering Index (CRI)	84	R7	83	R15	77
R9	9	R8	63	--	--
Rf	84	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

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

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	16013.2	16141.8	>= 1000(-10%)
Luminous Efficacy (lm/W)	137.76	136.08	Standard: >= 105(-3%)
Most worst Luminous/Highest	135.00		

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	0.1855	535	0.5806	227.0762	690	0.2608	102.0202
385	0.0003	0.1287	540	0.5975	233.6962	695	0.2249	87.9622
390	0.0003	0.1354	545	0.6125	239.5705	700	0.1947	76.1429
395	0.0007	0.2862	550	0.6336	247.8050	705	0.1681	65.7626
400	0.0014	0.5290	555	0.6523	255.1064	710	0.1457	56.9985
405	0.0028	1.0810	560	0.6751	264.0533	715	0.1244	48.6642
410	0.0068	2.6755	565	0.7019	274.5331	720	0.1050	41.0859
415	0.0156	6.0898	570	0.7350	287.4597	725	0.0900	35.1805
420	0.0317	12.4164	575	0.7683	300.4957	730	0.0765	29.9165
425	0.0599	23.4271	580	0.8005	313.0734	735	0.0651	25.4687
430	0.1075	42.0272	585	0.8349	326.5497	740	0.0556	21.7335
435	0.1868	73.0462	590	0.8642	338.0157	745	0.0479	18.7209
440	0.3311	129.4986	595	0.8854	346.2715	750	0.0398	15.5678
445	0.6139	240.1065	600	0.9036	353.4147	755	0.0342	13.3568
450	0.9407	367.8998	605	0.9105	356.1086	760	0.0288	11.2508
455	0.9765	381.9378	610	0.9078	355.0436	765	0.0257	10.0368
460	0.7527	294.4061	615	0.8912	348.5601	770	0.0220	8.6219
465	0.5694	222.7044	620	0.8633	337.6567	775	0.0187	7.3311
470	0.4495	175.8145	625	0.8263	323.1882	780	0.0147	5.7512
475	0.3455	135.1263	630	0.7805	305.2766	785	0.0129	5.0627
480	0.2897	113.3244	635	0.7287	285.0064	790	0.0108	4.2307
485	0.2861	111.9032	640	0.6711	262.4919	795	0.0096	3.7393
490	0.3074	120.2377	645	0.6141	240.2010	800	0.0084	3.2948
495	0.3497	136.7913	650	0.5568	217.7710			
500	0.4033	157.7327	655	0.4989	195.1122			
505	0.4536	177.3934	660	0.4435	173.4542			
510	0.4991	195.2014	665	0.3914	153.0783			
515	0.5328	208.3745	670	0.3439	134.4992			
520	0.5599	218.9982	675	0.3002	117.4154			
525	0.5806	227.0762	680	0.2608	102.0202			
530	0.5975	233.6962	685	0.2249	87.9622			

TM30

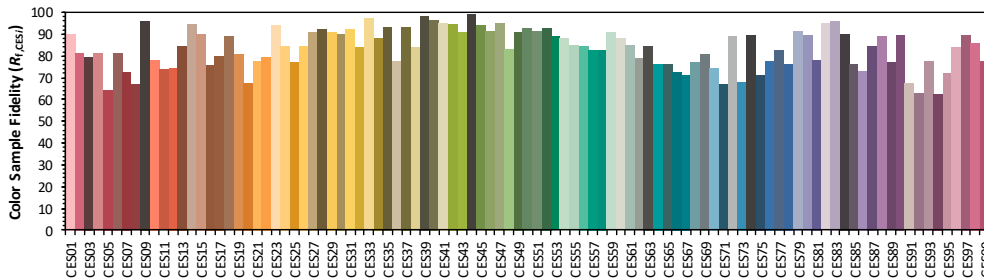
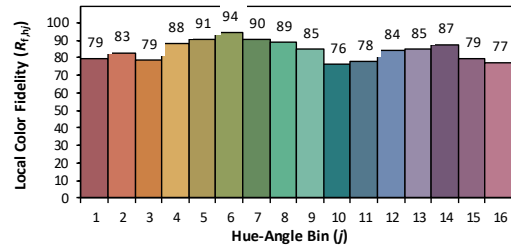
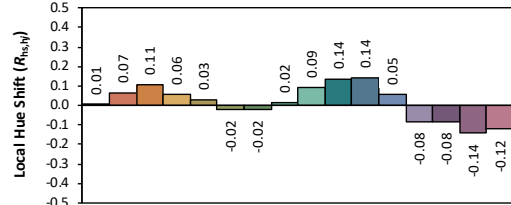
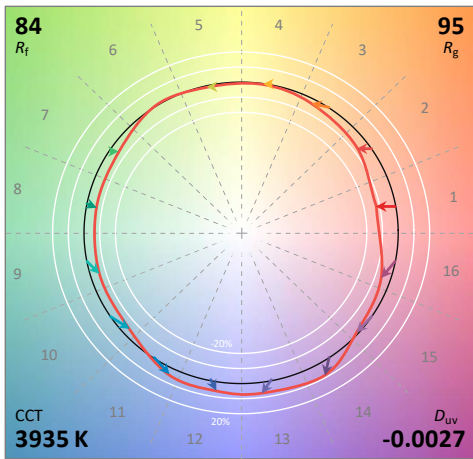
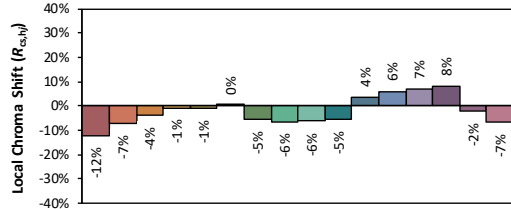
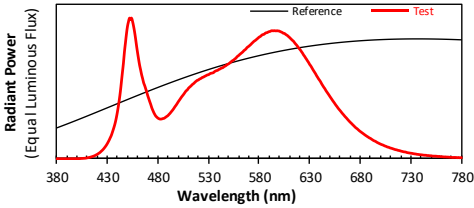
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-3080RC35003P1
L128-5080RC35003P1

Date: 2023-03-30

Manufacturer: RAB LIGHTING

Model: HIDFA-120S-EX39-8CCT-BYP/480V @120W 4000K



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

x 0.3814
 y 0.3716
 u' 0.2278
 v' 0.4994

CIE 13.3-1995 (CRI)	
R_a	84
R_9	9

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	2023-03-30	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @120W 5000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230303	277.0	60	0.448	120.87	0.974	15.91
3E-A1	480.0	60	0.280	123.46	0.918	15.93
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

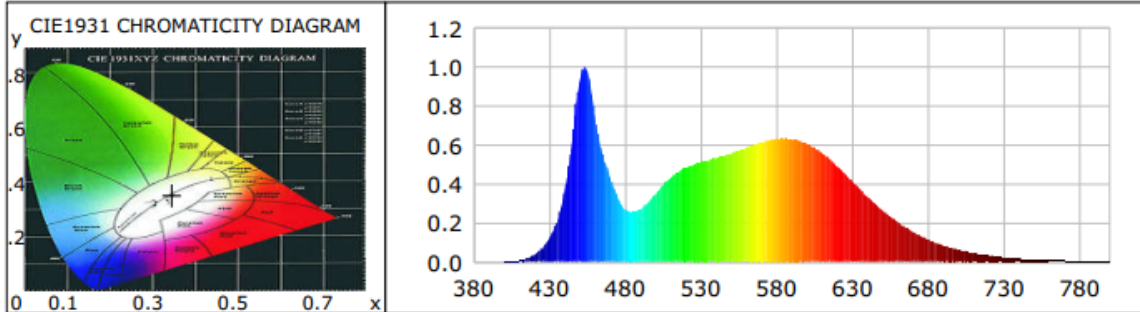
Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia THD 400S A15 TB:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	81	R9	0
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	5015	R3	94	R11	80
Duv	0.0005	R4	81	R12	62
Chromaticity (x, y)	x=0.3448 y=0.3523	R5	81	R13	83
Chromaticity (u', v')	u(u')=0.2109 v'(v')=0.4850	R6	85	R14	97
Color Rendering Index (CRI)	82	R7	84	R15	75
R9	0	R8	64	--	--
Rf	83	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-14	--	--	--	--

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

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	15743.3	15835.0	>=10000(-10%)
Luminous Efficacy (lm/W)	130.25	128.26	Standard: >= 120(-3%)
Most worst Luminous/Highest	127.52		

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	0.1245	535	0.5005	254.5863	690	0.1534	78.0390
385	0.0005	0.2462	540	0.5107	259.8062	695	0.1334	67.8739
390	0.0008	0.3933	545	0.5214	265.2111	700	0.1152	58.6141
395	0.0006	0.3086	550	0.5345	271.8932	705	0.0984	50.0750
400	0.0014	0.7309	555	0.5431	276.2856	710	0.0845	42.9979
405	0.0030	1.5482	560	0.5567	283.2100	715	0.0725	36.8967
410	0.0072	3.6647	565	0.5699	289.9006	720	0.0620	31.5444
415	0.0173	8.7840	570	0.5870	298.5787	725	0.0534	27.1813
420	0.0356	18.0900	575	0.5999	305.1577	730	0.0450	22.8973
425	0.0671	34.1143	580	0.6126	311.6198	735	0.0392	19.9456
430	0.1198	60.9225	585	0.6243	317.5902	740	0.0328	16.6717
435	0.2069	105.2269	590	0.6328	321.9164	745	0.0284	14.4345
440	0.3555	180.8256	595	0.6340	322.4926	750	0.0238	12.1165
445	0.6218	316.3198	600	0.6313	321.1372	755	0.0204	10.3739
450	0.9247	470.3694	605	0.6223	316.5705	760	0.0173	8.7795
455	0.9810	499.0244	610	0.6071	308.8422	765	0.0144	7.3407
460	0.7562	384.6819	615	0.5851	297.6556	770	0.0129	6.5872
465	0.5539	281.7381	620	0.5577	283.7028	775	0.0114	5.8197
470	0.4371	222.3338	625	0.5265	267.8232	780	0.0088	4.4690
475	0.3322	168.9989	630	0.4890	248.7629	785	0.0077	3.9343
480	0.2683	136.4937	635	0.4516	229.7277	790	0.0075	3.8307
485	0.2568	130.6111	640	0.4104	208.7642	795	0.0059	3.0225
490	0.2718	138.2594	645	0.3727	189.6033	800	0.0045	2.3142
495	0.3036	154.4551	650	0.3347	170.2567			
500	0.3483	177.1702	655	0.2977	151.4579			
505	0.3923	199.5448	660	0.2641	134.3612			
510	0.4316	219.5386	665	0.2324	118.2434			
515	0.4604	234.1843	670	0.2034	103.4652			
520	0.4825	245.4600	675	0.1766	89.8226			
525	0.5005	254.5863	680	0.1534	78.0390			
530	0.5107	259.8062	685	0.1334	67.8739			

TM-30

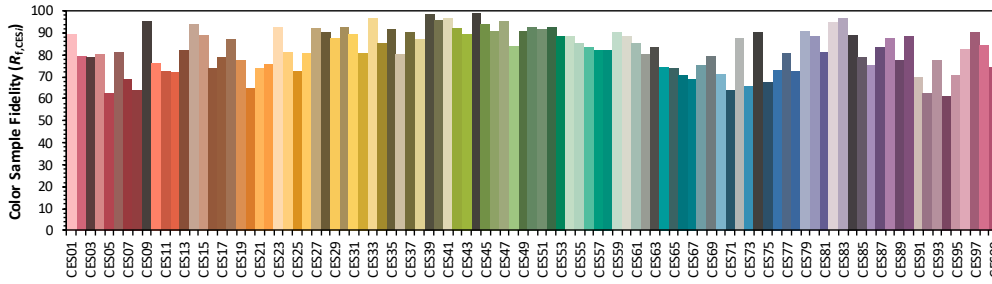
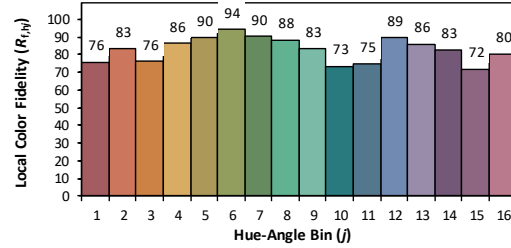
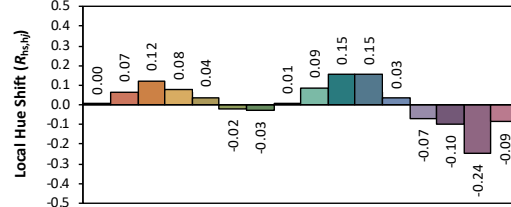
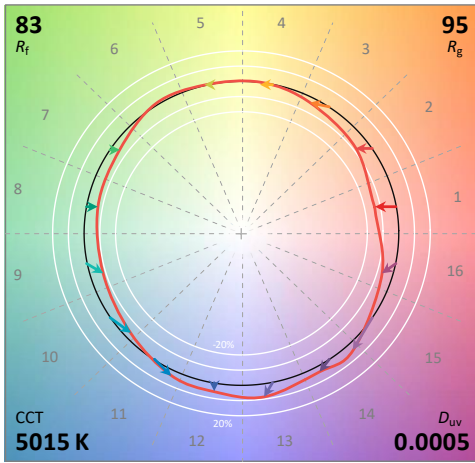
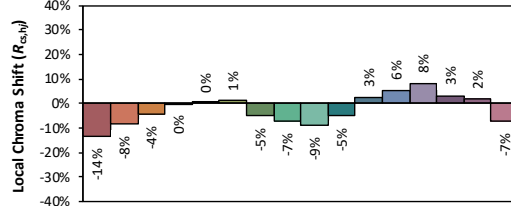
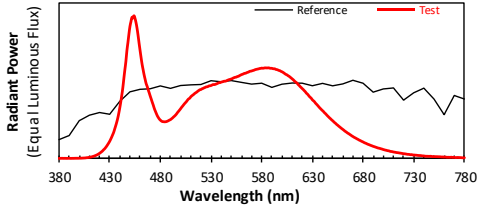
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-5080RC35003P1

Manufacturer: RAB LIGHTING INC

Date: 2023/3/30

Model: HIDFA-120S-EX39-8CCT-BYP/480V @120W 5000K



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

x 0.3448
 y 0.3523
 u' 0.2109
 v' 0.4850

CIE 13.3-1995 (CRI)	
R_a	82
R_9	0

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	2023-01-17
AC Power Source	CHP-500C	DYBWD010159	2023-01-18
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2023-02-01
Digital Power Meter	WT500	DYDWQ20010	2023-01-18
Integral Sphere (2M)	2M	DYJCE120067	2023-01-17
Digital Power Meter	WT500	DYDWQ200006	2023-01-18
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2023-01-17

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 *****

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-20	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @90W 3000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
	277.0	60	0.333	89.25	0.969	18.5
	480.0	60	0.210	92.01	0.911	20.3
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

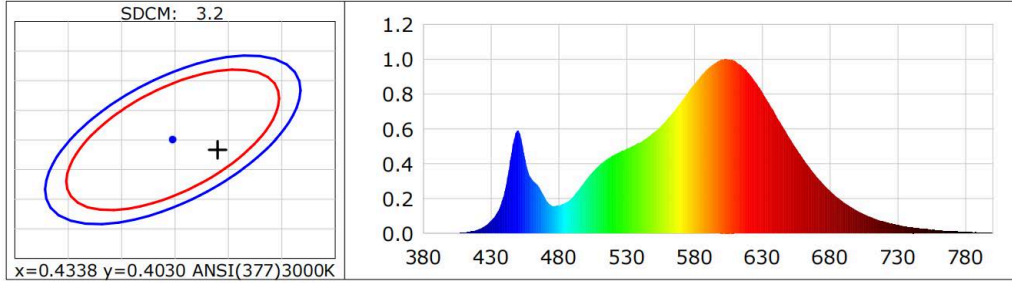
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	80	R9	1
Frequency (Hz)	60	R2	90	R10	79
CCT (K)	2959	R3	96	R11	80
Duv	-0.00125	R4	80	R12	72
Chromaticity (x, y)	x=0.4380 y=0.4013	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2525 v'=0.5204	R6	89	R14	98
Color Rendering Index (CRI)	81.5	R7	80	R15	72
R9	1	R8	56	--	--
Rf	83	--	--	--	--
Rg	97	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S

A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	14352.7	14456.7	>=10000(-10%)
Luminous Efficacy (lm/W)	160.80	160.63	Standard: >= 120(-3%)
Most worst Luminous/Highest	159.71		
Zonal lumens in the 20-50° (%)	14.6	--	>=30(-10%)
Beam Angle (°)	160.0	--	--
Center Beam Candle Power (cd)	718.0	--	--

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	0.0758	525	0.4676	160.0570	670	0.3253	111.3708
385	0.0001	0.0302	530	0.4860	166.3668	675	0.2820	96.5218
390	0.0001	0.0484	535	0.5040	172.5329	680	0.2427	83.0674
395	0.0007	0.2295	540	0.5229	178.9991	685	0.2079	71.1807
400	0.0002	0.0571	545	0.5496	188.1278	690	0.1787	61.1571
405	0.0009	0.3042	550	0.5808	198.8143	695	0.1536	52.5894
410	0.0042	1.4294	555	0.6148	210.4445	700	0.1302	44.5618
415	0.0104	3.5629	560	0.6588	225.5095	705	0.1104	37.8024
420	0.0216	7.4070	565	0.7032	240.7238	710	0.0941	32.2220
425	0.0408	13.9562	570	0.7535	257.9261	715	0.0793	27.1561
430	0.0746	25.5263	575	0.8093	277.0499	720	0.0671	22.9718
435	0.1290	44.1555	580	0.8581	293.7357	725	0.0567	19.3961
440	0.2445	83.7013	585	0.9076	310.6998	730	0.0476	16.2865
445	0.4646	159.0263	590	0.9481	324.5396	735	0.0407	13.9293
450	0.5925	202.8104	595	0.9781	334.8156	740	0.0339	11.5993
455	0.4264	145.9783	600	0.9967	341.1946	745	0.0284	9.7364
460	0.3106	106.3401	605	0.9982	341.7008	750	0.0249	8.5130
465	0.2688	92.0283	610	0.9905	339.0800	755	0.0198	6.7673
470	0.1989	68.0887	615	0.9597	328.5100	760	0.0169	5.7955
475	0.1576	53.9603	620	0.9199	314.9017	765	0.0155	5.2988
480	0.1597	54.6593	625	0.8693	297.5914	770	0.0130	4.4409
485	0.1761	60.2797	630	0.8109	277.5921	775	0.0093	3.1853
490	0.2077	71.1151	635	0.7461	255.4235	780	0.0077	2.6323
495	0.2560	87.6214	640	0.6805	232.9553	785	0.0068	2.3230
500	0.3075	105.2506	645	0.6130	209.8570	790	0.0052	1.7834
505	0.3544	121.3122	650	0.5478	187.5401	795	0.0036	1.2377
510	0.3931	134.5772	655	0.4858	166.2894	800	0.0027	0.9265
515	0.4252	145.5410	660	0.4296	147.0773			
520	0.4485	153.5464	665	0.3759	128.6710			

TM30

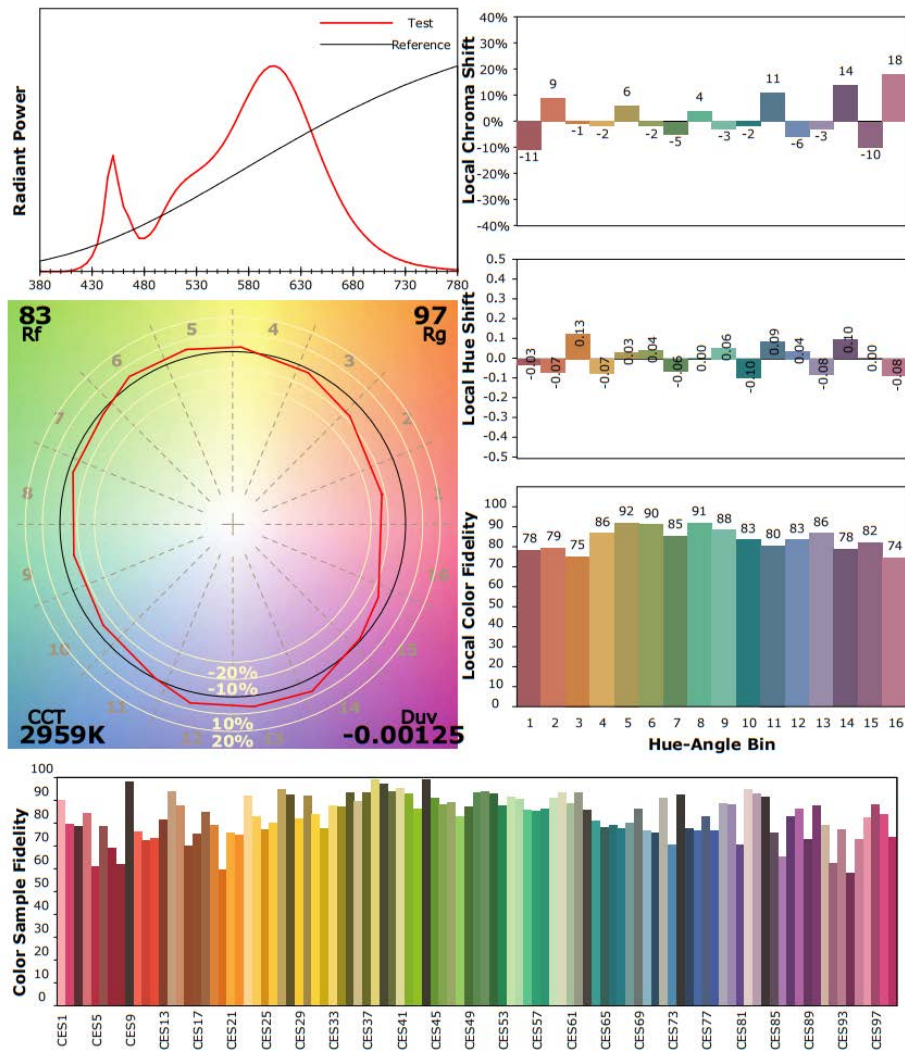
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-3080RC35003P1

Manufacturer: RAB LIGHTING INC

Date: 2024/09/20

Model: HIDFA-120S-EX39-8CCTBYP/480V @90W 3000K



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

x 0.4380
 y 0.4013
 u' 0.2525
 v' 0.5204

(CRI)	
R_a	81.5
R_9	1

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-20	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP /480V @90W 4000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
	277.0	60	0.325	87.05	0.969	18.9
	480.0	60	0.201	91.89	0.907	21.4
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

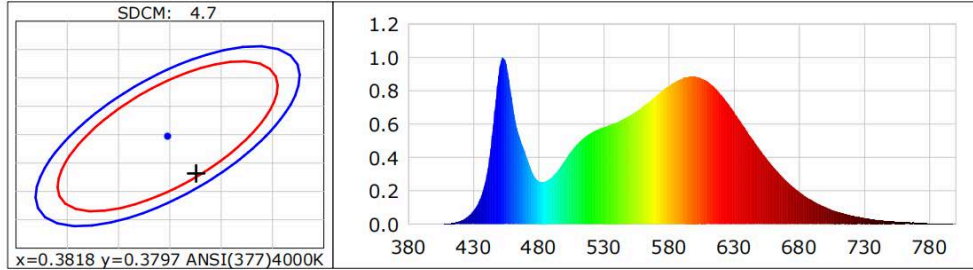
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	83	R9	12
Frequency (Hz)	60	R2	92	R10	80
CCT (K)	3861	R3	96	R11	82
Duv	-0.00287	R4	82	R12	64
Chromaticity (x, y)	x=0.3846 y=0.3732	R5	84	R13	86
Chromaticity (u', v')	u(u')=0.2293 v'(v')=0.5006	R6	88	R14	98
Color Rendering Index (CRI)	84.1	R7	84	R15	78
R9	12	R8	64	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-11	--	--	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S

A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	15146.6	15336.4	>= 10000(-10%)
Luminous Efficacy (lm/W)	173.99	172.32	Standard: >= 120(-3%)
Most worst Luminous/Highest	170.57		

Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0000	0.0104	525	0.5669	201.7173	670	0.2590	92.1454
385	0.0003	0.1193	530	0.5829	207.4181	675	0.2241	79.7380
390	0.0004	0.1418	535	0.5961	212.0926	680	0.1933	68.7882
395	0.0006	0.2276	540	0.6101	217.0873	685	0.1651	58.7587
400	0.0003	0.1102	545	0.6311	224.5547	690	0.1421	50.5589
405	0.0016	0.5530	550	0.6528	232.2816	695	0.1196	42.5453
410	0.0037	1.3120	555	0.6787	241.4853	700	0.1026	36.5163
415	0.0090	3.2002	560	0.7080	251.9351	705	0.0862	30.6777
420	0.0208	7.4158	565	0.7353	261.6539	710	0.0734	26.1011
425	0.0426	15.1585	570	0.7678	273.1942	715	0.0622	22.1184
430	0.0836	29.7579	575	0.8025	285.5629	720	0.0524	18.6422
435	0.1536	54.6664	580	0.8297	295.2424	725	0.0439	15.6132
440	0.2973	105.7911	585	0.8550	304.2358	730	0.0365	13.0002
445	0.5981	212.8245	590	0.8727	310.5448	735	0.0310	11.0262
450	0.9469	336.9267	595	0.8841	314.5956	740	0.0258	9.1776
455	0.9598	341.5105	600	0.8866	315.4702	745	0.0212	7.5460
460	0.7122	253.4172	605	0.8718	310.1945	750	0.0185	6.5667
465	0.5254	186.9383	610	0.8535	303.7114	755	0.0142	5.0434
470	0.4155	147.8592	615	0.8182	291.1471	760	0.0125	4.4604
475	0.3086	109.8170	620	0.7753	275.8734	765	0.0108	3.8604
480	0.2569	91.4058	625	0.7261	258.3685	770	0.0099	3.5195
485	0.2561	91.1183	630	0.6720	239.1254	775	0.0074	2.6287
490	0.2814	100.1188	635	0.6144	218.6175	780	0.0058	2.0598
495	0.3258	115.9365	640	0.5558	197.7639	785	0.0049	1.7511
500	0.3826	136.1538	645	0.4979	177.1666	790	0.0036	1.2803
505	0.4379	155.8047	650	0.4434	157.7725	795	0.0042	1.4911
510	0.4834	172.0164	655	0.3906	138.9748	800	0.0018	0.6516
515	0.5204	185.1573	660	0.3425	121.8783			
520	0.5462	194.3630	665	0.2991	106.4318			

TM30

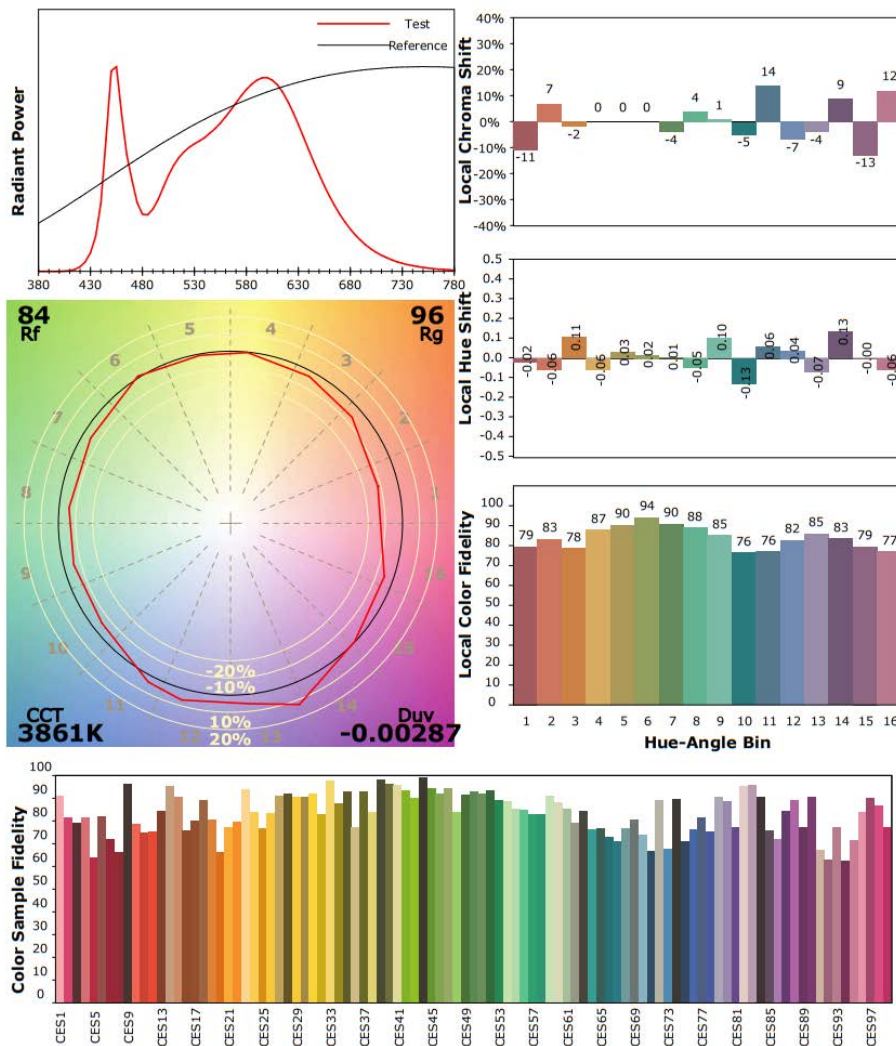
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-4080RC35003P1

Manufacturer: RAB LIGHTING INC

Date: 2024/09/20

Model: HIDFA-120S-EX39-8CCT-BYP/480V @90W 4000K



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

x 0.3846
 y 0.3732
 u' 0.2293
 v' 0.5006

(CRI)
 R_a 84.1
 R_g 12

2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-20	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @90W 5000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230404	277.0	60	0.332	88.95	0.969	18.8
1E-A3	480.0	60	0.212	92.11	0.913	21.3
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

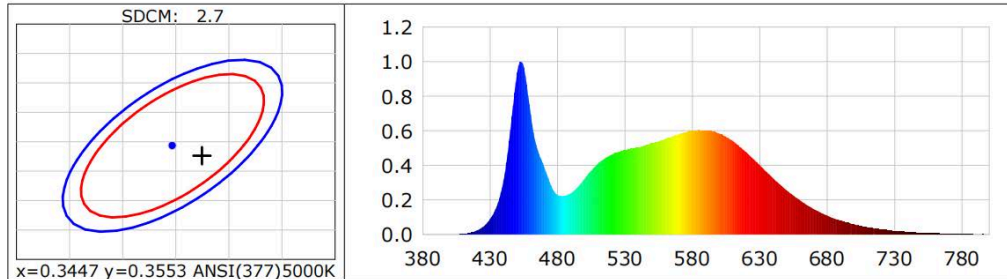
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	81	R9	3
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	4918	R3	94	R11	79
Duv	0.00004	R4	80	R12	55
Chromaticity (x, y)	x=0.3475 y=0.3536	R5	81	R13	83
Chromaticity (u', v')	u(u')=0.2123 v'(v')=0.4860	R6	84	R14	97
Color Rendering Index (CRI)	82.3	R7	85	R15	75
R9	3	R8	65	--	--
Rf	82	--	--	--	--
Rg	93	--	--	--	--
Rcs,h1(%)	-11	--	--	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S

A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	15102.8	15009.9	>= 10000(-10%)
Luminous Efficacy (lm/W)	169.78	168.65	Standard: >= 120(-3%)
Most worst Luminous/Highest	168.64		

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	0.1788	525	0.4770	225.9805	670	0.1470	69.6558
385	0.0004	0.1744	530	0.4891	231.6937	675	0.1274	60.3795
390	0.0001	0.0314	535	0.4968	235.3530	680	0.1094	51.8498
395	0.0005	0.2143	540	0.5041	238.8159	685	0.0932	44.1561
400	0.0002	0.0835	545	0.5176	245.1976	690	0.0803	38.0609
405	0.0015	0.7254	550	0.5278	250.0287	695	0.0684	32.4121
410	0.0035	1.6512	555	0.5405	256.0754	700	0.0582	27.5878
415	0.0098	4.6283	560	0.5554	263.1054	705	0.0495	23.4526
420	0.0231	10.9271	565	0.5666	268.4306	710	0.0411	19.4700
425	0.0464	21.9934	570	0.5794	274.4785	715	0.0350	16.5599
430	0.0915	43.3428	575	0.5924	280.6493	720	0.0302	14.2992
435	0.1672	79.2356	580	0.5992	283.8642	725	0.0250	11.8404
440	0.3176	150.4549	585	0.6035	285.9026	730	0.0210	9.9479
445	0.6073	287.7118	590	0.6021	285.2687	735	0.0175	8.2991
450	0.9384	444.5525	595	0.5957	282.2262	740	0.0147	6.9829
455	0.9655	457.4052	600	0.5842	276.7690	745	0.0124	5.8947
460	0.6957	329.6039	605	0.5641	267.2393	750	0.0099	4.6680
465	0.4932	233.6810	610	0.5414	256.4884	755	0.0081	3.8410
470	0.3904	184.9692	615	0.5077	240.5508	760	0.0075	3.5336
475	0.2855	135.2503	620	0.4766	225.7857	765	0.0065	3.1025
480	0.2286	108.3222	625	0.4388	207.8745	770	0.0060	2.8366
485	0.2228	105.5527	630	0.4004	189.6706	775	0.0044	2.0795
490	0.2402	113.7992	635	0.3622	171.5868	780	0.0021	0.9978
495	0.2747	130.1301	640	0.3242	153.5693	785	0.0024	1.1179
500	0.3221	152.6093	645	0.2880	136.4334	790	0.0017	0.7853
505	0.3696	175.0823	650	0.2545	120.5948	795	0.0018	0.8360
510	0.4102	194.3214	655	0.2243	106.2721	800	0.0010	0.4566
515	0.4401	208.5184	660	0.1959	92.8099			
520	0.4611	218.4473	665	0.1702	80.6273			

TM-30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-5080RC35003P1

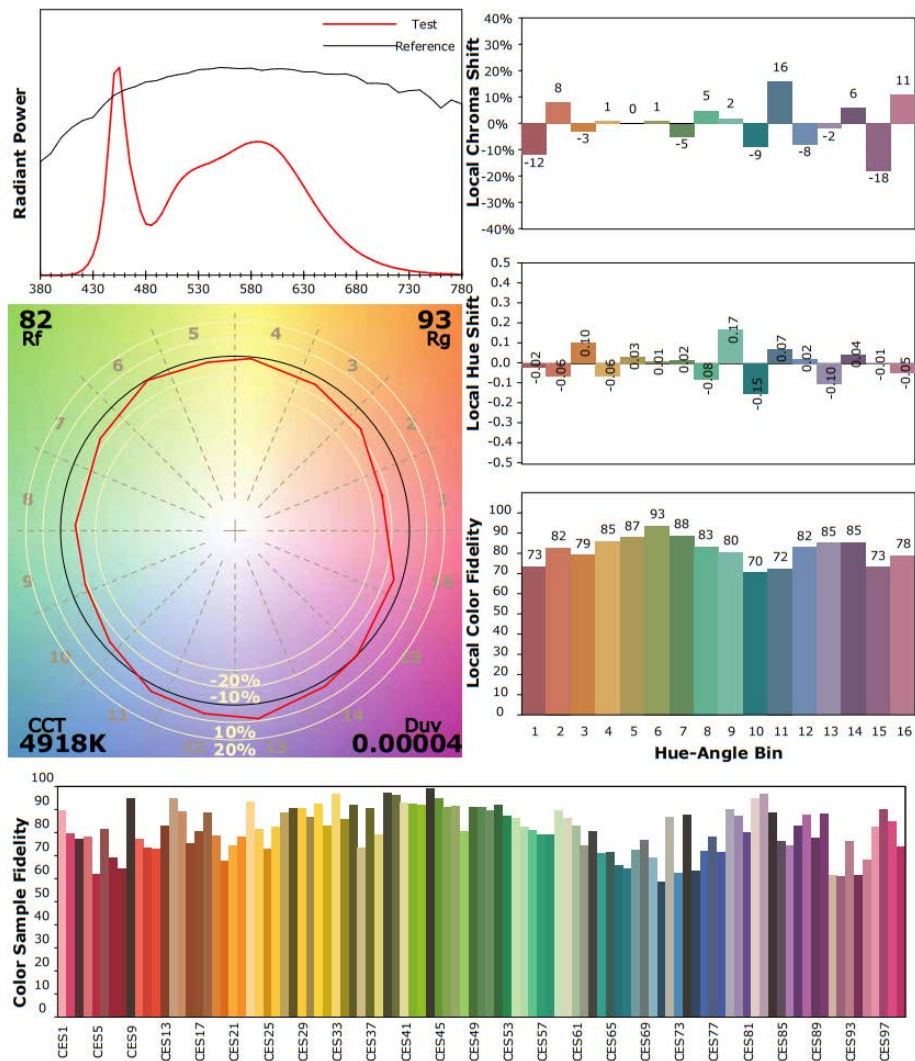
Manufacturer: RAB LIGHTING INC

Date: 2024/11/29

Model:

HIDFA-120S-EX39-8CCT-BYP/480V

@90 5000K



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

x 0.3475
 y 0.3536
 u' 0.2123
 v' 0.4860

(CRI)	
R_a	82.3
R_g	3

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-20	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @60W 3000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
	277.0	60	0.222	59.09	0.943	19.1
	480.0	60	0.155	62.21	0.832	30.5
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

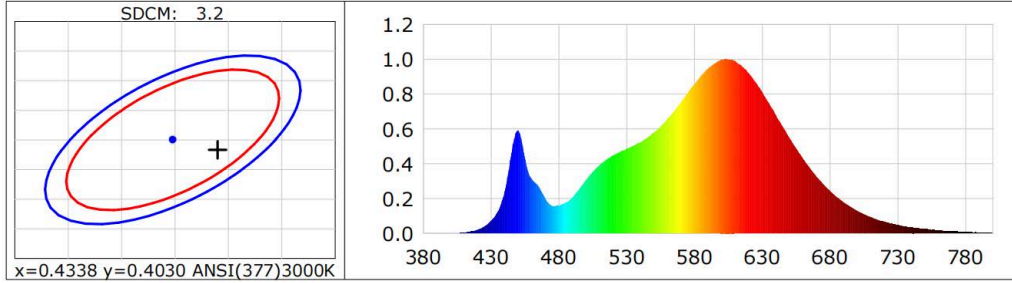
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	80	R9	1
Frequency (Hz)	60	R2	90	R10	79
CCT (K)	2959	R3	96	R11	80
Duv	-0.00125	R4	80	R12	72
Chromaticity (x, y)	x=0.4380 y=0.4013	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2525 v'(v')=0.5204	R6	89	R14	98
Color Rendering Index (CRI)	81.5	R7	80	R15	72
R9	1	R8	56	--	--
Rf	83	--	--	--	--
Rg	97	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S

A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	9720.5	10013.4	>=10000(-10%)
Luminous Efficacy (lm/W)	167.33	166.89	Standard: >= 120(-3%)
Most worst Luminous/Highest	166.6		
Zonal lumens in the 20-50° (%)	14.6	--	>=30(-10%)
Beam Angle (°)	158.0	--	--
Center Beam Candle Power (cd)	477.6	--	--

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	0.0758	525	0.4676	160.0570	670	0.3253	111.3708
385	0.0001	0.0302	530	0.4860	166.3668	675	0.2820	96.5218
390	0.0001	0.0484	535	0.5040	172.5329	680	0.2427	83.0674
395	0.0007	0.2295	540	0.5229	178.9991	685	0.2079	71.1807
400	0.0002	0.0571	545	0.5496	188.1278	690	0.1787	61.1571
405	0.0009	0.3042	550	0.5808	198.8143	695	0.1536	52.5894
410	0.0042	1.4294	555	0.6148	210.4445	700	0.1302	44.5618
415	0.0104	3.5629	560	0.6588	225.5095	705	0.1104	37.8024
420	0.0216	7.4070	565	0.7032	240.7238	710	0.0941	32.2220
425	0.0408	13.9562	570	0.7535	257.9261	715	0.0793	27.1561
430	0.0746	25.5263	575	0.8093	277.0499	720	0.0671	22.9718
435	0.1290	44.1555	580	0.8581	293.7357	725	0.0567	19.3961
440	0.2445	83.7013	585	0.9076	310.6998	730	0.0476	16.2865
445	0.4646	159.0263	590	0.9481	324.5396	735	0.0407	13.9293
450	0.5925	202.8104	595	0.9781	334.8156	740	0.0339	11.5993
455	0.4264	145.9783	600	0.9967	341.1946	745	0.0284	9.7364
460	0.3106	106.3401	605	0.9982	341.7008	750	0.0249	8.5130
465	0.2688	92.0283	610	0.9905	339.0800	755	0.0198	6.7673
470	0.1989	68.0887	615	0.9597	328.5100	760	0.0169	5.7955
475	0.1576	53.9603	620	0.9199	314.9017	765	0.0155	5.2988
480	0.1597	54.6593	625	0.8693	297.5914	770	0.0130	4.4409
485	0.1761	60.2797	630	0.8109	277.5921	775	0.0093	3.1853
490	0.2077	71.1151	635	0.7461	255.4235	780	0.0077	2.6323
495	0.2560	87.6214	640	0.6805	232.9553	785	0.0068	2.3230
500	0.3075	105.2506	645	0.6130	209.8570	790	0.0052	1.7834
505	0.3544	121.3122	650	0.5478	187.5401	795	0.0036	1.2377
510	0.3931	134.5772	655	0.4858	166.2894	800	0.0027	0.9265
515	0.4252	145.5410	660	0.4296	147.0773			
520	0.4485	153.5464	665	0.3759	128.6710			

TM30

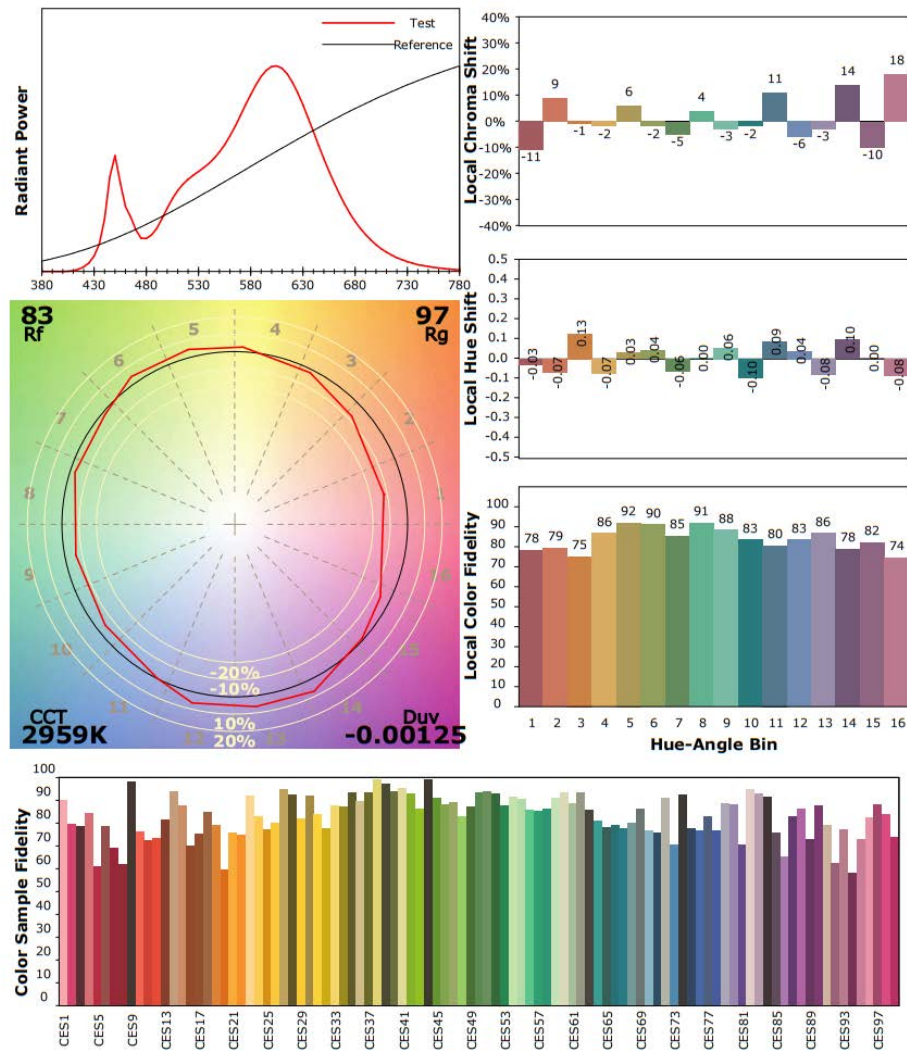
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-3080RC35003P1

Manufacturer: RAB LIGHTING INC

Date: 2024/09/20

Model: HIDFA-120S-EX39-8CCTBYP/480V
@60W 3000K



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

x 0.4380
 y 0.4013
 u' 0.2525
 v' 0.5204

(CRI)	
R_a	81.5
R_9	1

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-20	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP /480V @60W 4000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
	277.0	60	0.219	56.96	0.940	19.3
	480.0	60	0.153	61.92	0.897	30.6
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

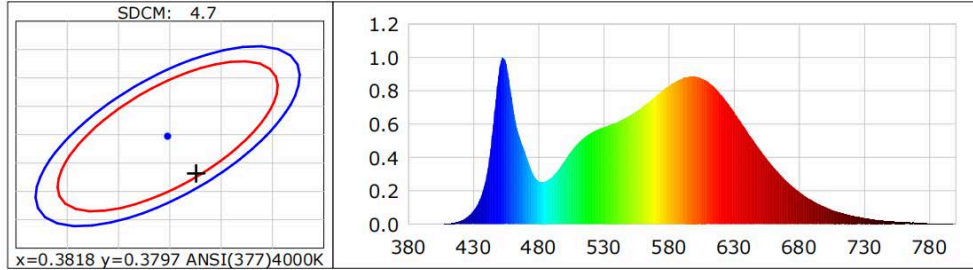
Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia THD 400S A15 TB:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	83	R9	12
Frequency (Hz)	60	R2	92	R10	80
CCT (K)	3861	R3	96	R11	82
Duv	-0.00287	R4	82	R12	64
Chromaticity (x, y)	x=0.3846 y=0.3732	R5	84	R13	86
Chromaticity (u', v')	u(u')=0.2293 v'(v')=0.5006	R6	88	R14	98
Color Rendering Index (CRI)	84.1	R7	84	R15	78
R9	12	R8	64	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-11	--	--	--	--

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

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	10145.3	10643.4	>= 10000(-10%)
Luminous Efficacy (lm/W)	178.10	177.39	Standard: >= 120(-3%)
Most worst Luminous/Highest	176.5		

Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0000	0.0104	525	0.5669	201.7173	670	0.2590	92.1454
385	0.0003	0.1193	530	0.5829	207.4181	675	0.2241	79.7380
390	0.0004	0.1418	535	0.5961	212.0926	680	0.1933	68.7882
395	0.0006	0.2276	540	0.6101	217.0873	685	0.1651	58.7587
400	0.0003	0.1102	545	0.6311	224.5547	690	0.1421	50.5589
405	0.0016	0.5530	550	0.6528	232.2816	695	0.1196	42.5453
410	0.0037	1.3120	555	0.6787	241.4853	700	0.1026	36.5163
415	0.0090	3.2002	560	0.7080	251.9351	705	0.0862	30.6777
420	0.0208	7.4158	565	0.7353	261.6539	710	0.0734	26.1011
425	0.0426	15.1585	570	0.7678	273.1942	715	0.0622	22.1184
430	0.0836	29.7579	575	0.8025	285.5629	720	0.0524	18.6422
435	0.1536	54.6664	580	0.8297	295.2424	725	0.0439	15.6132
440	0.2973	105.7911	585	0.8550	304.2358	730	0.0365	13.0002
445	0.5981	212.8245	590	0.8727	310.5448	735	0.0310	11.0262
450	0.9469	336.9267	595	0.8841	314.5956	740	0.0258	9.1776
455	0.9598	341.5105	600	0.8866	315.4702	745	0.0212	7.5460
460	0.7122	253.4172	605	0.8718	310.1945	750	0.0185	6.5667
465	0.5254	186.9383	610	0.8535	303.7114	755	0.0142	5.0434
470	0.4155	147.8592	615	0.8182	291.1471	760	0.0125	4.4604
475	0.3086	109.8170	620	0.7753	275.8734	765	0.0108	3.8604
480	0.2569	91.4058	625	0.7261	258.3685	770	0.0099	3.5195
485	0.2561	91.1183	630	0.6720	239.1254	775	0.0074	2.6287
490	0.2814	100.1188	635	0.6144	218.6175	780	0.0058	2.0598
495	0.3258	115.9365	640	0.5558	197.7639	785	0.0049	1.7511
500	0.3826	136.1538	645	0.4979	177.1666	790	0.0036	1.2803
505	0.4379	155.8047	650	0.4434	157.7725	795	0.0042	1.4911
510	0.4834	172.0164	655	0.3906	138.9748	800	0.0018	0.6516
515	0.5204	185.1573	660	0.3425	121.8783			
520	0.5462	194.3630	665	0.2991	106.4318			

TM30

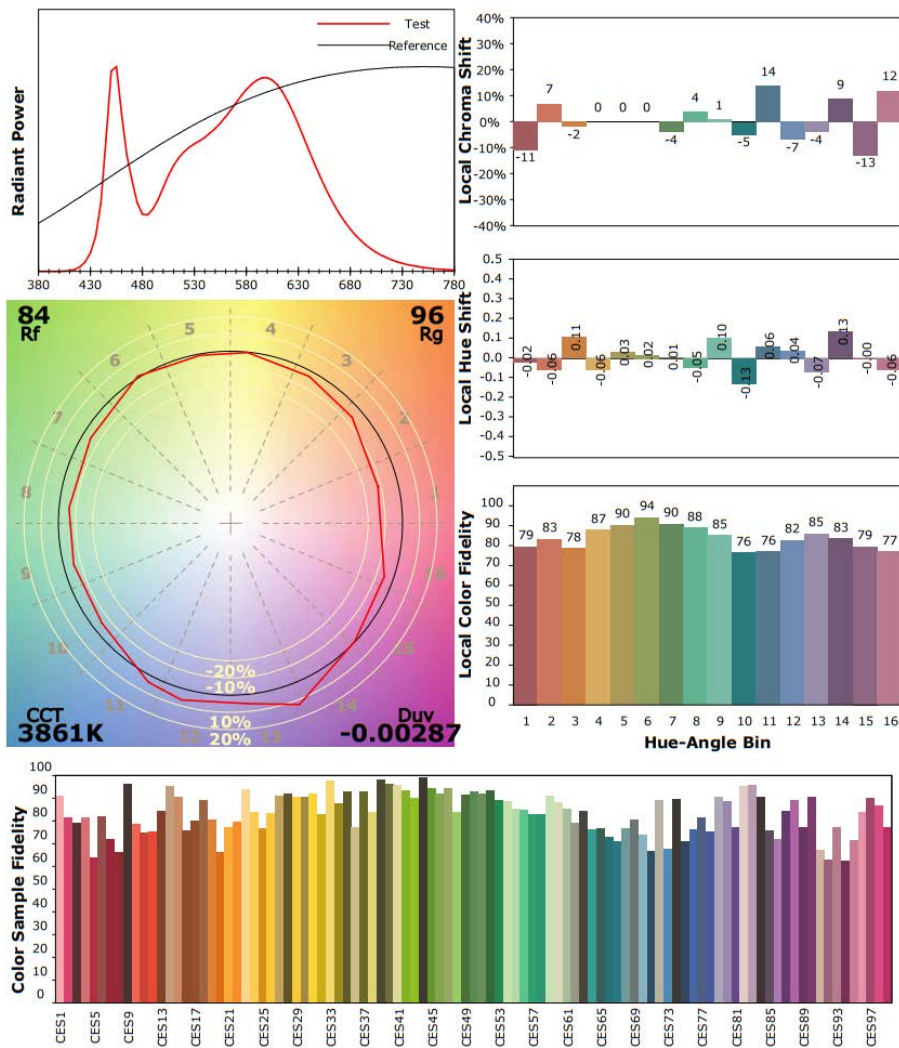
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-4080RC35003P1

Manufacturer: RAB LIGHTING INC

Date: 2024/09/20

Model: HIDFA-120S-EX39-8CCT-BYP/480V @60W 4000K



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

x 0.3846
 y 0.3732
 u' 0.2293
 v' 0.5006

(CRI)
 R_a 84.1
 R_g 12

2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2024-09-20	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	HIDFA-120S-EX39-8CCT-BYP/480V @60W 5000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230404	277.0	60	0.222	57.972	0.942	19.2
1E-A3	480.0	60	0.155	62.010	0.830	30.5
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia

THD 400S A15 TB:

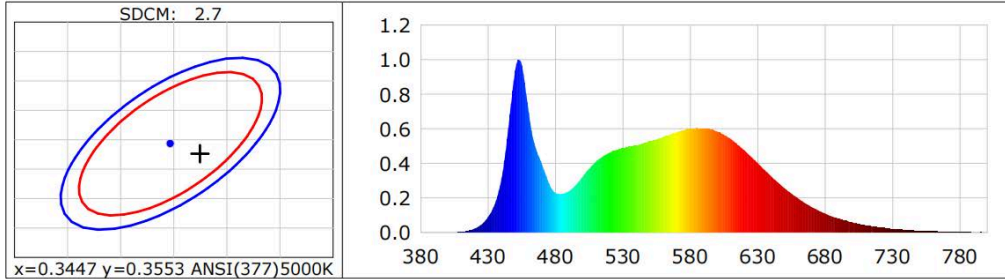
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	81	R9	3
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	4918	R3	94	R11	79
Duv	0.00004	R4	80	R12	55
Chromaticity (x, y)	x=0.3475 y=0.3536	R5	81	R13	83
Chromaticity (u', v')	u(u')=0.2123 v'(v')=0.4860	R6	84	R14	97
Color Rendering Index (CRI)	82.3	R7	85	R15	75
R9	3	R8	65	--	--
Rf	82	--	--	--	--
Rg	93	--	--	--	--
Rcs,h1(%)	-11	--	--	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S

A15 TB:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	277.0	480.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	10293.9	10608.6	>= 10000(-10%)
Luminous Efficacy (lm/W)	177.57	176.81	Standard: >= 120(-3%)
Most worst Luminous/Highest	165.94		

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	0.1788	525	0.4770	225.9805	670	0.1470	69.6558
385	0.0004	0.1744	530	0.4891	231.6937	675	0.1274	60.3795
390	0.0001	0.0314	535	0.4968	235.3530	680	0.1094	51.8498
395	0.0005	0.2143	540	0.5041	238.8159	685	0.0932	44.1561
400	0.0002	0.0835	545	0.5176	245.1976	690	0.0803	38.0609
405	0.0015	0.7254	550	0.5278	250.0287	695	0.0684	32.4121
410	0.0035	1.6512	555	0.5405	256.0754	700	0.0582	27.5878
415	0.0098	4.6283	560	0.5554	263.1054	705	0.0495	23.4526
420	0.0231	10.9271	565	0.5666	268.4306	710	0.0411	19.4700
425	0.0464	21.9934	570	0.5794	274.4785	715	0.0350	16.5599
430	0.0915	43.3428	575	0.5924	280.6493	720	0.0302	14.2992
435	0.1672	79.2356	580	0.5992	283.8642	725	0.0250	11.8404
440	0.3176	150.4549	585	0.6035	285.9026	730	0.0210	9.9479
445	0.6073	287.7118	590	0.6021	285.2687	735	0.0175	8.2991
450	0.9384	444.5525	595	0.5957	282.2262	740	0.0147	6.9829
455	0.9655	457.4052	600	0.5842	276.7690	745	0.0124	5.8947
460	0.6957	329.6039	605	0.5641	267.2393	750	0.0099	4.6680
465	0.4932	233.6810	610	0.5414	256.4884	755	0.0081	3.8410
470	0.3904	184.9692	615	0.5077	240.5508	760	0.0075	3.5336
475	0.2855	135.2503	620	0.4766	225.7857	765	0.0065	3.1025
480	0.2286	108.3222	625	0.4388	207.8745	770	0.0060	2.8366
485	0.2228	105.5527	630	0.4004	189.6706	775	0.0044	2.0795
490	0.2402	113.7992	635	0.3622	171.5868	780	0.0021	0.9978
495	0.2747	130.1301	640	0.3242	153.5693	785	0.0024	1.1179
500	0.3221	152.6093	645	0.2880	136.4334	790	0.0017	0.7853
505	0.3696	175.0823	650	0.2545	120.5948	795	0.0018	0.8360
510	0.4102	194.3214	655	0.2243	106.2721	800	0.0010	0.4566
515	0.4401	208.5184	660	0.1959	92.8099			
520	0.4611	218.4473	665	0.1702	80.6273			

TM-30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-5080RC35003P1

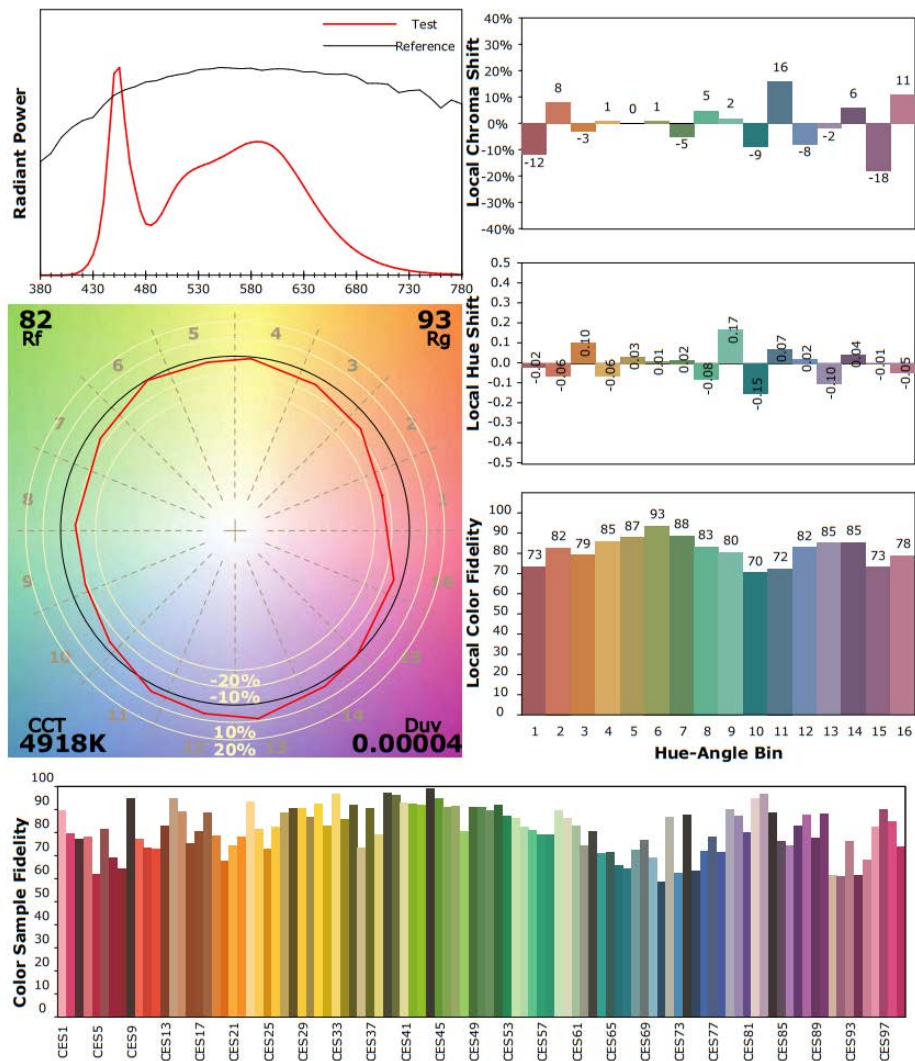
Manufacturer: RAB LIGHTING INC

Date: 2024/11/29

Model:

HIDFA-120S-EX39-8CCT-BYP/480V

@60 5000K



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

x 0.3475
 y 0.3536
 u' 0.2123
 v' 0.4860

(CRI)	
R_a	82.3
R_g	3