



Report No.:
BLC2110009E2-D-CP

LM-79-08 Test Report

For

IKIO LED LIGHTING, LLC

(Brand Name: IKIO)

8470 Allison Pointe Blvd, Suite 128 Indianapolis, IN 46250

Outdoor Full-Cutoff Wall-Mounted Area Luminaires

Model name(s): IK-FCWP-0100W-DL-30/40/50K-MVBR10SP

Remark: "a" can be any two letters for lamp colors, BR =brown, BH =black, WH = white

"b" can be "S" for Surge-Protective Device provided or blank for not provided;

"c" can be "AP", "DP" or blank for AC Photocell, DC Photocell or no Photocell provided;

"d" can be "M", "R", "Z", "ZM", "ZP" or blank for sensor function, "M" for motion microwave sensor, "R" for Motion PIR sensor, "Z" for DC Sensor Receptacle provided, "ZM" for DC Sensor Receptacle and DC motion microwave sensor provided, "ZP" for DC Sensor Receptacle and DC

Motion PIR sensor provided or blank for no sensor provided;

"e" can be any digits for CCT;

"W" for Wattage adjustable;

"g" can be "EM" for emergency driver provided or blank for not provided;

"h" can be "A" for DC sensor driver provided or blank for not provided.

Representative (Tested) Model:

IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W,3000K)

IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W,4000K)

IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W,5000K)

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

Test & Report By:

Review By:

Sophie Yang

Jason Luo

Engineer: Sophie Yang

Manager: Jason Luo

Date: 2021-11-03

Multiple listed report of BLC2110009E2-D, all construction and performance are the same except FALO function.

Laboratory: Belling Test 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



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1.1 Product Information:

Organization Name	IKIO LED LIGHTING, LLC	
Brand Name	IKIO	
Model Number	IK-FCWP-0100W-DL-30/40/50K-MVBR10SP	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Full-Cutoff Wall-Mounted Area Luminaires	
Rated Voltage / Frequency	120-277 VAC, 50/60 Hz	
Nominal Power	100W (Wattage adjustable)	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K,5000K(Color tunable)	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-XX80RA35000H1 L128-XX80RA35005A1	
Sample Number	BLC2110009E2-D1	
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	2021-10-10
Date of Test	2021-10-14
Test item	<ol style="list-style-type: none">1. Total Luminous Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. 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.

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.

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.



2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2021-10-14	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W, 3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC211000	120.0	60	0.852	102.01	0.998	5.68
9E2-D1	277.0	60	0.374	100.33	0.969	15.24
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)	3036
Duv	-0.0005
Chromaticity (x, y)	x=0.4337 y=0.4017
Chromaticity (u', v')	u(u')=0.2495 v'=0.5200
Color Rendering Index (CRI)	82
R9	2
Rf	84
Rg	96
Rcs,h1(%)	-12

Special Color Rendering Indices			
R1	80	R9	2
R2	90	R10	78
R3	96	R11	80
R4	81	R12	72
R5	81	R13	82
R6	89	R14	99
R7	81	R15	72
R8	57	--	--
--	--	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Goniophotometer Method:

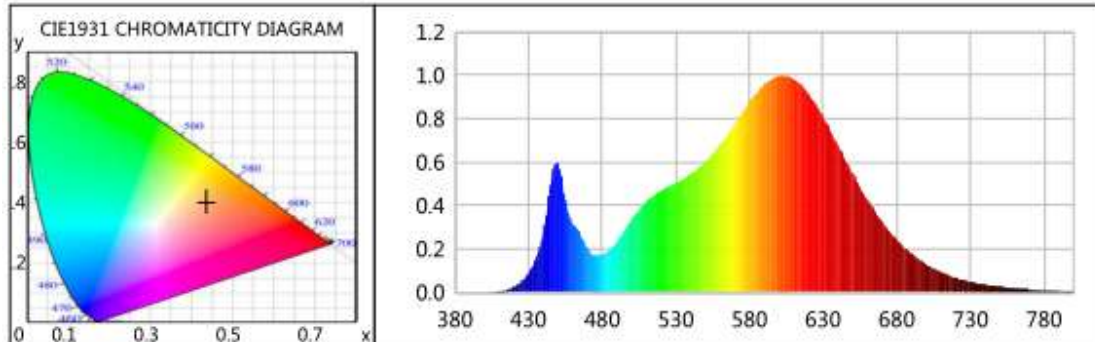
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	13735.2	13419.0	>=10000(-10%)
Luminous Efficacy (lm/W)	134.65	133.75	Premium: >= 120(-3%)
Most worst Luminous/Highest	131.55		
Zonal lumens in the 0-90° (%)	99.7	--	>=100(-3)
Zonal lumens in the 80-90°(%)	1.3	--	<=10(+3)
Beam Angle (°)	124.2	--	--
Center Beam Candle Power (cd)	3515	--	--



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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	0.0453	525	0.4870	151.0153	670	0.3231	100.2009
385	0.0000	0.0040	530	0.5034	156.0975	675	0.2801	86.8629
390	0.0003	0.1062	535	0.5233	162.2807	680	0.2426	75.2133
395	0.0003	0.0924	540	0.5460	169.3171	685	0.2066	64.0609
400	0.0008	0.2419	545	0.5692	176.5089	690	0.1766	54.7760
405	0.0023	0.7070	550	0.5991	185.7725	695	0.1516	47.0076
410	0.0053	1.6342	555	0.6359	197.1882	700	0.1287	39.8954
415	0.0112	3.4632	560	0.6769	209.8928	705	0.1099	34.0823
420	0.0240	7.4361	565	0.7254	224.9354	710	0.0925	28.6945
425	0.0475	14.7407	570	0.7725	239.5406	715	0.0796	24.6917
430	0.0874	27.1089	575	0.8252	255.8865	720	0.0675	20.9167
435	0.1535	47.5925	580	0.8757	271.5298	725	0.0569	17.6457
440	0.2742	85.0369	585	0.9175	284.5009	730	0.0475	14.7443
445	0.4939	153.1440	590	0.9562	296.4961	735	0.0411	12.7453
450	0.5942	184.2604	595	0.9811	304.2306	740	0.0350	10.8403
455	0.4219	130.8281	600	0.9981	309.5019	745	0.0298	9.2293
460	0.3151	97.7118	605	0.9971	309.1853	750	0.0253	7.8365
465	0.2682	83.1665	610	0.9836	304.9877	755	0.0215	6.6813
470	0.1992	61.7707	615	0.9580	297.0484	760	0.0183	5.6786
475	0.1680	52.0861	620	0.9153	283.8229	765	0.0158	4.8933
480	0.1738	53.9006	625	0.8658	268.4639	770	0.0126	3.9096
485	0.1948	60.4189	630	0.8057	249.8363	775	0.0111	3.4555
490	0.2310	71.6404	635	0.7430	230.3953	780	0.0092	2.8394
495	0.2824	87.5652	640	0.6781	210.2718	785	0.0081	2.5232
500	0.3336	103.4292	645	0.6103	189.2540	790	0.0084	2.6028
505	0.3771	116.9278	650	0.5465	169.4695	795	0.0040	1.2322
510	0.4145	128.5258	655	0.4845	150.2471	800	0.0045	1.4100
515	0.4442	137.7530	660	0.4252	131.8531			
520	0.4665	144.6490	665	0.3730	115.6609			

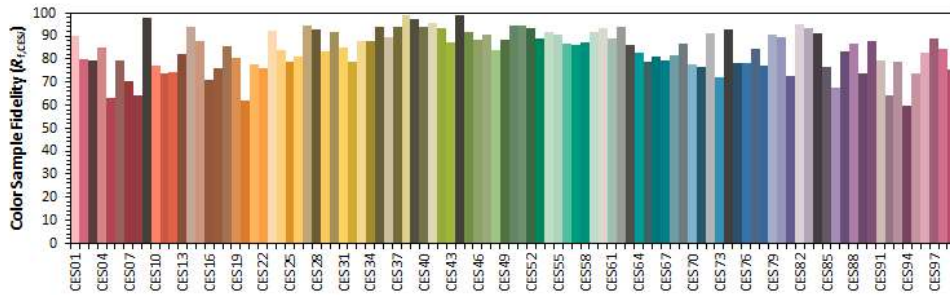
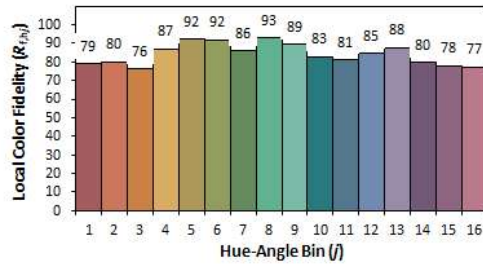
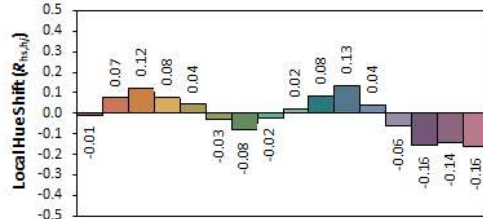
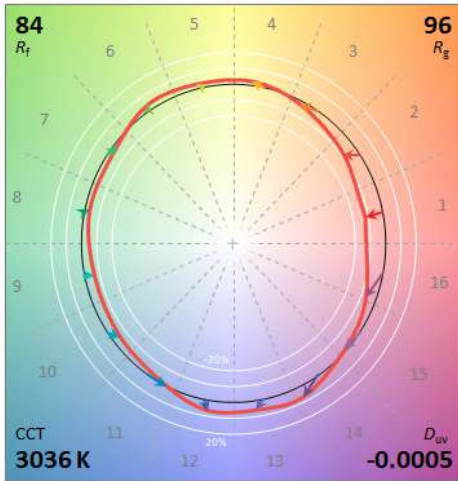
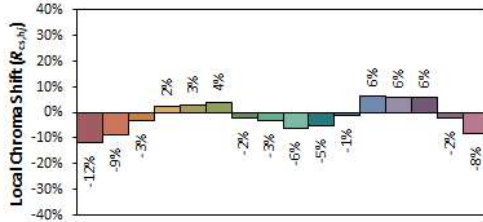
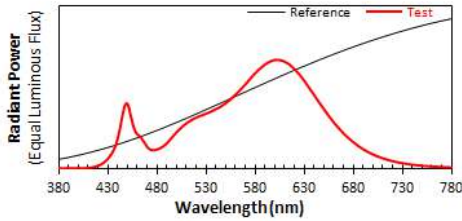


TM30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35005A1
Date: 2021/10/14

Manufacturer: IKIO LED LIGHTING
Model: IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W, 3000K)



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

x: 0.4337
y: 0.4017
u': 0.2495
v': 0.5200

CIE 13.3-1995 (CRI)
Ra: 82
Rg: 2

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



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Zonal Lumen Tabulation

Zonal Lumen Summary

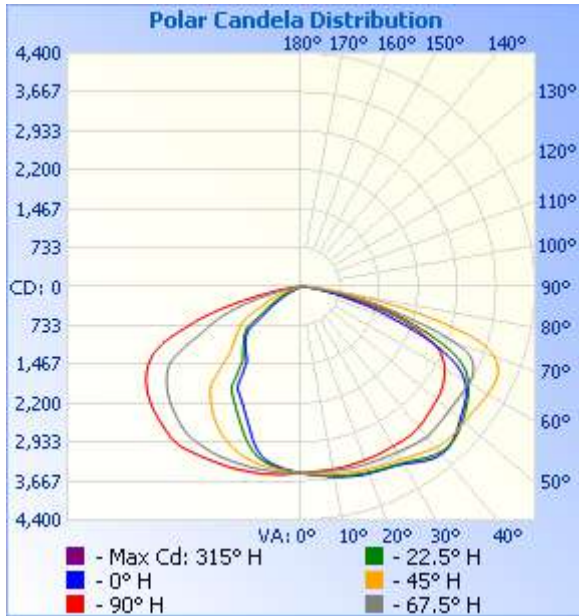
Zone	Lumens	% Lamp	% Luminaire
0-30	2,909.1	21.2%	21.2%
0-40	4,997.5	36.4%	36.4%
0-60	9,979.0	72.7%	72.7%
60-90	3,718.5	27.1%	27.1%
70-100	1,430.8	10.4%	10.4%
90-120	17.0	0.1%	0.1%
0-90	13,697.5	99.7%	99.7%
90-180	36.7	0.3%	0.3%
0-180	13,734.2	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	335.9	2.4%	90-100	7.7	0.1%
10-20	992.3	7.2%	100-110	4.9	0%
20-30	1,580.9	11.5%	110-120	4.4	0%
30-40	2,088.4	15.2%	120-130	4.2	0%
40-50	2,430.8	17.7%	130-140	4.2	0%
50-60	2,550.7	18.6%	140-150	4.2	0%
60-70	2,295.4	16.7%	150-160	3.7	0%
70-80	1,241.2	9.0%	160-170	2.5	0%
80-90	181.9	1.3%	170-180	0.9	0%



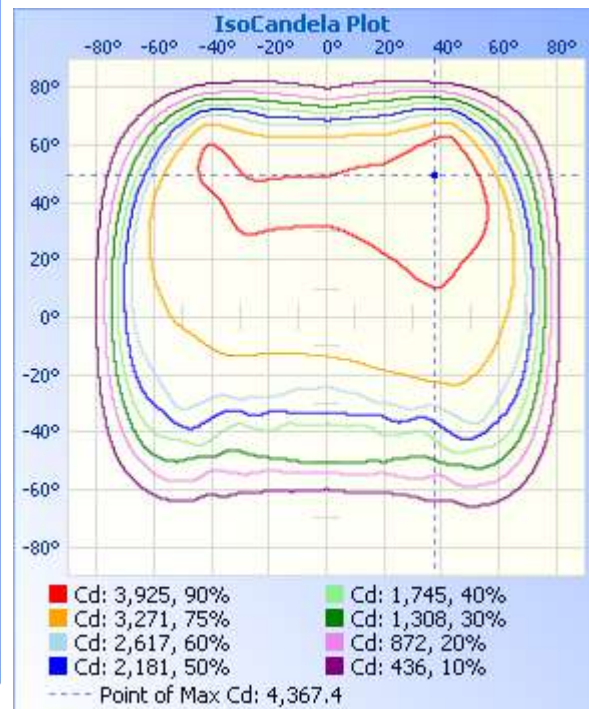
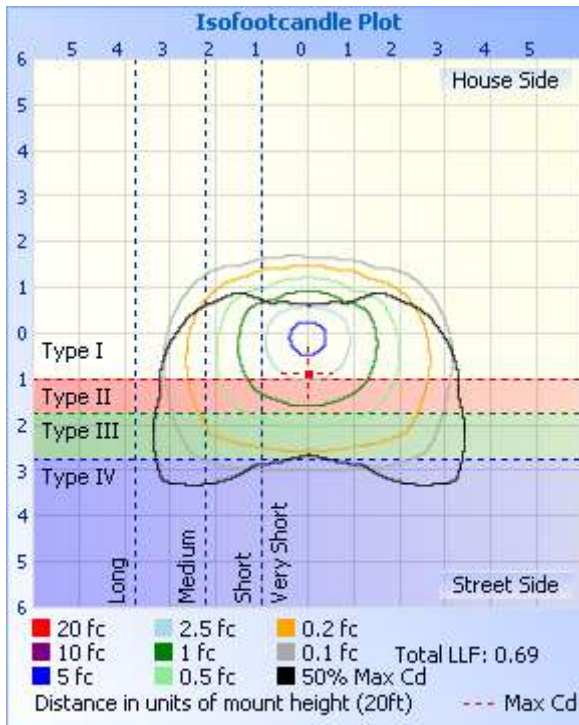
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	12.2 fc	47.9 ft	70.2 ft
34.0ft	3.04 fc	95.8 ft	140.3 ft
51.0ft	1.35 fc	143.7 ft	210.5 ft
68.0ft	0.76 fc	191.5 ft	280.6 ft
85.0ft	0.49 fc	239.4 ft	350.8 ft
102.0ft	0.34 fc	287.3 ft	420.9 ft

■ Vert. Spread: 109.2°
■ Horiz. Spread: 128.3°





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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	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515	3515
1	3527	3525	3521	3513	3509	3506	3504	3497	3502	3503	3509	3513	3520	3522	3528	3530	3527
2	3539	3535	3527	3513	3504	3497	3492	3483	3490	3492	3504	3515	3527	3531	3541	3546	3539
3	3550	3545	3538	3512	3500	3489	3481	3469	3478	3482	3498	3515	3536	3542	3553	3560	3550
4	3561	3554	3544	3513	3497	3481	3471	3457	3465	3473	3492	3516	3545	3552	3567	3576	3561
5	3573	3564	3550	3510	3495	3474	3458	3443	3453	3464	3485	3518	3553	3562	3580	3589	3573
6	3586	3574	3556	3512	3494	3461	3445	3430	3439	3454	3480	3519	3561	3574	3593	3605	3586
7	3598	3591	3563	3515	3494	3453	3433	3416	3422	3443	3475	3521	3568	3586	3607	3621	3598
8	3613	3603	3570	3518	3492	3447	3415	3401	3406	3432	3471	3522	3575	3597	3621	3637	3613
9	3625	3615	3577	3521	3492	3441	3408	3385	3389	3419	3465	3524	3584	3609	3636	3653	3625
10	3643	3626	3581	3523	3493	3434	3391	3368	3369	3401	3461	3524	3590	3620	3650	3665	3643
11	3655	3638	3589	3530	3493	3427	3378	3348	3345	3384	3456	3524	3596	3633	3666	3678	3655
12	3665	3648	3596	3534	3492	3421	3363	3324	3316	3364	3450	3525	3604	3645	3680	3690	3665
13	3674	3657	3604	3539	3492	3413	3348	3291	3278	3342	3443	3528	3607	3657	3694	3703	3674
14	3685	3668	3613	3542	3490	3407	3332	3257	3234	3314	3432	3530	3612	3669	3708	3718	3685
15	3698	3679	3620	3547	3488	3400	3315	3217	3184	3282	3423	3532	3617	3683	3722	3732	3698
16	3712	3689	3630	3550	3487	3395	3296	3173	3125	3244	3412	3533	3622	3696	3737	3750	3712
17	3722	3697	3640	3553	3484	3389	3275	3123	3060	3197	3399	3534	3627	3708	3751	3763	3722
18	3731	3706	3649	3556	3484	3382	3253	3069	2990	3149	3386	3535	3634	3721	3765	3776	3731
19	3739	3715	3657	3558	3482	3376	3229	3008	2910	3097	3370	3535	3642	3734	3778	3788	3739
20	3745	3723	3666	3561	3481	3370	3201	2951	2841	3043	3356	3536	3650	3748	3795	3799	3745
21	3751	3731	3674	3564	3482	3361	3175	2892	2774	2987	3337	3537	3656	3760	3809	3809	3751
22	3759	3740	3681	3567	3481	3352	3146	2836	2712	2932	3317	3539	3661	3770	3819	3820	3759
23	3768	3749	3690	3570	3478	3344	3115	2780	2652	2868	3295	3538	3665	3784	3831	3829	3768
24	3775	3760	3698	3576	3479	3336	3085	2727	2598	2814	3271	3539	3670	3794	3842	3841	3775
25	3782	3771	3706	3581	3478	3329	3056	2672	2542	2762	3243	3544	3673	3802	3855	3854	3782
26	3791	3781	3716	3585	3475	3323	3020	2623	2492	2708	3218	3547	3679	3813	3869	3865	3791
27	3806	3791	3726	3589	3472	3315	2989	2574	2446	2657	3191	3548	3686	3826	3882	3879	3806
28	3820	3804	3737	3594	3469	3308	2956	2526	2406	2606	3163	3546	3691	3840	3899	3895	3820
29	3837	3819	3748	3600	3467	3300	2921	2483	2369	2558	3131	3543	3702	3853	3915	3912	3837

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31	3886	3855	3774	3614	3471	3284	2844	2398	2296	2473	3059	3539	3716	3887	3954	3958	3886
32	3914	3877	3795	3620	3472	3271	2801	2360	2263	2429	3022	3536	3724	3903	3975	3982	3914
33	3951	3902	3813	3630	3476	3261	2758	2320	2153	2387	2983	3533	3732	3922	3999	4014	3951
34	3983	3928	3828	3638	3477	3249	2713	2280	1955	2346	2941	3532	3738	3939	4025	4044	3983
35	4013	3958	3849	3651	3477	3239	2667	2153	1856	2267	2898	3528	3749	3958	4052	4077	4013
36	4041	3988	3872	3662	3476	3228	2617	1959	1736	2057	2849	3522	3762	3977	4080	4110	4041
37	4069	4012	3895	3671	3473	3216	2572	1848	1701	1937	2802	3514	3769	3996	4109	4143	4069
38	4092	4037	3918	3681	3465	3199	2526	1740	1671	1798	2758	3502	3770	4018	4137	4170	4092
39	4107	4058	3939	3690	3457	3181	2478	1696	1643	1738	2710	3489	3767	4037	4170	4195	4107
40	4113	4074	3960	3692	3449	3160	2430	1656	1616	1698	2659	3473	3759	4051	4197	4217	4113
41	4118	4085	3973	3691	3440	3138	2379	1623	1588	1663	2606	3453	3749	4058	4218	4230	4118
42	4112	4092	3982	3686	3429	3115	2254	1591	1563	1630	2541	3432	3735	4061	4237	4237	4112
43	4096	4088	3990	3679	3413	3091	2079	1562	1538	1597	2427	3412	3721	4057	4248	4237	4096
44	4083	4081	3994	3670	3399	3069	1965	1532	1510	1566	2241	3387	3707	4051	4258	4230	4083
45	4058	4074	3995	3662	3386	3047	1830	1504	1486	1536	2106	3367	3692	4042	4263	4221	4058
46	4028	4056	3995	3656	3373	3026	1723	1476	1459	1505	1960	3344	3678	4036	4267	4202	4028
47	3999	4032	3994	3651	3360	3003	1657	1448	1431	1472	1842	3320	3665	4031	4267	4184	3999
48	3970	4009	3991	3645	3347	2980	1608	1419	1398	1444	1763	3300	3651	4024	4268	4163	3970
49	3936	3982	3990	3638	3338	2957	1566	1385	1357	1413	1708	3276	3638	4016	4277	4137	3936
50	3906	3956	3990	3632	3329	2931	1521	1351	1321	1382	1657	3251	3621	4015	4283	4109	3906
51	3878	3930	3993	3627	3316	2904	1480	1315	1252	1345	1612	3224	3605	4016	4289	4081	3878
52	3851	3902	3994	3627	3305	2876	1442	1279	1030	1306	1567	3193	3587	4022	4296	4049	3851
53	3822	3873	3996	3625	3287	2843	1403	1206	886	1270	1525	3161	3567	4021	4306	4024	3822
54	3797	3844	3999	3625	3273	2812	1367	989	805	1101	1483	3124	3543	4015	4316	3990	3797
55	3770	3814	4009	3626	3252	2780	1328	858	732	940	1439	3089	3524	4018	4325	3956	3770
56	3741	3781	4019	3631	3230	2739	1291	782	662	834	1398	3051	3496	4016	4337	3915	3741
57	3709	3747	4027	3634	3206	2700	1251	724	591	772	1358	3010	3467	4016	4348	3876	3709
58	3666	3712	4037	3635	3181	2648	1210	660	522	716	1316	2964	3435	4019	4357	3836	3666
59	3617	3678	4046	3643	3153	2530	1170	601	456	659	1268	2907	3403	4017	4361	3796	3617
60	3559	3634	4051	3649	3121	2425	1052	542	403	598	1224	2838	3366	4007	4365	3752	3559
61	3488	3588	4058	3649	3086	2282	914	487	356	531	1132	2701	3325	3994	4367	3695	3488

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62	3404	3534	4065	3641	3041	2117	813	425	305	473	984	2559	3276	3974	4366	3634	3404
63	3302	3474	4068	3628	2993	2001	749	374	204	414	860	2405	3223	3950	4360	3566	3302
64	3165	3390	4070	3603	2940	1926	699	266	170	336	791	2205	3159	3911	4349	3480	3165
65	3021	3297	4065	3577	2876	1850	657	198	146	238	742	2061	3095	3869	4333	3387	3021
66	2843	3174	4048	3540	2798	1776	616	164	119	183	697	1961	3008	3812	4299	3260	2843
67	2640	3026	4026	3481	2688	1696	574	139	92	157	655	1868	2902	3742	4271	3117	2640
68	2436	2861	3991	3399	2560	1609	529	117	61	135	608	1756	2775	3647	4221	2940	2436
69	2209	2662	3940	3272	2406	1504	417	90	31	109	560	1647	2590	3511	4153	2762	2209
70	1986	2488	3872	3092	2255	1393	322	44	20	72	460	1522	2393	3317	4064	2557	1986
71	1796	2305	3778	2853	2103	1271	276	24	13	36	357	1371	2207	3062	3945	2375	1796
72	1626	2133	3655	2609	1947	1142	244	16	7	23	299	1221	2038	2775	3800	2195	1626
73	1449	1972	3487	2325	1771	954	213	11	4	18	264	1078	1851	2521	3623	2043	1449
74	1251	1816	3234	2072	1575	787	152	7	3	11	231	950	1656	2241	3391	1866	1251
75	1053	1636	2952	1822	1359	663	118	6	4	9	177	778	1428	2008	3049	1700	1053
76	876	1448	2643	1600	1160	548	99	5	3	8	132	644	1216	1805	2714	1512	876
77	733	1257	2328	1386	974	443	79	5	3	7	102	529	1012	1615	2374	1317	733
78	620	1089	1998	1172	802	334	60	4	3	6	79	415	824	1417	2052	1127	620
79	529	919	1651	976	639	255	46	3	2	5	62	313	674	1203	1723	965	529
80	444	779	1290	779	508	193	36	3	2	5	49	233	543	944	1389	815	444
81	380	658	1016	591	398	142	27	2	2	4	39	175	413	727	1059	673	380
82	323	547	780	444	297	104	21	2	2	4	29	127	322	546	813	563	323
83	271	450	582	318	211	74	14	1	2	3	20	92	241	387	610	460	271
84	226	369	423	218	135	49	9	1	1	4	15	63	174	264	437	366	226
85	178	292	298	146	90	32	5	2	2	3	9	43	119	176	311	293	178
86	138	218	189	93	40	18	2	0	1	2	6	30	80	114	215	224	138
87	98	150	113	45	8	5	2	1	1	2	4	17	36	66	144	166	98
88	51	84	64	21	5	3	1	1	1	2	3	6	10	30	95	111	51
89	23	32	31	18	4	2	2	1	1	2	3	5	6	20	54	38	23
90	21	23	22	15	3	2	1	0	1	2	3	4	6	16	24	23	21
91	19	21	19	14	3	2	2	1	1	2	3	4	4	13	19	21	19
92	17	19	18	12	3	2	2	1	1	2	4	5	4	12	18	19	17
93	15	17	16	12	3	2	2	1	1	2	3	4	4	11	16	17	15

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180	9	9	9	9	7	8	8	9	9	9	9	9	8	8	8	9	9



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BUG

Lum. Classification System (LCS)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	1522.1	11.2	11.2
FM (30-60)	4497.2	33.1	33.1
FH (60-80)	3175.8	23.3	23.3
FVH (80-90)	217.2	1.6	1.6
BL (0-30)	1196.9	8.8	8.8
BM (30-60)	2262.6	16.6	16.6
BH (60-80)	670.8	4.9	4.9
BVH(80-90)	19.4	0.1	0.1
UL (90-100)	9.6	0.1	0.1
UH (100-180)	31.8	0.2	0.2
Total	13603.4	99.9	100.0
BUG Rating	B3-U2-G2		



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2.2 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2021-10-14	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W, 4000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %	
BLC211000	120.0	60	0.826	98.97	0.998	5.58	
9E2-D1	277.0	60	0.362	97.33	0.97	15.31	
DLC Pass Criteria						>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

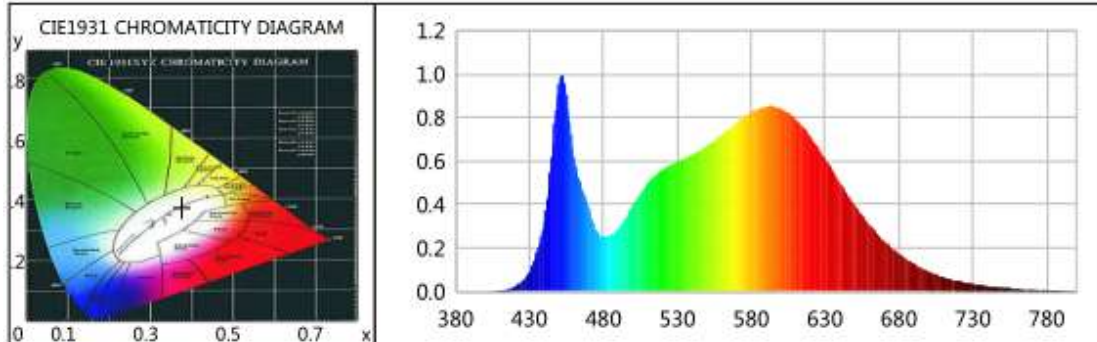
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	1
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	4044	R3	95	R11	79
Duv	0.0010	R4	80	R12	59
Chromaticity (x, y)	x=0.3792 y=0.3781	R5	80	R13	82
Chromaticity (u', v')	u(u')=0.2238 v'(v')=0.5020	R6	85	R14	98
Color Rendering Index (CRI)	82	R7	84	R15	73
R9	1	R8	61	--	--
Rf	83	--	--	--	--
Rg	94	--	--	--	--
Rcs,h1(%)	-13	--	--	--	--

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)	14683.2	14384.4	>=10000(-10%)
Luminous Efficacy (lm/W)	148.36	147.79	Premium: >= 120(-3%)
Most worst Luminous/Highest	145.34		



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	0.1995	535	0.5796	278.9828	690	0.2315	111.4540
385	0.0006	0.2679	540	0.5948	286.3112	695	0.2009	96.6885
390	0.0004	0.2002	545	0.6101	293.6865	700	0.1731	83.3220
395	0.0002	0.0900	550	0.6308	303.6734	705	0.1497	72.0440
400	0.0009	0.4180	555	0.6463	311.1046	710	0.1277	61.4765
405	0.0017	0.8128	560	0.6688	321.9372	715	0.1077	51.8448
410	0.0045	2.1446	565	0.6933	333.7482	720	0.0924	44.4945
415	0.0110	5.3143	570	0.7202	346.6810	725	0.0796	38.3299
420	0.0233	11.2336	575	0.7485	360.3207	730	0.0670	32.2316
425	0.0480	23.1083	580	0.7741	372.6196	735	0.0577	27.7883
430	0.0945	45.4851	585	0.8042	387.0985	740	0.0484	23.2905
435	0.1792	86.2448	590	0.8257	397.4486	745	0.0415	19.9660
440	0.3278	157.8157	595	0.8399	404.3247	750	0.0343	16.4953
445	0.6175	297.2292	600	0.8507	409.5038	755	0.0298	14.3450
450	0.9574	460.8658	605	0.8517	410.0114	760	0.0254	12.2397
455	0.9089	437.5254	610	0.8438	406.1740	765	0.0218	10.4865
460	0.6170	297.0178	615	0.8221	395.7604	770	0.0179	8.6039
465	0.4856	233.7470	620	0.7941	382.2442	775	0.0161	7.7374
470	0.3837	184.6866	625	0.7587	365.1996	780	0.0138	6.6240
475	0.2853	137.3571	630	0.7147	344.0269	785	0.0105	5.0357
480	0.2513	120.9692	635	0.6636	319.4614	790	0.0104	5.0263
485	0.2615	125.8625	640	0.6119	294.5699	795	0.0089	4.2708
490	0.2880	138.6279	645	0.5576	268.4083	800	0.0063	3.0110
495	0.3369	162.1733	650	0.5034	242.3340			
500	0.3955	190.3772	655	0.4496	216.4375			
505	0.4503	216.7789	660	0.3994	192.2490			
510	0.4974	239.4239	665	0.3515	169.2120			
515	0.5327	256.4146	670	0.3077	148.1225			
520	0.5593	269.2500	675	0.2682	129.1152			
525	0.5796	278.9828	680	0.2315	111.4540			
530	0.5948	286.3112	685	0.2009	96.6885			

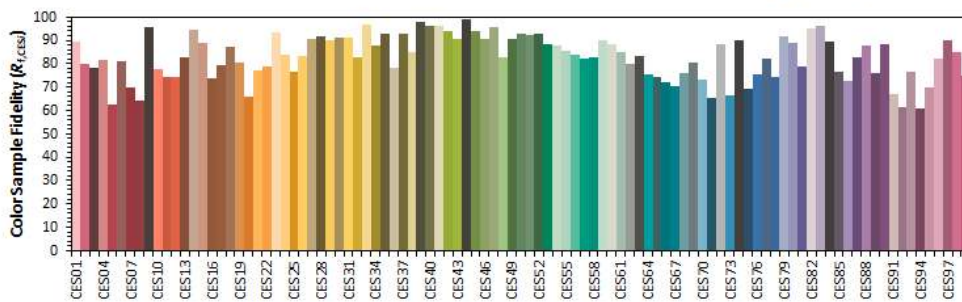
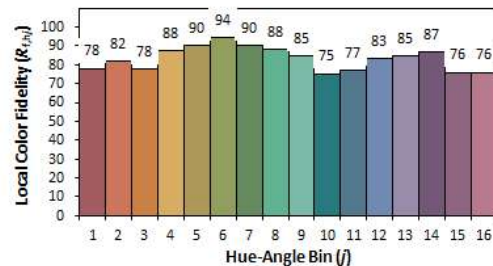
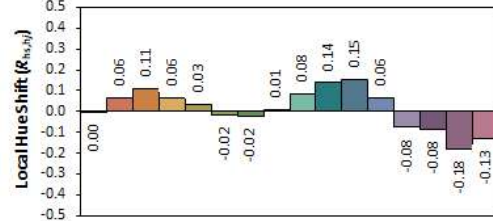
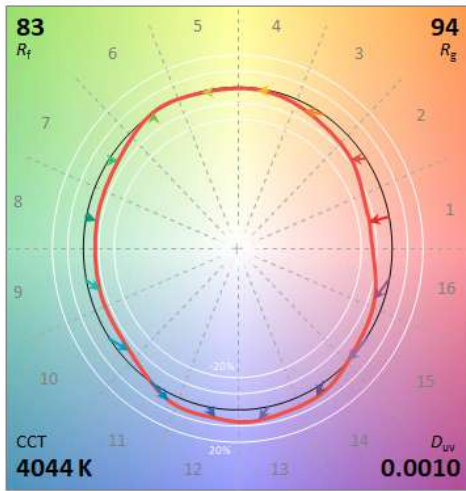
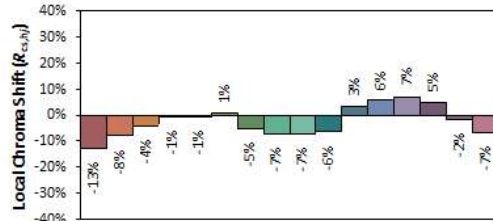
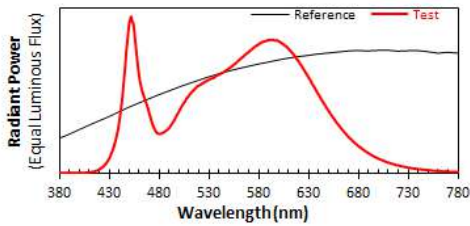


TM30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1
L128-XX80RA35005A1
Date: 2021/10/14

Manufacturer: IK10 LED LIGHTING
Model: IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W, 4000K)



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

x 0.3792
y 0.3781
u' 0.2238
v' 0.5020

CIE 13.3-1995 (CRI)
Ra 82
Rg 1

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



2.3 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2021-10-14	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	IK-FCWP-0100W-DL-30/40/50K-MVBR10SP (100W, 5000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC211000	120.0	60	0.851	102	0.999	5.71
9E2-D1	277.0	60	0.373	100.3	0.97	15.3
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	3
Frequency (Hz)	60	R2	85	R10	65
CCT (K)	5013	R3	90	R11	83
Duv	0.0024	R4	83	R12	62
Chromaticity (x, y)	x=0.3452 y=0.3564	R5	81	R13	81
Chromaticity (u', v')	u(u')=0.2096 v'(v')=0.4870	R6	81	R14	94
Color Rendering Index (CRI)	81	R7	85	R15	74
R9	3	R8	66	--	--
Rf	82	--	--	--	--
Rg	98	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

Photometric Measurement –Sphere-Spectroradiometer Method:

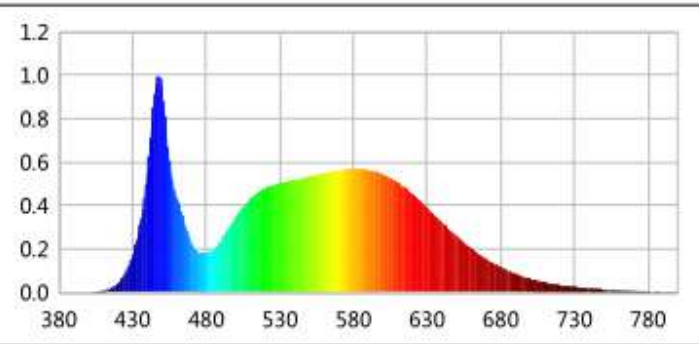
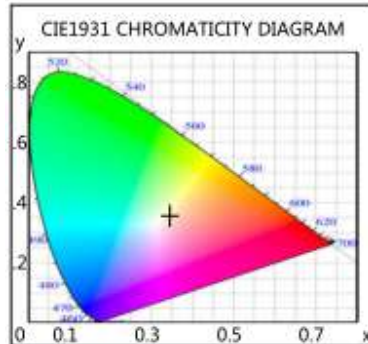
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	14375.9	14030.0	$\geq 10000(-10\%)$
Luminous Efficacy (lm/W)	140.94	139.88	Premium: $\geq 120(-3\%)$
Most worst Luminous/Highest	137.55		



Certificate#4810.01

Report No.:
BLC2110009E2-D-CP

Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.1505	525	0.4919	213.6150	670	0.1547	67.1855
385	0.0003	0.1454	530	0.5012	217.6687	675	0.1337	58.0645
390	0.0003	0.1369	535	0.5099	221.4293	680	0.1163	50.4962
395	0.0004	0.1803	540	0.5190	225.4017	685	0.0998	43.3582
400	0.0011	0.4775	545	0.5250	227.9886	690	0.0864	37.5183
405	0.0026	1.1182	550	0.5315	230.8003	695	0.0736	31.9728
410	0.0081	3.5259	555	0.5410	234.9266	700	0.0626	27.1716
415	0.0187	8.1230	560	0.5492	238.4926	705	0.0538	23.3711
420	0.0420	18.2341	565	0.5566	241.7147	710	0.0462	20.0592
425	0.0879	38.1924	570	0.5622	244.1673	715	0.0394	17.1004
430	0.1717	74.5592	575	0.5669	246.1904	720	0.0336	14.6074
435	0.3103	134.7487	580	0.5703	247.6540	725	0.0285	12.3923
440	0.5608	243.5502	585	0.5663	245.9118	730	0.0241	10.4471
445	0.9207	399.8173	590	0.5633	244.6259	735	0.0202	8.7815
450	0.9418	408.9914	595	0.5562	241.5597	740	0.0170	7.3907
455	0.6080	264.0449	600	0.5448	236.5795	745	0.0151	6.5382
460	0.4332	188.1332	605	0.5269	228.7983	750	0.0130	5.6431
465	0.3321	144.2163	610	0.5081	220.6708	755	0.0107	4.6530
470	0.2269	98.5222	615	0.4841	210.2505	760	0.0094	4.0725
475	0.1838	79.8316	620	0.4550	197.5745	765	0.0081	3.5001
480	0.1830	79.4571	625	0.4238	184.0243	770	0.0064	2.7600
485	0.1988	86.3330	630	0.3912	169.8769	775	0.0046	2.0103
490	0.2361	102.5403	635	0.3560	154.5849	780	0.0038	1.6384
495	0.2919	126.7720	640	0.3235	140.4783	785	0.0041	1.8013
500	0.3469	150.6641	645	0.2905	126.1533	790	0.0049	2.1330
505	0.3931	170.7032	650	0.2594	112.6623	795	0.0019	0.8181
510	0.4318	187.5386	655	0.2295	99.6817	800	0.0021	0.8906
515	0.4606	200.0401	660	0.2005	87.0529			
520	0.4791	208.0659	665	0.1754	76.1636			

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01
 Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,
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Report Format Number BL-FM-SA-012



TM30

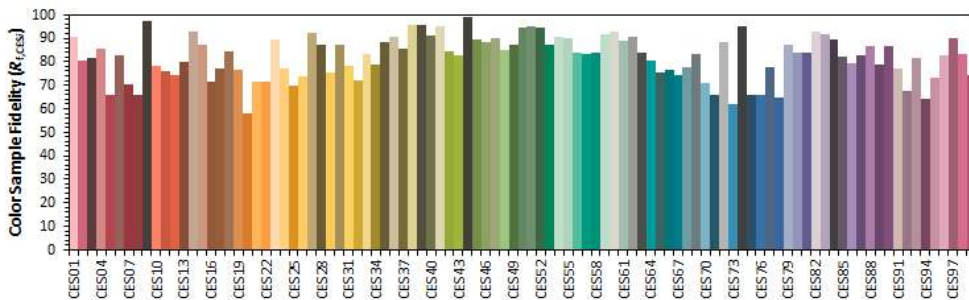
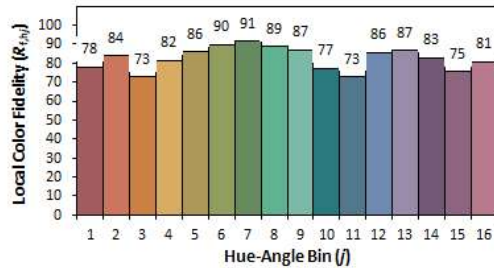
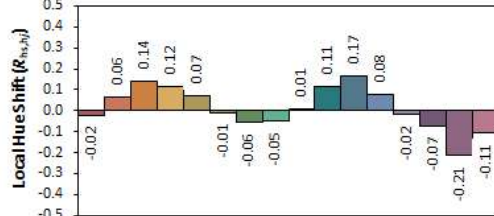
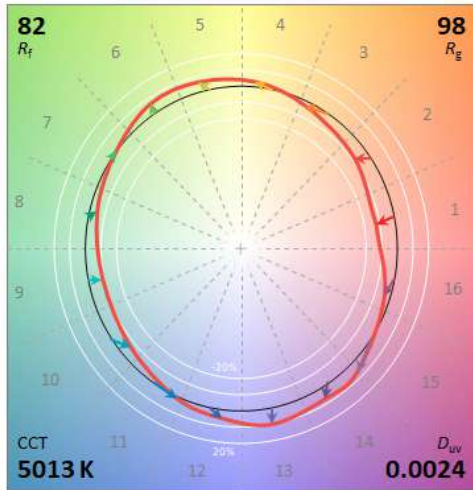
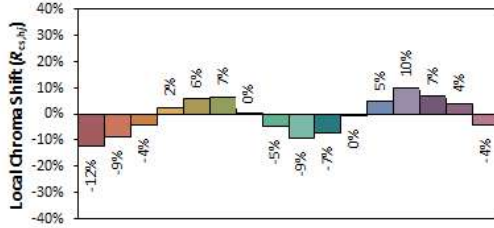
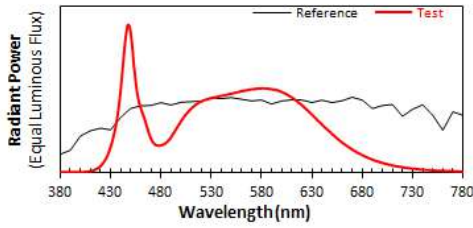
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1

Manufacturer: IKIO LED LIGHTING

Date: 2021/10/14

Model: IK-FCWP-0100W-DL-30/40/50K-MVBR10SP
(100W, 5000K)



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

x **0.3452**
 y **0.3564**
 u' **0.2096**
 v' **0.4870**

CIE 13.3-1995
(CRI)
 R_a 81
 R_g 3

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



Report No.:
BLC2110009E2-D-CP

3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2022-01-18
AC Power Source	CHP-500	DYBWD010159	2022-01-25
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2022-01-24
Digital Power Meter	WT500	DYDWQ20010	2022-01-25
Integral Sphere (2M)	2M	DYJCE120067	2022-01-18
Digital Power Meter	WT500	DYDWQ20006	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 *******