



Report No.: GZE151161-H

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

AOK LED LIGHT COMPANY LIMITED

(Brand Name: AOK)

Building 1, St George's Science and Technology Industrial Park, Shajin Street, Shenzhen,
Guangdong Province, China Zip 518104

Outdoor Pole/Arm-mounted Area and Roadway Luminaires

Model name(s): AOK-110WiT-HV

Representative (Tested) Model: AOK-110WiT-HV(3000K)
AOK-110WiT-HV(5700K)

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

Test & Report By:

Johnson Sun

Engineer: Johnson Sun

Date: Feb.01,2016

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

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

Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-110WiT-HV(3000K)	3000	14045	116.1	120.98
AOK-110WiT-HV(3500K)	3500	14270 ^{*1}	117.0 ^{*2}	122.02 ^{*3}
AOK-110WiT-HV(4000K)	4000	14495 ^{*1}	117.0 ^{*2}	123.94 ^{*3}
AOK-110WiT-HV(4500K)	4500	14719 ^{*1}	117.0 ^{*2}	125.86 ^{*3}
AOK-110WiT-HV(5000K)	5000	14944 ^{*1}	117.0 ^{*2}	127.78 ^{*3}
AOK-110WiT-HV(5700K)	5700	15169	117.8	128.77

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

$$14270 = (15169 - 14045) / 5 + 14045$$

$$14495 = (15169 - 14045) / 5 + 14270$$

$$14719 = (15169 - 14045) / 5 + 14495$$

$$14944 = (15169 - 14045) / 5 + 14719$$

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

$$117.0 = (117.8 + 116.1) / 2$$

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

$$122.02 = 10230 / 117.0$$

$$123.94 = 10379 / 117.0$$

$$125.86 = 10529 / 117.0$$

$$127.78 = 10678 / 117.0$$

U.S. Department of Energy

Lighting Facts™ Uniform LM-79 Reporting Template
Laboratory Information:

Name of Test Laboratory	Standard-Tech Co. Ltd
Date of Test Report	Feb.01,2016
Test Report No.	GZE151161-H
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	AOK LED LIGHT COMPANY LIMITED		
Brand Name	AOK		
Model Number	AOK-110WiT-HV(3000K)		
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		
Luminaire Aperture (for downlights)	--	in.	
Luminaire Length	--	mm	
Luminaires Width	--	mm	
Number of Units (modular products)	N/A	s	

Integrating Sphere
Goniophotometer
Electrical Measurements:
Output
Output

Input Wattage	--	116.1	W
Input Current	--	0.4323	A
Input Voltage (ac)	--	277.1	V
Power Factor	--	0.9691	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	14045	lm
Initial Lumen Efficacy	--	120.98	lm/w
Correlated color temperature / CCT	3086	--	K
Color rendering index / CRI	72.9	--	
R9 Value	0	--	
Duv	-0.0021	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		3461	cd
Beam angle (if applicable)		100.1	°
Zonal lumens in the 0°-60° zone		86.3	%
Zonal lumens in the 60°-90° zone	-----	13.5	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0.2	%

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Laboratory Information:

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Date of Test Report	Feb.01,2016
Test Report No.	GZE151161-H
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	AOK LED LIGHT COMPANY LIMITED		
Brand Name	AOK		
Model Number	AOK-110WiT-HV(5700K)		
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		
Luminaire Aperture (for downlights)	--	in.	
Luminaire Length	--	mm	
Luminaires Width	--	mm	
Number of Units (modular products)	N/A	s	

Integrating Sphere
Goniophotometer
Electrical Measurements:
Output
Output

Input Wattage	117.8	--	W
Input Current	0.4378	--	A
Input Voltage (ac)	277.0	--	V
Power Factor	0.9713	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	15169	--	lm
Initial Lumen Efficacy	128.77	--	lm/w
Correlated color temperature / CCT	5457	--	K
Color rendering index / CRI	76.6	--	
R9 Value	0	--	
Duv	-0.0031	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)			cd
Beam angle (if applicable)			°
Zonal lumens in the 0°-60° zone			%
Zonal lumens in the 60°-90° zone	-----	-----	%
Zonal lumens in the 90°-120° zone			%
Zonal lumens in the 120°-180° zone			%

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Test Specifications:	
Date of Receipt	: Dec.14,2015
Date of Test	: Jan.25,2016
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

Test Methods

1. Photometric and Electrical measurements – Light Distribution 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 277 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. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric 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 277 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

1. Product Information:

Brand Name	AOK
Model Number	AOK-110WiT-HV
Luminaire Type	Outdoor Pole/Arm-mounted Area and Roadway Luminaires
Rated Voltage / Frequency	200~ 480Vac, 50/60Hz
Nominal Power	110W
Rated Initial Lamp Lumen	--
Declared CCT	3000K,3500K,4000K,4500K,5000K,5700K
LED Manufacturer	Philips Lumileds
LED Model	LUXEON 3030 2D
Sample Receipt Date	Dec.14,2015
Sample Number	GZE151161-H1(3000K),H2(5700K)

Photo



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2.1 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
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Test date	2016-01-30	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-110WiT-HV(3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151161	277.1	60	0.4323	116.1	0.9691	6.15
-H1	480.0	60	0.2618	115.7	0.9206	12.97

Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	70	R9	0
Frequency (Hz)	60	R2	84	R10	61
Color Rendering Index (CRI)	72.9	R3	93	R11	60
R9	0	R4	67	R12	49
CCT (K)	3086	R5	68	R13	72
Chromaticity (x, y)	x=0.4280 y=0.3956	R6	76	R14	96
Chromaticity (u', v')	u'=0.2484 v'=0.5167	R7	78	R15	64
Duv	-0.0021	R8	47	--	--

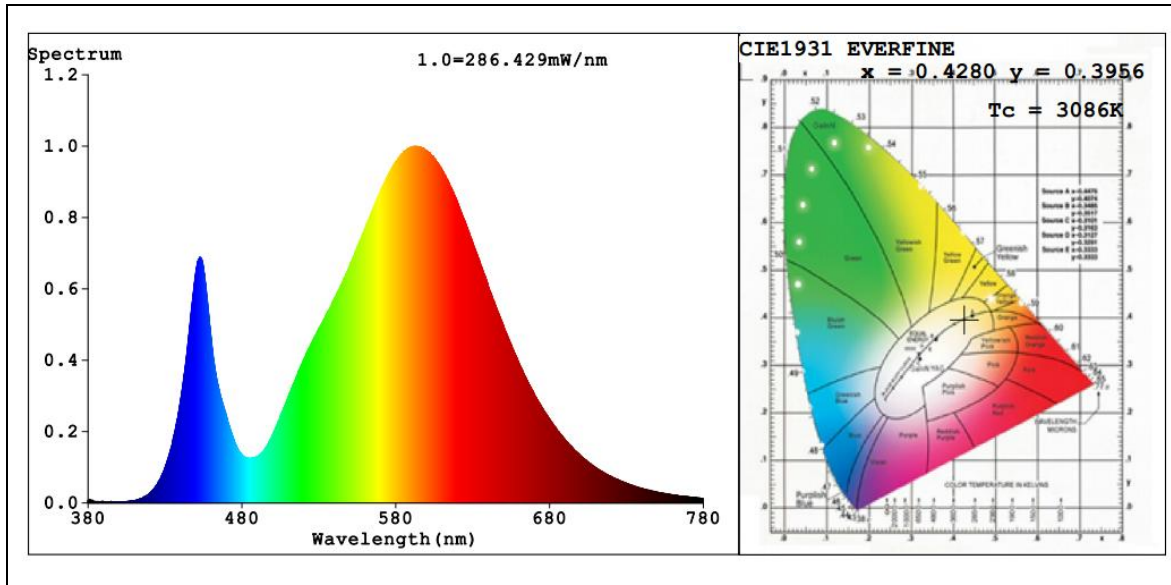
Goniophotometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	14045
Luminous Efficacy (lm/W)	120.98
Beam Angle°	100.1
Center Beam Candle Power (cd)	3461

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	480.0
Frequency (Hz)	60
Total Luminous (lm)	14042
Luminous Efficacy (lm/W)	121.37

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	3,497.9	24.9%
0-40	6,151.6	43.8%
0-60	12,127.9	86.3%
60-90	1,892.7	13.5%
70-100	464.7	3.3%
90-120	4.9	0%
0-90	14,020.6	99.8%
90-180	24.8	0.2%
0-180	14,045.4	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	336.2	2.4%	90-100	0.1	0%
10-20	1,105.4	7.9%	100-110	1.3	0%
20-30	2,056.2	14.6%	110-120	3.6	0%
30-40	2,653.8	18.9%	120-130	5.2	0%
40-50	3,024.7	21.5%	130-140	5.1	0%
50-60	2,951.6	21.0%	140-150	4.2	0%
60-70	1,428.0	10.2%	150-160	3.0	0%
70-80	389.6	2.8%	160-170	1.7	0%
80-90	75.0	0.5%	170-180	0.7	0%

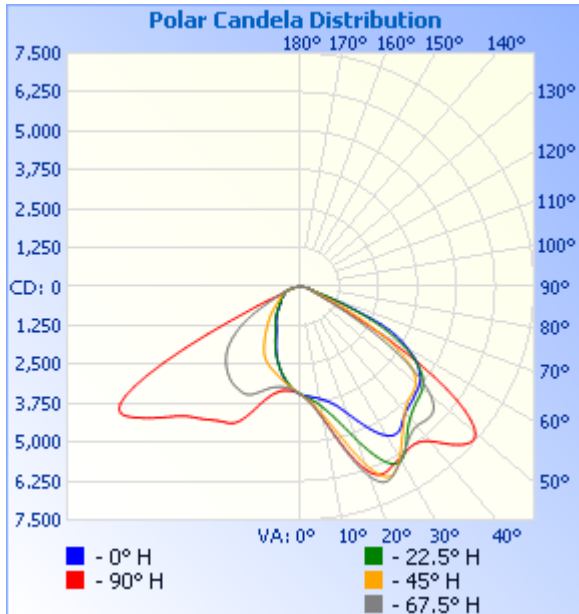
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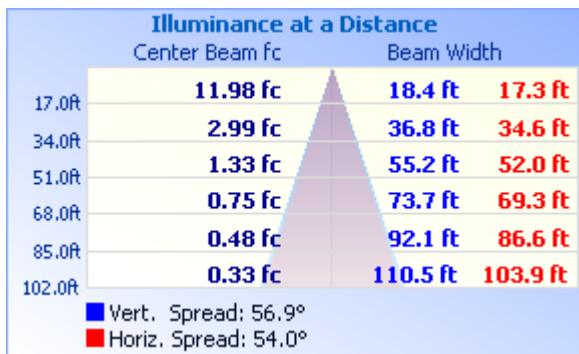
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Photometric Data



Illuminance Plots



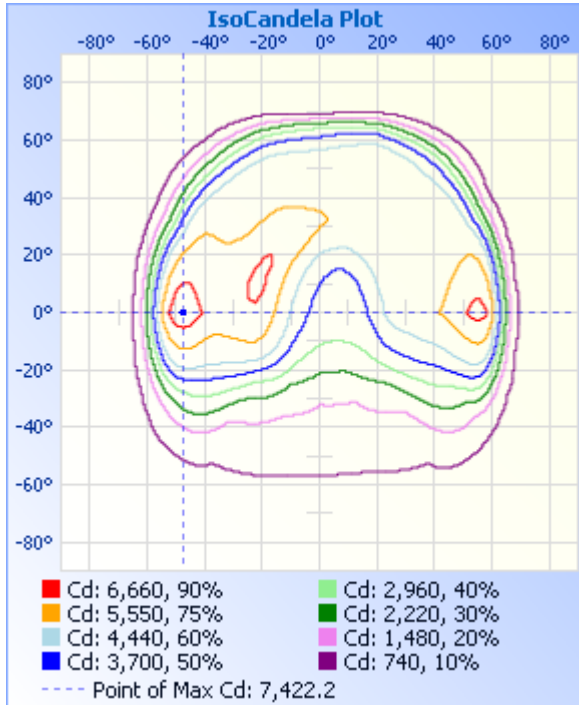
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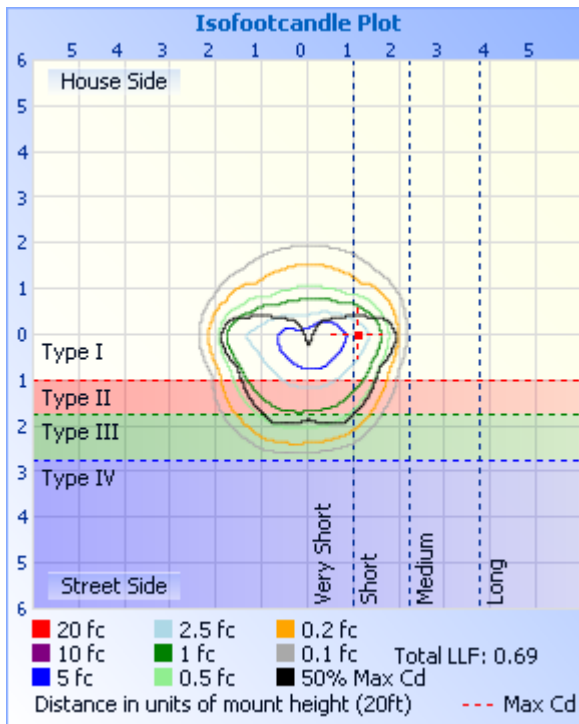
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ISOCANDELA DIAGRAM



ISOLUX DIAGRAM



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Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461	3461
1	3482	3496	3505	3508	3500	3489	3470	3451	3435	3423	3417	3419	3425	3436	3451	3469	3482
2	3500	3530	3551	3557	3545	3522	3480	3438	3407	3383	3374	3382	3396	3416	3441	3472	3500
3	3518	3563	3600	3617	3599	3561	3490	3423	3374	3341	3334	3353	3378	3403	3434	3473	3518
4	3533	3597	3655	3687	3667	3609	3504	3405	3336	3296	3298	3331	3365	3398	3429	3473	3533
5	3549	3634	3719	3766	3745	3667	3518	3385	3293	3249	3265	3315	3361	3399	3426	3473	3549
6	3567	3677	3792	3859	3835	3733	3536	3361	3245	3194	3233	3303	3361	3402	3429	3476	3567
7	3586	3725	3875	3969	3937	3806	3556	3333	3186	3138	3195	3291	3362	3406	3434	3481	3586
8	3608	3779	3970	4094	4057	3887	3575	3301	3126	3083	3157	3279	3365	3412	3441	3487	3608
9	3632	3840	4075	4232	4190	3975	3597	3268	3067	3024	3120	3272	3376	3422	3449	3496	3632
10	3662	3913	4194	4387	4346	4079	3621	3233	3003	2965	3089	3271	3393	3439	3457	3506	3662
11	3696	3994	4329	4559	4518	4190	3646	3191	2937	2907	3055	3276	3421	3463	3468	3520	3696
12	3733	4086	4473	4749	4704	4314	3674	3149	2868	2848	3020	3287	3457	3494	3484	3538	3733
13	3775	4183	4633	4955	4901	4442	3702	3106	2796	2784	2987	3304	3499	3533	3507	3562	3775
14	3820	4291	4804	5170	5112	4582	3731	3059	2722	2716	2955	3324	3547	3583	3540	3586	3820
15	3874	4407	4991	5392	5323	4721	3757	3011	2650	2647	2923	3347	3608	3642	3580	3614	3874
16	3938	4542	5193	5624	5542	4866	3787	2963	2578	2577	2892	3376	3682	3713	3629	3647	3938
17	4013	4690	5409	5857	5753	5003	3812	2912	2508	2509	2862	3414	3769	3797	3688	3691	4013
18	4101	4855	5623	6086	5955	5138	3835	2857	2435	2442	2834	3457	3874	3900	3763	3746	4101
19	4200	5031	5845	6297	6137	5262	3849	2796	2358	2378	2807	3505	3996	4023	3851	3815	4200
20	4311	5218	6058	6490	6294	5370	3856	2728	2273	2308	2780	3560	4135	4162	3956	3896	4311
21	4428	5411	6260	6645	6422	5458	3850	2653	2183	2234	2752	3618	4278	4317	4078	3989	4428
22	4555	5599	6440	6760	6511	5520	3831	2573	2096	2155	2723	3675	4425	4479	4219	4092	4555
23	4683	5793	6581	6828	6561	5555	3799	2489	2008	2077	2691	3732	4567	4647	4372	4206	4683
24	4815	5972	6682	6844	6570	5559	3750	2403	1925	2001	2656	3785	4693	4802	4536	4326	4815
25	4952	6136	6734	6816	6552	5540	3686	2318	1848	1928	2617	3827	4797	4937	4696	4456	4952
26	5085	6275	6736	6760	6515	5496	3608	2232	1774	1857	2574	3857	4875	5045	4851	4589	5085
27	5213	6381	6690	6686	6473	5435	3517	2146	1707	1786	2527	3874	4926	5124	4989	4724	5213
28	5333	6449	6606	6605	6435	5365	3412	2060	1647	1718	2475	3880	4961	5173	5107	4851	5333

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29	5437	6473	6494	6523	6399	5295	3290	1979	1593	1655	2416	3876	4986	5194	5194	4971	5437
30	5526	6455	6365	6441	6366	5218	3167	1903	1547	1597	2351	3865	5012	5196	5244	5072	5526
31	5593	6396	6230	6358	6334	5142	3045	1835	1508	1548	2281	3854	5039	5191	5263	5156	5593
32	5630	6305	6094	6272	6303	5062	2933	1774	1471	1504	2210	3842	5074	5183	5250	5214	5630
33	5641	6196	5966	6186	6275	4978	2816	1717	1436	1464	2139	3833	5116	5168	5215	5242	5641
34	5625	6073	5843	6106	6253	4893	2703	1665	1404	1427	2070	3819	5162	5156	5163	5240	5625
35	5582	5946	5723	6028	6240	4803	2592	1613	1370	1391	2001	3801	5213	5144	5101	5217	5582
36	5516	5828	5610	5961	6244	4713	2487	1562	1333	1356	1933	3776	5264	5129	5042	5177	5516
37	5437	5722	5503	5901	6269	4624	2383	1512	1296	1321	1866	3747	5313	5114	4986	5127	5437
38	5365	5628	5403	5857	6313	4539	2282	1465	1260	1288	1801	3712	5360	5096	4937	5080	5365
39	5306	5551	5307	5830	6385	4456	2180	1417	1222	1256	1738	3673	5407	5075	4891	5040	5306
40	5256	5486	5223	5826	6484	4377	2078	1371	1185	1223	1677	3634	5460	5052	4849	5014	5256
41	5218	5427	5149	5838	6608	4306	1980	1323	1148	1187	1620	3592	5521	5027	4815	5002	5218
42	5185	5374	5091	5860	6753	4233	1884	1274	1110	1150	1563	3546	5593	5004	4781	5002	5185
43	5161	5328	5049	5880	6910	4155	1795	1222	1072	1112	1510	3499	5680	4992	4753	5005	5161
44	5138	5288	5017	5894	7054	4080	1709	1171	1035	1073	1457	3448	5787	4987	4725	5010	5138
45	5108	5257	4991	5896	7188	4002	1628	1121	999	1035	1405	3395	5907	4984	4705	5017	5108
46	5076	5231	4973	5879	7297	3915	1550	1073	963	997	1351	3339	6036	4979	4691	5028	5076
47	5044	5205	4950	5834	7378	3819	1473	1026	931	960	1297	3278	6165	4980	4686	5036	5044
48	5019	5175	4917	5752	7422	3719	1401	981	901	925	1244	3202	6299	4981	4682	5049	5019
49	4997	5146	4879	5632	7412	3606	1329	941	874	893	1190	3126	6432	4980	4684	5063	4997
50	4966	5111	4827	5471	7330	3482	1260	905	849	865	1137	3049	6561	4980	4685	5080	4966
51	4925	5063	4758	5263	7174	3326	1193	874	826	840	1086	2959	6690	4977	4680	5102	4925
52	4875	4997	4666	5002	6927	3171	1127	846	806	819	1036	2857	6818	4969	4674	5116	4875
53	4812	4923	4545	4701	6608	3015	1065	822	788	798	990	2748	6933	4949	4662	5120	4812
54	4734	4826	4393	4356	6204	2860	1006	801	771	780	946	2631	7023	4913	4642	5109	4734
55	4647	4706	4206	3973	5720	2671	951	784	756	765	905	2503	7064	4847	4614	5083	4647
56	4548	4569	3984	3561	5158	2465	901	769	741	750	868	2369	7039	4733	4573	5038	4548
57	4437	4417	3731	3129	4544	2252	858	755	726	737	834	2226	6909	4551	4511	4972	4437
58	4309	4250	3445	2690	3913	2027	821	742	712	724	806	2075	6648	4293	4426	4887	4309
59	4152	4059	3137	2274	3282	1801	790	730	697	712	781	1917	6243	3966	4308	4774	4152

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60	3971	3853	2811	1885	2652	1587	764	718	681	699	759	1753	5700	3568	4145	4636	3971
61	3801	3618	2482	1597	2139	1382	740	704	662	685	739	1585	5013	3105	3929	4462	3801
62	3634	3371	2150	1310	1667	1205	719	690	641	670	720	1416	4199	2616	3666	4261	3634
63	3437	3100	1837	1024	1283	1054	699	674	612	654	701	1252	3344	2118	3349	4036	3437
64	3172	2806	1575	836	985	931	680	657	581	637	683	1106	2563	1662	2985	3777	3172
65	2842	2477	1313	688	782	835	661	641	571	620	664	977	1889	1320	2591	3446	2842
66	2394	2088	1051	583	642	761	641	622	562	600	645	870	1521	979	2178	3025	2394
67	1873	1704	857	506	556	705	621	602	553	579	625	784	1160	754	1779	2553	1873
68	1447	1394	702	455	501	659	600	579	545	554	603	717	799	606	1470	2073	1447
69	1020	1086	584	418	467	621	576	553	534	525	580	663	665	518	1164	1602	1020
70	594	834	501	392	443	587	552	524	522	495	554	620	592	464	858	1221	594
71	417	638	440	370	424	554	525	493	508	465	527	584	551	431	655	844	417
72	338	495	398	353	409	523	496	464	489	439	496	551	524	409	530	596	338
73	302	398	364	334	395	489	462	437	463	414	459	518	499	388	445	437	302
74	281	339	332	313	379	454	419	406	438	386	416	485	469	365	382	362	281
75	264	306	300	293	360	419	366	380	407	363	368	449	437	341	327	323	264
76	252	286	267	270	337	383	318	353	374	339	325	412	401	311	284	302	252
77	239	271	238	244	311	346	276	324	340	313	280	374	363	276	253	292	239
78	224	258	211	219	283	308	233	294	303	284	229	333	324	244	224	288	224
79	206	237	184	197	252	267	195	260	264	252	189	286	283	215	193	283	206
80	190	206	159	177	220	221	162	225	226	219	158	238	240	188	162	271	190
81	173	175	135	156	187	180	137	188	188	183	132	191	196	159	135	249	173
82	132	139	107	132	157	144	113	150	150	146	108	145	157	126	107	213	132
83	84	100	79	106	128	104	91	113	114	109	86	99	124	96	76	164	84
84	51	65	56	82	102	80	70	82	78	77	65	73	94	73	51	110	51
85	26	38	37	61	77	63	49	49	43	46	45	55	68	53	31	63	26
86	7	15	19	42	55	47	30	20	15	18	27	40	45	35	16	21	7
87	0	1	6	24	33	31	16	7	7	8	14	25	24	17	3	1	0
88	0	0	0	9	7	8	6	5	5	6	6	4	2	3	0	0	0
89	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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100	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0
101	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0
102	0	0	0	0	1	1	1	2	1	1	1	0	0	0	0	0	0
103	0	0	0	0	2	1	2	2	2	2	1	0	0	0	0	0	0
104	0	0	0	1	2	1	2	3	2	2	1	1	1	0	0	0	0
105	0	0	0	1	3	2	3	3	2	2	1	1	1	1	0	0	0
106	0	0	0	1	3	2	3	3	3	3	2	1	2	1	0	0	0
107	0	0	0	1	4	2	3	3	3	3	2	1	2	1	0	0	0
108	0	0	0	2	4	3	3	4	3	3	2	2	3	1	0	0	0
109	0	0	0	2	5	3	4	4	4	3	3	2	4	2	0	0	0
110	0	0	0	2	5	4	4	4	4	3	3	2	4	2	0	0	0
111	0	0	0	2	6	4	4	4	4	4	3	3	5	2	0	0	0
112	0	0	0	3	6	4	4	4	4	4	3	3	6	3	0	0	0
113	0	0	1	3	7	5	5	4	5	4	4	4	6	3	0	0	0
114	0	0	1	3	7	5	5	4	5	4	4	4	7	3	1	0	0
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120	0	0	1	5	8	7	7	7	6	7	6	6	9	5	1	0	0
121	1	1	1	6	8	7	7	7	7	7	6	6	10	5	1	1	1

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122	1	1	1	6	8	7	7	8	8	8	6	6	10	5	2	1	1
123	1	1	2	6	8	7	7	8	8	8	6	6	10	6	2	1	1
124	1	1	2	6	8	8	7	8	9	8	7	7	11	6	2	1	1
125	1	1	2	6	9	8	7	8	9	8	7	7	11	7	2	1	1
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127	1	1	2	7	9	8	7	8	9	9	7	8	11	7	2	1	1
128	1	1	2	7	10	8	7	8	9	9	8	8	12	8	2	1	1
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130	1	1	2	7	10	8	7	8	9	9	8	9	12	8	2	1	1
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146	2	3	3	3	8	7	7	8	8	9	10	10	11	7	5	3	2
147	3	3	3	5	7	7	7	8	8	9	10	10	11	7	5	3	3
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149	3	3	4	5	7	7	7	8	8	9	11	10	11	7	5	3	3
150	3	3	4	5	7	7	7	8	8	9	11	10	10	7	5	4	3
151	3	3	4	5	7	7	7	8	8	9	11	10	10	7	6	4	3
152	3	4	4	5	6	7	7	7	8	9	11	10	9	7	6	4	3

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153	4	4	4	5	6	6	7	7	8	9	10	9	9	7	6	4	4
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157	4	4	5	5	5	6	6	7	7	9	9	7	7	6	5	4	
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159	4	4	5	5	5	6	6	6	6	7	8	8	7	7	6	5	4
160	5	5	5	5	5	5	6	6	6	7	8	8	7	7	6	5	5
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162	5	5	5	5	5	5	6	6	6	7	7	8	7	6	6	5	5
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179	7	7	7	6	6	6	6	7	7	7	7	8	6	7	7	7	7
180	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

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2.2 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
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Test date	2016-01-30	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-110WiT-HV(5700K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151161	277.0	60	0.4378	117.8	0.9713	6.07
-H2	480.0	60	0.2660	117.4	0.9195	12.82

Sphere-Spectroradiometer Method:

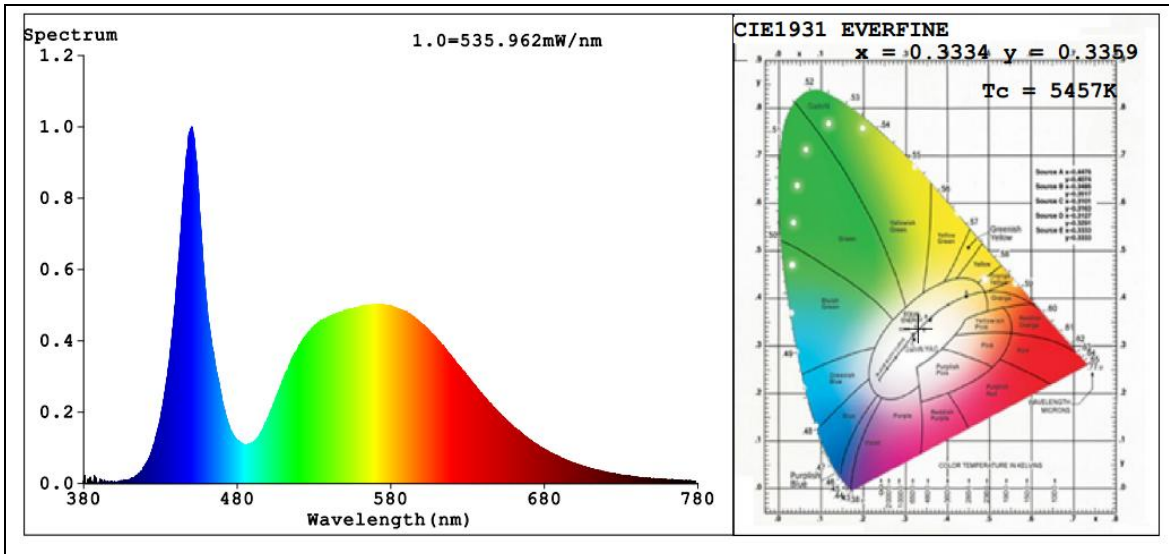
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Color Rendering Index (CRI)	76.6
R9	0
CCT (K)	5457
Chromaticity (x, y)	x=0.3334 y=0.3359
Chromaticity (u', v')	u'=0.2095 v'=0.4750
Duv	-0.0031
Total Luminous (lm)	15169
Luminous Efficacy (lm/W)	128.77

Special Color Rendering Indices			
R1	76	R9	0
R2	81	R10	52
R3	81	R11	75
R4	78	R12	48
R5	76	R13	77
R6	72	R14	89
R7	83	R15	73
R8	65	--	--

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	480.0
Frequency (Hz)	60
Total Initial Lumen Output(lm)	15165
Initial Lumen Efficacy(lm/w)	129.17

Spectral Power Distribution & Chromaticity Diagram



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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2015-07-01	2016-06-30
ST-R-331	Spectral analysis system HAAS-2000	2015-07-01	2016-06-30
D204	Standard Lamp	2015-07-01	2016-06-30
PF2010	Power Meter for Integrating Sphere	2015-07-01	2016-06-30
EE-09	Goniophotometer system	2015-07-01	2016-06-30
D908S	Standard Lamp	2015-07-01	2016-06-30
PF210	Power Meter for Goniophotometer	2015-07-01	2016-06-30
ST-R-181A	Temperature Tester	2015-07-01	2016-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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