



Report No.:
UTC2305003E-A-PL

LM-79-08 Test Report

For

IKIO LED LIGHTING

(Brand Name: IKIO)

8470 Allison Pointe Blvd, Suite 128 Indianapolis, IN 46250

Architectural Flood and Spot Luminaires

Model name(s): IK-SP08-750WXYA1-abcdeXX

Remark: "a" can be any two letters for lamp colors; "c" can be "3NP", "3RP", "3NT", "3RT", "5NP", "5RP", "5NT", "5RT", "7NP", "7RP", "7NT", or "7RT" for Photocontrol type provided or blank for no Photocontrol provided; "d" can be "10SP" or "20SP" for Surge-Protective Device type provided or blank for no Surge-Protective Device provided; "e" can be "AM", "SM" or "FM" for mounting bracket types; "g" can be any digits to represent CCT,40=4000K, 50=5000K,57=5700K.

Representative (Tested) Model:

IK-SP08-750WXYA1-abcde40 (750W,4000K)

IK-SP08-750WXYA1-abcde57 (750W,5700K)

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

Test & Report By:

Engineer: Winny Wu

Date: 2023-06-09

Review By:

Manager: Jason Luo

1.1 Product Information:

Organization Name	IKIO LED LIGHTING	
Brand Name	IKIO	
Model Number	IK-SP08-1200/1000/750W-MV-50K-BL	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	750W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K, 5000K,5700K	
LED Manufacturer	Bridgelux, Inc.	
LED Model	BXEM-XXC-22H-6D	
Sample Number	UTC2305003E-A1-2	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo



1.2 Test Specifications:

Date of Receipt	2023-05-10
Date of Test	2023-05-12
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. Goniophotometer far field detector $f1' = 1.42\%$, Test distance: 14.14m

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

Self-absorption:

AST-SP08-750T1PS3A1-acde40:1.025

AST-SP08-750T1PS3A1-acde57:1.028

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

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

Test date	2023-05-12	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	IK-SP08-1200/1000/750W-MV-50K-BL (750W,40K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230500	120.0	60	6.133	732.26	0.995	9.06
3E-A 1	277.0	60	2.649	710.19	0.968	13.86
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

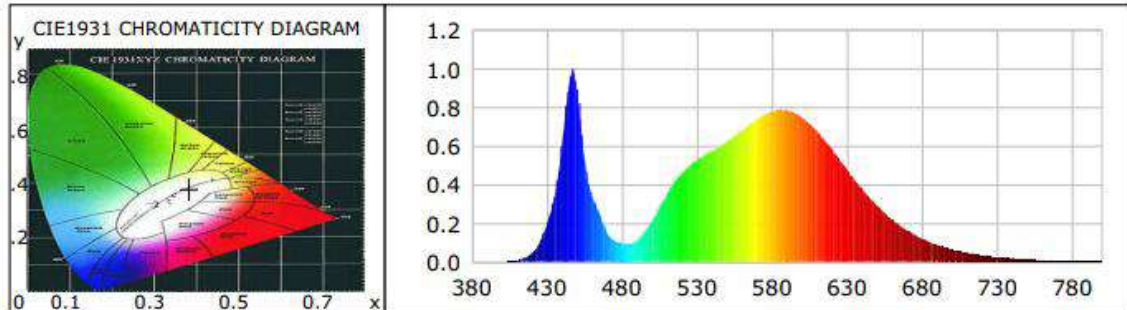
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result				
Test Voltage (V)	120.0	R1	68	R9	-36
Frequency (Hz)	60	R2	78	R10	49
CCT (K)	3958	R3	87	R11	67
Duv	-0.0008	R4	71	R12	43
Chromaticity (x, y)	x=0.3817 y=0.3758	R5	69	R13	70
Chromaticity (u', v')	u'(u')=0.2263 v'(v')=0.5013	R6	70	R14	92
Color Rendering Index (CRI)	71	R7	79	R15	62
R9	-36	R8	50	--	--
Rf	73	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-18				

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)	111852.6	110094.1	>=10000(-10%)
Luminous Efficacy (lm/W)	152.75	155.02	Premium: >= 120(-3%)
Most worst Luminous/Highest	150.35		
Zonal lumens in the 0-90° zone (%)	100	--	Category 1: >=100(-1) Category 2: >=85(-3)
Zonal lumens in the 80-90°zone (%)	0.3	--	<=10(+3)
Beam Angle (°)	32.4	--	--
Center Beam Candle Power (cd)	270049	--	--

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	1.0229	535	0.4975	1179.7100	690	0.1633	387.3368
385	0.0010	2.3643	540	0.5260	1247.2563	695	0.1405	333.1460
390	0.0003	0.6107	545	0.5506	1305.6513	700	0.1202	285.0438
395	0.0005	1.1312	550	0.5754	1364.5319	705	0.1028	243.7887
400	0.0012	2.7979	555	0.5961	1413.5834	710	0.0881	208.9002
405	0.0029	6.9034	560	0.6230	1477.4524	715	0.0750	177.8691
410	0.0080	19.0282	565	0.6518	1545.6878	720	0.0634	150.3587
415	0.0207	49.0814	570	0.6820	1617.2744	725	0.0543	128.6466
420	0.0467	110.8403	575	0.7127	1690.1096	730	0.0466	110.4481
425	0.0981	232.7305	580	0.7403	1755.4916	735	0.0394	93.5100
430	0.1921	455.5562	585	0.7651	1814.3895	740	0.0342	80.9867
435	0.3427	812.6970	590	0.7811	1852.3015	745	0.0285	67.6095
440	0.5997	1421.9741	595	0.7859	1863.7450	750	0.0239	56.7661
445	0.9407	2230.7172	600	0.7836	1858.1264	755	0.0213	50.6037
450	0.8984	2130.4252	605	0.7713	1829.0943	760	0.0177	41.9820
455	0.5282	1252.5774	610	0.7500	1778.5408	765	0.0151	35.9061
460	0.3454	819.1632	615	0.7152	1696.0092	770	0.0138	32.8308
465	0.2441	578.8075	620	0.6749	1600.4940	775	0.0110	26.1685
470	0.1517	359.8028	625	0.6307	1495.4880	780	0.0090	21.3445
475	0.1087	257.7159	630	0.5798	1374.8208	785	0.0082	19.4968
480	0.0950	225.2003	635	0.5283	1252.6658	790	0.0067	15.9058
485	0.0933	221.2949	640	0.4744	1125.0069	795	0.0056	13.3256
490	0.1117	264.7699	645	0.4254	1008.6801	800	0.0050	11.8363
495	0.1537	364.3979	650	0.3774	895.0356			
500	0.2124	503.5729	655	0.3312	785.3189			
505	0.2794	662.5896	660	0.2896	686.8365			
510	0.3500	829.8706	665	0.2534	600.8737			
515	0.4096	971.4093	670	0.2192	519.8016			
520	0.4587	1087.7719	675	0.1895	449.4464			
525	0.4975	1179.7100	680	0.1633	387.3368			
530	0.5260	1247.2563	685	0.1405	333.1460			

TM30

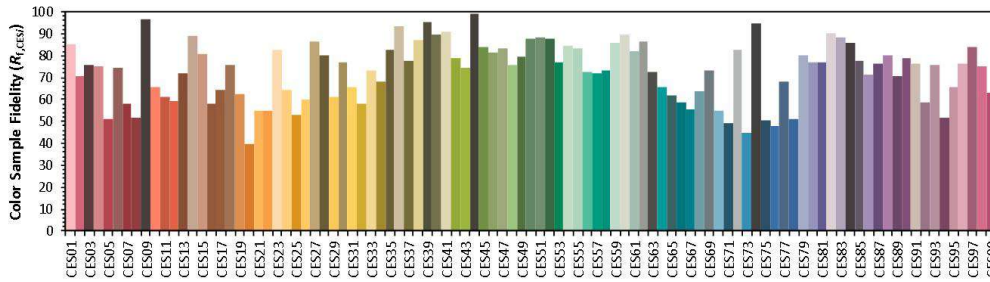
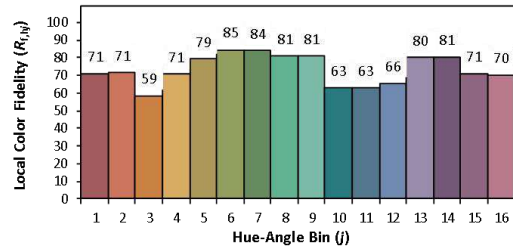
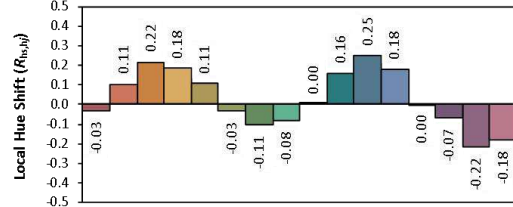
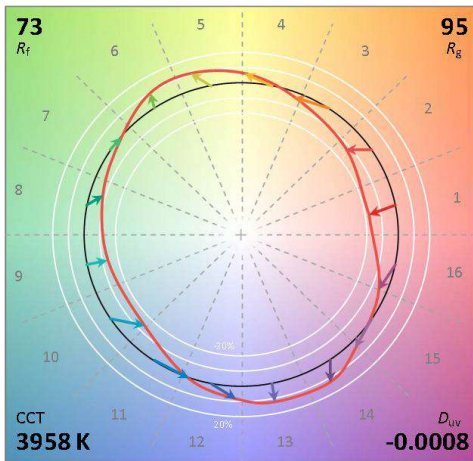
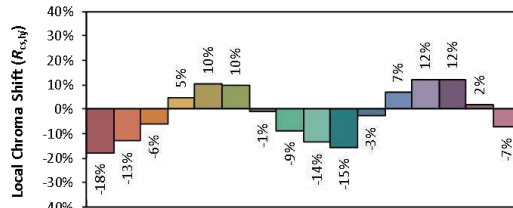
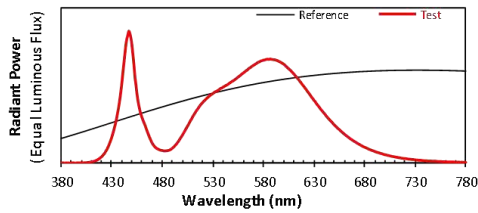
ANSI/IES TM-30-18 Color Rendition Report

Source: BXEM-40C-22H-6D

Manufacturer: IKIO LED Lighting

Date: 2023/5/12

Model: IK-SP08-1200/1000/750W-MV-50K-BL
(750W, 40K)



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

x 0.3817
 y 0.3758
 u' 0.2263
 v' 0.5013

CIE 13.3-1995
(CRI)
 R_a 71
 R_g -36

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

Zonal Lumen Tabulation

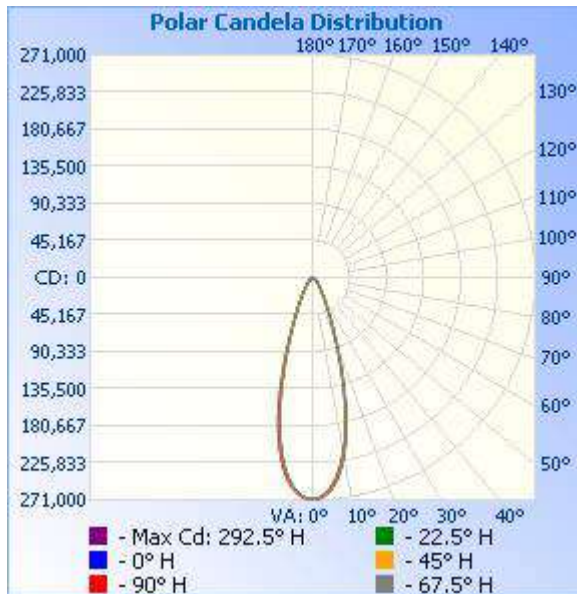
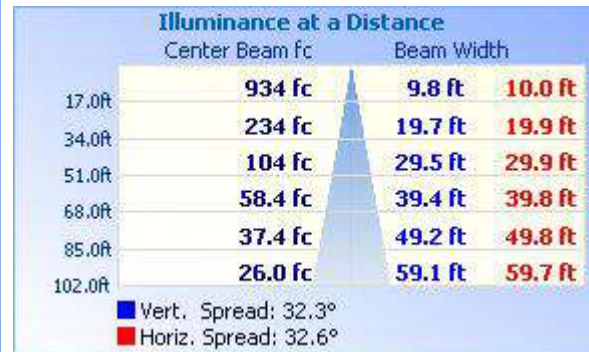
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	86,297.3	77.2%	77.2%
0-40	96,603.9	86.4%	86.4%
0-60	106,923.4	95.6%	95.6%
60-90	4,868.3	4.4%	4.4%
70-100	1,895.9	1.7%	1.7%
90-120	0	0%	0%
0-90	111,791.7	99.9%	100%
90-180	0	0%	0%
0-180	111,791.7	99.9%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	23,361.1	20.9%	90-100	0	0%
10-20	40,887.8	36.6%	100-110	0	0%
20-30	22,048.4	19.7%	110-120	0	0%
30-40	10,306.6	9.2%	120-130	0	0%
40-50	6,091.5	5.4%	130-140	0	0%
50-60	4,228.0	3.8%	140-150	0	0%
60-70	2,972.4	2.7%	150-160	0	0%
70-80	1,611.2	1.4%	160-170	0	0%
80-90	284.7	0.3%	170-180	0	0%

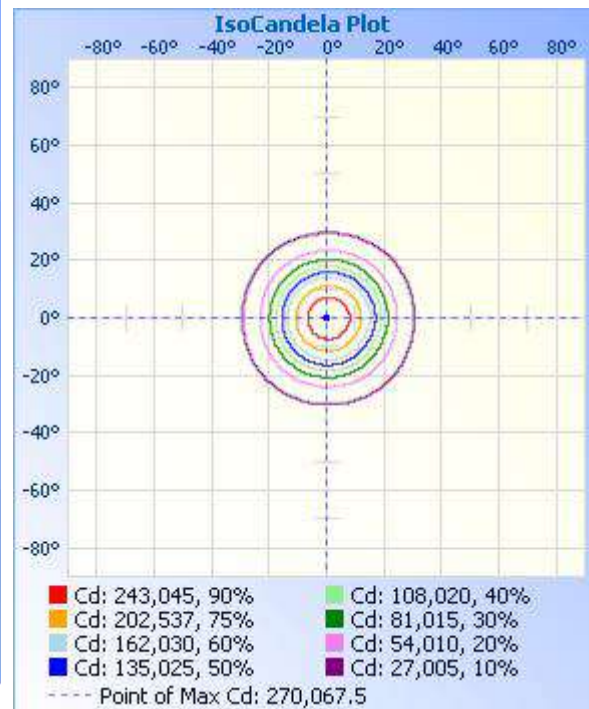
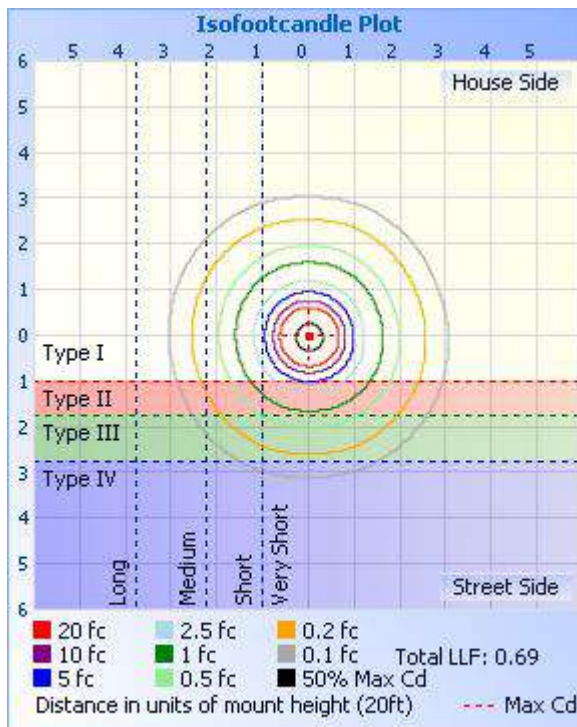
Photometric Data

Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	934 fc	9.8 ft	10.0 ft
34.0ft	234 fc	19.7 ft	19.9 ft
51.0ft	104 fc	29.5 ft	29.9 ft
68.0ft	58.4 fc	39.4 ft	39.8 ft
85.0ft	37.4 fc	49.2 ft	49.8 ft
102.0ft	26.0 fc	59.1 ft	59.7 ft

■ Vert. Spread: 32.3°
■ Horiz. Spread: 32.6°





Report No.:
UTC2305003E-A-PL

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	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049	270049
1	269843	269700	269602	269498	269025	269050	269070	269206	269325	269578	269577	269694	270002	270068	270019	269958	269843
2	268765	268604	268246	268057	267084	267179	267244	267530	267773	268218	268277	268419	269115	269153	269094	268969	268765
3	266714	266282	265976	265661	264239	264344	264524	264950	265284	265908	266044	266317	267258	267275	267166	266977	266714
4	263665	263090	262706	261849	260298	260492	260752	261289	261755	262166	262755	263093	264120	264007	264222	263954	263665
5	259485	258766	258302	257191	255386	255647	255976	256632	257196	257657	258387	258790	260124	259920	259730	259856	259485
6	253703	253406	252271	251539	249475	249761	250197	250968	251579	252082	252946	253427	255219	254913	254586	254125	253703
7	247228	246140	245554	244663	241933	242189	242664	243536	244252	245467	245762	246275	249223	248828	248341	247774	247228
8	239353	238073	237444	236468	233877	234034	234467	235492	236267	236780	237855	238380	241921	241443	240863	240106	239353
9	230279	228780	228064	227005	224581	224675	225060	226148	227029	228455	228677	229156	233530	232927	232218	231266	230279
10	220085	218342	217598	216407	214261	214203	214487	215608	216592	217061	218285	218749	223090	223363	222515	221309	220085
11	208711	206807	204801	203567	202652	202442	202572	203757	204822	205281	206537	206956	212452	211567	210582	209155	208711
12	195292	194329	192329	191033	190212	189857	189895	191117	192237	192717	193991	194287	200808	199969	198830	197122	195292
13	182104	179712	178998	177708	175848	175352	175289	176497	177795	179614	179403	179651	188343	187510	186231	184263	182104
14	167900	165274	164625	163403	162018	161371	161228	162479	163859	165684	165379	165554	174812	173812	172490	170280	167900
15	153258	150468	149846	148650	147600	146890	146719	147999	149387	151209	150846	150991	160335	159505	158121	155661	153258
16	138798	136060	135479	134259	133494	132693	132513	133859	135219	135637	136546	136692	145833	145175	143830	141193	138798

Laboratory: UTEST TECHNICAL LABORATORY CO.LTD A2LA Certificate# 4810.01
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17	124855	122369	120541	119371	119556	118814	118675	119998	121405	121701	122669	122766	130422	129924	128632	126064	124855
18	111473	109296	107504	106665	106325	105663	105575	106866	106860	108512	109449	109552	117106	116256	115030	112761	111473
19	97798	96861	95186	94481	93057	92548	92523	93661	94865	96457	96168	96307	104067	103261	102172	100030	97798
20	86448	85467	83947	83313	81988	81619	81684	82763	83795	84175	85045	85152	91835	91206	90305	88282	86448
21	76151	74404	73984	73402	72081	71838	71987	72910	73790	74140	74929	75094	80658	80282	79514	77633	76151
22	67169	65650	65371	64816	63588	63478	63681	64495	65172	65460	66089	66250	70925	69852	69237	68514	67169
23	59275	58360	57390	56921	56274	56220	56451	57106	57614	57901	58464	58533	61803	61625	61009	59869	59275
24	52009	51830	50992	50761	50063	50057	50297	50877	50658	51536	51985	52042	54824	54324	53858	52917	52009
25	46373	46139	45912	45196	44336	44327	44590	45079	45308	46090	45980	45993	48637	48137	47824	47022	46373
26	41432	41220	40992	40354	39760	39741	40014	40459	40616	40945	41280	41231	43234	42792	42595	41898	41432
27	37044	36841	36636	36033	35597	35600	35849	36288	36362	36687	37017	36965	38484	38146	37995	37897	37044
28	33228	32981	32808	32582	31878	31917	32149	32566	32601	32932	33250	33195	34327	34083	33962	33884	33228
29	29851	29643	29514	29224	28481	28576	28782	28832	28865	29520	29508	29806	31009	30569	30444	30393	29851
30	26595	26727	26361	26043	25169	25278	25493	25815	25852	26457	26490	26496	27451	27445	27301	27029	26595
31	24027	23872	23821	23511	22510	22684	22857	23150	23235	23737	23827	23873	24606	24634	24550	24315	24027
32	21659	21520	21330	21244	20174	20385	20572	20806	20941	21177	21514	21611	22018	21950	22071	21875	21659
33	19590	19486	19312	19252	18107	18351	18511	18748	18933	19088	19447	19552	19772	19765	19835	19719	19590
34	17789	17673	17570	17529	16322	16593	16812	16957	17204	17318	17650	17811	17796	18026	18003	17874	17789
35	16231	16129	16073	16052	14669	14956	15113	15306	15573	15774	15969	16254	16005	16220	16262	16186	16231

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36	14825	14812	14809	14636	13417	13626	13826	13988	14228	14457	14644	14832	14609	14806	14944	14850	14825
37	13632	13624	13552	13502	12309	12519	12737	12907	13109	13219	13460	13650	13279	13590	13644	13600	13632
38	12604	12619	12558	12497	11387	11544	11752	11918	12007	12270	12564	12663	12207	12525	12629	12628	12604
39	11636	11694	11723	11602	10572	10677	10900	11025	11149	11394	11558	11774	11339	11556	11673	11730	11636
40	10869	10916	10944	10793	9763	9883	10071	10303	10425	10647	10791	10891	10482	10749	10863	10922	10869
41	10188	10175	10263	10095	9140	9245	9437	9623	9719	9967	10110	10174	9781	9925	10217	10248	10188
42	9518	9593	9564	9470	8553	8667	8862	9028	9129	9293	9484	9586	9128	9317	9527	9544	9518
43	8952	9005	9049	8967	8050	8185	8349	8530	8593	8754	8957	9034	8553	8757	8965	9040	8952
44	8423	8509	8527	8452	7565	7650	7841	8020	8118	8282	8411	8526	8032	8227	8403	8469	8423
45	7997	8037	8061	7999	7158	7289	7472	7577	7680	7792	7994	8035	7565	7788	7937	7978	7997
46	7583	7535	7613	7563	6786	6897	7067	7176	7260	7418	7582	7600	7182	7325	7502	7565	7583
47	7120	7222	7208	7147	6421	6512	6704	6854	6889	6996	7159	7202	6774	6927	7109	7176	7120
48	6737	6824	6810	6809	6080	6193	6360	6496	6579	6665	6834	6858	6397	6560	6740	6800	6737
49	6360	6475	6533	6436	5780	5856	5991	6168	6207	6371	6472	6472	6104	6211	6372	6411	6360
50	6049	6132	6129	6098	5493	5579	5725	5871	5897	6009	6122	6111	5762	5874	6057	6120	6049
51	5696	5826	5871	5804	5241	5302	5459	5604	5605	5746	5846	5847	5475	5579	5737	5804	5696
52	5428	5519	5589	5461	5007	5044	5187	5343	5355	5476	5564	5547	5229	5272	5513	5519	5428
53	5149	5256	5313	5222	4786	4833	4975	5124	5094	5238	5325	5277	4984	5038	5205	5215	5149
54	4923	5060	5073	4971	4540	4556	4752	4906	4844	5029	5067	5008	4774	4743	4963	5027	4923

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



Report No.:
UTC2305003E-A-PL

55	4686	4839	4840	4768	4379	4376	4540	4669	4637	4815	4871	4799	4528	4550	4721	4827	4686
56	4455	4649	4619	4578	4205	4177	4341	4493	4437	4613	4626	4585	4343	4333	4498	4620	4455
57	4278	4447	4454	4358	4031	3978	4195	4329	4236	4404	4442	4370	4175	4141	4310	4396	4278
58	4059	4239	4202	4125	3893	3852	4002	4153	4059	4233	4270	4186	4043	3960	4117	4226	4059
59	3895	4061	4043	3990	3732	3653	3815	3952	3846	4074	4073	3972	3887	3762	3966	4080	3895
60	3731	3890	3877	3788	3570	3479	3651	3776	3688	3896	3883	3812	3708	3641	3778	3880	3731
61	3542	3786	3718	3622	3432	3334	3482	3637	3542	3718	3711	3677	3534	3467	3621	3716	3542
62	3414	3547	3570	3438	3294	3202	3379	3479	3408	3547	3546	3457	3402	3316	3452	3588	3414
63	3244	3455	3380	3328	3169	3039	3204	3351	3238	3418	3442	3359	3270	3160	3331	3442	3244
64	3128	3259	3221	3156	3007	2877	3065	3163	3104	3271	3288	3187	3139	3009	3144	3278	3128
65	2970	3155	3098	3034	2863	2787	2908	3036	2939	3179	3123	3077	3001	2913	3023	3139	2970
66	2793	2989	2951	2850	2725	2642	2781	2920	2769	2940	2939	2905	2863	2757	2896	2999	2793
67	2690	2818	2779	2691	2552	2498	2654	2738	2605	2806	2816	2770	2701	2612	2726	2835	2690
68	2520	2683	2613	2537	2408	2347	2479	2574	2471	2652	2675	2593	2564	2492	2575	2714	2520
69	2355	2512	2423	2427	2282	2221	2340	2453	2337	2505	2552	2464	2396	2359	2442	2544	2355
70	2246	2401	2350	2286	2120	2100	2188	2313	2197	2377	2350	2354	2276	2185	2279	2429	2246
71	2081	2224	2172	2108	1983	1914	2049	2143	2045	2242	2227	2188	2150	2034	2158	2252	2081
72	1935	2052	2037	1986	1815	1763	1898	1997	1893	2077	2049	2023	1965	1902	2037	2107	1935
73	1783	1899	1871	1820	1665	1625	1735	1840	1783	1893	1932	1906	1839	1812	1904	1949	1783

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



Report No.:
UTC2305003E-A-PL

74	1655	1740	1736	1679	1557	1505	1566	1694	1619	1727	1755	1722	1695	1619	1777	1773	1655
75	1503	1587	1540	1489	1336	1348	1475	1518	1485	1568	1613	1606	1521	1487	1572	1627	1503
76	1400	1397	1405	1385	1180	1228	1306	1348	1381	1403	1491	1422	1378	1354	1445	1451	1400
77	1266	1262	1307	1250	1048	1083	1203	1154	1217	1250	1313	1306	1222	1240	1288	1287	1266
78	1102	1121	1141	1060	916	951	1040	1075	1083	1097	1178	1177	1054	1107	1167	1160	1102
79	968	962	1000	944	731	819	877	899	955	962	1018	1024	928	957	1016	1014	968
80	791	790	828	772	635	686	731	741	797	809	834	901	791	806	864	826	791
81	645	692	595	662	461	554	598	595	633	588	693	717	653	650	707	729	645
82	554	490	454	509	371	439	447	467	548	502	595	533	503	481	586	565	554
83	329	361	454	380	228	289	387	413	396	380	454	454	425	469	484	467	329
84	268	257	331	257	162	229	254	261	329	288	344	343	228	337	381	352	268
85	201	208	239	196	66	132	206	182	176	178	258	196	204	181	248	243	201
86	85	116	141	135	0	0	97	85	97	129	202	129	138	132	181	152	85
87	0	0	80	0	0	0	66	0	0	61	110	80	0	0	139	73	0
88	0	0	117	0	0	0	0	0	61	0	92	0	0	0	97	61	0
89	0	0	67	0	0	0	85	0	61	74	0	61	0	0	91	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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



Certificate#4810.01

Report No.:
UTC2305003E-A-PL

93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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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



Report No.:
UTC2305003E-A-PL

112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Report Format Number BL-FM-SA-012



Report No.:
UTC2305003E-A-PL

131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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



Report No.:
UTC2305003E-A-PL

150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Report Format Number BL-FM-SA-012



Report No.:
UTC2305003E-A-PL

169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Laboratory: UTEST TECHNICAL 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



Report No.:
UTC2305003E-A-PL

BUG Rating

Lum. Classification System (LCS)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	43619.0	39.0	39.0
FM (30-60)	10458.9	9.4	9.4
FH (60-80)	2310.5	2.1	2.1
FVH (80-90)	146.3	0.1	0.1
BL (0-30)	42732.2	38.2	38.2
BM (30-60)	10174.4	9.1	9.1
BH (60-80)	2272.8	2.0	2.0
BVH(80-90)	138.4	0.1	0.1
UL (90-100)	0.0	0.0	0.0
UH (100-180)	0.0	0.0	0.0
Total	111852.5	100.0	100.0
BUG Rating	B5-U0-G2		

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

Test date	2023-05-12	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	IK-SP08-1200/1000/750W-MV-50K-BL (750W,57K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTC230500	120.0	60	6.119	731.32	0.996	9.14
3E-A 2	277.0	60	2.648	709.17	0.967	13.75
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

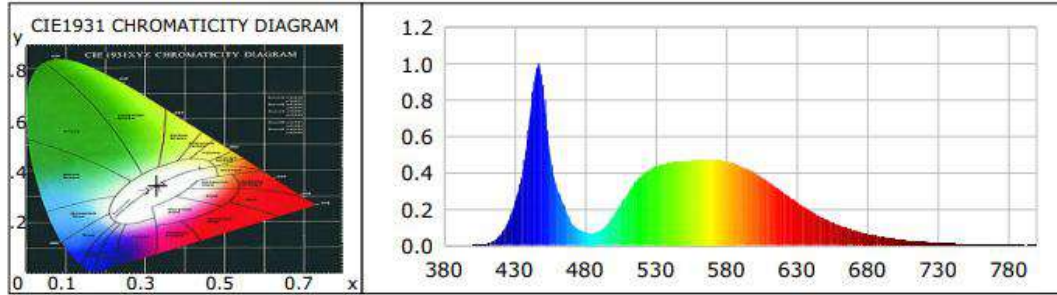
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	69	R9	-36
Frequency (Hz)	60	R2	74	R10	37
CCT (K)	5641	R3	77	R11	71
Duv	0.0021	R4	72	R12	40
Chromaticity (x, y)	x=0.3292 y=0.3423	R5	70	R13	69
Chromaticity (u', v')	u'(u')=0.2042 v'(v')=0.4777	R6	65	R14	87
Color Rendering Index (CRI)	70	R7	79	R15	63
R9	-36	R8	57	--	--
Rf	71	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-18				

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)	112374.6	110595.1	>=10000(-10%)
Luminous Efficacy (lm/W)	153.66	155.95	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	151.23		

Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0013	4.6876	535	0.4151	1464.4177	690	0.0833	293.7301
385	0.0002	0.6541	540	0.4338	1530.6276	695	0.0728	256.9067
390	0.0005	1.6082	545	0.4462	1574.3159	700	0.0627	221.3787
395	0.0006	2.2931	550	0.4552	1605.8127	705	0.0535	188.7499
400	0.0017	6.1098	555	0.4589	1618.9594	710	0.0464	163.7871
405	0.0030	10.4457	560	0.4620	1629.9204	715	0.0407	143.6114
410	0.0092	32.6118	565	0.4649	1640.3724	720	0.0339	119.5353
415	0.0246	86.6911	570	0.4689	1654.4859	725	0.0290	102.3906
420	0.0575	202.8671	575	0.4701	1658.7107	730	0.0254	89.5565
425	0.1196	421.9976	580	0.4711	1662.1280	735	0.0215	75.9575
430	0.2231	787.1661	585	0.4689	1654.2157	740	0.0189	66.7168
435	0.3823	1348.6075	590	0.4625	1631.5914	745	0.0155	54.8306
440	0.6422	2265.8312	595	0.4508	1590.4911	750	0.0138	48.5923
445	0.9564	3374.3324	600	0.4380	1545.3000	755	0.0115	40.4987
450	0.8828	3114.4056	605	0.4205	1483.4887	760	0.0102	36.0192
455	0.5072	1789.4042	610	0.3995	1409.4141	765	0.0082	28.7882
460	0.3204	1130.3532	615	0.3742	1320.1188	770	0.0072	25.3113
465	0.2201	776.4471	620	0.3487	1230.3852	775	0.0059	20.8402
470	0.1323	466.6110	625	0.3222	1136.7190	780	0.0054	19.0106
475	0.0900	317.5008	630	0.2936	1035.9880	785	0.0046	16.2993
480	0.0730	257.5151	635	0.2667	940.9056	790	0.0038	13.4411
485	0.0679	239.6559	640	0.2378	838.8856	795	0.0048	16.7864
490	0.0790	278.5808	645	0.2133	752.6193	800	0.0035	12.2238
495	0.1106	390.1338	650	0.1891	667.0868			
500	0.1605	566.3198	655	0.1661	585.9151			
505	0.2199	775.6636	660	0.1460	514.9216			
510	0.2841	1002.3338	665	0.1274	449.5656			
515	0.3400	1199.6145	670	0.1112	392.4154			
520	0.3830	1351.1722	675	0.0967	341.3260			
525	0.4151	1464.4177	680	0.0833	293.7301			
530	0.4338	1530.6276	685	0.0728	256.9067			

TM30

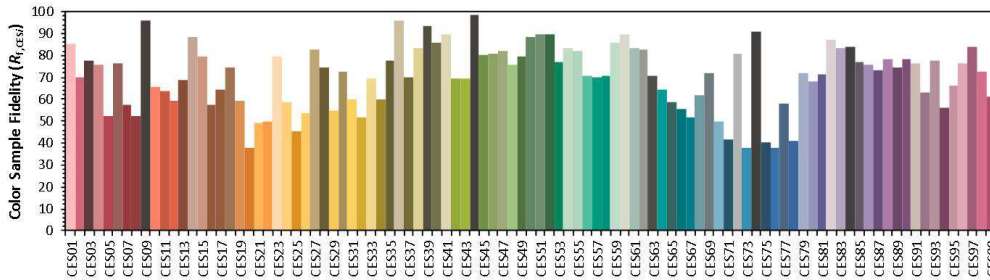
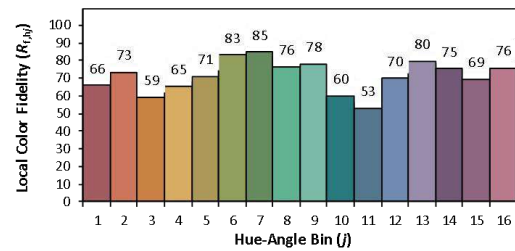
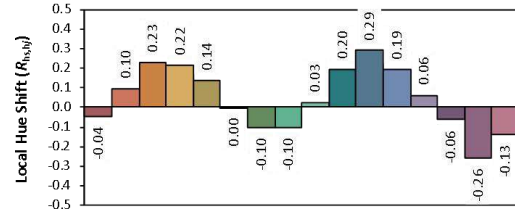
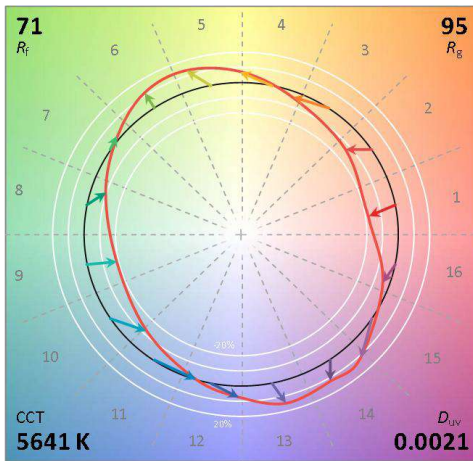
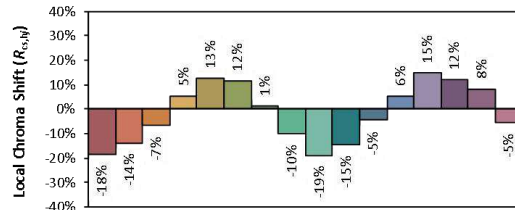
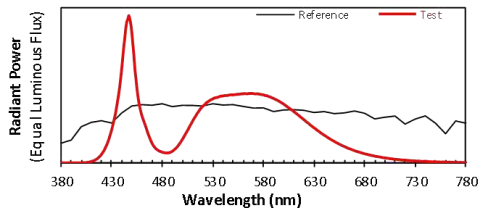
ANSI/IES TM-30-18 Color Rendition Report

Source: BXEM-57C-22H-6D

Manufacturer: IKIO LED Lighting

Date: 2023/5/12

Model: IK-SP08-1200/1000/750W-MV-50K-BL
(750W, 57K)



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

x 0.3292
 y 0.3423
 u' 0.2042
 v' 0.4777

CIE 13.3-1995
(CRI)

R_a 70
 R_9 -36

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)
IK-SP08-1200/1000/750W-MV-50K-BL (750W,40K)	111852.6	732.26	152.75
IK-SP08-1200/1000/750W-MV-50K-BL (750W,50K)	112113.6	731.79	153.20
IK-SP08-1200/1000/750W-MV-50K-BL (750W,57K)	112374.6	731.32	153.66

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

$$112113.6 = (112374.6 + 111852.6) / 2$$

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

$$731.79 = (731.32 + 732.26) / 2$$

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

$$153.20 = 112113.6 / 731.79$$

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 *******