



Ningbo TengLi Testing Co., Ltd

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LM-79-08 Test Report

For

Antec Lighting Inc

(Brand Name: )

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

Model name(s):

AOK-18WiE-NV-LV2-XX-XX70-T302-P

Report Type: Testing and Report According to IES LM-79-2008

Type of Luminaire: Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Report Date: 2019-03-20

Ningbo TengLi Testing Co., Ltd

Prepared By: 2nd floor, Block B, Ningbo Testing and Certification Base,
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Test & Report By:

Xeon Ren

Engineer: Xeon Ren

Review By:

Johnson Sun

Manager: Johnson Sun

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.

Report No.: JAE190121-A-R-PL

Report Format Number STD/QP019-409-A/0-NB

<http://www.standard-tech.com>



1.1 Product Information:		
Model Number	AOK-18WiE-NV-LV2-XX-XX70-T302-P	
Remark	The first “XX” can be “00” =no photocontrol or “PH”=photocontrol provided. The second “XX” could be 27/30/35/40/45/50/57 refers to CCT. This is multiple listed report, the Project Number of the original report is JAE190121-A-R.	
Representative (Tested) Model	AOK-18WiE-NV-LV2-00-2770-T302-P AOK-18WiE-NV-LV2-00-5770-T302-P	
Model Difference	All construction and rating are the same, except CCT	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	
LED Manufacturer	Lumileds	
LED Model	LUXEON V Family	
Dimming	Dimmable	
Sample Number	JAE190121-A1(2700K), A2(5700K)	
Date of Receipt	Feb.23, 2019	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

1.2 Rated Values:	
Rated Voltage / Frequency	100-277Vac, 50/60Hz
Nominal Power	18W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,3500K,4000K,4500K,5000K, 5700K



1.3 Test Specifications:

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 2. ANSI C78.377-2015 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

1.4 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 Summary of Test Result

Criteria Item	Measured Value			Compliance	Requirement (DLC V4.4)	
Power (W)	2700K	120V	17.24	N/A	N/A	
		277V	18.68			
	5700K	120V	17.36			
		277V	18.79			
Power Factor	2700K	120V	0.9899	Pass	>= 0.9(-3%)	
		277V	0.9025			
	5700K	120V	0.9924			
		277V	0.9049			
THD %	2700K	120V	9.73	Pass	<= 20(+5)	
		277V	9.32			
	5700K	120V	9.15			
		277V	8.66			
CRI	2700K	73.1		Pass	>= 65(-2)	
	5700K	72.7				
CCT (K)	2700K	2647		Pass	<=5700K	
	5700K	5406				
Luminous Intensity Distribution	Zonal lumens in the 0-90 °		100	Pass	>=100(-1)	
	Zonal lumens in the 80-90 °		0.4	Pass	<=10(+3)	
Total Luminous	2700K	120V	2263.4	Pass	>=1000(-10%)	
		277V	2352.1			
	5700K	120V	2388			
		277V	2487			
Luminous Efficacy	2700K	120V	131.29	Pass	Standard: >= 90(-3%)	Premium: >= 110(-3%)
		277V	125.92			
	5700K	120V	137.56			
		277V	132.37			



2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2019-02-25	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-18WiE-NV-LV2-00-2770-T3 02-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE190121-A1	120.0	60	0.1451	17.24	0.9899	9.73
	277.0	60	0.0747	18.68	0.9025	9.32

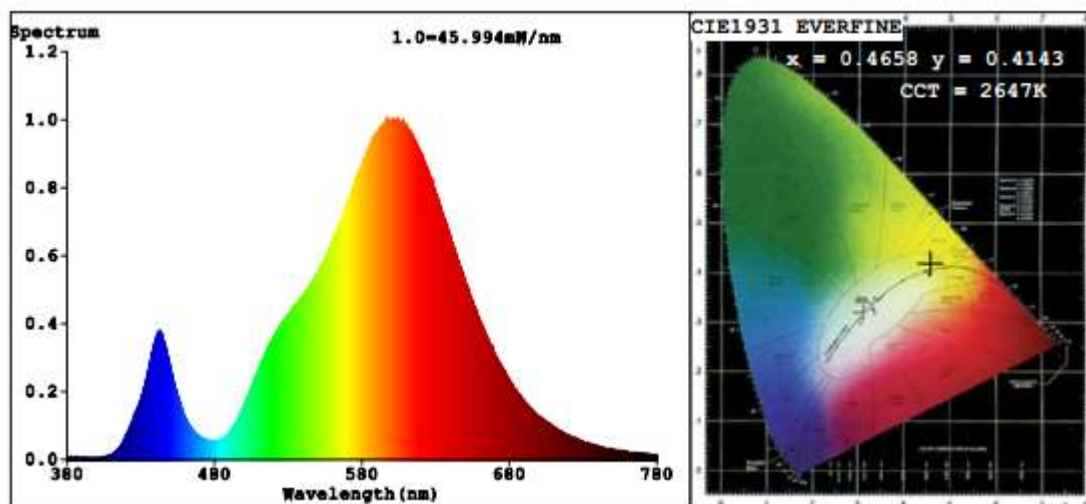
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	70	R9	0
Frequency (Hz)	60	R2	82	R10	60
CCT (K)	2647	R3	94	R11	67
Duv	0.0009	R4	70	R12	53
Chromaticity (x, y)	x=0.4658 y=0.4143	R5	69	R13	72
Chromaticity (u', v')	u'=0.2647 v'=0.5297	R6	77	R14	97
Color Rendering Index (CRI)	73.1	R7	78	R15	62
R9	0	R8	45	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	2263.4	2352.1
Luminous Efficacy (lm/W)	131.29	125.92
Zonal lumens in the 0-90 °	100	--
Zonal lumens in the 80-90 °	0.4	--
Beam Angle (°)	106.6	--
Center Beam Candle Power (cd)	530	--

Spectral Power Distribution & Chromaticity Diagram

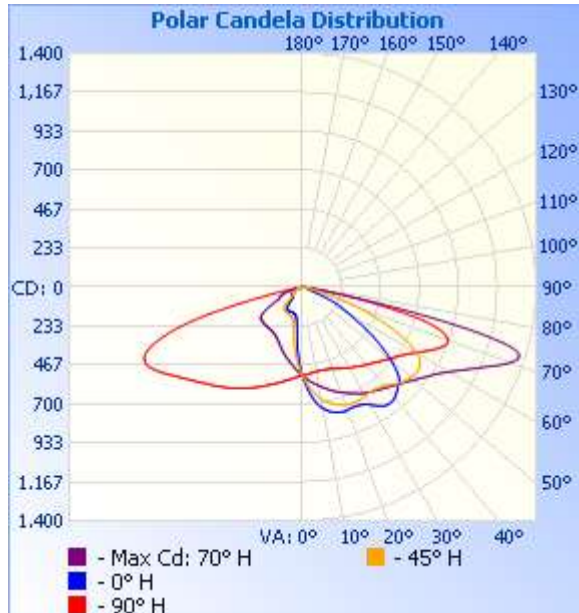


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	424.8	18.8%
0-40	756.5	33.4%
0-60	1,618.4	71.5%
60-90	644.9	28.5%
70-100	228.4	10.1%
90-120	0	0%
0-90	2,263.3	100%
90-180	0	0%
0-180	2,263.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	49.0	2.2%	90-100	0	0%
10-20	141.4	6.2%	100-110	0	0%
20-30	234.4	10.4%	110-120	0	0%
30-40	331.7	14.7%	120-130	0	0%
40-50	412.3	18.2%	130-140	0	0%
50-60	449.7	19.9%	140-150	0	0%
60-70	416.5	18.4%	150-160	0	0%
70-80	218.5	9.7%	160-170	0	0%
80-90	9.8	0.4%	170-180	0	0%

Photometric Data



Illuminance at a Distance

Center Beam fc	Beam Width	Beam Width
3.3ft	48.6 fc	4.6 ft 16.9 ft
6.6ft	12.2 fc	9.3 ft 33.8 ft
9.9ft	5.4 fc	13.9 ft 50.7 ft
13.2ft	3.0 fc	18.6 ft 67.6 ft
16.5ft	1.9 fc	23.2 ft 84.5 ft
19.8ft	1.4 fc	27.8 ft 101.4 ft

■ Vert. Spread: 70.2°
 ■ Horiz. Spread: 137.3°

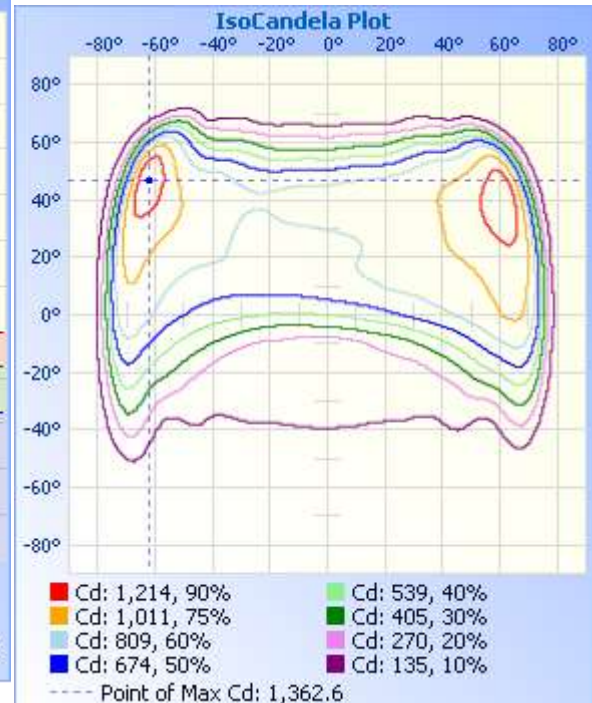
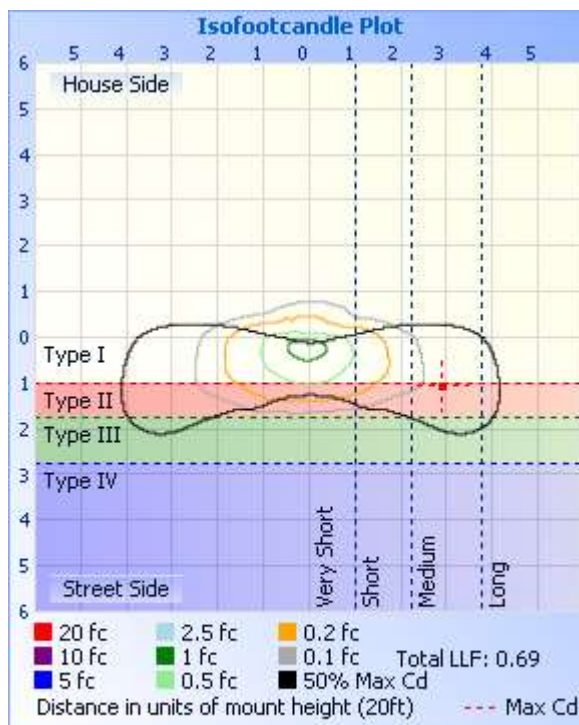




Table--1

UNIT: ed

C (DEG) Y (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530
5	545	559	572	583	594	604	614	622	630	637	643	648	652	656	659	660	661	661	662
10	568	595	616	635	655	673	688	700	711	722	731	735	738	741	744	743	742	742	741
15	595	633	660	686	712	736	751	761	772	782	787	788	788	787	787	784	781	779	776
20	626	672	704	735	766	790	803	809	815	821	820	815	810	805	801	797	792	788	784
25	662	714	748	782	815	837	842	840	838	836	829	821	812	803	797	793	789	786	782
30	699	754	789	823	857	876	872	860	848	836	831	828	825	822	819	817	816	815	813
35	738	793	828	862	896	911	901	885	868	852	851	853	856	859	861	862	863	864	865
40	776	830	866	901	936	950	938	921	903	886	881	880	879	878	876	873	869	865	862
45	817	871	908	944	980	994	981	963	945	926	912	899	886	873	861	850	838	827	815
50	868	923	961	999	1036	1049	1031	1009	988	965	931	896	861	826	797	774	751	727	704
55	930	987	1027	1068	1108	1115	1084	1050	1015	980	910	836	762	689	637	606	576	547	517
60	1005	1067	1111	1155	1198	1190	1125	1055	986	916	816	710	605	500	433	403	376	349	321
65	1046	1124	1186	1247	1307	1270	1133	987	843	704	606	513	419	324	265	243	222	202	184
70	916	1025	1127	1229	1330	1278	1070	849	629	416	331	257	182	106	65.9	61.5	59.5	57.2	54.9
75	437	482	524	571	623	601	490	364	229	91.2	74.2	65.7	57.1	47.5	42.4	41.4	40.6	39.8	38.9
80	56.1	57.8	57.8	57.2	56.3	53.5	49.0	43.8	37.9	31.3	30.7	30.4	29.9	29.4	28.5	27.3	26.0	24.8	23.5
85	0.92	1.09	1.30	1.55	1.81	2.22	2.82	3.53	4.25	4.98	6.29	7.64	8.96	10.2	10.6	10.1	9.56	8.94	8.27
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	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	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	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	0.00	0.00	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	0.00	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
115	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	0.00	0.00	0.00
120	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	0.00	0.00	0.00
125	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	0.00	0.00	0.00
130	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	0.00	0.00	0.00
135	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	0.00	0.00	0.00
140	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	0.00	0.00	0.00
145	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	0.00	0.00	0.00
150	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	0.00	0.00	0.00
155	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	0.00	0.00	0.00
160	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	0.00	0.00	0.00
165	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	0.00	0.00	0.00
170	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	0.00	0.00	0.00
175	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	0.00	0.00	0.00
180	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	0.00	0.00	0.00



Table--2

UNIT: cd

C (DEG) T (DEG)	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185
0	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530
5	659	656	653	650	645	640	634	627	619	610	601	590	579	568	556	544	531	519	505
10	737	732	729	724	718	711	705	697	685	671	656	641	623	603	581	560	537	511	484
15	772	767	763	759	753	748	742	736	725	711	697	683	664	638	609	580	550	512	469
20	780	776	772	768	765	762	759	756	750	739	728	716	699	670	636	601	566	519	461
25	777	772	767	763	761	761	760	760	758	752	747	741	729	702	665	627	589	537	465
30	805	797	789	781	775	768	762	756	752	755	758	762	758	733	693	653	613	559	477
35	854	844	834	824	810	793	776	760	749	757	767	777	780	758	716	675	633	578	491
40	858	855	852	847	836	818	799	782	770	780	791	801	806	785	743	701	658	604	510
45	817	820	822	824	822	819	816	813	812	821	829	838	841	819	776	732	688	634	534
50	714	724	734	744	759	780	802	824	845	857	869	880	888	866	820	773	726	669	562
55	531	545	560	575	613	673	734	795	852	877	901	925	944	927	877	826	776	715	597
60	337	352	366	384	437	527	617	707	793	850	907	965	1017	1014	960	906	850	785	640
65	195	208	221	236	283	361	439	515	597	725	857	992	1119	1148	1085	1020	954	878	692
70	57.6	60.6	63.0	67.4	100	162	224	285	359	581	810	1042	1264	1325	1230	1132	1034	928	725
75	40.0	41.0	42.0	43.2	47.3	55.1	61.6	68.3	91.5	352	616	874	1118	1170	1055	934	818	711	545
80	25.2	26.8	28.4	30.0	31.2	31.9	32.6	33.2	35.2	63.0	88.1	110	130	146	157	168	180	187	147
85	9.33	10.3	11.3	12.2	12.3	11.6	10.8	9.91	9.05	8.66	8.18	7.53	6.81	5.95	4.93	3.91	2.93	2.09	1.90
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	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	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	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	0.00	0.00	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	0.00	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
115	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	0.00	0.00	0.00
120	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	0.00	0.00	0.00
125	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	0.00	0.00	0.00
130	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	0.00	0.00	0.00
135	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	0.00	0.00	0.00
140	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	0.00	0.00	0.00
145	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	0.00	0.00	0.00
150	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	0.00	0.00	0.00
155	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	0.00	0.00	0.00
160	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	0.00	0.00	0.00
165	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	0.00	0.00	0.00
170	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	0.00	0.00	0.00
175	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	0.00	0.00	0.00
180	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	0.00	0.00	0.00



Table--3

UNIT: ed

C (DEG) T (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530
5	492	479	466	454	441	428	417	407	398	388	380	373	368	365	362	360	357	362	367
10	457	429	401	372	343	314	286	267	253	239	227	217	211	209	207	204	202	206	211
15	427	384	344	309	277	245	215	196	189	183	178	173	171	170	170	170	169	171	173
20	402	343	293	259	235	211	188	173	170	167	165	163	162	162	163	163	163	164	165
25	393	321	260	227	210	194	178	167	165	163	161	160	160	160	161	162	162	163	164
30	396	314	245	209	197	185	174	165	164	162	161	160	160	162	163	164	166	166	166
35	403	315	238	200	190	181	172	164	163	162	161	160	160	161	161	162	163	163	164
40	416	323	239	197	188	180	171	163	157	151	144	137	132	130	127	124	122	123	124
45	434	334	243	195	183	171	159	146	133	119	105	92.5	85.8	84.8	84.6	84.2	83.8	83.0	82.2
50	454	347	246	186	160	135	110	87.7	83.8	81.3	78.9	76.8	76.1	76.7	77.3	77.8	78.4	77.1	75.7
55	478	359	246	178	148	119	90.6	65.7	65.7	66.8	67.8	68.8	69.4	69.7	70.0	70.3	70.6	69.4	68.3
60	493	368	246	178	148	119	90.6	65.7	65.7	66.8	67.8	68.8	69.4	69.7	70.0	70.3	70.6	69.4	68.3
65	506	319	141	53.9	50.9	49.8	49.0	48.5	49.8	51.1	52.5	53.8	54.1	53.6	53.1	52.7	52.3	51.9	51.5
70	524	324	132	39.0	37.9	38.2	38.4	38.6	38.1	37.6	37.1	36.6	35.6	34.2	32.8	31.5	30.2	30.8	31.3
75	390	239	95.9	26.5	24.9	24.4	24.0	23.4	21.1	18.8	16.3	13.9	12.0	10.4	9.03	7.53	6.04	7.00	7.95
80	106	66.8	31.4	14.5	13.7	13.6	13.5	13.3	10.4	7.35	4.37	1.49	0.08	0.01	0.01	0.00	0.00	0.00	0.00
85	1.56	1.23	0.88	0.68	0.66	0.65	0.62	0.54	0.36	0.22	0.14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	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	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	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	0.00	0.00	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	0.00	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
115	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	0.00	0.00	0.00
120	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	0.00	0.00	0.00
125	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	0.00	0.00	0.00
130	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	0.00	0.00	0.00
135	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	0.00	0.00	0.00
140	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	0.00	0.00	0.00
145	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	0.00	0.00	0.00
150	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	0.00	0.00	0.00
155	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	0.00	0.00	0.00
160	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	0.00	0.00	0.00
165	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	0.00	0.00	0.00
170	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	0.00	0.00	0.00
175	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	0.00	0.00	0.00
180	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	0.00	0.00	0.00



Table--4

UNIT: ed

C (DEG) T (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355		
0	530	530	530	530	530	530	530	530	530	530	530	530	530	530	530		
5	372	377	384	393	403	414	425	436	448	462	476	490	503	517	531		
10	215	219	228	243	261	280	300	324	355	388	420	452	482	511	540		
15	175	177	182	189	198	207	218	244	285	329	373	418	462	507	551		
20	167	168	170	175	180	185	191	217	255	295	335	382	439	501	564		
25	164	165	167	170	174	178	183	206	237	270	303	351	421	502	582		
30	166	166	167	169	172	175	179	199	225	252	280	331	414	509	604		
35	164	165	166	168	170	173	176	194	217	241	265	320	416	523	631		
40	125	127	132	142	152	162	172	192	213	235	258	317	424	541	659		
45	81.4	81.0	86.0	96.7	108	120	133	160	190	219	249	319	436	563	690		
50	74.3	73.0	72.2	71.8	71.7	71.6	73.5	108	149	190	232	316	448	588	728		
55	67.1	66.0	64.7	63.5	62.2	60.9	60.9	94.3	133	172	213	305	456	615	773		
60	60.9	59.2	57.6	56.3	54.9	53.7	53.1	67.1	84.0	102	122	222	412	611	809		
65	51.2	50.9	50.0	48.5	46.9	45.3	43.8	44.4	45.3	46.4	49.6	153	367	593	819		
70	32.0	32.7	33.2	33.4	33.7	34.0	34.2	34.4	34.5	34.7	36.1	126	314	511	711		
75	8.80	9.79	11.4	13.5	15.6	17.7	19.7	20.5	21.1	21.8	23.1	63.4	147	240	337		
80	0.00	0.05	1.23	3.62	6.07	8.58	11.0	10.8	10.5	10.3	10.2	14.1	23.0	33.2	44.6		
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.12	0.32	0.52	0.72		
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		
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		
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		
105	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		
110	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		
115	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		
120	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		
125	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		
130	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		
135	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		
140	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		
145	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		
150	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		
155	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		
160	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		
165	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		
170	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		
175	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		
180	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		



2.3 Electrical, Photometric and Chromaticity Measurements

Test date	2019-02-25	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-18WiE-NV-LV2-00-5770-T3 02-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE190121-A2	120.0	60	0.1458	17.36	0.9924	9.15
	277.0	60	0.0750	18.79	0.9049	8.66

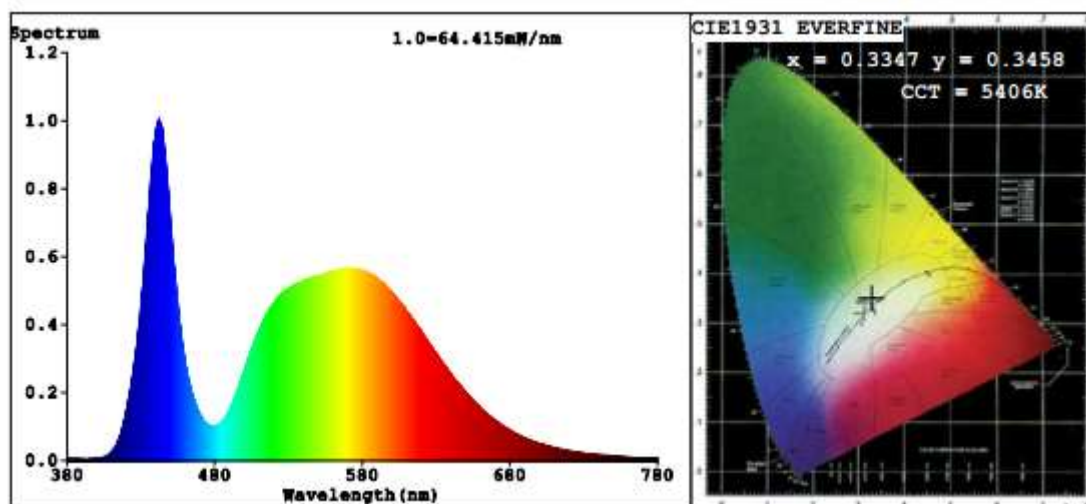
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	72	R9	0
Frequency (Hz)	60	R2	76	R10	43
CCT (K)	5406	R3	79	R11	76
Duv	0.0014	R4	75	R12	52
Chromaticity (x, y)	x=0.3347 y=0.3458	R5	74	R13	71
Chromaticity (u', v')	u'=0.2066 v'=0.4802	R6	69	R14	88
Color Rendering Index (CRI)	72.7	R7	78	R15	65
R9	0	R8	59	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	2388	2487
Luminous Efficacy (lm/W)	137.56	132.37

Spectral Power Distribution & Chromaticity Diagram





2.4 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-18WiE-NV-LV2-00-2770-T302-P	2700K	2263.4	17.24	131.29
AOK-18WiE-NV-LV2-00-3070-T302-P	3000K	2284 ^{*1}	17.30 ^{*2}	132.02 ^{*3}
AOK-18WiE-NV-LV2-00-3570-T302-P	3500K	2305 ^{*1}	17.30 ^{*2}	133.24 ^{*3}
AOK-18WiE-NV-LV2-00-4070-T302-P	4000K	2326 ^{*1}	17.30 ^{*2}	134.45 ^{*3}
AOK-18WiE-NV-LV2-00-4570-T302-P	4500K	2346 ^{*1}	17.30 ^{*2}	135.61 ^{*3}
AOK-18WiE-NV-LV2-00-5070-T302-P	5000K	2367 ^{*1}	17.30 ^{*2}	136.82 ^{*3}
AOK-18WiE-NV-LV2-00-5770-T302-P	5700K	2388	17.36	137.56

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

$$2284 = (2388 - 2263.4) / 6 * 1 + 2263.4$$

$$2305 = (2388 - 2263.4) / 6 * 2 + 2263.4$$

$$2326 = (2388 - 2263.4) / 6 * 3 + 2263.4$$

$$2346 = (2388 - 2263.4) / 6 * 4 + 2263.4$$

$$2367 = (2388 - 2263.4) / 6 * 5 + 2263.4$$

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

$$17.30 = (17.24 + 17.36) / 2$$

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

$$132.02 = 2284 / 17.30$$

$$133.24 = 2305 / 17.30$$

$$134.45 = 2326 / 17.30$$

$$135.61 = 2346 / 17.30$$

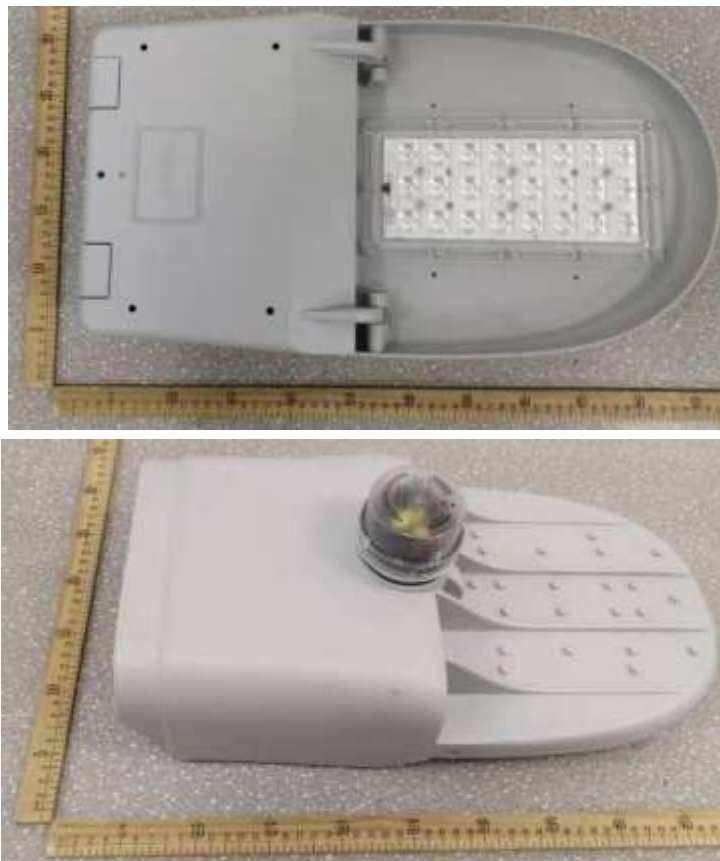
$$136.82 = 2367 / 17.30$$



3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-705	Standard Lamp	2019-02-07	2020-02-06
ST-R-704	Power Meter for Integrating Sphere	2019-01-06	2020-01-05
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp	2019-02-12	2020-02-11
ST-R-711	Power Meter for Goniophotometer	2019-01-06	2020-01-05
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

4. Product Photo



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