

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-T802-NANO-0010-XXA&B-J

Representative (Tested) Model:
IK-T802-NANO-0010-30A&B-J
IK-T802-NANO-0010-35A&B-J
IK-T802-NANO-0010-40A&B-J
IK-T802-NANO-0010-50A&B-J

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

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: Apr.26,2017

Review By:

Tommy Liang

Manager: Tommy Liang

Note: 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

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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1.1 Product Information:

Organization Name	IKIO LED LIGHTING	
Brand Name	IKIO	
Model Number	IK-T802-NANO-0010-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	120~277 Vac, 50/60 Hz	
Nominal Power	10W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,5000K	
LED Manufacturer	Dongguan Sino-win Opto-Electronic Technology Co.,Ltd.	
LED Model	ZT2835WOM1	
Test Ballast	OSRAM SYLVANIA QHE 3x32T8/UNV ISN-SC	
Sample Number	GZE1714014-F1,F2,F3(3000K),F4(3500K),F5(4000K),F6(5000K)	
Lamp Length	600	mm
Lamp Width	--	mm
Number of Units (modular products)	N/A	s

Photo

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1.2 Test Specifications:

Date of Receipt	Apr.22,2017
Date of Test	Apr.23,2017
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	2017-04-23	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T802-NANO-0010-30A&B-J with ballast OSRAM SYLVANIA QHE 3x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171401	120.0	60	0.0816	9.743	0.9954	7.43
4-F1	277.0	60	0.0396	9.693	0.8839	10.71
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

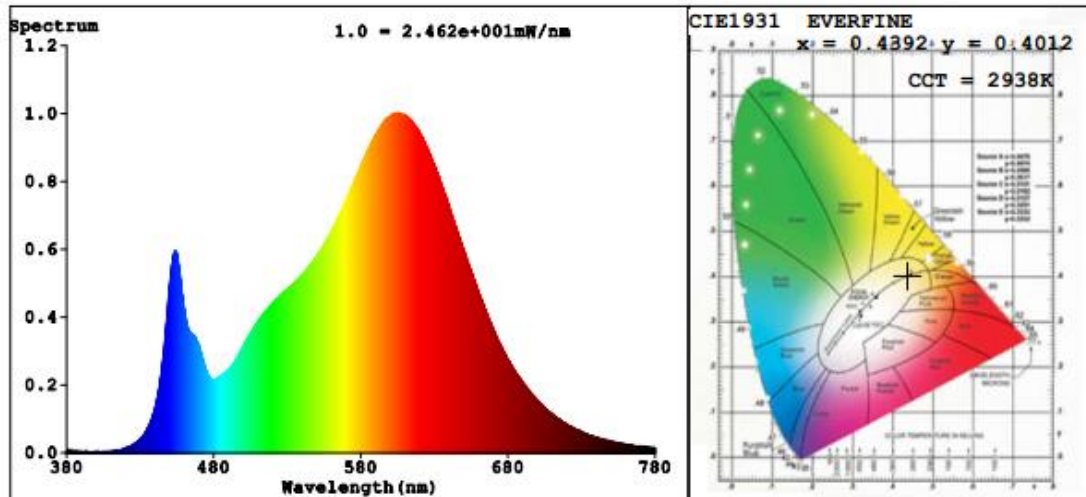
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	13
Frequency (Hz)	60	R2	94	R10	86
CCT (K)	2938	R3	94	R11	81
Duv	-0.0015	R4	81	R12	74
Chromaticity (x, y)	x=0.4392 y=0.4012	R5	84	R13	86
Chromaticity (u', v')	u'=0.2533 v'=0.5206	R6	93	R14	98
Color Rendering Index (CRI)	83.9	R7	82	R15	76
R9	13	R8	60	--	--

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)	1167	1162	Bare Lamp: >= 800(-10%)
Luminous Efficacy (lm/W)	119.78	119.88	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	119.27		

Spectral Power Distribution & Chromaticity Diagram



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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2017-04-23	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T802-NANO-0010-30A&B-J Connected to line voltage		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171401	120.0	60	0.0763	9.081	0.9918	9.55
4-F1	277.0	60	0.0370	9.007	0.8795	13.19
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

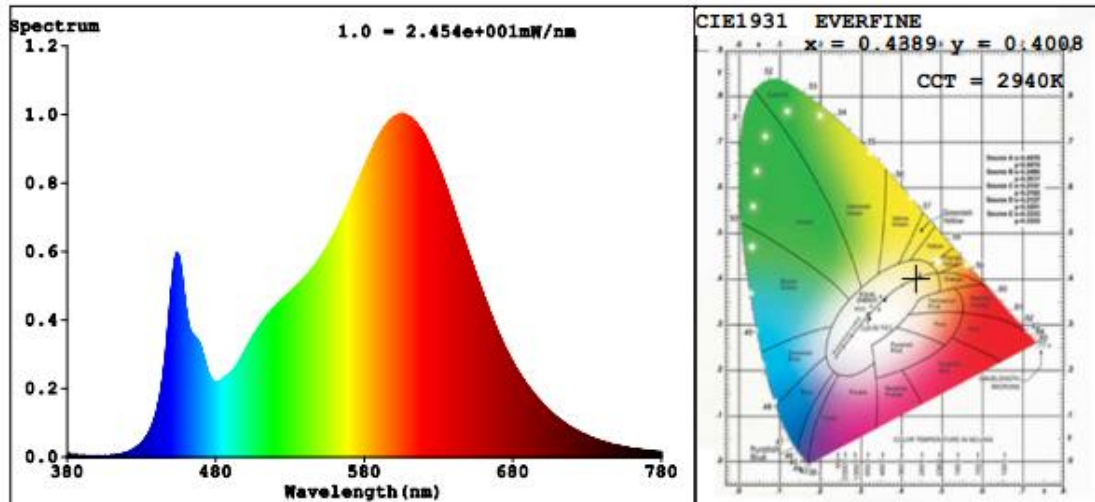
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	13
Frequency (Hz)	60	R2	94	R10	86
CCT (K)	2940	R3	94	R11	81
Duv	-0.0016	R4	81	R12	74
Chromaticity (x, y)	x=0.4389 y=0.4008	R5	84	R13	86
Chromaticity (u', v')	u'=0.2533 v'=0.5204	R6	93	R14	98
Color Rendering Index (CRI)	83.8	R7	82	R15	76
R9	13	R8	60	--	--

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)	1123	1115	Bare Lamp: >= 800(-10%)
Luminous Efficacy (lm/W)	123.66	123.79	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	122.78		

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)
GZE1714014-F1	With Ballast	120.0	60	1167	9.743	119.78
GZE1714014-F1	Connected to line voltage	120.0	60	1123	9.081	123.66

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	2017-04-23	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T802-NANO-0010-30A&B-J with ballast OSRAM SYLVANIA QHE 3x32T8/UNV ISN-SC		

Electrical Measurement for 3-lamp in Lithonia 2GT8 lensed 2x2:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171401	120.0	60	0.2443	29.23	0.9969	7.48
4-F1,F2,F3	277.0	60	0.1187	29.08	0.8846	11.15
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

**Chromaticity Measurement for 3-lamp in Lithonia 2GT8 lensed 2x2 -
Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	14
Frequency (Hz)	60	R2	94	R10	87
CCT (K)	2910	R3	94	R11	81
Duv	-0.0020	R4	81	R12	76
Chromaticity (x, y)	x=0.4405 y=0.4002	R5	84	R13	87
Chromaticity (u', v')	u'=0.2546 v'=0.5204	R6	93	R14	97
Color Rendering Index (CRI)	84.0	R7	81	R15	76
R9	14	R8	60	--	--

**Photometric Measurement 3-lamp in Lithonia 2GT8 lensed 2x2 –
Goniophotometer Method:**

Color photometer Method:

Parameter	Result		DLC V4.2 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	2878.8	2866.2	In luminaire (3 lamps): >= 2000(-10%)
Luminous Efficacy (lm/W)	98.49	98.56	In luminaire: >= 100(-3%)
Most Worst Luminous/Highest Watts	98.06		
Zonal lumens in the 0-60 °zone (%)	85.5	--	>= 75(-3)
SC: 0-180 °(if applicable)	1.23	--	1.0-2.0(±0.1)
SC: 90-270 °(if applicable)	1.14	--	1.0-2.0(±0.1)
Beam Angle (°)	90.1	--	--
Center Beam Candle Power (cd)	1325	--	--

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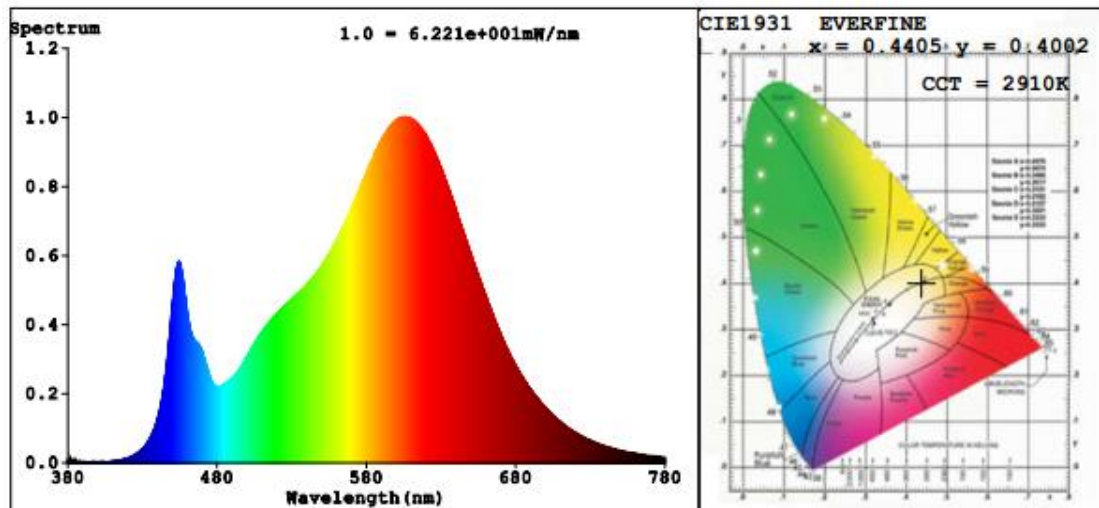
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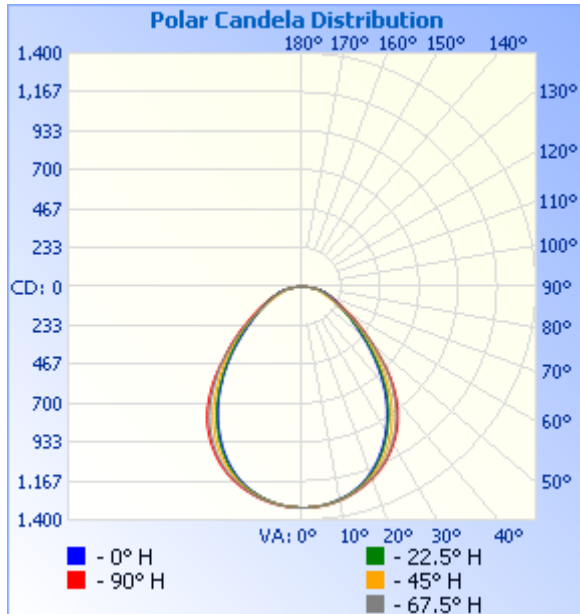
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Spectral Power Distribution & Chromaticity Diagram

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,001.6	34.8%
0-40	1,582.5	55%
0-60	2,461.7	85.5%
60-90	415.2	14.4%
70-100	185.9	6.5%
90-120	0.3	0%
0-90	2,876.8	99.9%
90-180	1.6	0.1%
0-180	2,878.4	100%

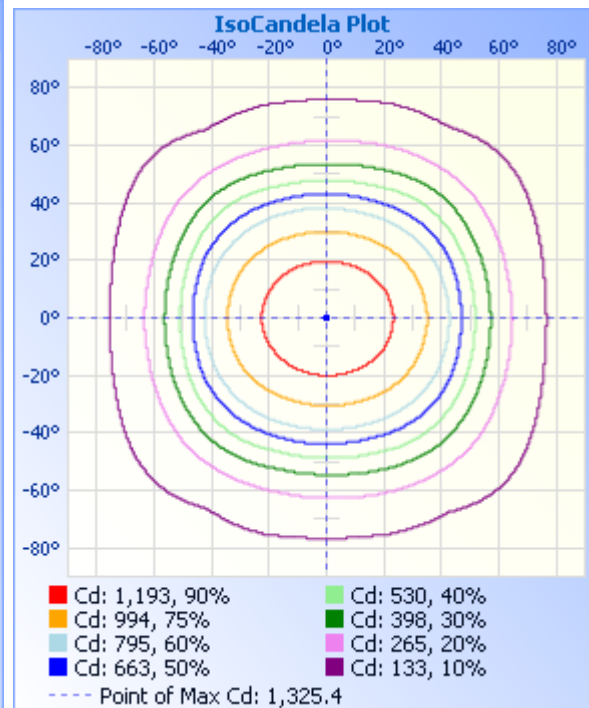
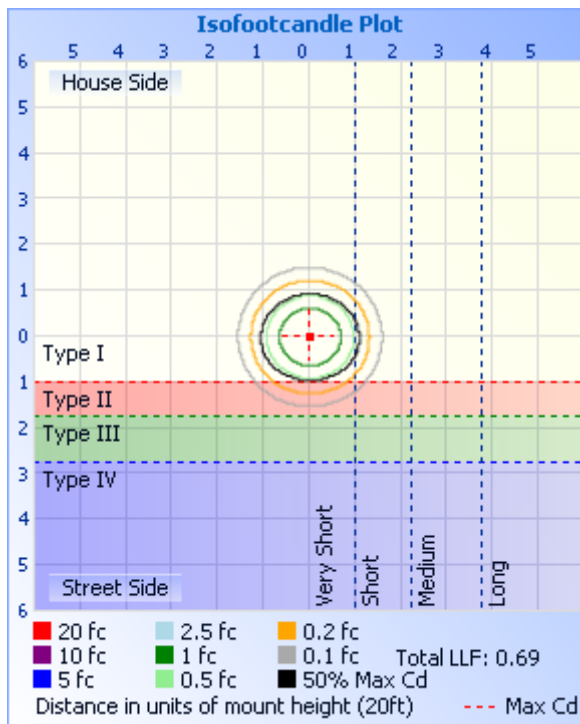
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	125.2	4.3%	90-100	0.0	0%
10-20	355.1	12.3%	100-110	0.0	0%
20-30	521.2	18.1%	110-120	0.3	0%
30-40	580.9	20.2%	120-130	0.4	0%
40-50	513.4	17.8%	130-140	0.4	0%
50-60	365.8	12.7%	140-150	0.3	0%
60-70	229.3	8.0%	150-160	0.2	0%
70-80	140.5	4.9%	160-170	0.1	0%
80-90	45.4	1.6%	170-180	0.0	0%

Photometric Data


Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	4.59 fc	32.0 ft 36.3 ft
34.0ft	1.15 fc	64.0 ft 72.6 ft
51.0ft	0.51 fc	96.1 ft 108.9 ft
68.0ft	0.29 fc	128.1 ft 145.2 ft
85.0ft	0.18 fc	160.1 ft 181.5 ft
102.0ft	0.13 fc	192.1 ft 217.8 ft

■ Vert. Spread: 86.6°
 ■ Horiz. Spread: 93.8°


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Table--1

UNIT: cd

γ (DEG) \ C (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	
5	1320	1320	1320	1318	1318	1318	1320	1320	1320	1319	1318	1317	1317	1317	1318	1319	
10	1302	1301	1298	1296	1295	1296	1300	1302	1302	1300	1297	1293	1292	1293	1296	1299	
15	1270	1267	1262	1256	1254	1258	1264	1268	1270	1264	1259	1252	1249	1251	1258	1266	
20	1227	1220	1209	1196	1192	1199	1210	1222	1227	1217	1203	1191	1185	1191	1204	1219	
25	1167	1157	1135	1113	1107	1117	1140	1161	1168	1155	1130	1107	1100	1109	1132	1156	
30	1088	1070	1040	1010	1003	1016	1050	1080	1091	1072	1039	1005	996	1007	1039	1071	
35	991	966	925	890	885	900	941	981	998	971	930	890	878	888	926	967	
40	865	840	793	757	753	772	811	860	877	850	802	764	747	758	794	840	
45	714	703	660	621	616	630	671	718	732	709	661	625	616	624	663	703	
50	567	558	534	497	485	496	539	567	569	561	533	492	489	502	536	561	
55	441	421	409	386	376	381	411	427	439	424	407	380	379	390	411	425	
60	334	309	301	297	294	288	295	309	330	305	293	288	296	299	304	312	
65	257	230	217	233	231	224	208	225	249	222	208	225	233	233	220	235	
70	195	174	158	186	184	179	151	172	190	168	151	181	185	186	160	179	
75	143	129	118	142	146	138	116	131	141	127	115	141	144	141	119	134	
80	97.6	87.0	85.7	98.0	102	96.2	85.4	88.2	95.9	85.5	85.0	97.6	101	94.9	86.6	89.2	
85	40.3	37.5	36.8	48.1	46.1	48.6	39.3	39.9	40.6	37.4	38.4	47.9	46.0	46.1	37.8	39.0	
90	0.00	0.00	0.00	0.02	0.01	0.04	0.01	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	0.00	0.00	0.00	0.00	0.00	
105	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	0.38	0.32	0.11	0.33	0.11	0.30	0.00	0.00	0.00	0.13	0.32	
115	0.38	0.22	0.21	0.00	0.00	0.33	0.58	0.43	0.49	0.43	0.38	0.00	0.00	0.00	0.33	0.49	
120	0.45	0.42	0.31	0.00	0.00	0.29	0.54	0.54	0.77	0.52	0.39	0.05	0.00	0.00	0.41	0.57	
125	0.48	0.59	0.43	0.25	0.00	0.49	0.49	0.61	0.78	0.51	0.41	0.18	0.25	0.30	0.56	0.60	
130	0.62	0.54	0.43	0.33	0.43	0.51	0.45	0.63	0.80	0.49	0.39	0.25	0.43	0.37	0.59	0.63	
135	0.76	0.68	0.17	0.53	0.43	0.54	0.38	0.65	0.78	0.50	0.20	0.28	0.57	0.43	0.16	0.43	
140	1.01	0.79	0.12	0.48	0.43	0.47	0.27	0.67	0.71	0.51	0.00	0.31	0.44	0.49	0.06	0.41	
145	0.95	0.64	0.05	0.43	0.54	0.45	0.00	0.70	0.63	0.52	0.00	0.34	0.44	0.54	0.16	0.39	
150	0.82	0.60	0.00	0.46	0.53	0.53	0.00	0.64	0.53	0.53	0.00	0.37	0.43	0.44	0.24	0.27	
155	0.71	0.36	0.00	0.48	0.51	0.47	0.00	0.57	0.54	0.54	0.07	0.18	0.37	0.46	0.33	0.00	
160	0.60	0.16	0.00	0.49	0.50	0.40	0.00	0.43	0.60	0.52	0.14	0.00	0.31	0.47	0.36	0.00	
165	0.55	0.19	0.00	0.33	0.49	0.34	0.00	0.36	0.55	0.49	0.22	0.00	0.35	0.49	0.44	0.05	
170	0.52	0.16	0.00	0.38	0.61	0.37	0.00	0.34	0.52	0.47	0.22	0.00	0.51	0.73	0.53	0.14	
175	0.50	0.12	0.00	0.56	0.65	0.43	0.05	0.33	0.38	0.44	0.15	0.00	0.72	0.65	0.47	0.11	
180	0.49	0.11	0.00	0.54	0.65	0.43	0.05	3.36	0.38	0.43	0.11	0.00	0.54	0.65	0.43	0.05	

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

Test date	2017-04-23	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T802-NANO-0010-35A&B-J with ballast OSRAM SYLVANIA QHE 3x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171401	120.0	60	0.0822	9.825	0.9958	7.27
4-F4	277.0	60	0.0400	9.782	0.8828	11.13
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

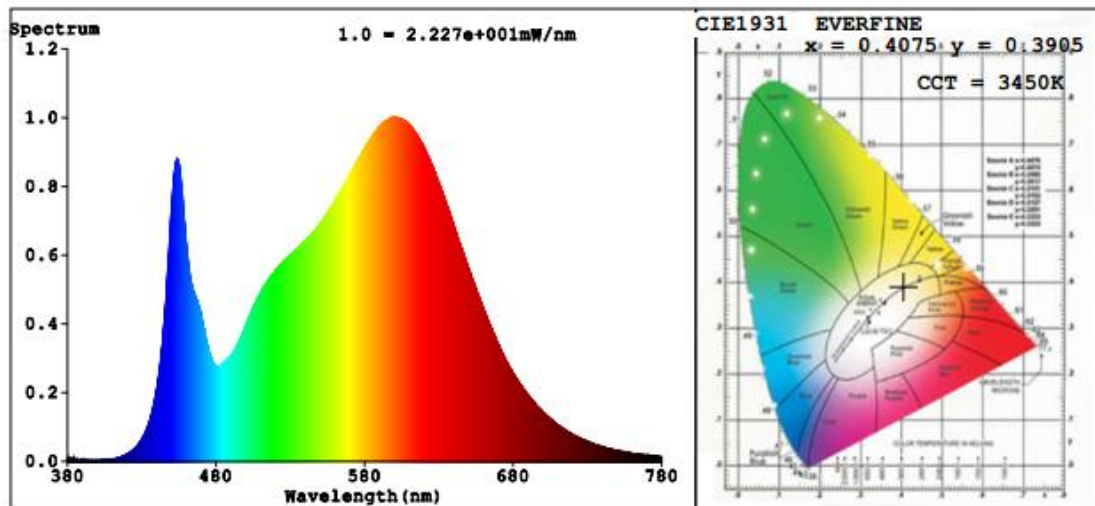
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	15
Frequency (Hz)	60	R2	93	R10	83
CCT (K)	3450	R3	96	R11	81
Duv	-0.0006	R4	82	R12	67
Chromaticity (x, y)	x=0.4075 y=0.3905	R5	84	R13	86
Chromaticity (u', v')	u'=0.2373 v'=0.5115	R6	90	R14	99
Color Rendering Index (CRI)	84.5	R7	84	R15	77
R9	15	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)	1201	1197	Bare Lamp: >= 800(-10%)
Luminous Efficacy (lm/W)	122.24	122.37	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	121.83		

Spectral Power Distribution & Chromaticity Diagram



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

Test date	2017-04-23	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T802-NANO-0010-40A&B-J with ballast OSRAM SYLVANIA QHE 3x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171401	120.0	60	0.0815	9.762	0.9976	7.24
4-F5	277.0	60	0.0397	9.728	0.8837	11.47
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

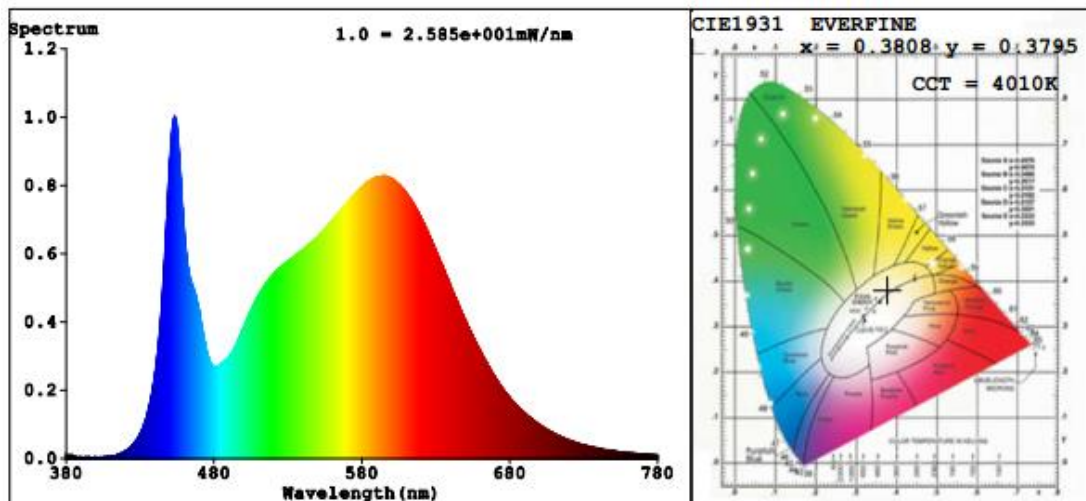
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	91	R10	77
CCT (K)	4010	R3	96	R11	79
Duv	0.0012	R4	80	R12	60
Chromaticity (x, y)	x=0.3808 y=0.3795	R5	81	R13	84
Chromaticity (u', v')	u'=0.2242 v'=0.5028	R6	87	R14	98
Color Rendering Index (CRI)	83.0	R7	85	R15	75
R9	6	R8	63	--	--

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)	1214	1211	Bare Lamp: >= 800(-10%)
Luminous Efficacy (lm/W)	124.36	124.49	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	124.05		

Spectral Power Distribution & Chromaticity Diagram



Laboratory: Standard-Tech Co. Ltd Testing Center
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	2017-04-23	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	IK-T802-NANO-0010-50A&B-J with ballast OSRAM SYLVANIA QHE 3x32T8/UNV ISN-SC		

Electrical Measurement for Bare-lamp:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171401	120.0	60	0.0818	9.771	0.9952	7.32
4-F6	277.0	60	0.0398	9.727	0.8830	11.43
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

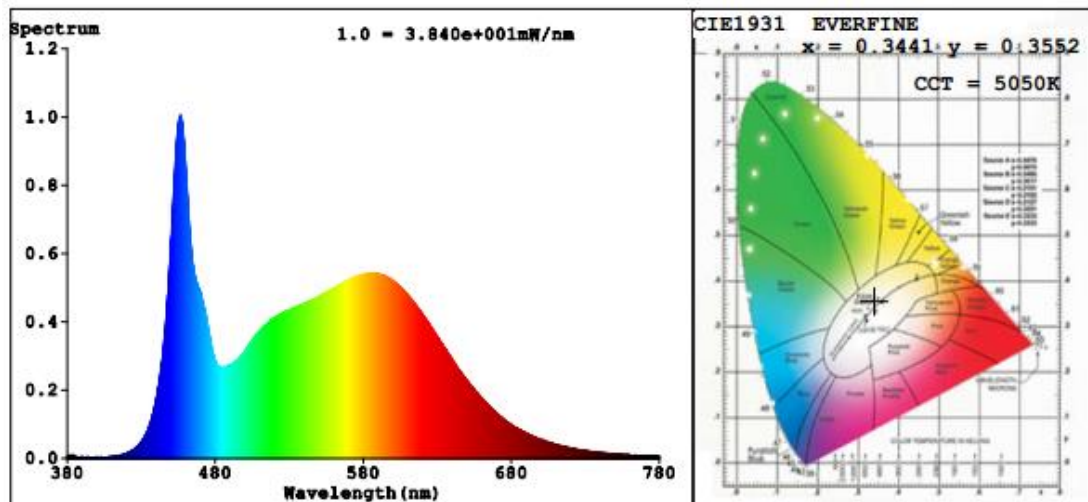
Chromaticity Measurement for Bare-lamp - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	4
Frequency (Hz)	60	R2	93	R10	82
CCT (K)	5050	R3	94	R11	78
Duv	0.0022	R4	79	R12	61
Chromaticity (x, y)	x=0.3441 y=0.3552	R5	82	R13	86
Chromaticity (u', v')	u'=0.2093 v'=0.4863	R6	88	R14	98
Color Rendering Index (CRI)	83.1	R7	83	R15	76
R9	4	R8	63	--	--

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)	1229	1225	Bare Lamp: >= 800(-10%)
Luminous Efficacy (lm/W)	125.78	125.94	Bare lamp: >= 110(-3%)
Most Worst Luminous/Highest Watts	125.37		

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	2016-07-01	2017-06-30
ST-R-327	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-12	2017-07-11
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
GO-R5000	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-12	2017-07-11
PF210	Power Meter for Goniophotometer	2016-07-07	2017-07-06
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 *******