

LM-79-08 Test Report

For

Antec Lighting Inc(Brand Name: **AOK**)
Quality. Honesty. Service and Innovation.

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

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

Model name(s): AOK-75WoT-NV-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-75WoT-NV-X5-00-3070-T402-P
AOK-75WoT-NV-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

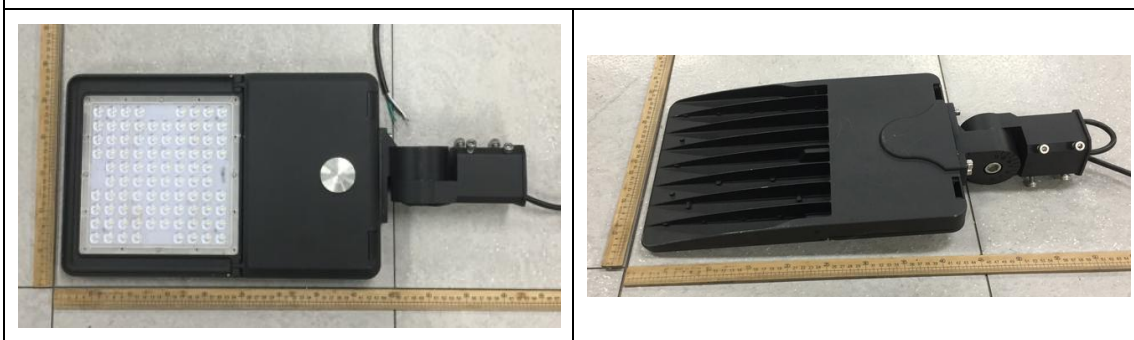
Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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-75WoT-NV-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	100-277Vac, 50/60Hz	
Nominal Power	75W	
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-B1(3000K), B2(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:</p> <p>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.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</p> <p>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.</p>
<p>3) Electrical Measurements:</p> <p>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.</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-75W _o T-NV-X5-00-3070-T402-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE1711117	120.0	60	0.6484	77.60	0.9973	6.59
-B1	277.0	60	0.2850	74.14	0.9392	7.56
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

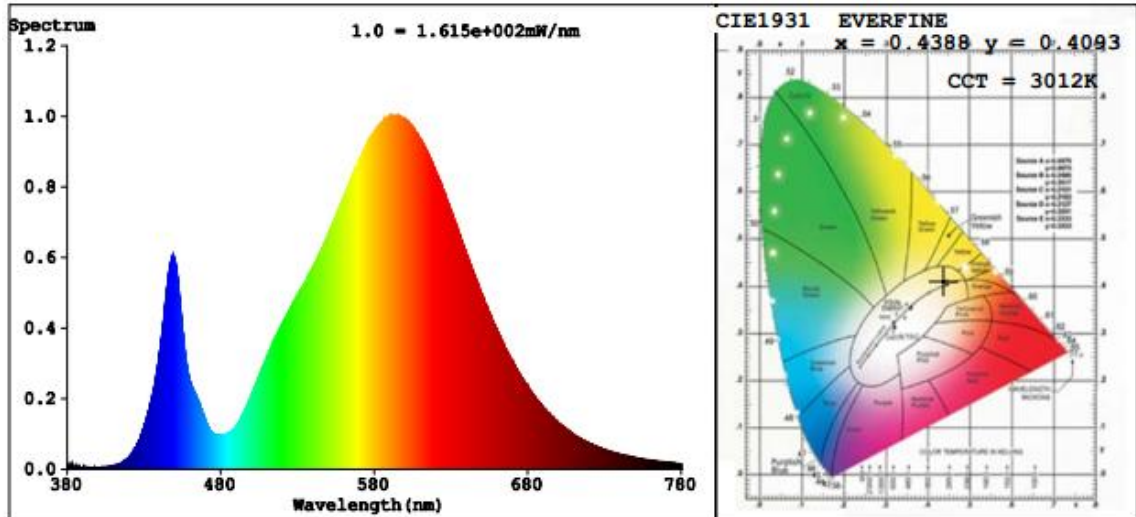
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	68	R9	0
Frequency (Hz)	60	R2	81	R10	56
CCT (K)	3012	R3	93	R11	62
Duv	0.0018	R4	68	R12	46
Chromaticity (x, y)	x=0.4388 y=0.4093	R5	67	R13	70
Chromaticity (u', v')	u'=0.2495 v'=0.5237	R6	73	R14	96
Color Rendering Index (CRI)	71.7	R7	79	R15	61
R9	0	R8	46	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V4.3 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	12876	12371	>=10000(-10%)	
Luminous Efficacy (lm/W)	165.93	166.86	Standard: >=	Premium: >=
Most Worst Luminous/Highest Watts	159.42		100(-3%)	120(-3%)
Zonal lumens in the 0-90° zone (%)	100	--	>= 100(-1)	
Zonal lumens in the 80-90° zone (%)	1.3	--	<= 10(+3)	
Beam Angle (°)	111.0	--	--	
Center Beam Candle Power (cd)	3369	--	--	

Spectral Power Distribution & Chromaticity Diagram

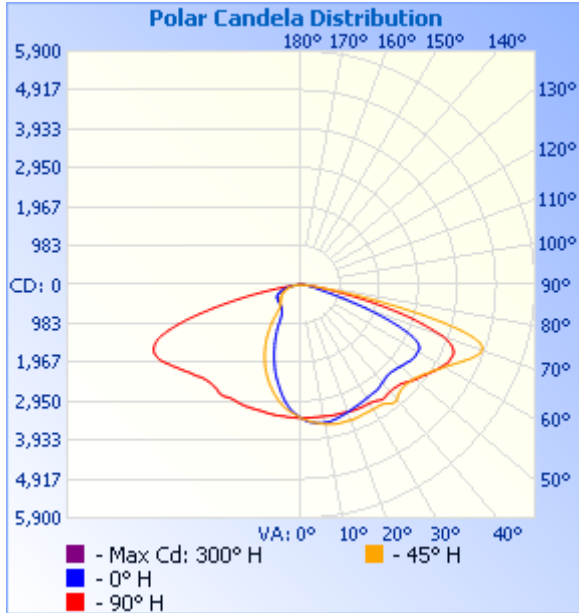


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	2,569.4	20%
0-40	4,244.9	33%
0-60	8,452.6	65.7%
60-90	4,420.4	34.3%
70-100	1,814.9	14.1%
90-120	0	0%
0-90	12,873.0	100%
90-180	0	0%
0-180	12,873.0	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	318.1	2.5%	90-100	0	0%
10-20	900.5	7.0%	100-110	0	0%
20-30	1,350.8	10.5%	110-120	0	0%
30-40	1,675.5	13.0%	120-130	0	0%
40-50	1,930.5	15.0%	130-140	0	0%
50-60	2,277.2	17.7%	140-150	0	0%
60-70	2,605.5	20.2%	150-160	0	0%
70-80	1,651.7	12.8%	160-170	0	0%
80-90	163.1	1.3%	170-180	0	0%

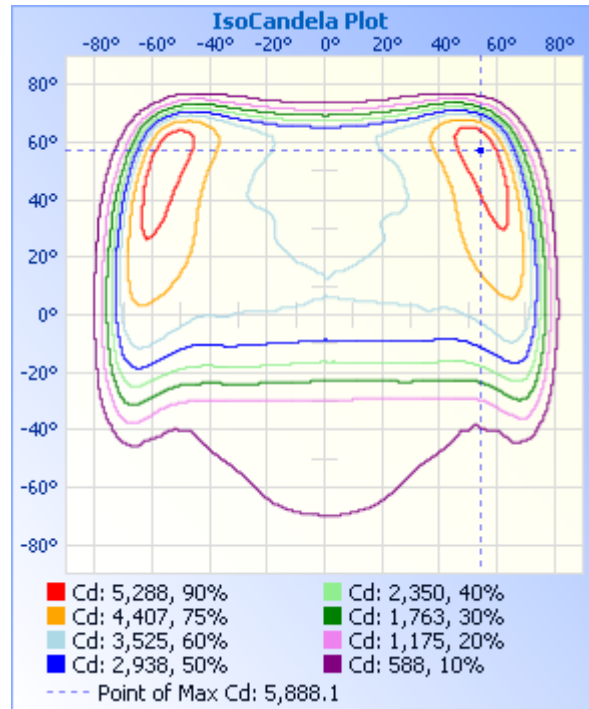
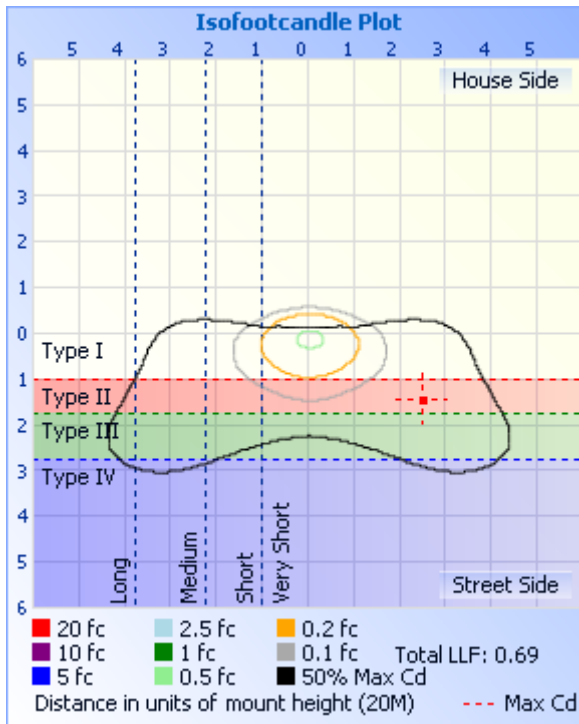
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
3.33M	28.1 fc	5.71 M	14.81 M
6.67M	7.04 fc	11.42 M	29.60 M
10.00M	3.13 fc	17.13 M	44.41 M
13.33M	1.76 fc	22.83 M	59.20 M
16.67M	1.13 fc	28.54 M	74.01 M
20.00M	0.78 fc	34.26 M	88.81 M

■ Vert. Spread: 81.1°
■ Horiz. Spread: 131.5°



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Table--1

UNIT: cd

C (DEG) \ Y (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369
5	3360	3378	3385	3415	3405	3428	3421	3450	3458	3485	3492	3489	3488	3501	3499	3500	3501	3502	3497
10	3360	3412	3434	3464	3463	3504	3499	3525	3529	3561	3553	3548	3545	3550	3551	3562	3564	3545	3536
15	3355	3441	3470	3501	3523	3558	3562	3585	3576	3595	3580	3568	3552	3546	3541	3538	3529	3500	3501
20	3357	3461	3502	3541	3570	3604	3603	3622	3613	3604	3573	3552	3527	3509	3475	3466	3458	3422	3425
25	3373	3479	3536	3589	3612	3642	3645	3659	3615	3599	3558	3521	3473	3453	3424	3401	3409	3364	3368
30	3373	3490	3570	3628	3653	3691	3673	3668	3617	3587	3539	3472	3437	3415	3385	3350	3332	3332	3314
35	3435	3602	3701	3774	3785	3808	3777	3733	3669	3623	3557	3507	3451	3422	3370	3341	3335	3291	3283
40	3383	3592	3731	3816	3861	3891	3852	3805	3744	3688	3605	3528	3459	3404	3344	3297	3259	3214	3209
45	3401	3663	3829	3935	3956	3940	3850	3770	3665	3581	3519	3450	3376	3330	3278	3241	3221	3181	3167
50	3537	3894	4088	4188	4215	4179	4036	3898	3739	3643	3556	3477	3392	3329	3300	3278	3268	3241	3241
55	3721	4121	4380	4519	4548	4501	4348	4169	3972	3829	3692	3585	3484	3425	3381	3370	3363	3360	3358
60	3954	4434	4720	4907	4945	4911	4742	4537	4319	4119	3952	3789	3656	3583	3494	3459	3445	3413	3400
65	4088	4656	5016	5262	5394	5420	5294	5128	4820	4528	4271	4011	3811	3640	3489	3344	3226	3117	3088
70	3733	4288	4722	5129	5507	5778	5845	5731	5395	4952	4395	3826	3288	2822	2416	2114	1917	1774	1729
75	2295	2573	2883	3409	4163	4909	5383	5436	4866	3951	2962	2133	1520	1103	753	589	518	485	485
80	772	774	842	1018	1174	1577	1725	1611	1509	1051	600	397	340	310	291	277	272	258	251
85	117	114	122	155	179	178	164	146	122	109	108	109	104	96.2	85.4	77.6	71.0	65.8	64.3
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: cd

C (DEG) \ γ (DEG)	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185
0	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369
5	3508	3506	3513	3498	3505	3503	3495	3482	3495	3477	3473	3457	3472	3449	3418	3413	3423	3369	3380
10	3566	3555	3563	3555	3574	3571	3576	3554	3581	3561	3559	3558	3546	3525	3494	3450	3468	3377	3402
15	3534	3525	3543	3542	3563	3575	3599	3580	3633	3624	3630	3624	3607	3590	3563	3511	3505	3399	3410
20	3459	3447	3476	3503	3525	3538	3581	3588	3650	3662	3684	3686	3673	3652	3610	3562	3541	3425	3405
25	3384	3383	3418	3440	3480	3520	3558	3582	3634	3691	3710	3738	3733	3704	3662	3609	3557	3449	3394
30	3341	3335	3380	3400	3433	3478	3529	3570	3638	3691	3740	3757	3776	3771	3715	3655	3601	3459	3380
35	3316	3317	3368	3392	3436	3493	3569	3597	3673	3746	3826	3879	3934	3934	3878	3814	3749	3553	3411
40	3246	3258	3320	3361	3430	3508	3600	3661	3770	3830	3899	3963	3993	3977	3931	3854	3706	3516	3327
45	3197	3200	3264	3290	3350	3409	3495	3557	3654	3755	3853	3952	4047	4090	4052	3968	3831	3553	3294
50	3263	3262	3293	3308	3375	3427	3499	3583	3705	3837	3983	4149	4279	4341	4344	4227	4028	3740	3374
55	3381	3368	3374	3398	3462	3521	3624	3729	3896	4052	4246	4461	4631	4685	4674	4545	4305	3920	3475
60	3416	3422	3457	3498	3600	3701	3812	3967	4162	4386	4616	4829	5015	5085	5025	4872	4572	4129	3590
65	3130	3178	3309	3440	3629	3803	4026	4255	4544	4845	5126	5341	5469	5475	5361	5114	4759	4226	3600
70	1781	1883	2085	2365	2759	3222	3731	4273	4857	5327	5653	5842	5789	5527	5139	4705	4281	3793	3140
75	486	510	577	725	1046	1454	1997	2759	3726	4641	5221	5302	4862	4117	3337	2763	2427	2206	1872
80	258	269	276	290	309	338	396	566	1017	1402	1500	1654	1532	1141	868	784	708	685	567
85	66.5	71.3	79.5	88.2	100	111	115	114	114	124	147	165	178	183	159	125	117	109	102
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: cd

C (DEG) γ (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369
5	3345	3344	3303	3297	3264	3268	3258	3230	3217	3214	3184	3181	3170	3158	3173	3151	3149	3156	3153
10	3349	3293	3253	3233	3170	3135	3098	3065	3019	2976	2938	2907	2872	2855	2848	2821	2809	2833	2829
15	3320	3260	3193	3135	3036	2960	2881	2823	2743	2672	2602	2549	2514	2476	2463	2418	2412	2441	2440
20	3304	3219	3102	3000	2869	2771	2640	2545	2448	2344	2247	2184	2130	2078	2046	2004	1990	2015	2024
25	3276	3148	2989	2839	2673	2539	2374	2236	2100	1973	1851	1767	1691	1636	1599	1558	1548	1565	1580
30	3221	3050	2854	2672	2463	2268	2067	1879	1711	1565	1437	1339	1251	1190	1151	1112	1101	1113	1130
35	3203	2976	2725	2474	2202	1947	1699	1482	1285	1109	971	901	871	858	854	844	842	848	849
40	3046	2774	2473	2170	1845	1554	1268	1018	843	793	778	776	775	778	783	778	778	783	779
45	2941	2585	2202	1827	1445	1112	837	740	731	727	725	728	729	734	740	736	736	741	736
50	2893	2400	1911	1439	1025	744	682	679	680	678	676	682	691	702	715	715	717	719	712
55	2887	2222	1555	1036	693	628	626	627	626	629	637	650	665	681	698	700	704	706	695
60	2834	1993	1208	690	563	567	569	570	577	587	599	619	640	662	684	691	695	695	681
65	2697	1715	859	493	488	496	499	509	522	537	554	578	603	627	649	658	662	663	646
70	2284	1293	535	407	409	414	423	435	449	465	483	502	523	542	561	570	575	574	561
75	1278	618	331	322	321	329	336	344	353	366	379	396	413	432	447	455	458	458	447
80	273	223	211	213	214	220	225	229	232	237	244	254	264	273	280	281	283	283	279
85	102	97.2	96.8	95.0	94.7	95.0	94.9	95.7	97.0	97.8	96.7	95.5	92.8	92.4	92.2	91.2	91.1	91.2	90.5
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: cd

C (DEG) γ (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355		
0	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369		
5	3166	3158	3174	3182	3199	3195	3221	3230	3242	3260	3280	3295	3301	3333	3345		
10	2856	2860	2892	2918	2954	2972	3028	3068	3102	3141	3186	3229	3263	3309	3337		
15	2468	2493	2535	2576	2635	2673	2770	2850	2917	2985	3069	3143	3205	3273	3337		
20	2065	2103	2164	2229	2315	2385	2488	2590	2691	2799	2920	3033	3128	3231	3327		
25	1624	1668	1738	1826	1935	2040	2170	2313	2457	2597	2756	2898	3041	3180	3324		
30	1175	1228	1313	1408	1521	1652	1813	1995	2182	2371	2560	2743	2928	3112	3291		
35	859	867	891	952	1077	1236	1423	1632	1857	2100	2357	2602	2842	3063	3299		
40	782	778	779	781	792	827	978	1214	1471	1746	2052	2357	2644	2920	3194		
45	737	732	731	729	730	729	740	807	1050	1363	1713	2079	2452	2813	3158		
50	707	695	687	680	679	677	680	686	720	959	1329	1768	2234	2708	3196		
55	686	669	654	641	631	625	628	629	630	667	940	1395	1999	2671	3271		
60	666	643	624	603	588	576	572	570	568	567	633	1040	1757	2602	3388		
65	630	604	581	557	539	521	510	501	497	495	495	714	1486	2492	3454		
70	545	524	504	483	466	449	437	426	417	413	414	464	1093	2113	3058		
75	434	416	399	382	367	354	346	339	332	325	326	334	520	1206	1875		
80	274	266	257	247	240	233	229	226	221	215	213	213	222	261	518		
85	92.2	93.0	93.5	95.7	96.6	95.1	94.3	93.2	92.7	92.5	93.0	94.1	95.7	100	102		
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		

Laboratory: Standard-tech Co., Ltd. Testing Center
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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-75W _o T-NV-X5-00-5770-T402-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE1711117	120.0	60	0.6422	76.82	0.9968	6.44
-B2	277.0	60	0.2810	73.06	0.9386	7.36
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

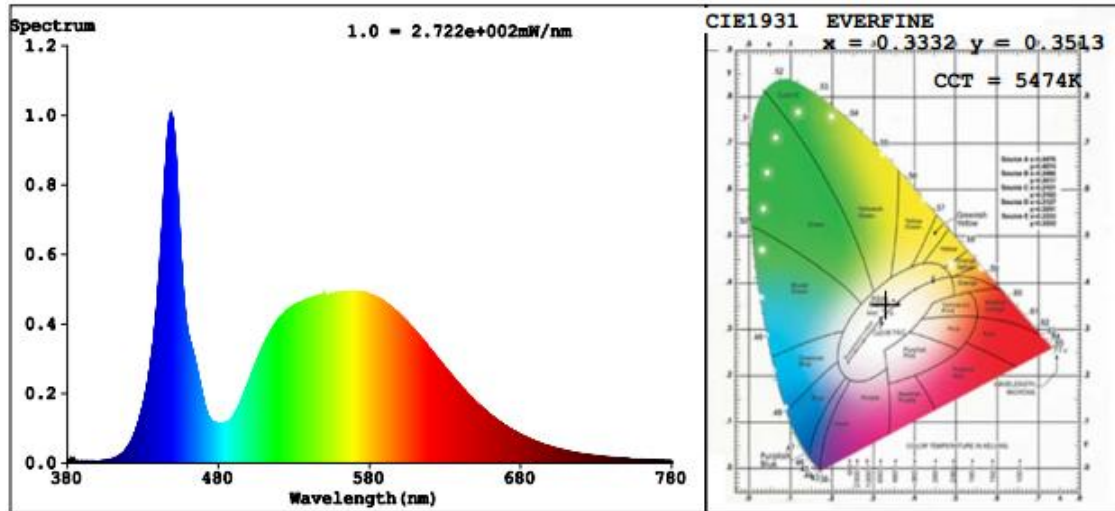
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	72	R9	0
Frequency (Hz)	60	R2	78	R10	49
CCT (K)	5474	R3	83	R11	74
Duv	0.0049	R4	76	R12	46
Chromaticity (x, y)	x=0.3332 y=0.3513	R5	73	R13	73
Chromaticity (u', v')	u'=0.2035 v'=0.4828	R6	71	R14	91
Color Rendering Index (CRI)	74.4	R7	83	R15	66
R9	0	R8	60	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.3 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	13182	12592	>=10000(-10%)	
Luminous Efficacy (lm/W)	171.60	172.35	Standard: >=	Premium: >=
Most Worst Luminous/Highest Watts	163.92		100(-3%)	120(-3%)

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-75WoT-NV-X5-00-3070-T402-P	3000K	12876	77.60	165.93
AOK-75WoT-NV-X5-00-3570-T402-P	3500K	12937 ^{*1}	77.21 ^{*2}	167.56 ^{*3}
AOK-75WoT-NV-X5-00-4070-T402-P	4000K	12998 ^{*1}	77.21 ^{*2}	168.35 ^{*3}
AOK-75WoT-NV-X5-00-4570-T402-P	4500K	13060 ^{*1}	77.21 ^{*2}	169.15 ^{*3}
AOK-75WoT-NV-X5-00-5070-T402-P	5000K	13121 ^{*1}	77.21 ^{*2}	169.94 ^{*3}
AOK-75WoT-NV-X5-00-5770-T402-P	5700K	13182	76.82	171.60

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

$$12937=(13182-12876)/5*1+12876$$

$$12998=(13182-12876)/5*2+12876$$

$$13060=(13182-12876)/5*3+12876$$

$$13121=(13182-12876)/5*4+12876$$

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

$$77.21=(77.60+76.82)/2$$

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

$$167.56=12937/77.21$$

$$168.35=12998/77.21$$

$$169.15=13060/77.21$$

$$169.94=13121/77.21$$

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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