

LM-79-08 Test Report

For

Antec Lighting Inc

(Brand Name: )

Quality, Honesty, Service and Innovation

Uniy C, 3979 E Guasti Road, Ontario, CA 91761

Architectural Flood and Spot Luminaires

Model name(s): AOK-750WoF-NV-L5-XX-XX70-15-P

Remark: The first "XX" can be "00" for without sensor or "PH" for Plug-In photocontrol, The last "XX" represents different CCT as below: 30=3000K, 40=4000K, 50=5000K, 57=5700K, "P" represents mounting option which can be as following: A; B; C

Representative (Tested) Model:

AOK-750WoF-NV-L5-00-3070-15-C

AOK-750WoF-NV-L5-00-5770-15-C

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

Test & Report By:

Leo Wang

Engineer: Leo Wang

Date: Jan.16,2020

Review By:

Garman Mo

Manager: Garman Mo

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

2.This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.

1.1 Product Information:


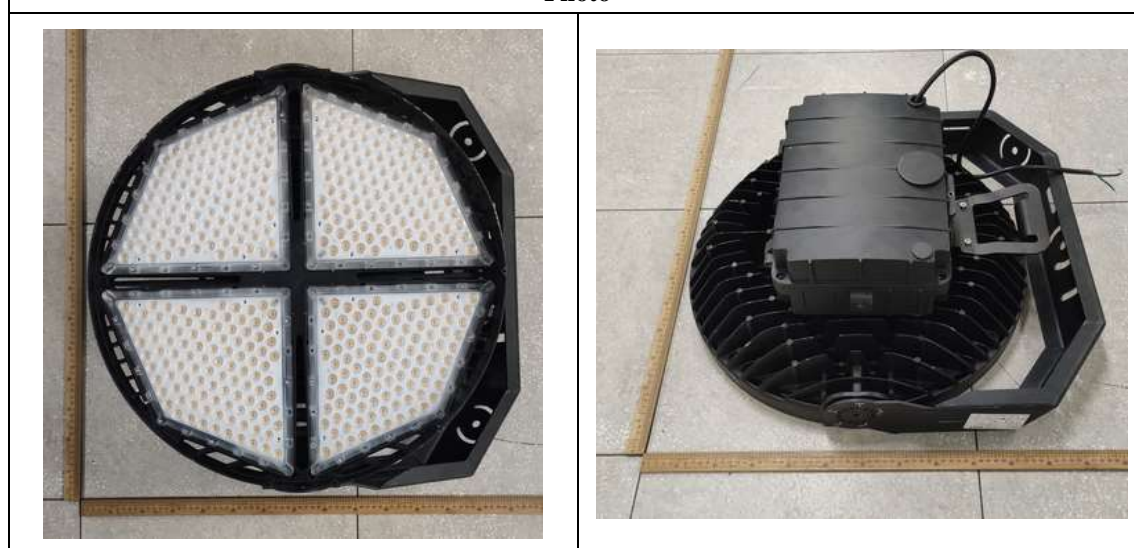
Organization Name	Antec Lighting Inc	
Brand Name	 Quality, Honesty, Service and Innovation	
Model Number	AOK-750WoF-NV-L5-XX-XX70-15-P	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	100-277Vac, 50/60Hz	
Nominal Power	750W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K,5000K,5700K	
LED Manufacturer	LUMILEDS	
LED Model	LUXEON 5050	
Sample Number	JAE191234-A1(3000K),A2(5700K)	
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	Dec.29,2019
Date of Test	Dec.31,2019
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

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

Test date	2019-12-31	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	AOK-750WoF-NV-L5-00-3070 -15-C	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE191234-	120.2	60	6.265	753.2	0.9997	2.43
A1	277.0	60	2.607	709.1	0.9819	5.89
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer

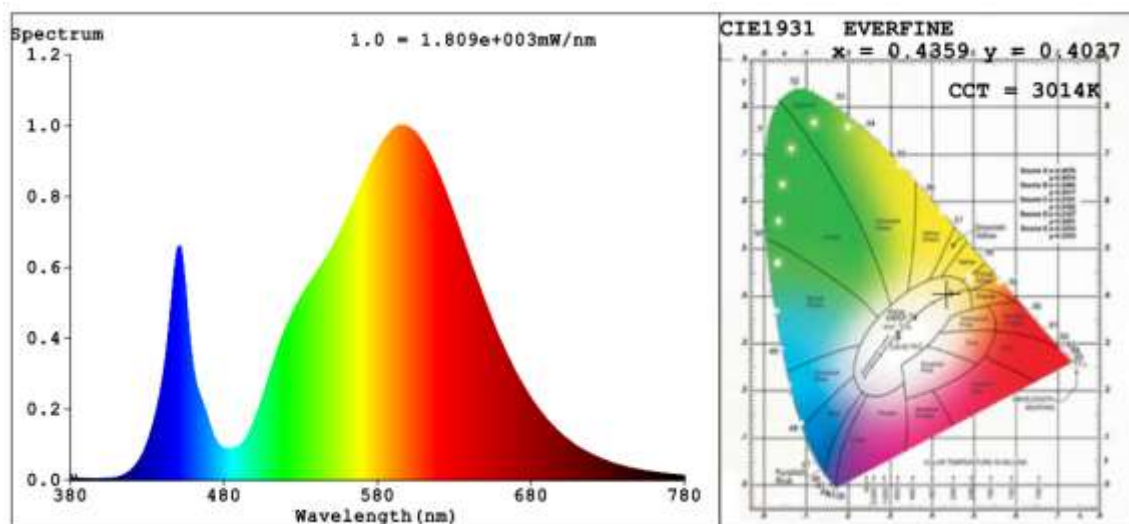
Method(Self-absorption:1.2138):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	70	R9	0
Frequency (Hz)	60	R2	82	R10	58
CCT (K)	3014	R3	92	R11	65
Duv	-0.0000	R4	70	R12	47
Chromaticity (x, y)	x=0.4359 y=0.4037	R5	69	R13	73
Chromaticity (u', v')	u'=0.2501 v'=-0.5211	R6	75	R14	95
Color Rendering Index (CRI)	73.3	R7	80	R15	64
R9	0	R8	48	--	--

Photometric Measurement – Goniophotometer Method(Test Distance: 26.000m):

Parameter	Result		DLC V4.4 Pass Criteria	
Test Voltage (V)	120.2	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	109648	108648	>=10000 (-10%)	
Luminous Efficacy (lm/W)	145.58	153.21	Standard: >= 105(-3%)	Premium: >= 130(-3%)
Zonal lumens in the 0-90 °zone (%)	99.6	--	>= 85(-3)	
Beam Angle (°)	21.2	--	--	
Center Beam Candle Power (cd)	360140	--	--	

Spectral Power Distribution & Chromaticity Diagram

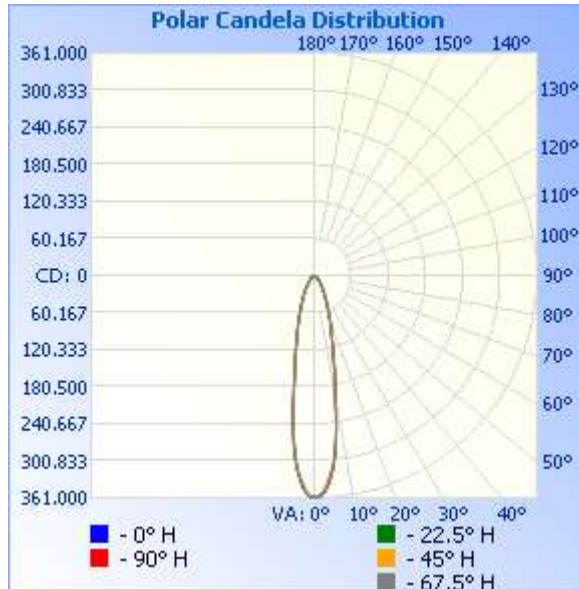


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	79,868.6	72.9%
0-40	92,703.0	84.6%
0-60	105,149.4	96%
60-90	3,962.4	3.6%
70-100	1,310.8	1.2%
90-120	36.3	0%
0-90	109,111.8	99.6%
90-180	452.6	0.4%
0-180	109,564.4	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	26,267.4	24.0%	90-100	6.8	0%
10-20	32,037.2	29.2%	100-110	11.0	0%
20-30	21,564.0	19.7%	110-120	18.4	0%
30-40	12,834.3	11.7%	120-130	32.6	0%
40-50	7,731.5	7.1%	130-140	52.7	0%
50-60	4,714.9	4.3%	140-150	84.4	0.1%
60-70	2,658.4	2.4%	150-160	122.2	0.1%
70-80	1,146.1	1.0%	160-170	92.7	0.1%
80-90	157.9	0.1%	170-180	31.8	0%

Photometric Data



Illuminance at a Distance

Center Beam fc	Beam Width
22,508.8 fc	1.5 ft 1.5 ft
5,627.2 fc	3.0 ft 3.0 ft
2,501.0 fc	4.6 ft 4.6 ft
1,406.8 fc	6.1 ft 6.1 ft
900.3 fc	7.6 ft 7.6 ft

Vert. Spread: 21.5°
Horiz. Spread: 21.6°

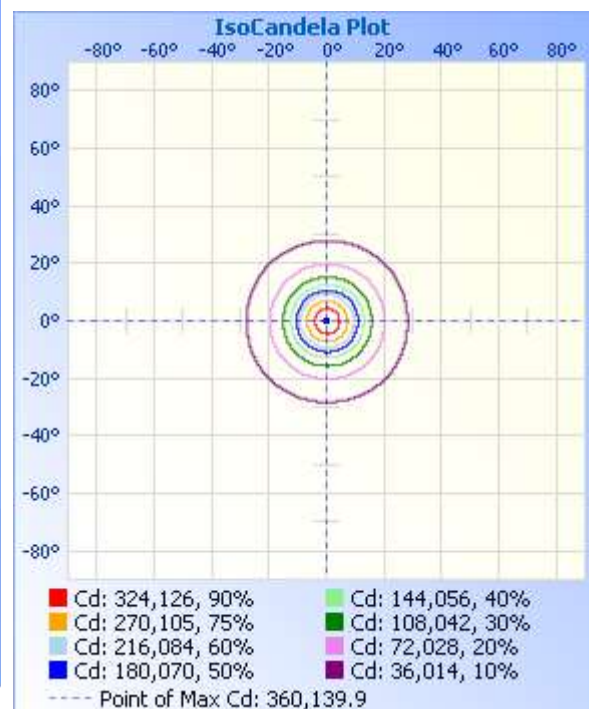
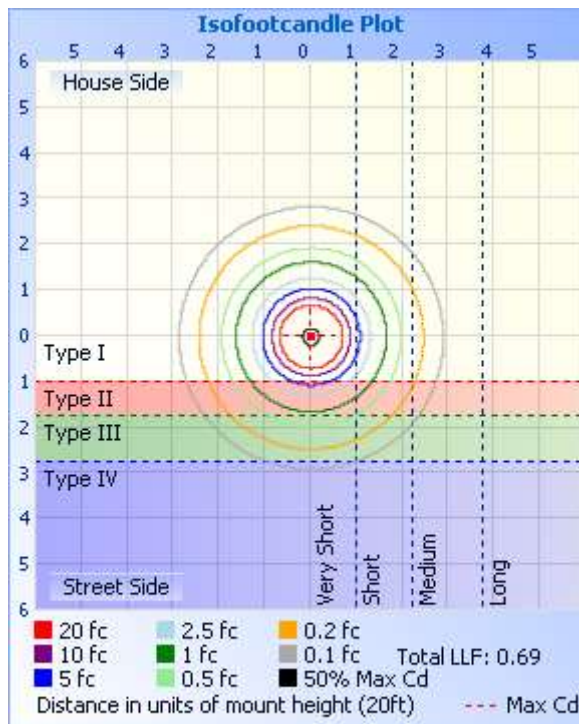


Table--1

UNIT: ×100cd

C (DEG) □ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
0	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	3601	
5	3153	3177	3207	3231	3246	3244	3242	3232	3186	3161	3142	3161	3154	3150	3151	3153	
10	1929	1951	1973	1987	1997	2002	1996	1977	1977	1948	1924	1897	1892	1889	1897	1910	
15	1118	1128	1137	1142	1142	1145	1139	1132	1131	1127	1119	1109	1106	1106	1110	1116	
20	705	715	721	725	726	726	725	720	720	717	711	705	704	703	704	707	
25	455	460	464	468	470	470	469	467	467	463	459	457	457	454	453	456	
30	299	303	306	310	311	312	311	311	310	308	304	302	300	299	298	301	
35	195	197	197	202	204	203	202	204	204	201	197	196	197	194	192	196	
40	134	136	137	139	141	141	141	142	140	139	136	134	134	132	132	134	
45	96.0	97.2	97.7	98.9	99.4	99.5	99.7	101	100	99.2	97.0	96.2	95.9	94.7	94.2	96.1	
50	71.9	73.0	73.9	74.5	74.5	74.8	75.2	75.5	74.9	74.3	73.1	72.1	71.5	70.5	70.5	71.8	
55	51.0	51.8	52.2	52.3	52.1	52.3	52.7	52.9	52.4	52.2	51.6	50.7	50.3	49.8	50.1	51.0	
60	37.2	37.8	38.1	38.2	38.0	38.2	38.3	38.5	37.9	37.9	37.3	36.9	36.5	36.4	36.5	37.2	
65	26.5	26.9	27.2	27.1	27.1	27.2	27.4	27.4	26.8	26.6	26.2	25.7	25.5	25.4	25.7	26.2	
70	17.7	18.0	18.3	18.1	18.1	18.2	18.5	18.3	17.9	17.6	17.4	16.8	16.7	16.8	17.2	17.4	
75	10.6	10.9	11.2	11.1	11.0	11.2	11.4	11.3	10.8	10.7	10.4	9.90	9.68	9.85	10.3	10.6	
80	4.77	5.01	5.21	5.24	5.15	5.27	5.38	5.26	4.93	4.80	4.49	4.19	3.92	4.09	4.42	4.76	
85	0.95	0.99	1.01	1.15	1.17	1.24	1.04	1.09	1.02	0.89	0.72	0.73	0.64	0.68	0.70	0.85	
90	0.07	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.07	
95	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	
100	0.08	0.08	0.08	0.08	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	
105	0.12	0.12	0.12	0.10	0.10	0.10	0.11	0.11	0.10	0.09	0.09	0.09	0.08	0.08	0.10	0.11	
110	0.17	0.17	0.16	0.14	0.14	0.14	0.15	0.16	0.14	0.13	0.13	0.13	0.12	0.12	0.14	0.15	
115	0.23	0.23	0.21	0.17	0.18	0.16	0.20	0.21	0.19	0.17	0.17	0.15	0.16	0.13	0.19	0.21	
120	0.30	0.30	0.28	0.23	0.18	0.22	0.27	0.28	0.25	0.22	0.25	0.23	0.19	0.20	0.26	0.27	
125	0.40	0.41	0.36	0.37	0.38	0.37	0.34	0.39	0.32	0.32	0.34	0.37	0.35	0.32	0.36	0.39	
130	0.56	0.56	0.45	0.50	0.51	0.51	0.43	0.50	0.46	0.45	0.43	0.54	0.49	0.45	0.51	0.54	
135	0.78	0.79	0.57	0.73	0.73	0.71	0.55	0.68	0.66	0.65	0.59	0.78	0.66	0.65	0.63	0.75	
140	1.10	1.07	0.58	0.98	0.97	0.99	0.66	0.94	0.95	0.91	0.72	1.08	0.89	0.98	0.71	1.07	
145	1.58	1.49	0.90	1.39	1.09	1.38	0.95	1.33	1.38	1.33	0.97	1.57	1.05	1.49	1.32	1.51	
150	2.40	2.17	1.47	2.02	2.19	2.12	1.08	2.02	2.06	1.99	1.17	2.48	2.16	2.30	2.62	1.93	
155	3.27	2.87	2.06	2.78	3.10	3.03	1.79	2.96	2.84	2.71	1.50	3.50	2.77	2.77	3.48	1.71	
160	3.70	2.93	2.65	3.36	3.77	3.50	2.98	3.24	3.32	3.23	2.93	4.06	3.73	3.33	3.28	2.32	
165	3.75	3.04	2.97	2.86	3.17	2.63	3.60	3.33	3.41	3.33	3.24	3.73	3.04	3.03	3.21	3.30	
170	3.57	3.29	3.12	3.38	2.89	3.13	3.78	3.44	3.40	3.37	3.25	3.23	3.65	3.27	3.48	3.59	
175	3.33	3.30	3.04	3.22	3.43	3.12	3.64	3.32	3.21	3.22	3.17	3.08	3.53	3.55	3.26	3.49	
180	3.09	3.08	2.90	3.09	3.26	2.90	3.28	3.10	3.08	3.09	3.08	2.90	3.10	3.26	2.90	3.27	

2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2019-12-31	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	AOK-750WoF-NV-L5-00-5770 -15-C	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE191234-	120.0	60	6.395	753.5	0.9819	3.52
A2	277.0	60	2.659	716.0	0.9722	6.23
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer

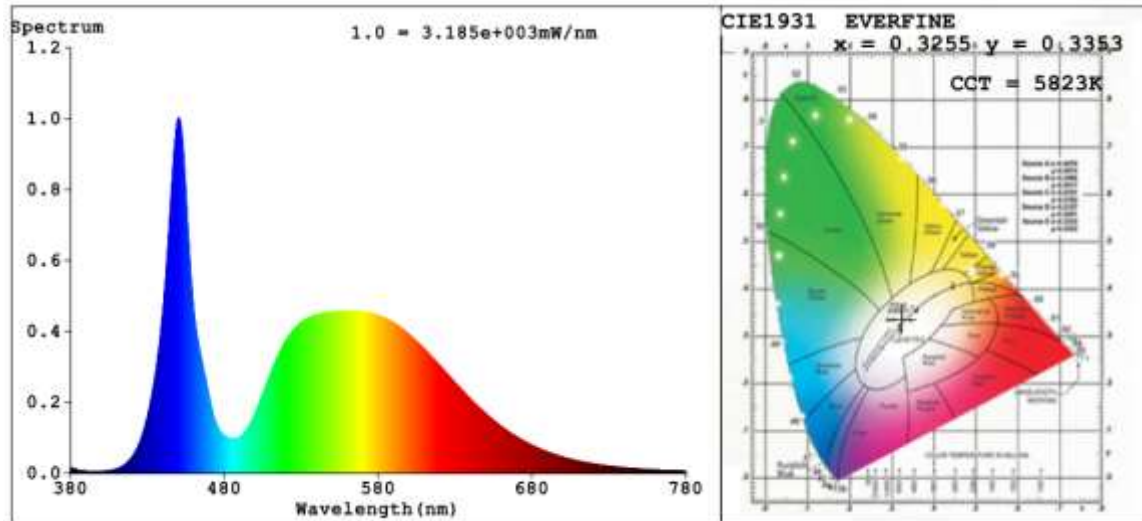
Method(Self-absorption:1.2146):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	74	R9	0
Frequency (Hz)	60	R2	79	R10	48
CCT (K)	5823	R3	80	R11	74
Duv	0.0002	R4	77	R12	43
Chromaticity (x, y)	x=0.3255 y=0.3353	R5	75	R13	75
Chromaticity (u', v')	u'=0.2043 v'=0.4735	R6	70	R14	88
Color Rendering Index (CRI)	75.2	R7	83	R15	71
R9	0	R8	64	--	--

Photometric Measurement –Spectroradiometer Method:

Parameter	Result		DLC V4.4 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	116058	115000	>=10000 (-10%)	
Luminous Efficacy (lm/W)	154.03	160.61	Standard: >= 105(-3%)	Premium: >= 130(-3%)

Spectral Power Distribution & Chromaticity Diagram



2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-750WoF-NV-L5-00-3070-15-C	3000K	109648	753.2	145.58
AOK-750WoF-NV-L5-00-4070-15-C	4000K	112212 ^{*1}	753.4 ^{*2}	148.94 ^{*3}
AOK-750WoF-NV-L5-00-5070-15-C	5000K	114776 ^{*1}	753.4 ^{*2}	152.34 ^{*3}
AOK-750WoF-NV-L5-00-5770-15-C	5700K	116058	753.5	154.03

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

$$112212 = (116058 - 109648) / 5 * 2 + 109648$$

$$114776 = (116058 - 109648) / 5 * 4 + 109648$$

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

$$753.4 = (753.2 + 753.5) / 2$$

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

$$148.94 = 112212 / 753.4$$

$$152.34 = 114776 / 753.4$$

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-423	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-327	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-332	Standard Lamp	2019-07-09	2020-07-08
ST-R-333	Power Meter for Integrating Sphere	2019-06-27	2020-06-26
ST-R-405	Temperature Probe for Integrating Sphere	2019-01-24	2020-01-23
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2019-07-09	2020-07-08
ST-R-358	Power Meter for Goniophotometer	2019-06-27	2020-06-26
ST-R-354	hygrothermograph for Goniophotometer	2019-06-28	2020-06-27
Expand Uncertainty: Photometric Measurement (Sphere):3.06%, k=2 Chromaticity Measurement(Sphere):43.46K, k=2 Photometric Measurement(Goniophotometer):3.38%, k=2			

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