LM-79-08 Test Report

For

IKIO LED LIGHTING, LLC

(Brand Name: IKIO)

Internal Driver/Line Voltage (UL Type B)Lamps

Unit 28, Yangtai Road Xinyang Industrial Zone, Haicang District,Xiamen, China

Model name(s): IK-GT804-DIM-14W-XXKB-SF

Remark: **K represents for different CCT can be
30K=3000K,35K=3500K,40K=4000K,41K=4100K,45K=4500K,50K=5000K,57K=5700K,65K=6500K

Representative (Tested) Model:

IK-GT804-DIM-14W-30KB-SF

IK-GT804-DIM-14W-65KB-SF

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

Test & Report By:

Peter Zhou

Engineer: Peter Zhou

Date: Feb.02, 2021

Review By:

Ryan Liang

Manager: Ryan Liang

1.1 Product Information:

Organization Name	IKIO LED LIGHTING, LLC	
Brand Name	IKIO	
Model Number	IK-GT804-DIM-14W-XXKB-SF	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Internal Driver/Line Voltage (UL Type B) Lamps	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	14W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,4100K,4500K,5000K, 5700K, 6500K	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-2780RA35002P1	
Sample Number	RHL21012501-901 (3000K) RHL21012501-903(6500K)	
Lamp Length	1200	mm
Lamp Width	--	mm
Number of Units (modular products)	N/A	s

Photo

1.2 Test Specifications:

Date of Receipt	Jan. 25, 2021
Date of Test	Jan. 25, 2021
Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products and IES-LM-79-2019 OPTICAL AND ELECTRICAL 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	HL-WI-EE-001, HL-WI-EE-002

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method: Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.
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 25º C ± 1º 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 25º C ± 1º 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 HL-WI-EE-001, HL-WI-EE-002)

Test date	2021-01-25	Test Ambient:	25.1 º C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-GT804-DIM-14W-30KB-SF		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL2101	120.0	60	0.120	14.21	0.982	17.91
2501-901	277.0	60	0.055	14.14	0.927	21.58

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	2970
Duv	-0.0007
Chromaticity (x, y)	x = 0.4381 y = 0.4029
Chromaticity (u', v')	u' = 0.2519 v' = 0.5211
Color Rendering Index (CRI)	81.7
R9	2
Rf	84
Rg	96
Rcs,h1(%)	-12

Special Color Rendering Indices			
R1	80	R9	2
R2	91	R10	79
R3	96	R11	79
R4	80	R12	74
R5	820	R13	82
R6	89	R14	98
R7	82	R15	72
R8	57	--	--
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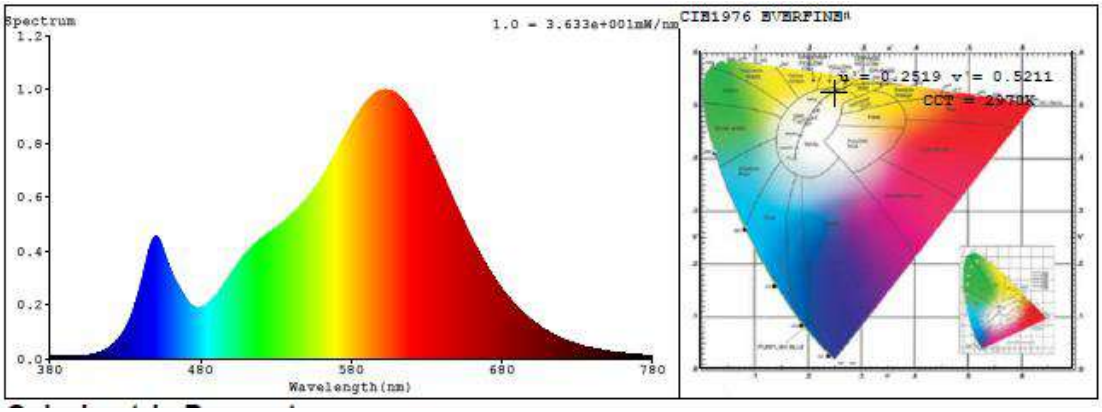
Photometric Measurement – Goniophotometer Method:

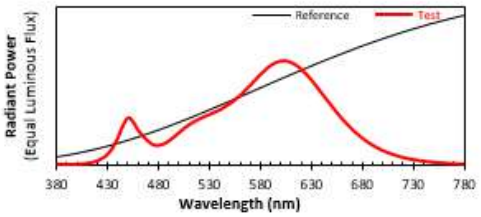
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	1738.3	1735.5	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	122.33	122.74	Bare lamp: >= 120(-3%)
Most worst Luminous/Highest Watts	122.13		
Beam Angle (°)	198.1		140º (-5º)
Center Beam Candle Power (cd)	330		--

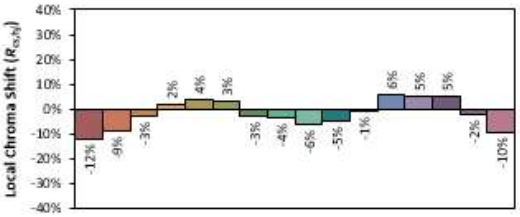
Spectral Power Distribution & Chromaticity Diagram

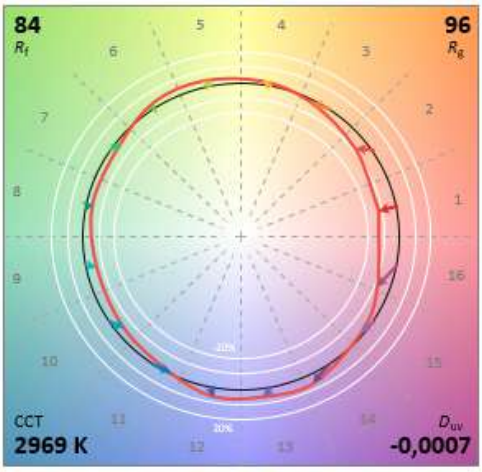


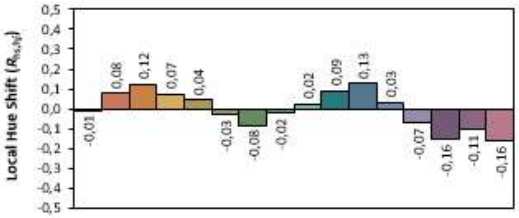
Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	0,0119	485	0,2042	590	0,9551	695	0,1650
385	0,0098	490	0,2327	595	0,9817	700	0,1409
390	0,0085	495	0,2712	600	0,9965	705	0,1204
395	0,0086	500	0,3135	605	0,9982	710	0,1030
400	0,0098	505	0,3542	610	0,9828	715	0,0874
405	0,0128	510	0,3895	615	0,9559	720	0,0743
410	0,0175	515	0,4193	620	0,9170	725	0,0634
415	0,0275	520	0,4433	625	0,8694	730	0,0539
420	0,0434	525	0,4662	630	0,8137	735	0,0458
425	0,0696	530	0,4868	635	0,7519	740	0,0390
430	0,1103	535	0,5068	640	0,6881	745	0,0331
435	0,1743	540	0,5306	645	0,6252	750	0,0282
440	0,2690	545	0,5587	650	0,5628	755	0,0242
445	0,3849	550	0,5897	655	0,5020	760	0,0208
450	0,4537	555	0,6272	660	0,4447	765	0,0178
455	0,4096	560	0,6682	665	0,3925	770	0,0153
460	0,3292	565	0,7158	670	0,3419	775	0,0132
465	0,2729	570	0,7661	675	0,2982	780	0,0125
470	0,2246	575	0,8183	680	0,2582		
475	0,1937	580	0,8690	685	0,2234		
480	0,1899	585	0,9142	690	0,1919		

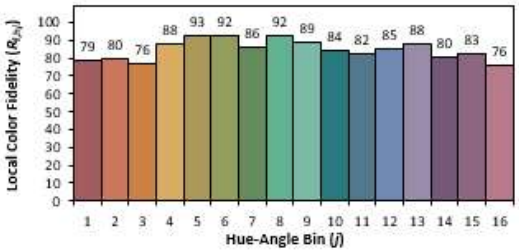
TM-30

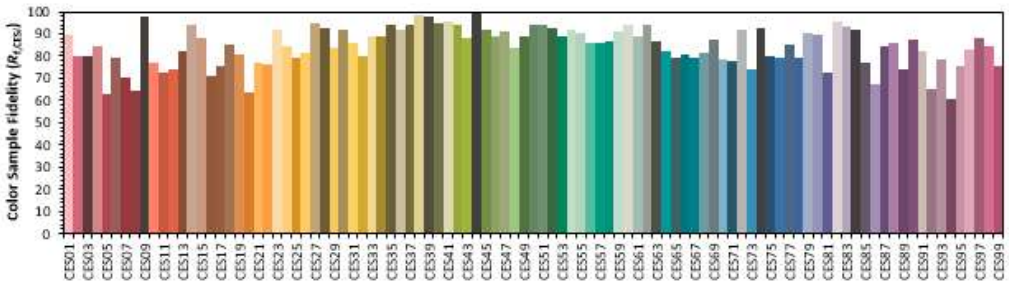












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0,4381
y	0,4027
u'	0,2519
v'	0,5210

CIE 13.3-1995 (CRI)

R_a	82
R_9	2

Zonal Lumen Tabulation

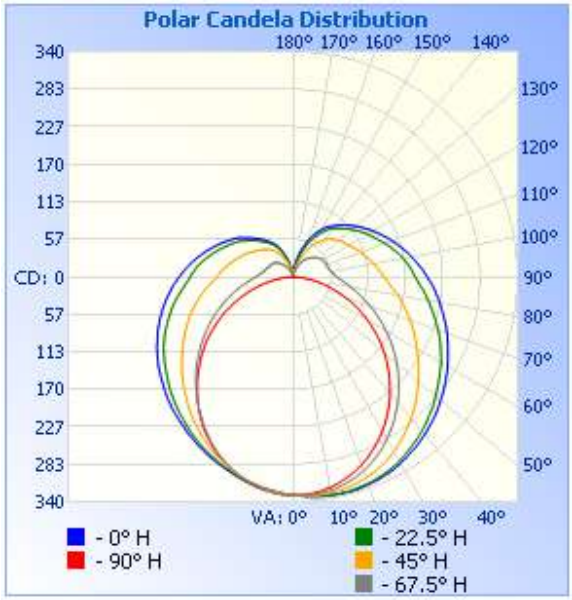
Zonal Lumen Summary

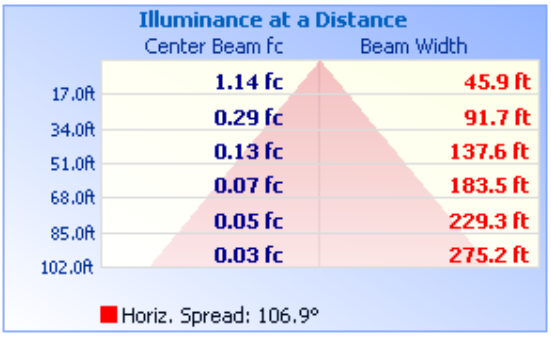
Zone	Lumens	% Lamp	% Luminaire
0-30	260.4	15%	15%
0-40	433.0	24.9%	24.9%
0-60	813.2	46.8%	46.8%
60-90	470.6	27.1%	27.1%
70-100	405.6	23.3%	23.3%
90-120	292.4	16.8%	16.8%
0-90	1,283.8	73.9%	73.9%
90-180	454.5	26.1%	26.1%
0-180	1,738.2	100%	100%

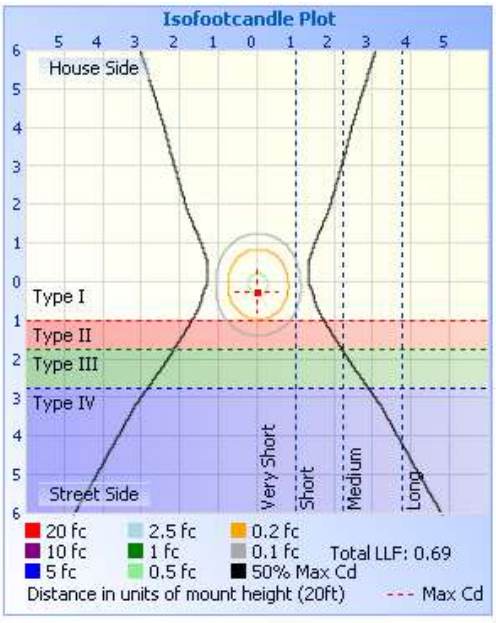
Lumens Per Zone

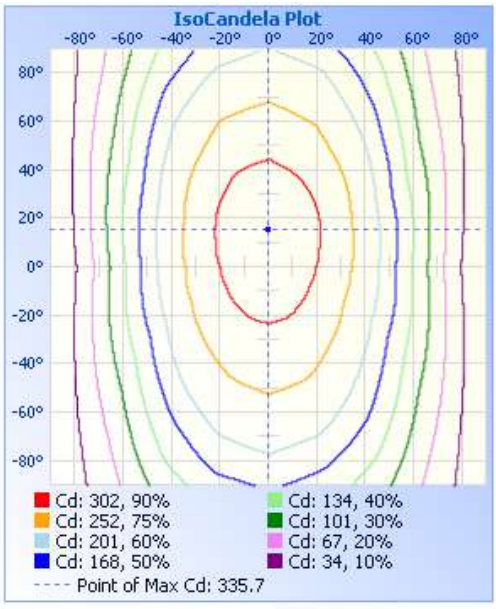
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	31.3	1.8%	90-100	113.9	6.6%
10-20	90.2	5.2%	100-110	97.6	5.6%
20-30	139.0	8.0%	110-120	80.9	4.7%
30-40	172.6	9.9%	120-130	63.9	3.7%
40-50	189.5	10.9%	130-140	46.8	2.7%
50-60	190.7	11.0%	140-150	30.6	1.8%
60-70	178.9	10.3%	150-160	15.6	0.9%
70-80	158.1	9.1%	160-170	4.8	0.3%
80-90	133.6	7.7%	170-180	0.4	0%

Photometric Data









Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330
1	330	330	330	331	330	329	329	329	328	329	329	330	330	330	330	330	330
2	331	331	331	331	329	329	329	328	328	328	328	329	329	330	331	331	331
3	332	332	332	331	330	328	328	327	327	327	327	329	329	330	331	331	332
4	332	332	332	331	329	328	327	326	326	326	327	328	329	330	331	332	332
5	333	333	331	330	328	327	326	325	325	325	326	327	328	330	331	333	333
6	334	333	332	330	328	326	325	324	324	324	324	325	327	329	331	333	334
7	334	334	332	330	327	325	324	324	323	323	323	324	325	328	331	333	334
8	335	334	332	329	326	324	323	322	322	322	322	323	325	328	331	333	335
9	335	334	331	328	324	323	322	321	321	321	320	321	323	327	330	333	335
10	335	335	331	327	323	321	320	320	320	320	319	320	322	326	330	333	335
11	335	335	331	327	322	320	319	319	319	318	317	318	320	324	330	333	335
12	**336**	335	330	325	320	318	318	317	317	318	316	316	319	323	329	333	**336**
13	335	335	330	324	318	316	316	316	316	316	315	315	317	322	328	333	335
14	335	335	329	323	316	315	314	315	315	314	313	313	315	320	328	333	335
15	**336**	335	328	321	314	312	312	313	314	313	311	311	313	319	327	333	**336**
16	**336**	334	327	319	312	310	310	312	313	311	309	308	311	317	325	332	**336**
17	335	334	327	318	310	308	308	310	311	310	307	306	308	315	324	332	335
18	335	333	325	316	308	305	306	309	309	308	305	303	306	313	323	331	335
19	334	333	324	314	305	303	305	307	308	307	303	301	303	311	322	330	334
20	334	332	323	312	302	300	303	305	306	305	301	298	300	308	320	330	334
21	333	331	321	310	299	298	300	303	305	303	298	295	298	306	318	329	333
22	333	330	320	307	297	295	298	302	304	302	296	292	295	304	317	328	333
23	332	329	319	305	294	292	296	300	302	300	294	289	292	301	315	327	332
24	331	329	317	302	290	289	294	299	301	298	292	286	288	299	314	326	331
25	330	328	315	299	287	286	291	296	299	297	290	283	285	296	312	325	330
26	330	327	314	296	284	283	289	294	297	295	287	280	282	293	310	323	330
27	329	326	312	294	280	280	287	293	296	293	285	276	278	290	308	322	329
28	328	324	309	291	277	277	284	292	294	291	282	272	275	286	306	321	328
29	326	323	307	287	274	273	282	289	293	289	279	269	271	283	304	320	326
30	325	322	305	283	270	269	279	288	291	288	276	265	268	280	301	318	325

31	324	320	303	280	266	266	276	286	289	285	274	262	264	277	299	316	324
32	323	318	300	277	262	262	274	284	287	284	271	258	260	274	296	315	323
33	321	316	298	273	258	259	271	281	286	281	269	254	256	270	294	313	321
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36	317	311	289	262	246	248	262	275	280	275	260	243	244	259	285	307	317
37	315	309	287	258	242	243	259	273	279	273	257	239	239	255	282	305	315
38	314	308	284	254	237	239	256	271	277	271	255	235	234	251	279	303	314
39	312	305	281	251	233	235	253	269	276	269	251	231	230	247	276	301	312
40	310	304	278	247	228	231	250	267	274	267	248	227	226	242	273	299	310
41	309	302	275	243	223	227	247	265	272	265	245	223	221	238	270	297	309
42	307	300	273	239	219	222	244	263	271	263	242	219	217	234	267	294	307
43	305	298	269	234	214	218	242	261	269	261	239	216	212	229	264	292	305
44	303	295	266	231	209	214	239	259	267	259	236	212	207	225	261	290	303
45	302	293	263	226	205	210	236	256	266	257	234	208	203	221	258	288	302
46	300	291	260	222	200	206	233	254	264	255	231	204	198	217	254	286	300
47	298	289	257	218	195	202	229	252	262	253	228	200	193	212	251	283	298
48	296	286	254	214	191	197	226	250	260	251	225	196	189	208	248	280	296
49	293	284	250	210	186	193	223	248	258	249	222	191	184	203	245	279	293
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51	289	279	244	201	176	184	217	244	254	244	216	183	174	194	238	274	289
52	287	277	241	197	171	180	215	242	252	242	213	179	169	190	236	272	287
53	285	274	238	192	166	176	212	239	250	240	210	175	165	185	232	269	285
54	283	272	235	188	161	172	209	237	248	238	207	171	160	181	229	267	283
55	281	270	232	184	156	167	206	236	247	236	205	167	155	177	226	264	281
56	279	268	229	180	151	163	203	233	245	234	202	163	149	172	222	262	279
57	276	265	225	175	145	159	200	231	243	232	199	159	144	167	219	260	276
58	275	263	222	171	140	154	197	229	241	230	196	155	139	163	216	258	275
59	272	261	219	167	135	150	194	227	239	228	194	151	134	159	213	255	272
60	270	259	216	162	130	146	191	225	237	226	191	147	129	155	209	253	270
61	268	257	213	158	125	142	188	222	235	224	188	143	124	150	206	251	268
62	266	254	211	154	120	138	185	220	233	221	185	139	118	146	203	248	266
63	263	251	208	150	114	134	181	218	231	219	183	136	114	142	199	246	263

64	261	249	205	146	109	130	178	216	229	217	180	132	108	138	196	243	261
65	259	246	202	142	104	126	175	213	226	214	178	128	103	133	193	240	259
66	257	244	200	138	99	122	173	211	225	212	175	124	98	129	190	238	257
67	255	241	197	134	94	118	170	209	222	210	172	120	93	125	188	235	255
68	252	239	194	130	89	114	168	206	221	207	170	117	88	121	185	233	252
69	251	236	191	126	84	110	165	204	219	205	167	114	83	117	182	230	251
70	248	234	188	122	79	106	162	202	216	202	165	110	78	113	179	228	248
71	246	231	186	118	74	103	160	200	214	200	162	107	73	109	176	226	246
72	244	228	182	115	69	99	157	198	212	197	159	103	68	105	174	224	244
73	242	226	180	111	64	95	154	195	210	195	157	100	63	102	171	222	242
74	239	223	177	108	59	92	151	193	207	192	154	96	58	98	168	219	239
75	237	220	174	104	54	89	149	191	205	190	152	93	53	95	165	217	237
76	234	218	172	101	50	85	146	189	203	188	149	90	49	91	162	215	234
77	232	215	169	98	45	82	143	187	201	186	146	87	44	88	160	213	232
78	230	213	167	95	40	79	141	184	199	183	144	84	40	85	158	210	230
79	228	210	164	92	36	76	139	182	197	181	141	82	35	82	155	208	228
80	226	208	161	89	31	73	137	180	194	178	139	79	31	79	153	206	226
81	224	205	158	87	27	71	135	178	192	175	136	76	27	76	151	204	224
82	221	203	156	84	23	68	132	176	190	172	133	73	23	74	148	201	221
83	219	201	153	81	19	65	130	173	188	170	131	71	19	72	146	199	219
84	217	199	150	79	15	63	127	171	186	167	128	68	15	69	144	196	217
85	215	196	148	76	12	60	125	168	183	165	126	66	11	67	141	194	215
86	213	193	146	73	9	58	122	166	181	163	124	63	8	65	139	191	213
87	210	191	144	71	6	56	120	163	179	161	121	62	6	63	137	188	210
88	208	189	142	70	4	54	117	160	176	159	119	60	4	61	134	185	208
89	205	187	140	68	2	52	115	158	174	157	117	58	2	59	132	183	205
90	203	185	137	67	2	50	113	155	172	156	115	56	1	58	129	180	203
91	201	183	136	65	2	49	111	152	170	154	114	55	1	57	127	178	201
92	199	182	135	64	2	48	109	150	168	152	112	53	1	55	126	176	199
93	197	180	134	63	2	47	108	148	166	151	111	52	1	54	124	174	197
94	194	179	132	62	2	45	107	146	164	149	110	51	1	53	122	172	194
95	192	177	130	61	2	45	105	144	161	148	108	50	1	53	121	170	192
96	190	175	129	60	2	44	103	142	159	146	106	49	1	52	120	168	190

97	188	174	127	59	2	43	102	141	157	144	105	48	1	52	119	167	188
98	185	172	126	59	2	42	100	139	155	142	104	47	1	51	118	165	185
99	183	170	124	58	2	42	99	138	152	140	102	46	1	51	116	162	183
100	181	168	123	57	2	41	98	136	150	138	100	46	1	50	115	161	181
101	179	166	121	57	2	41	97	135	148	136	99	45	1	50	114	159	179
102	177	164	120	56	2	40	95	133	146	134	97	44	1	49	113	158	177
103	175	162	118	56	2	40	94	131	144	132	96	44	1	49	112	156	175
104	172	160	117	56	2	40	93	129	142	130	94	43	1	49	111	154	172
105	170	158	115	55	2	39	91	127	140	129	93	43	1	49	109	153	170
106	168	156	114	55	2	39	90	126	138	127	92	43	1	49	108	151	168
107	166	154	112	54	2	38	88	124	135	125	90	42	1	48	107	149	166
108	164	152	111	54	1	38	87	123	133	123	89	41	1	48	106	148	164
109	162	150	110	54	1	37	86	121	131	121	88	41	1	48	105	146	162
110	159	148	109	54	1	37	85	119	129	119	86	40	1	48	103	144	159
111	157	146	108	54	1	37	84	118	128	117	85	40	1	48	102	143	157
112	155	144	107	53	1	36	83	116	126	116	84	40	1	48	101	141	155
113	153	142	105	53	1	36	81	114	124	114	83	39	1	48	100	140	153
114	151	140	104	53	1	36	80	112	122	112	82	39	1	48	99	138	151
115	149	138	103	53	1	36	79	111	120	111	81	39	1	48	98	136	149
116	147	136	102	53	1	36	78	109	118	109	80	38	1	48	97	134	147
117	145	134	100	53	1	35	77	107	116	107	79	38	1	48	95	132	145
118	143	133	99	53	1	35	75	106	114	106	77	38	1	48	95	131	143
119	141	131	98	52	1	35	74	104	112	104	76	38	1	47	94	129	141
120	139	130	97	52	1	35	72	103	111	103	74	37	1	47	93	127	139
121	137	128	96	52	1	34	71	101	109	101	73	37	1	47	92	125	137
122	135	126	95	51	1	34	70	100	107	100	72	37	1	46	91	124	135
123	133	124	94	51	1	34	69	98	106	98	71	36	1	45	90	122	133
124	131	123	93	50	1	34	68	96	104	97	70	36	1	45	89	120	131
125	129	121	92	49	1	33	67	94	103	94	69	36	1	44	88	119	129
126	127	119	91	48	1	33	66	92	100	92	68	36	1	44	87	117	127
127	125	117	90	48	1	32	65	90	98	90	67	35	1	43	86	115	125
128	124	116	89	47	1	31	64	88	96	89	65	35	1	42	85	114	124
129	122	114	88	46	1	31	63	87	93	87	64	34	1	42	84	112	122

130	120	112	87	45	1	30	62	85	92	85	63	33	1	41	83	110	120
131	118	110	86	45	1	29	61	84	90	83	62	33	1	41	82	109	118
132	116	108	84	44	1	28	60	82	88	82	61	32	1	40	81	107	116
133	114	107	83	43	1	28	59	80	86	80	61	31	1	39	80	106	114
134	112	105	82	42	1	27	58	79	84	79	60	30	1	38	79	104	112
135	110	103	81	41	1	26	58	77	83	77	59	29	1	38	79	103	110
136	109	102	80	40	1	25	57	76	81	75	58	29	1	37	77	101	109
137	107	100	78	39	1	25	56	74	79	74	57	28	1	36	76	99	107
138	105	98	77	38	1	24	55	73	77	72	56	27	1	35	74	98	105
139	103	97	75	37	1	23	54	71	76	71	55	26	1	35	73	96	103
140	101	95	73	36	1	22	53	70	74	69	54	25	1	34	72	95	101
141	99	93	71	36	1	21	52	68	72	68	53	24	1	34	70	93	99
142	98	92	69	35	1	20	51	67	71	66	52	23	1	33	69	92	98
143	96	90	67	34	1	19	50	65	69	65	51	23	1	32	67	90	96
144	94	88	65	33	1	18	48	64	68	64	49	22	1	32	66	88	94
145	92	85	63	32	1	17	47	62	66	62	48	21	1	31	64	86	92
146	90	83	60	31	1	17	45	61	64	61	47	20	1	31	63	84	90
147	88	80	58	30	1	16	43	59	63	59	45	19	1	30	61	82	88
148	86	77	56	28	1	15	41	58	61	58	43	18	1	29	60	79	86
149	83	75	54	27	1	14	40	56	59	56	41	17	1	29	58	77	83
150	81	72	51	26	1	12	38	55	58	55	40	16	1	28	57	75	81
151	78	69	49	25	1	11	36	53	56	53	38	15	1	28	55	72	78
152	75	66	46	23	1	10	35	51	54	51	36	14	1	27	53	70	75
153	72	63	44	22	1	9	33	48	52	49	34	13	1	26	52	67	72
154	69	60	41	20	1	8	31	46	50	47	33	12	1	26	50	65	69
155	67	58	39	19	1	7	29	43	48	44	31	11	1	25	48	62	67
156	64	55	35	18	1	6	27	41	45	42	29	10	1	24	46	60	64
157	61	52	32	17	1	6	24	39	43	40	27	9	2	24	45	57	61
158	58	49	29	16	1	5	22	36	40	37	25	8	2	23	43	55	58
159	55	46	26	14	1	4	20	34	37	35	24	7	2	22	41	52	55
160	51	43	24	13	1	3	18	31	35	32	22	6	2	21	39	49	51
161	48	39	22	12	1	3	16	29	32	30	20	5	2	21	37	47	48
162	45	35	20	11	1	2	15	27	30	27	18	4	2	20	35	44	45

163	42	32	18	10	1	2	13	24	27	25	16	3	2	19	33	41	42
164	39	28	16	9	1	2	12	21	25	23	14	3	2	18	31	38	39
165	36	25	14	8	1	2	10	18	22	20	12	2	2	17	29	35	36
166	33	22	12	7	1	1	8	16	19	18	11	2	2	15	27	33	33
167	30	19	10	6	1	1	7	13	17	15	9	2	2	14	25	30	30
168	27	16	9	5	1	1	5	11	14	13	7	2	2	13	22	27	27
169	23	15	7	4	1	1	4	9	12	11	5	2	2	11	20	24	23
170	20	13	6	3	1	2	3	7	9	8	4	2	2	10	18	21	20
171	16	11	4	3	1	2	2	5	7	6	2	2	2	8	15	18	16
172	13	8	3	2	1	2	2	3	5	4	2	2	2	7	13	15	13
173	10	6	3	2	1	2	2	2	3	2	2	2	2	5	10	13	10
174	7	5	2	2	2	2	1	2	2	2	2	2	2	4	8	10	7
175	4	3	2	2	2	2	1	1	1	1	2	2	2	3	6	7	4
176	2	2	2	2	2	2	1	1	1	1	2	2	2	2	3	4	2
177	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2
178	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2	1	2
179	2	2	2	2	2	2	2	1	2	1	2	2	2	2	1	1	2
180	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	1	2

2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction HL-WI-EE-001, HL-WI-EE-002)

Test date	2021-01-25	Test Ambient:	25.1 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-GT804-DIM-14W-65KB-SF		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL210125 01-903	120.0	60	0.120	14.14	0.981	18.11
	277.0	60	0.055	14.07	0.929	21.36
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

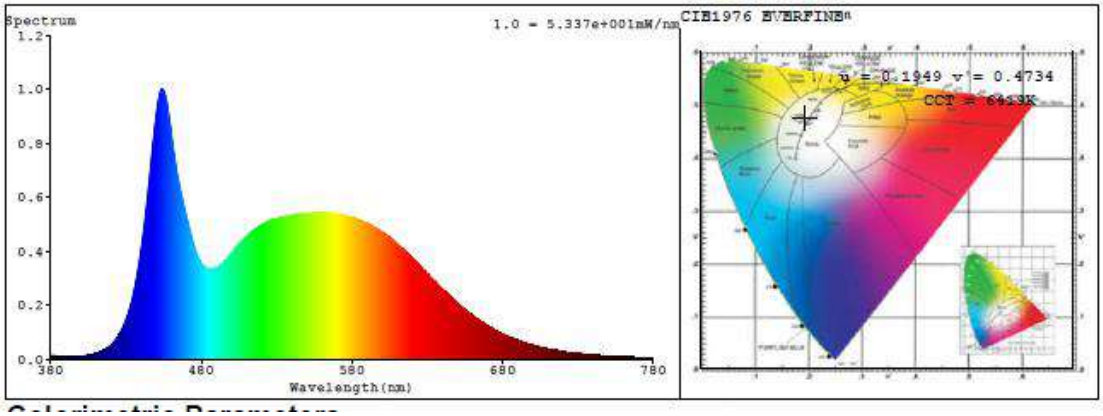
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	6419
Duv	0.00756
Chromaticity (x, y)	x = 0.3136 y = 0.3385
Chromaticity (u', v')	u' = 0.1949 v'= 0.4734
Color Rendering Index (CRI)	83.0
R9	3
Rf	85
Rg	94
Rcs,h1(%)	-12

Special Color Rendering Indices			
R1	80	R9	3
R2	89	R10	74
R3	94	R11	78
R4	80	R12	59
R5	81	R13	83
R6	85	R14	97
R7	88	R15	75
R8	67	--	--

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)	1883.9	1879.1	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	133.23	133.55	Bare lamp: >= 120(-3%)
Most worst Luminous/Highest Watts	132.89		

Spectral Power Distribution & Chromaticity Diagram



2.4 Performance Assessment:

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
IK-GT804-DIM-14W-30KB-SF	1738.30	14.21	122.33
IK-GT804-DIM-14W-35KB-SF	1756.50	14.20	123.70
IK-GT804-DIM-14W-40KB-SF	1774.70	14.19	125.07
IK-GT804-DIM-14W-41KB-SF	1792.90	14.18	126.44
IK-GT804-DIM-14W-45KB-SF	1811.10	14.18	127.72
IK-GT804-DIM-14W-50KB-SF	1829.30	14.17	129.10
IK-GT804-DIM-14W-57KB-SF	1847.50	14.17	130.38
IK-GT804-DIM-14W-65KB-SF	1883.90	14.14	133.23

3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometeric System	GPM-3000	91N827816	2021-09-26
AC Power Source	CHP-1000	213630	2021-09-19
Total Luminous Flux Standard Lamp	24V150W	24V150W	2021-08-10
Digital Power Meter	WT500	TBS1012 C020506	2021-09-19
Integral Sphere (2M)	2m sphere	N.A	N/A
Digital Power Meter	PF310A	P609877CD1391157	2021-04-02
Optical Color and Electrical Measurement System	HAAS-2000	M108544CM5351115	2021-09-26
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 ********