

LM-79-08 Test Report

For

IKIO LED LIGHTING**(Brand Name: IKIO)**8470 Allison Pointe Blvd, Suite 128
Indianapolis, IN 46250**Dual Mode Internal Driver (UL Type A or B)**

Model name(s): IK-T804-0018-XXA&B-J

Representative (Tested) Model:

IK-T804-0018-30A&B-J

IK-T804-0018-35A&B-J

IK-T804-0018-40A&B-J

IK-T804-0018-50A&B-J

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

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: Sept.26,2017

Review By:

Tommy Liang

Manager: Tommy Liang

Note: 1.The results contained in this report pertain only to the rested samples.

2.This report does not imply product certification, approval, or endorsement by NVLAP, NIST,
or any agency of the Federal Government.**Laboratory: Standard-Tech Co. Ltd Testing Center****NVLAP CODE: 201011-0**

Report Format Number STD/QR4909-A/2

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1.1 Product Information:

Organization Name	IKIO LED LIGHTING	
Brand Name	IKIO	
Model Number	IK-T804-0018-XXA&B-J	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Dual Mode Internal Driver (UL Type A or B)	
Rated Voltage / Frequency	100~277 Vac, 50/60 Hz	
Nominal Power	18W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,5000K	
LED Manufacturer	EVERLIGHT ELECTRONICS CO.,LTD	
LED Model	67-21S Series	
Test Ballast	OSRAM SYLVANIA QTP 2x32T8/UNV ISN-SC	
Sample Number	GZE161131-AZ1,AZ2(3000K),AZ3(3500K),AZ4 (4000K),AZ5(5000K)	
Lamp Length	1200	mm
Lamp Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		
		

1.2 Test Specifications:

Date of Receipt	Sept.10,2017
Date of Test	Sept.12,2017
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	QD25

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.

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.

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 QD25)

Test date	2017-09-12	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T804-0018-30A&B-J with ballast OSRAM SYLVANIA QTP 2x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161131 -AZ1	120.0	60	0.1531	18.26	0.9942	5.91
	277.0	60	0.0677	18.04	0.9625	7.38
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

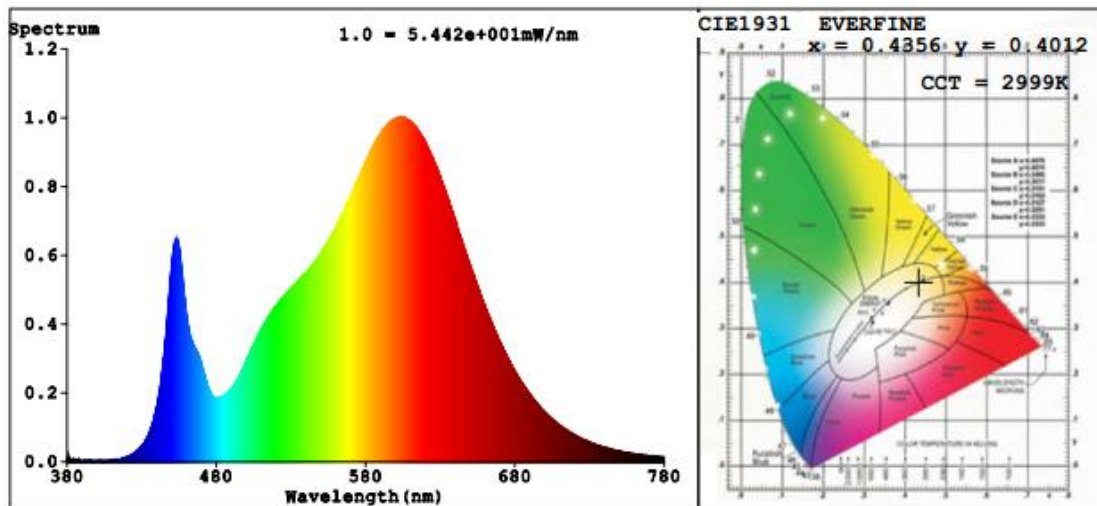
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	91	R10	80
CCT (K)	2999	R3	96	R11	78
Duv	-0.0010	R4	79	R12	68
Chromaticity (x, y)	x=0.4356 y=0.4012	R5	81	R13	83
Chromaticity (u', v')	u'=0.2509 v'=0.5200	R6	89	R14	99
Color Rendering Index (CRI)	82.1	R7	82	R15	74
R9	6	R8	58	--	--

Photometric Measurement for Bare-lamp –Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	2557	2557	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	140.03	141.74	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	140.03		

Spectral Power Distribution & Chromaticity Diagram



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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2017-09-12	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T804-0018-30A&B-J Connected to line voltage		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161131	120.0	60	0.1474	17.50	0.9893	8.36
-AZ1	277.0	60	0.0657	17.11	0.9408	12.15
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

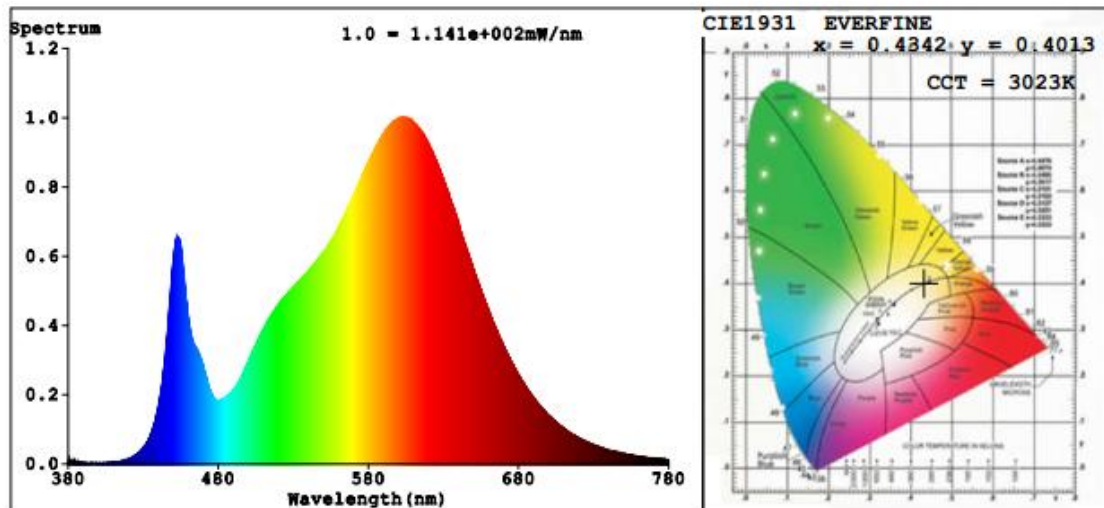
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	5
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3023	R3	96	R11	78
Duv	-0.0007	R4	79	R12	67
Chromaticity (x, y)	x=0.4342 y=0.4013	R5	81	R13	83
Chromaticity (u', v')	u'=0.2500 v'=0.5199	R6	89	R14	99
Color Rendering Index (CRI)	82.1	R7	82	R15	73
R9	5	R8	58	--	--

Photometric Measurement for Bare-lamp –Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	2488	2458	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	142.17	143.66	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	140.46		

Spectral Power Distribution & Chromaticity Diagram



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Summary

Sample No.	Test Method	Voltage (Vac)	Frequency (Hz)	Lumen Output(lm)	Lumen Efficacy(lm/w)	Power (W)
GZE161131-AZ1	With Ballast	120.0	60	2557	18.26	140.03
GZE161131-AZ1	Connected to line voltage	120.0	60	2488	17.50	142.17

The measured lumen efficacy of test condition “with ballast” was less than test condition “Connect to line voltage”. So the following test will be “with ballast”.

2.3 Electrical, Photometric and Chromaticity Measurements*(Refer to Work Instruction QD25)*

Test date	2017-09-12	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T804-0018-30A&B-J with ballast OSRAM SYLVANIA QTP 2x32T8/UNV ISN-SC		

Electrical Measurement for 2-lamp in Lithonia 2PM3N 12 cell 2x4 parabolic:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161131	120.0	60	0.3124	37.21	0.9926	6.04
-AZ1,AZ2	277.0	60	0.1387	36.95	0.9616	7.85
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

Chromaticity Measurement for 2-lamp in Lithonia 2PM3N 12 cell 2x4 parabolic - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	4
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3006	R3	96	R11	78
Duv	-0.0008	R4	79	R12	67
Chromaticity (x, y)	x=0.4354 y=0.4017	R5	80	R13	83
Chromaticity (u', v')	u'=0.2506 v'=0.5202	R6	89	R14	99
Color Rendering Index (CRI)	81.8	R7	82	R15	73
R9	4	R8	58	--	--

Photometric Measurement 2-lamp in Lithonia 2PM3N 12 cell 2x4 parabolic – Goniophotometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	4710.1	4725.5	In luminaire (3 lamps): >= 3000(-10%)
Luminous Efficacy (lm/W)	126.58	127.89	In luminaire: >= 100(-3%)
Most Worst Luminous/Highest Watts	126.58		
Zonal lumens in the 0-60° zone (%)	88.7	--	>= 75(-3)
SC: 0-180° (if applicable)	1.37	--	1.0-2.0(±0.1)
SC: 90-270° (if applicable)	1.18	--	1.0-2.0(±0.1)
Beam Angle (°)	108.6	--	--
Center Beam Candle Power (cd)	1807	--	--

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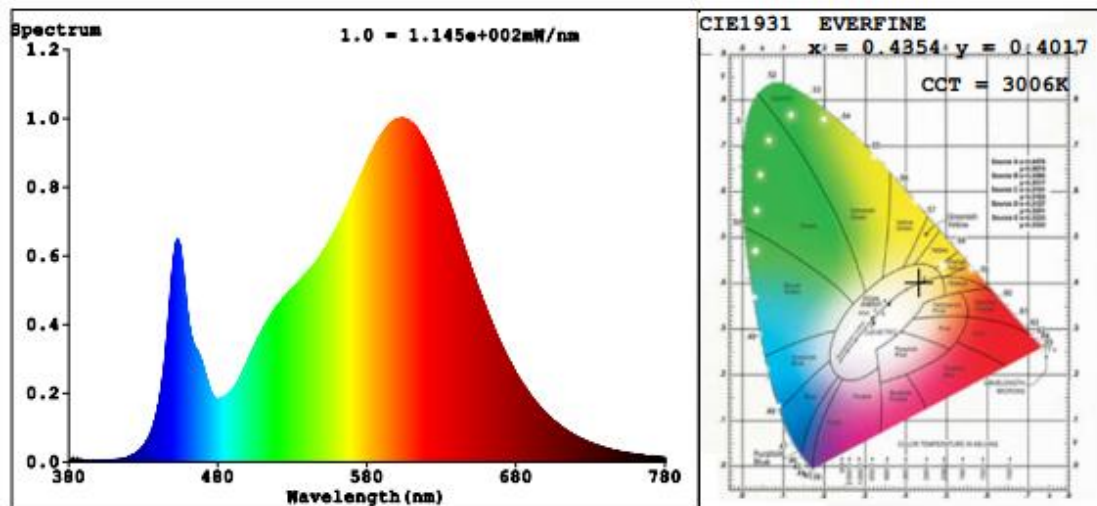
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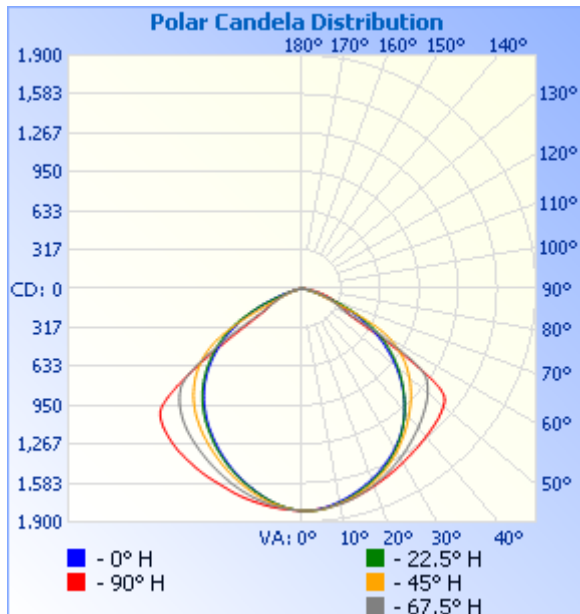
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Spectral Power Distribution & Chromaticity Diagram

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,395.0	29.6%
0-40	2,314.7	49.2%
0-60	4,177.4	88.7%
60-90	530.4	11.3%
70-100	134.3	2.9%
90-120	0.4	0%
0-90	4,707.8	100%
90-180	1.4	0%
0-180	4,709.3	100%

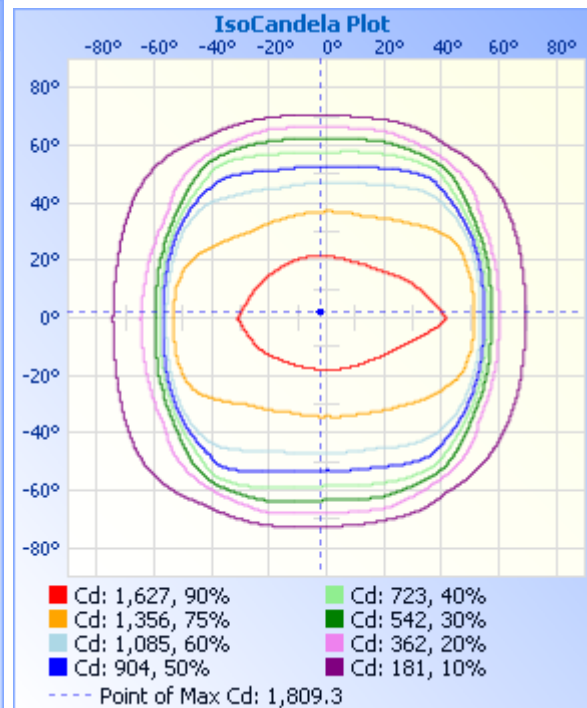
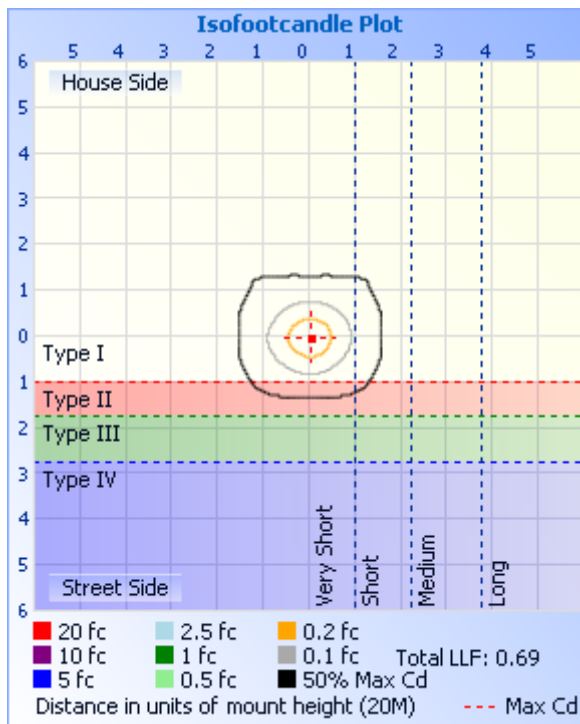
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	170.2	3.6%	90-100	0.0	0%
10-20	484.7	10.3%	100-110	0.1	0%
20-30	740.1	15.7%	110-120	0.3	0%
30-40	919.8	19.5%	120-130	0.2	0%
40-50	1,005.0	21.3%	130-140	0.2	0%
50-60	857.6	18.2%	140-150	0.2	0%
60-70	396.1	8.4%	150-160	0.2	0%
70-80	117.6	2.5%	160-170	0.1	0%
80-90	16.7	0.4%	170-180	0.1	0%

Photometric Data


Illuminance at a Distance

	Center Beam fc	Beam Width
20.0M	0.42 fc	52.9 M 59.0 M
40.0M	0.10 fc	105.9 M 117.9 M
60.0M	0.05 fc	158.8 M 176.9 M
80.0M	0.03 fc	211.8 M 235.9 M
100.0M	0.02 fc	264.7 M 294.9 M

■ Vert. Spread: 105.9°
■ Horiz. Spread: 111.7°



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Table--1

UNIT: cd

C (DEG) γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	
5	1800	1797	1795	1795	1797	1804	1805	1802	1797	1793	1790	1787	1782	1780	1785	1792	
10	1787	1783	1767	1756	1759	1771	1774	1780	1776	1769	1749	1738	1728	1729	1746	1766	
15	1768	1755	1724	1705	1710	1722	1736	1747	1746	1734	1699	1671	1662	1668	1691	1729	
20	1743	1720	1672	1646	1651	1664	1681	1702	1710	1688	1636	1600	1591	1601	1630	1685	
25	1719	1679	1613	1574	1582	1597	1615	1649	1672	1637	1567	1524	1512	1524	1563	1633	
30	1697	1638	1547	1496	1504	1515	1534	1594	1637	1586	1494	1440	1426	1440	1493	1582	
35	1671	1592	1479	1407	1409	1414	1445	1533	1602	1536	1420	1350	1336	1352	1420	1529	
40	1640	1542	1405	1307	1294	1296	1349	1470	1570	1486	1344	1258	1236	1254	1342	1471	
45	1595	1478	1314	1190	1157	1164	1250	1405	1538	1431	1268	1160	1122	1142	1249	1398	
50	1486	1386	1198	1053	1002	1023	1139	1332	1497	1373	1184	1048	985	1010	1132	1295	
55	792	1035	1039	894	831	870	1009	1214	1288	1273	1077	910	825	860	983	935	
60	341	391	790	702	641	694	833	624	508	698	916	745	647	688	735	360	
65	252	247	322	461	430	483	470	317	363	339	574	544	456	474	295	233	
70	167	159	143	206	209	244	188	228	268	245	215	306	255	232	143	150	
75	94.9	84.3	68.7	76.8	86.1	91.5	101	143	177	156	117	127	111	89.0	69.6	80.9	
80	42.0	36.3	29.3	30.6	33.5	36.6	43.1	65.3	84.8	72.2	51.1	46.1	39.2	32.9	29.3	34.4	
85	12.3	9.82	7.62	7.33	8.26	9.63	13.1	19.3	25.9	21.4	15.5	11.9	9.91	8.15	7.62	9.19	
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.68	0.00	
110	0.75	0.87	0.08	0.00	0.00	0.00	0.41	0.00	0.14	0.30	0.64	0.00	0.00	0.00	0.07	1.33	
115	0.49	0.37	0.00	0.00	0.00	0.00	0.00	0.79	1.65	1.33	0.79	0.00	0.00	0.00	0.07	0.59	
120	0.27	0.37	0.00	0.00	0.00	0.00	0.00	0.21	1.34	0.55	0.75	0.00	0.00	0.00	0.07	0.56	
125	0.27	0.38	0.00	0.00	0.00	0.00	0.00	0.23	0.80	0.59	0.70	0.00	0.00	0.00	0.07	0.58	
130	0.27	0.43	0.00	0.00	0.00	0.00	0.00	0.26	0.84	0.72	0.66	0.00	0.00	0.00	0.07	0.56	
135	0.27	0.50	0.00	0.00	0.00	0.00	0.00	0.33	0.96	0.79	0.62	0.00	0.00	0.00	0.07	0.54	
140	0.27	0.44	0.00	0.00	0.00	0.00	0.00	0.26	0.96	0.86	0.61	0.32	0.18	0.22	0.17	0.56	
145	0.27	0.36	0.00	0.00	0.00	0.00	0.00	0.23	0.96	0.88	0.61	0.53	0.48	0.34	0.29	0.58	
150	0.27	0.36	0.00	0.00	0.00	0.00	0.00	0.24	0.96	0.94	0.61	0.64	0.65	0.48	0.48	0.48	
155	0.27	0.36	0.00	0.00	0.00	0.07	0.00	0.25	0.96	0.90	0.61	0.63	0.68	0.51	0.55	0.53	
160	0.40	0.36	0.00	0.15	0.00	0.29	0.00	0.25	0.96	0.86	0.61	0.63	0.63	0.54	0.67	0.53	
165	0.42	0.36	0.15	0.31	0.45	0.49	0.27	0.26	0.96	0.83	0.61	0.62	0.62	0.57	0.66	0.68	
170	0.45	0.36	0.45	0.38	0.65	0.60	1.02	0.29	0.87	0.85	0.61	0.65	0.61	0.61	0.64	0.73	
175	0.47	0.36	0.45	0.62	0.63	0.69	0.62	0.32	0.74	0.71	0.61	0.64	0.61	0.64	0.62	0.58	
180	0.62	0.51	0.68	0.62	0.76	0.65	0.54	0.40	0.62	0.58	0.45	0.46	0.60	0.72	0.61	0.53	

2.4 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2017-09-12	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T804-0018-35A&B-J with ballast OSRAM SYLVANIA QTP 2x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161131 -AZ4	120.0	60	0.1542	18.34	0.9912	5.76
	277.0	60	0.0680	18.12	0.9619	7.68
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

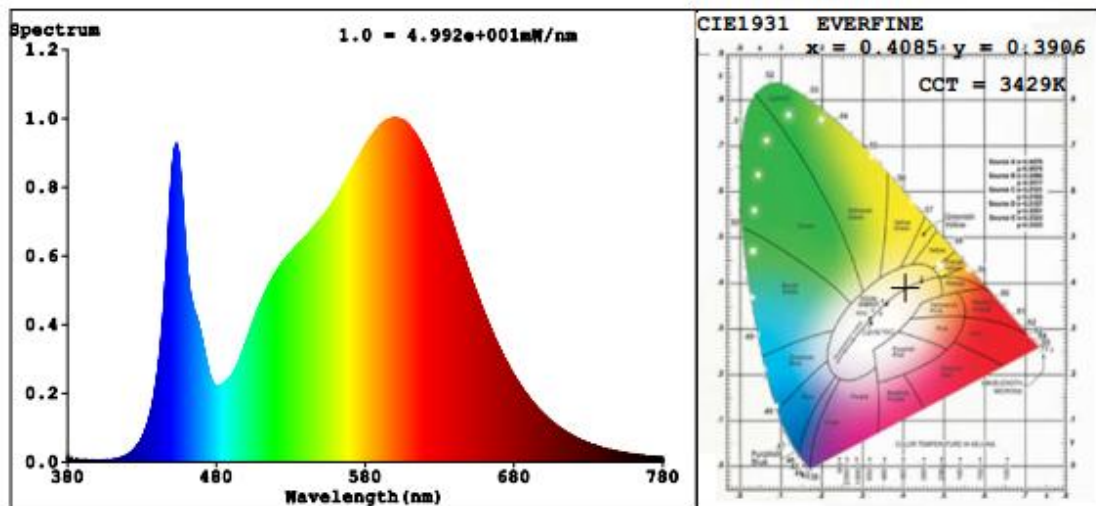
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	9
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	3429	R3	96	R11	79
Duv	-0.0008	R4	81	R12	62
Chromaticity (x, y)	x=0.4085 y=0.3906	R5	81	R13	84
Chromaticity (u', v')	u'=0.2379 v'=0.5117	R6	87	R14	98
Color Rendering Index (CRI)	82.8	R7	84	R15	75
R9	9	R8	62	--	--

Photometric Measurement for Bare-lamp –Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	2601	2590	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	141.82	142.94	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	141.22		

Spectral Power Distribution & Chromaticity Diagram



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2.5 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2017-09-12	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T804-0018-40A&B-J with ballast OSRAM SYLVANIA QTP 2x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161131 -AZ5	120.0	60	0.1564	18.60	0.9908	5.91
	277.0	60	0.0692	18.45	0.9626	7.97
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

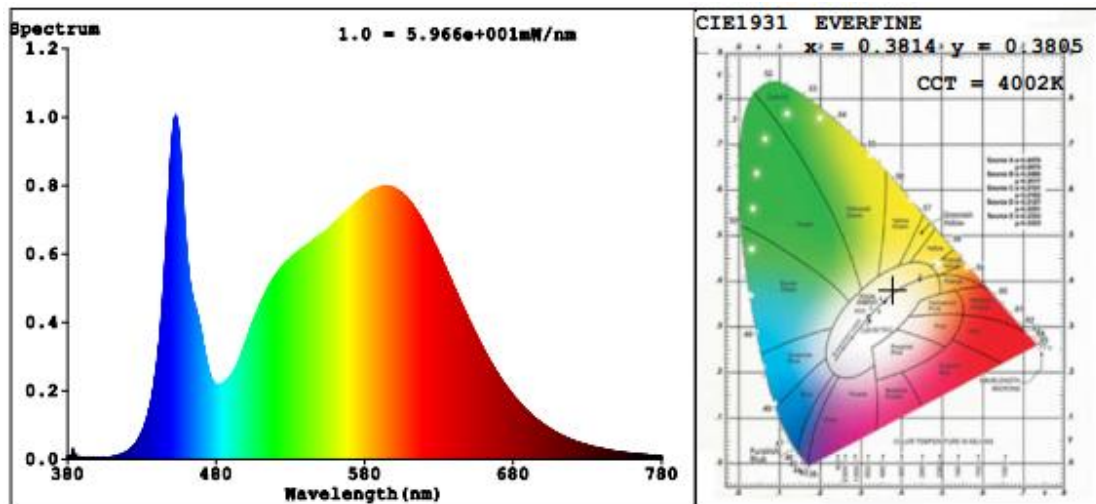
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	89	R10	72
CCT (K)	4002	R3	94	R11	79
Duv	0.0015	R4	81	R12	56
Chromaticity (x, y)	x=0.3814 y=0.3805	R5	80	R13	83
Chromaticity (u', v')	u'=0.2242 v'=0.5034	R6	84	R14	97
Color Rendering Index (CRI)	82.3	R7	86	R15	75
R9	7	R8	64	--	--

Photometric Measurement for Bare-lamp –Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	2661	2664	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	143.06	144.39	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	143.06		

Spectral Power Distribution & Chromaticity Diagram



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NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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2.6 Electrical, Photometric and Chromaticity Measurements*(Refer to Work Instruction QD25)*

Test date	2017-09-12	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T804-0018-50A&B-J with ballast OSRAM SYLVANIA QTP 2x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161131 -AZ6	120.0	60	0.1551	18.43	0.9900	6.39
	277.0	60	0.0686	18.26	0.9604	8.38
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

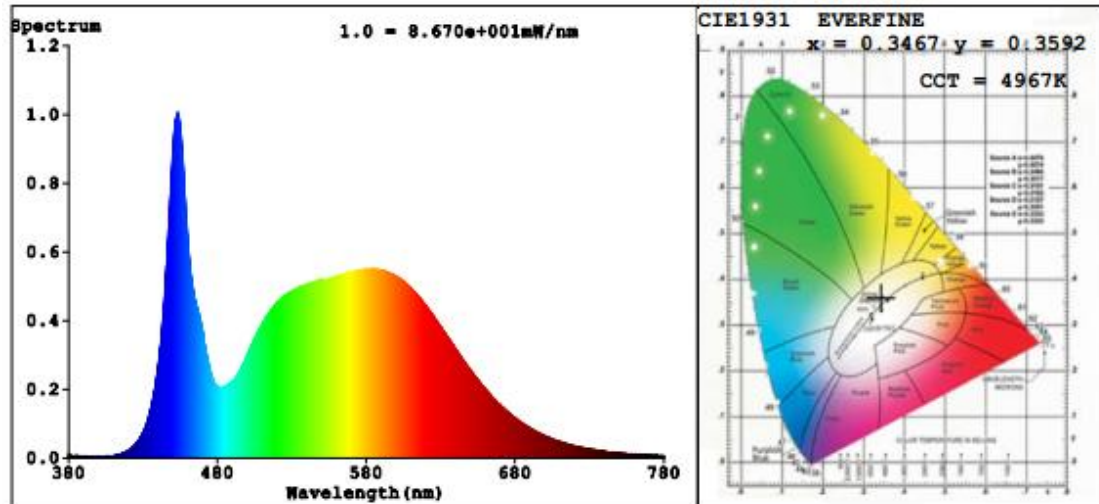
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	88	R10	71
CCT (K)	4967	R3	93	R11	78
Duv	0.0031	R4	80	R12	51
Chromaticity (x, y)	x=0.3467 y=0.3592	R5	80	R13	83
Chromaticity (u', v')	u'=0.2096 v'=0.4886	R6	82	R14	96
Color Rendering Index (CRI)	82.3	R7	88	R15	75
R9	7	R8	67	--	--

Photometric Measurement for Bare-lamp –Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	2657	2654	Bare Lamp: >= 1600(-10%)
Luminous Efficacy (lm/W)	144.17	145.35	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	144.00		

Spectral Power Distribution & Chromaticity Diagram



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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-327	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-12	2018-07-11
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
GO-R5000	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-12	2018-07-11
PF210	Power Meter for Goniophotometer	2017-07-07	2018-07-06
Expand Uncertainty: Photometric Measurement (Sphere):2.04%, k=2 Chromaticity Measurement(Sphere):28.8K, k=2 Photometric Measurement(Goniophotometer):2.36%, k=2			

******* END OF REPORT *******