

LM-79-08 Test Report

For

Antec Lighting Inc(Brand Name: )

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

**Outdoor Pole/Arm-Mounted Area and Roadway
Luminaires**

Model name(s): AOK-145WoT-HV-X5-XX-XX70-T402-P

Remark: The first "XX" can be "00" for without sensor or "SN" for with sensor function or "PH" for Plug-In photocontrol, The last "XX" represents different CCT as below: 30=3000K,35=3500K,40=4000K,45=4500K,50=5000K,57=5700K.

Representative (Tested) Model: AOK-145WoT-HV-X5-00-3070-T402-P
AOK-145WoT-HV-X5-00-5770-T402-P

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

Test & Report By:

Bill Luo

Engineer: Bill Luo

Date:Mar.23,2018

Review By:

Univ Xie

Manager: Univ Xie

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 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

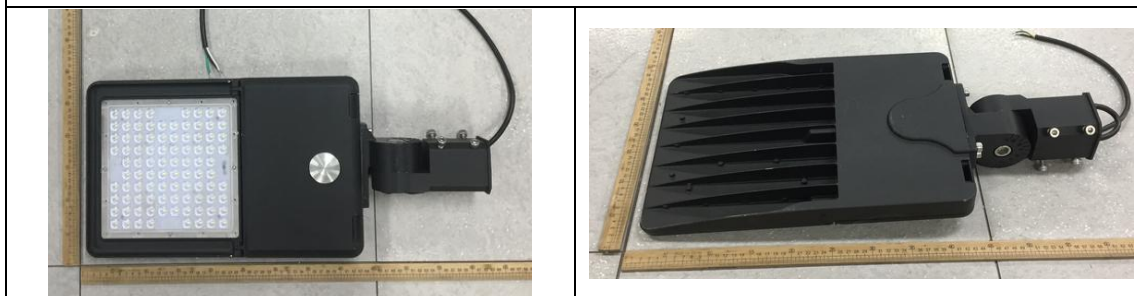
Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

1.1 Product Information:

Organization Name	Antec Lighting Inc	
Brand Name		
Model Number	AOK-145WoT-HV-X5-XX-XX70-T402-P	
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	
Rated Voltage / Frequency	200-480Vac, 50/60Hz	
Nominal Power	145W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,4500K,5000K,5700K	
LED Manufacturer	Lumileds	
LED Model	3000K :L150-3070502400000, 3500K :L150-3570502400000, 4000K :L150-4070502400000, 4500K :L150-4570502400000, 5000K :L150-5070502400000, 5700K :L150-5770502400000	
Sample Number	GZE1711117-E1(3000K), E2(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.08,2017
Date of Test	Mar.22,2018
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

<p>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 277 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.</p>
<p>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° C ± 1° 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 277 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.</p>
<p>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° C ± 1° C. The sample was operated at 277 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.</p>

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

Test date	2018-03-22	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-145WoT-HV-X5-00-3070-T402-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE1711117	277.0	60	0.5242	143.9	0.9910	10.18
-E1	480.0	60	0.3144	145.0	0.9607	11.18
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	68	R9	0
Frequency (Hz)	60	R2	81	R10	56
CCT (K)	3013	R3	93	R11	61
Duv	0.0013	R4	67	R12	46
Chromaticity (x, y)	x=0.4379 y=0.4078	R5	66	R13	70
Chromaticity (u', v')	u'=0.2496 v'=0.5230	R6	73	R14	96
Color Rendering Index (CRI)	71.5	R7	79	R15	61
R9	0	R8	45	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V4.3 Pass Criteria	
Test Voltage (V)	277.0	480.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	22573	22599	≥10000(-10%)	
Luminous Efficacy (lm/W)	156.87	155.86	Standard: ≥100(-3%)	Premium: ≥120(-3%)
Most Worst Luminous/Highest Watts	155.68			
Zonal lumens in the 0-90° zone (%)	100	--	≥100(-1)	
Zonal lumens in the 80-90° zone (%)	1.3	--	≤10(+3)	
Beam Angle (°)	111.1	--	--	
Center Beam Candle Power (cd)	5911	--	--	

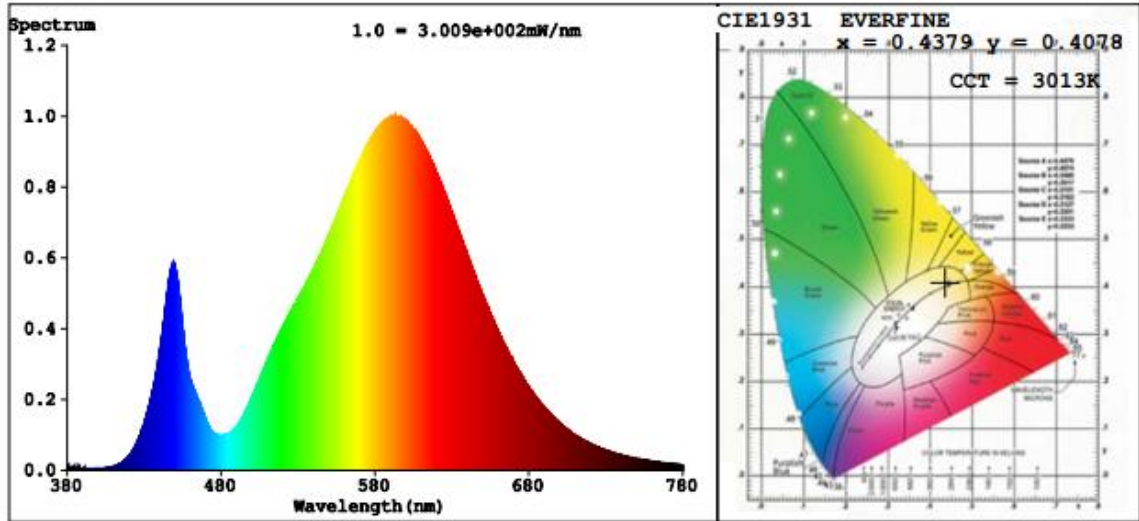
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Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	4,508.0	20%
0-40	7,448.1	33%
0-60	14,832.1	65.7%
60-90	7,734.2	34.3%
70-100	3,166.1	14%
90-120	0	0%
0-90	22,566.3	100%
90-180	0	0%
0-180	22,566.3	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	558.5	2.5%	90-100	0	0%
10-20	1,580.8	7.0%	100-110	0	0%
20-30	2,368.7	10.5%	110-120	0	0%
30-40	2,940.1	13.0%	120-130	0	0%
40-50	3,386.9	15.0%	130-140	0	0%
50-60	3,997.1	17.7%	140-150	0	0%
60-70	4,568.1	20.2%	150-160	0	0%
70-80	2,878.2	12.8%	160-170	0	0%
80-90	287.9	1.3%	170-180	0	0%

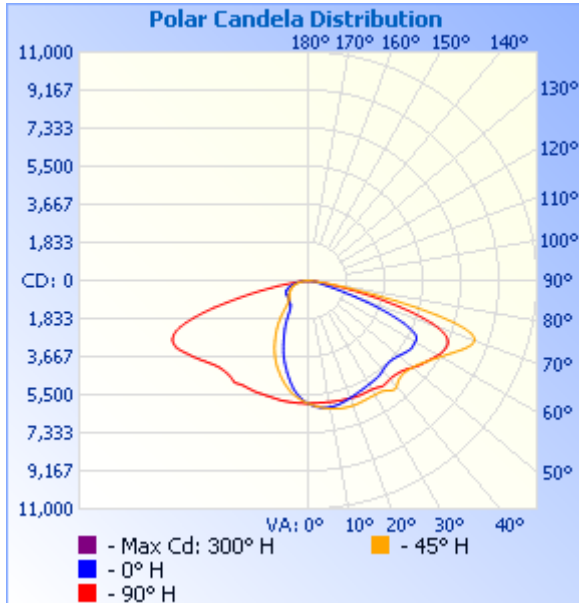
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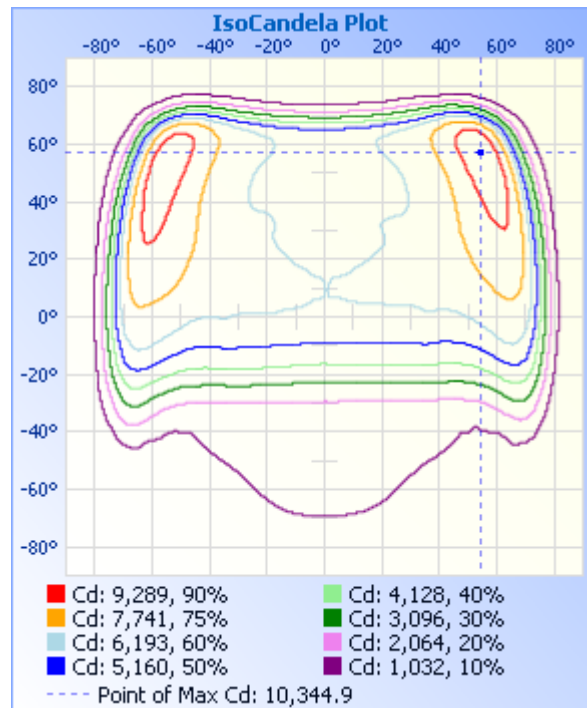
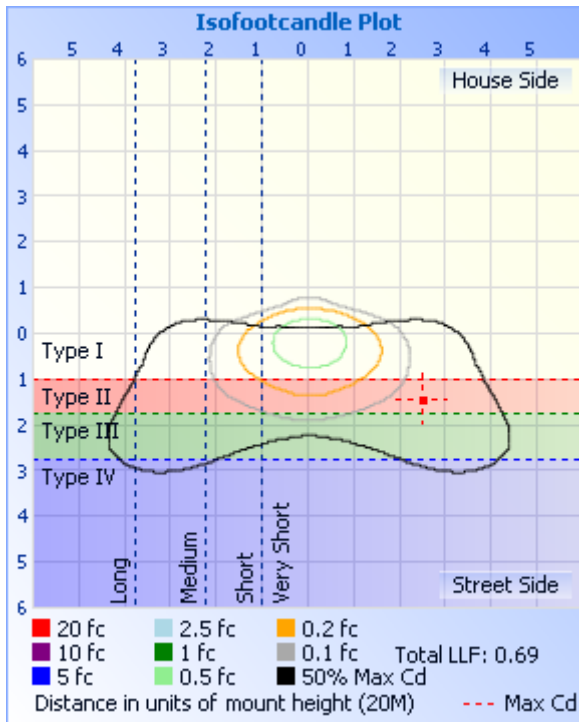
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
3.33M	49.4 fc	5.73 M	15.44 M
6.67M	12.4 fc	11.46 M	30.87 M
10.00M	5.49 fc	17.19 M	46.32 M
13.33M	3.09 fc	22.92 M	61.75 M
16.67M	1.98 fc	28.65 M	77.19 M
20.00M	1.37 fc	34.38 M	92.63 M

■ Vert. Spread: 81.4°
■ Horiz. Spread: 133.3°



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Table--1

UNIT: *10ed

C (DEG) γ (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591
5	591	593	594	598	599	603	602	607	606	609	610	611	612	613	612	614	612	613	613
10	590	598	602	607	608	615	615	618	619	623	622	622	622	622	622	623	623	620	618
15	589	601	609	615	619	625	626	628	627	631	627	626	623	621	620	620	618	612	611
20	589	606	614	621	627	633	634	635	634	633	627	623	618	613	609	607	605	599	599
25	592	610	619	630	634	641	643	642	635	630	622	616	609	604	599	596	593	588	587
30	592	611	627	637	640	649	647	642	634	628	620	609	603	597	592	588	585	582	579
35	603	629	648	662	666	668	664	657	643	635	624	616	606	599	590	586	583	577	573
40	593	629	651	669	678	683	678	669	657	646	632	621	606	596	585	579	571	563	560
45	596	644	671	687	694	691	678	662	643	628	616	605	593	583	574	569	564	557	553
50	618	681	714	734	737	734	711	684	657	638	621	609	594	583	577	575	572	566	565
55	652	721	766	790	795	790	764	733	696	671	648	627	611	599	592	591	591	589	588
60	688	774	826	856	866	861	832	797	756	723	691	664	643	626	614	608	602	597	593
65	715	811	878	920	944	952	933	896	844	793	746	703	668	639	609	585	564	543	537
70	656	752	827	899	966	1016	1026	1001	944	867	768	669	574	491	422	370	332	308	300
75	405	455	510	602	732	863	947	952	853	692	519	374	266	183	138	118	91.2	85.4	85.3
80	145	145	157	165	195	282	310	289	237	171	120	70.9	59.9	54.8	51.7	49.3	48.2	45.6	44.4
85	20.9	20.4	21.8	27.4	31.8	31.7	29.3	26.1	21.8	19.5	19.5	19.7	19.0	17.4	15.5	14.2	12.9	12.0	11.8
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

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Table--2

UNIT: *10cd

C (DEG) \ y (DEG)	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185
0	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591
5	615	614	614	613	614	613	613	611	611	610	608	607	607	604	601	601	599	590	593
10	624	623	623	624	624	624	626	623	626	625	623	625	621	618	613	608	607	593	595
15	618	618	619	621	624	626	631	629	636	636	635	636	634	628	625	618	615	597	597
20	606	604	607	613	618	621	627	629	639	641	645	646	645	640	635	627	621	601	597
25	593	594	597	602	607	615	622	629	637	646	650	655	655	651	644	637	623	605	597
30	584	585	590	595	601	609	619	626	637	648	654	657	664	663	655	644	632	606	593
35	580	582	588	594	602	612	626	633	647	661	673	684	694	694	685	672	659	621	598
40	568	572	580	590	602	616	633	646	663	675	685	697	704	701	693	680	652	615	583
45	559	563	570	577	587	598	612	625	640	660	675	695	714	720	714	700	671	623	577
50	571	572	576	580	591	601	616	631	652	673	699	730	757	766	765	749	713	651	589
55	591	590	593	596	606	617	637	656	684	714	750	785	817	827	827	807	761	686	607
60	598	600	607	615	630	647	671	698	734	773	815	853	885	895	892	863	803	719	627
65	545	555	577	603	633	666	706	748	799	854	906	944	966	967	946	906	839	739	629
70	308	325	359	409	477	558	649	747	850	933	993	1025	1021	971	897	827	746	667	553
75	85.6	89.5	101	131	170	242	342	474	641	802	902	914	839	707	571	473	414	393	327
80	45.7	47.5	48.8	51.2	54.3	59.6	70.1	120	178	206	251	275	253	177	158	136	127	121	99.4
85	12.2	13.0	14.4	16.0	18.1	20.0	20.6	20.5	20.3	21.9	25.7	28.6	30.7	31.6	27.3	21.7	20.2	19.0	17.8
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

Laboratory: Standard-tech Co., Ltd. Testing Center
 NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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Table--3

UNIT: ×10ed

γ (DEG) \ C (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591
5	588	586	582	581	576	575	573	568	565	565	560	559	557	557	557	554	554	555	555
10	588	579	574	570	559	552	546	538	530	524	517	512	505	502	501	496	494	498	498
15	585	573	563	552	536	521	507	496	482	470	459	449	442	436	432	426	424	429	429
20	582	566	547	529	506	486	464	448	429	413	396	384	374	365	359	351	349	353	356
25	577	554	527	501	472	446	417	394	370	346	324	308	296	285	278	272	270	273	276
30	567	537	503	470	434	399	363	329	298	273	250	233	218	207	200	193	191	194	197
35	563	524	479	436	388	341	297	259	224	193	170	157	152	150	149	148	147	149	149
40	536	488	435	382	324	271	221	178	147	139	137	136	136	137	137	136	136	137	137
45	518	454	388	320	253	194	146	130	128	128	127	128	128	129	130	129	129	130	129
50	510	423	335	252	180	130	120	119	119	119	119	120	121	123	125	125	125	126	125
55	509	390	272	181	122	110	110	110	110	110	112	114	117	119	122	123	123	124	122
60	497	350	211	121	99.0	99.4	99.7	99.9	101	103	105	109	112	116	120	121	122	122	120
65	474	299	150	86.6	86.0	86.8	87.4	89.1	91.0	93.9	97.1	101	105	110	114	115	116	116	113
70	401	226	93.6	71.3	71.8	72.5	74.1	76.2	78.3	81.3	84.4	87.6	91.1	94.8	98.1	99.6	100	99.9	97.7
75	223	107	58.2	56.4	56.4	57.5	58.7	60.0	61.5	63.7	66.0	69.0	72.1	75.0	77.7	79.1	79.5	79.5	77.7
80	47.8	39.0	37.1	37.3	37.4	38.3	39.2	39.9	40.4	41.2	42.5	44.2	45.8	47.3	48.3	48.8	48.8	48.9	48.1
85	17.8	16.9	16.9	16.5	16.4	16.4	16.3	16.4	16.5	16.7	16.6	16.1	15.7	15.8	15.6	15.5	15.4	15.4	15.4
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

Laboratory: Standard-tech Co., Ltd. Testing Center
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Table--4

UNIT: *10ed

C (DEG) \ y (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355		
0	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591		
5	556	556	558	559	563	563	567	568	570	574	577	580	583	588	586		
10	501	503	509	512	520	524	533	540	546	553	562	569	575	585	585		
15	433	439	445	453	464	471	488	500	513	525	540	554	566	579	584		
20	362	369	380	391	406	419	438	456	473	493	513	534	552	571	584		
25	283	291	303	318	338	358	381	407	431	457	484	510	536	563	581		
30	204	214	228	245	266	288	316	349	383	417	450	483	517	551	577		
35	150	152	156	166	187	214	248	284	324	369	416	459	502	545	581		
40	137	136	136	137	139	145	170	211	255	305	360	413	467	517	562		
45	129	129	128	128	128	128	130	141	182	237	298	364	432	499	553		
50	124	122	120	119	119	119	120	121	126	166	230	308	394	480	560		
55	120	117	115	112	111	110	110	111	111	117	163	243	354	472	576		
60	117	113	109	105	103	101	100	100	99.8	99.8	110	181	308	461	599		
65	110	106	101	97.4	94.4	91.3	89.5	87.9	87.1	87.0	87.1	124	261	441	604		
70	95.0	91.8	87.9	84.4	81.6	78.6	76.5	74.7	72.9	72.5	72.8	80.9	190	371	534		
75	75.5	72.4	69.2	66.4	64.0	61.7	60.3	59.2	58.1	57.0	57.2	58.8	89.7	208	322		
80	47.2	45.9	44.3	42.8	41.5	40.4	39.9	39.4	38.5	37.6	37.3	37.3	39.2	45.8	88.6		
85	15.6	15.9	15.9	16.4	16.6	16.3	16.2	16.1	16.1	16.0	16.3	16.5	16.9	17.7	18.1		
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		

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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2018-03-22	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-145W _o T-HV-X5-00-5770-T402-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE1711117	277.0	60	0.5279	145.2	0.9929	10.22
-E2	480.0	60	0.3180	146.8	0.9616	11.55
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

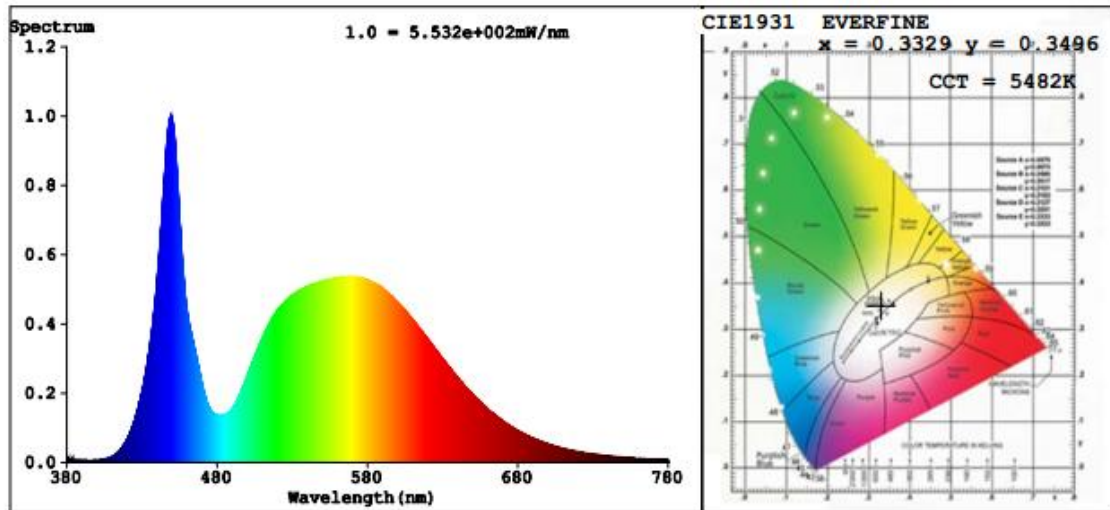
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	72	R9	0
Frequency (Hz)	60	R2	79	R10	50
CCT (K)	5482	R3	84	R11	74
Duv	0.0041	R4	76	R12	48
Chromaticity (x, y)	x=0.3329 y=0.3496	R5	74	R13	73
Chromaticity (u', v')	u'=0.2040 v'=0.4819	R6	72	R14	91
Color Rendering Index (CRI)	74.9	R7	83	R15	67
R9	0	R8	60	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.3 Pass Criteria	
Test Voltage (V)	277.0	480.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	23630	23732	≥10000(-10%)	
Luminous Efficacy (lm/W)	162.74	161.66	Standard: ≥100(-3%)	Premium: ≥120(-3%)
Most Worst Luminous/Highest Watts	160.97			

Spectral Power Distribution & Chromaticity Diagram



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2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-145WoT-HV-X5-00-3070-T402-P	3000K	22573	143.9	156.87
AOK-145WoT-HV-X5-00-3570-T402-P	3500K	22784 ^{*1}	144.6 ^{*2}	157.57 ^{*3}
AOK-145WoT-HV-X5-00-4070-T402-P	4000K	22996 ^{*1}	144.6 ^{*2}	159.03 ^{*3}
AOK-145WoT-HV-X5-00-4570-T402-P	4500K	23207 ^{*1}	144.6 ^{*2}	160.49 ^{*3}
AOK-145WoT-HV-X5-00-5070-T402-P	5000K	23419 ^{*1}	144.6 ^{*2}	161.96 ^{*3}
AOK-145WoT-HV-X5-00-5770-T402-P	5700K	23630	145.2	162.74

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

$$22784=(23630-22573)/5*1+22573$$

$$22996=(23630-22573)/5*2+22573$$

$$23207=(23630-22573)/5*3+22573$$

$$23419=(23630-22573)/5*4+22573$$

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

$$144.6=(143.9+145.2)/2$$

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

$$157.57=22784/144.6$$

$$159.03=22996/144.6$$

$$160.49=23207/144.6$$

$$161.96=23419/144.6$$

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 *******

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