

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-150WiT-HV

Representative (Tested) Model: AOK-150WiT-HV(3000K)
AOK-150WiT-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-150WiT-HV(3000K)	3000	17346	152.1	114.01
AOK-150WiT-HV(3500K)	3500	17677 ^{*1}	152.8 ^{*2}	115.69 ^{*3}
AOK-150WiT-HV(4000K)	4000	18008 ^{*1}	152.8 ^{*2}	117.86 ^{*3}
AOK-150WiT-HV(4500K)	4500	18340 ^{*1}	152.8 ^{*2}	120.02 ^{*3}
AOK-150WiT-HV(5000K)	5000	18671 ^{*1}	152.8 ^{*2}	122.19 ^{*3}
AOK-150WiT-HV(5700K)	5700	19002	153.5	123.79

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

$$17677 = (19002 - 17346) / 5 + 17346$$

$$18008 = (19002 - 17346) / 5 + 17677$$

$$18340 = (19002 - 17346) / 5 + 18008$$

$$18671 = (19002 - 17346) / 5 + 18340$$

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

$$152.8 = (153.5 + 152.1) / 2$$

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

$$115.69 = 17677 / 152.8$$

$$117.86 = 18008 / 152.8$$

$$120.02 = 18340 / 152.8$$

$$122.19 = 18671 / 152.8$$

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-I
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	AOK LED LIGHT COMPANY LIMITED		
Brand Name	AOK		
Model Number	AOK-150WiT-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. mm mm	
Luminaire Length	--		
Luminaires Width	--		
Number of Units (modular products)	N/A	s	

Integrating Sphere
Goniophotometer
Electrical Measurements:
Output
Output

Input Wattage	--	152.1	W
Input Current	--	0.5590	A
Input Voltage (ac)	--	277.0	V
Power Factor	--	0.9824	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	17346	lm
Initial Lumen Efficacy	--	114.01	lm/w
Correlated color temperature / CCT	3095	--	K
Color rendering index / CRI	72.9	--	
R9 Value	0	--	
Duv	-0.0025	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	4282	cd
Beam angle (if applicable)		100.0	°
Zonal lumens in the 0°-60° zone		86.4	%
Zonal lumens in the 60°-90° zone		13.4	%
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-I
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	AOK LED LIGHT COMPANY LIMITED		
Brand Name	AOK		
Model Number	AOK-150WiT-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	153.5	--	W
Input Current	0.5646	--	A
Input Voltage (ac)	277.0	--	V
Power Factor	0.9815	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	19002	--	lm
Initial Lumen Efficacy	123.79	--	lm/w
Correlated color temperature / CCT	5450	--	K
Color rendering index / CRI	76.4	--	
R9 Value	0	--	
Duv	-0.0034	--	
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.30,2016
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.

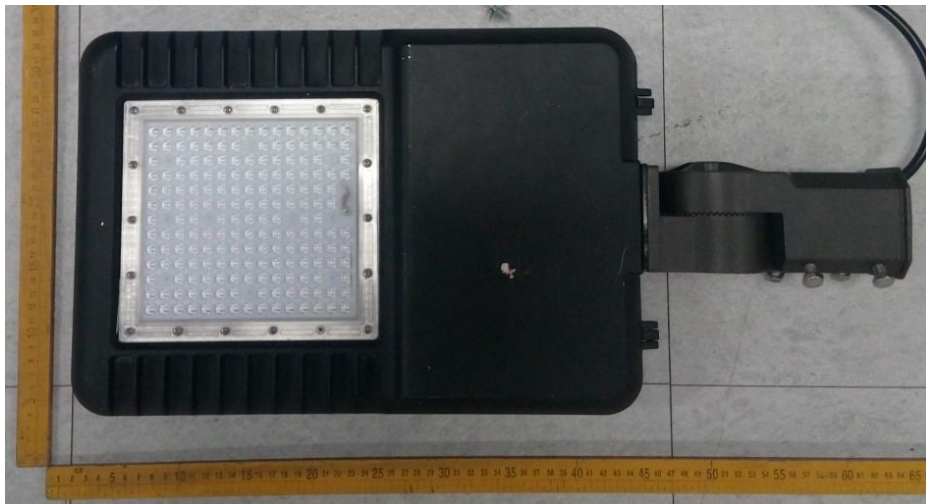
2. Photometric and Electrical Measurements – Integrating Sphere Method:

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-150WiT-HV
Luminaire Type	Outdoor Pole/Arm-mounted Area and Roadway Luminaires
Rated Voltage / Frequency	200~ 480Vac, 50/60Hz
Nominal Power	150W
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-I1(3000K),H2(5700K)

Photo



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2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	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-150WiT-HV(3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151161	277.0	60	0.5590	152.1	0.9824	7.23
-I1	480.0	60	0.3409	151.0	0.9227	16.46

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Color Rendering Index (CRI)	72.9
R9	0
CCT (K)	3095
Chromaticity (x, y)	x=0.4269 y=0.3943
Chromaticity (u', v')	u'=0.2483 v'=0.5160
Duv	-0.0025

Special Color Rendering Indices			
R1	70	R9	0
R2	83	R10	61
R3	93	R11	60
R4	67	R12	50
R5	68	R13	72
R6	76	R14	96
R7	78	R15	64
R8	47	--	--

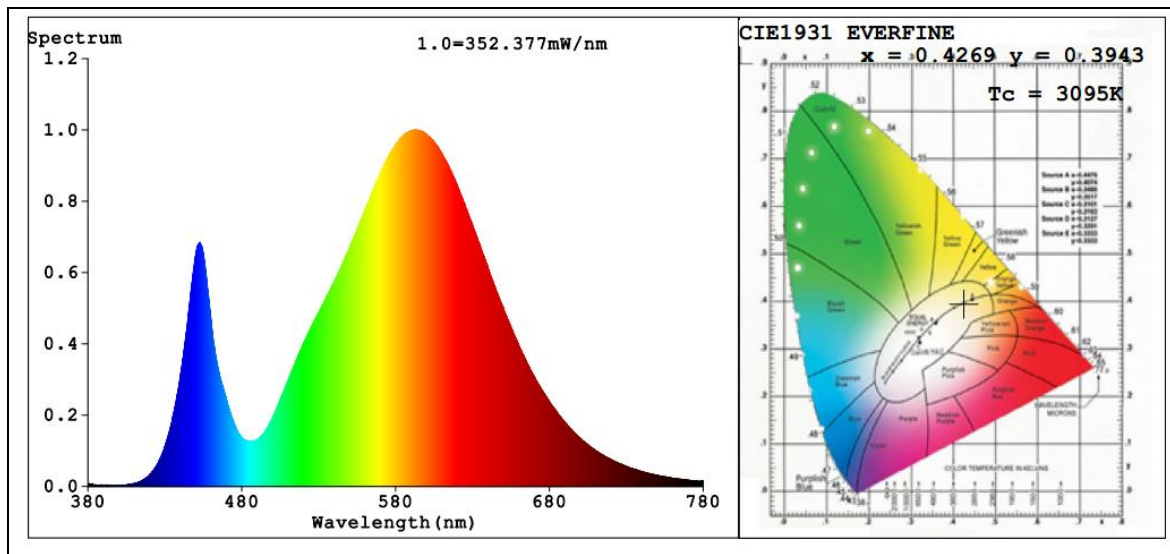
Goniophotometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	17346
Luminous Efficacy (lm/W)	114.01
Beam Angle°	100.0
Center Beam Candle Power (cd)	4282

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	480.0
Frequency (Hz)	60
Total Luminous (lm)	17150
Luminous Efficacy (lm/W)	113.54

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	4,327.1	25%
0-40	7,605.9	43.9%
0-60	14,978.8	86.4%
60-90	2,329.5	13.4%
70-100	578.4	3.3%
90-120	7.1	0%
0-90	17,308.2	99.8%
90-180	33.0	0.2%
0-180	17,341.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	415.9	2.4%	90-100	0.3	0%
10-20	1,367.8	7.9%	100-110	2.0	0%
20-30	2,543.4	14.7%	110-120	4.8	0%
30-40	3,278.7	18.9%	120-130	6.8	0%
40-50	3,733.6	21.5%	130-140	6.6	0%
50-60	3,639.3	21.0%	140-150	5.5	0%
60-70	1,751.4	10.1%	150-160	3.9	0%
70-80	484.4	2.8%	160-170	2.2	0%
80-90	93.7	0.5%	170-180	0.9	0%

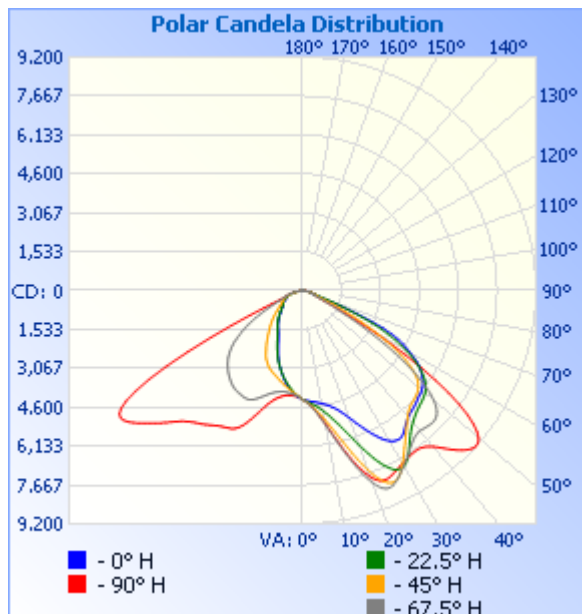
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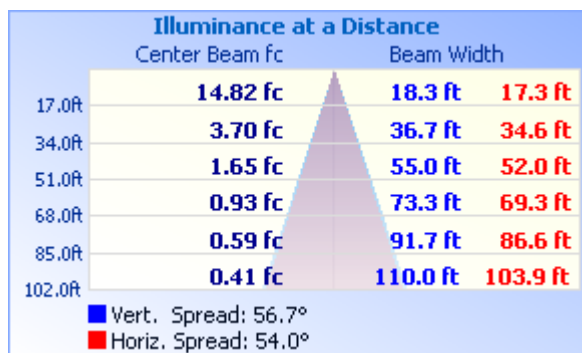
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Photometric Data



Illuminance Plots



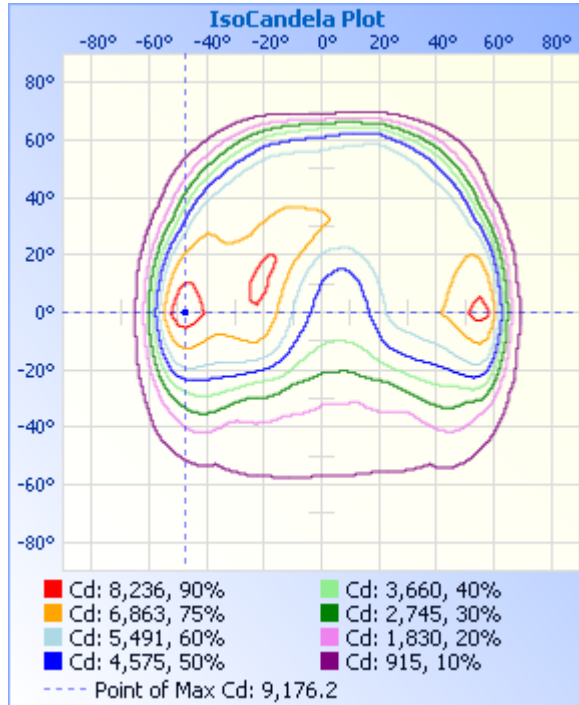
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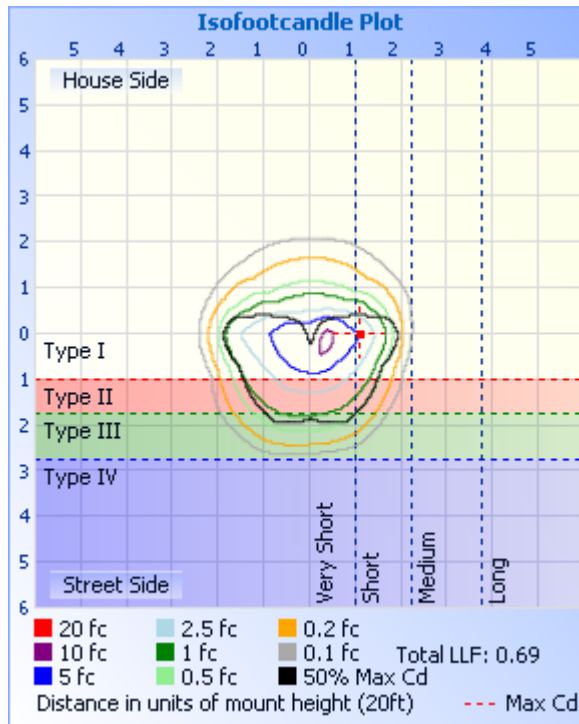
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ISOCANDELA DIAGRAM



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	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282	4282
1	4310	4326	4338	4340	4331	4317	4294	4269	4250	4235	4227	4231	4238	4252	4272	4291	4310
2	4333	4369	4395	4403	4388	4358	4306	4253	4215	4184	4174	4184	4201	4228	4259	4298	4333
3	4354	4408	4456	4475	4455	4407	4319	4233	4173	4131	4124	4149	4177	4212	4250	4299	4354
4	4372	4449	4524	4560	4538	4466	4335	4211	4124	4074	4079	4121	4163	4206	4244	4298	4372
5	4390	4495	4600	4660	4635	4539	4354	4185	4070	4013	4038	4102	4159	4208	4240	4297	4390
6	4410	4546	4691	4775	4747	4620	4375	4154	4007	3949	3997	4087	4159	4210	4243	4299	4410
7	4434	4604	4795	4910	4877	4710	4397	4118	3938	3881	3957	4072	4160	4215	4249	4304	4434
8	4460	4670	4910	5064	5022	4811	4421	4080	3865	3809	3911	4058	4163	4224	4258	4312	4460
9	4491	4748	5041	5237	5192	4924	4448	4037	3790	3737	3865	4049	4177	4237	4266	4322	4491
10	4525	4834	5191	5430	5385	5048	4478	3991	3711	3665	3820	4047	4201	4258	4277	4334	4525
11	4564	4934	5355	5647	5599	5190	4509	3943	3628	3591	3778	4054	4236	4289	4290	4350	4564
12	4609	5045	5536	5883	5834	5341	4541	3891	3542	3517	3734	4070	4281	4328	4311	4372	4609
13	4660	5168	5735	6142	6082	5504	4576	3835	3454	3439	3692	4091	4333	4378	4338	4397	4660
14	4716	5301	5952	6412	6344	5676	4611	3777	3362	3355	3653	4115	4394	4439	4377	4425	4716
15	4781	5449	6183	6686	6609	5851	4645	3719	3272	3271	3612	4144	4471	4511	4426	4460	4781
16	4859	5614	6439	6977	6877	6031	4678	3658	3182	3184	3575	4181	4562	4600	4488	4502	4859
17	4953	5799	6702	7266	7140	6200	4710	3595	3092	3097	3536	4227	4671	4705	4561	4555	4953
18	5059	6002	6975	7549	7387	6365	4737	3526	3001	3010	3502	4281	4803	4834	4654	4623	5059
19	5181	6227	7249	7817	7613	6519	4753	3451	2903	2930	3468	4341	4956	4986	4763	4707	5181
20	5319	6459	7515	8055	7809	6649	4760	3366	2799	2845	3435	4408	5127	5164	4893	4806	5319
21	5466	6698	7767	8248	7963	6755	4751	3264	2688	2750	3400	4479	5305	5353	5044	4920	5466
22	5622	6937	7988	8390	8070	6827	4725	3161	2579	2653	3363	4551	5487	5557	5218	5049	5622
23	5784	7175	8167	8473	8127	6867	4682	3059	2471	2555	3323	4621	5662	5763	5411	5191	5784
24	5952	7397	8288	8491	8139	6868	4620	2957	2370	2462	3280	4688	5815	5955	5613	5343	5952
25	6121	7604	8351	8452	8114	6841	4538	2852	2274	2374	3223	4739	5944	6124	5817	5505	6121
26	6288	7776	8351	8380	8068	6786	4440	2745	2184	2285	3165	4774	6035	6256	6009	5671	6288
27	6448	7906	8293	8285	8014	6710	4325	2639	2102	2199	3108	4795	6099	6348	6179	5837	6448
28	6597	7986	8182	8182	7963	6619	4191	2533	2029	2115	3049	4801	6140	6407	6325	5998	6597

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29	6728	8017	8040	8076	7919	6529	4046	2434	1964	2038	2974	4794	6172	6433	6431	6148	6728
30	6838	7991	7878	7975	7878	6436	3900	2341	1908	1967	2892	4779	6205	6431	6491	6275	6838
31	6919	7917	7707	7872	7839	6339	3751	2259	1860	1908	2807	4764	6240	6425	6512	6378	6919
32	6966	7802	7538	7764	7800	6236	3604	2184	1815	1855	2719	4749	6284	6416	6495	6450	6966
33	6979	7662	7375	7658	7765	6134	3460	2114	1773	1806	2631	4736	6337	6400	6449	6481	6979
34	6959	7506	7222	7554	7738	6026	3323	2051	1733	1761	2546	4719	6395	6385	6382	6478	6959
35	6902	7347	7072	7458	7722	5914	3189	1987	1691	1716	2461	4695	6459	6369	6304	6445	6902
36	6818	7196	6932	7372	7728	5799	3055	1925	1646	1673	2377	4663	6522	6350	6229	6394	6818
37	6717	7065	6796	7298	7757	5690	2922	1864	1601	1631	2294	4624	6584	6330	6160	6333	6717
38	6626	6949	6671	7244	7812	5582	2797	1806	1555	1590	2215	4579	6638	6310	6098	6269	6626
39	6549	6850	6551	7208	7904	5481	2673	1747	1509	1550	2138	4531	6698	6283	6039	6220	6549
40	6487	6768	6443	7205	8025	5378	2547	1689	1464	1509	2064	4480	6761	6254	5988	6187	6487
41	6437	6695	6354	7221	8182	5288	2426	1632	1417	1466	1993	4427	6837	6224	5943	6172	6437
42	6398	6627	6278	7247	8363	5195	2311	1570	1371	1420	1923	4370	6928	6197	5899	6169	6398
43	6368	6569	6224	7274	8554	5099	2200	1507	1325	1372	1858	4310	7038	6179	5861	6172	6368
44	6338	6521	6186	7293	8733	5004	2097	1445	1280	1326	1794	4245	7170	6175	5828	6176	6338
45	6301	6482	6155	7295	8895	4908	1998	1385	1235	1279	1729	4177	7321	6170	5801	6185	6301
46	6259	6446	6130	7273	9027	4798	1902	1326	1193	1233	1663	4108	7483	6167	5785	6197	6259
47	6222	6414	6101	7220	9126	4680	1808	1267	1154	1187	1596	4032	7645	6167	5778	6207	6222
48	6190	6379	6064	7116	9176	4551	1720	1215	1118	1145	1531	3946	7809	6169	5775	6223	6190
49	6165	6343	6015	6968	9159	4408	1633	1166	1085	1107	1465	3852	7974	6170	5776	6242	6165
50	6126	6297	5953	6767	9053	4252	1548	1123	1055	1073	1399	3750	8133	6171	5777	6266	6126
51	6074	6238	5867	6504	8852	4089	1467	1085	1028	1043	1337	3636	8294	6168	5772	6291	6074
52	6014	6160	5753	6177	8546	3904	1386	1052	1003	1017	1276	3512	8455	6160	5762	6308	6014
53	5937	6067	5604	5803	8141	3706	1311	1023	982	993	1220	3377	8596	6139	5747	6315	5937
54	5842	5947	5415	5376	7629	3489	1239	998	961	971	1167	3216	8704	6093	5723	6304	5842
55	5733	5800	5184	4892	7030	3236	1173	977	941	951	1117	3056	8752	6011	5691	6273	5733
56	5609	5632	4907	4378	6321	2983	1113	958	922	934	1073	2896	8711	5865	5638	6216	5609
57	5475	5440	4593	3844	5563	2730	1061	942	904	918	1032	2720	8541	5634	5565	6136	5475
58	5315	5232	4236	3303	4756	2454	1018	926	886	902	998	2533	8205	5311	5457	6028	5315
59	5116	4996	3853	2782	4030	2183	980	911	869	886	968	2339	7687	4891	5311	5890	5116

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60	4895	4737	3453	2306	3303	1922	948	895	849	870	942	2138	7003	4396	5108	5716	4895
61	4684	4447	3037	1877	2580	1678	920	878	825	853	918	1929	6134	3820	4841	5501	4684
62	4476	4141	2632	1589	2021	1463	894	861	798	835	894	1722	5124	3203	4513	5251	4476
63	4238	3807	2240	1304	1550	1283	871	841	762	815	871	1522	4063	2590	4116	4971	4238
64	3909	3444	1877	1019	1200	1138	847	820	725	793	848	1345	3105	2024	3663	4653	3909
65	3501	3040	1598	840	953	1024	823	799	711	771	825	1191	2286	1653	3168	4242	3501
66	2943	2565	1320	713	789	937	798	776	701	748	801	1062	1670	1286	2661	3714	2943
67	2299	2083	1043	622	687	871	774	750	690	721	777	961	1316	920	2166	3137	2299
68	1657	1668	852	561	621	816	747	722	680	690	750	881	970	742	1718	2541	1657
69	1189	1340	712	518	581	770	718	690	667	654	720	817	816	638	1411	1960	1189
70	721	1014	612	486	551	729	687	653	652	616	689	766	732	575	1105	1546	721
71	511	775	542	459	529	689	655	616	635	580	655	722	683	537	799	1135	511
72	416	602	490	438	510	649	618	580	611	547	616	682	650	509	648	724	416
73	374	486	450	415	492	608	576	546	580	516	571	641	619	484	547	534	374
74	349	417	411	390	474	565	524	507	548	481	516	599	580	455	471	447	349
75	329	378	370	364	449	520	457	475	509	453	458	556	540	425	404	400	329
76	313	354	331	336	421	477	398	441	468	424	404	510	496	387	351	375	313
77	298	336	295	304	389	431	346	405	425	391	348	463	449	344	313	363	298
78	280	320	261	273	353	383	291	367	380	355	285	411	401	304	278	359	280
79	256	293	229	246	316	332	244	324	331	315	236	354	350	267	239	353	256
80	237	255	197	220	275	275	204	281	283	273	197	293	298	234	200	337	237
81	215	217	168	194	235	224	171	235	236	229	164	237	243	198	169	310	215
82	164	173	133	164	196	180	142	188	189	182	135	178	195	157	133	265	164
83	105	125	98	132	161	130	114	142	143	137	108	123	154	119	95	203	105
84	64	80	70	102	129	102	88	103	98	95	81	91	116	90	63	136	64
85	33	47	46	77	98	80	62	62	54	57	56	68	85	66	39	78	33
86	9	19	24	53	70	60	39	25	19	24	34	50	56	43	20	26	9
87	1	2	8	30	42	40	20	9	10	11	18	31	29	21	5	1	1
88	1	1	0	11	10	11	8	7	7	8	7	5	3	4	1	1	1
89	0	1	0	1	0	1	2	1	0	2	1	0	1	1	0	1	0
90	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
97	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0
98	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0
99	0	0	0	1	1	0	1	1	1	1	0	0	0	0	0	0	0
100	0	0	0	1	1	1	1	2	1	1	1	0	0	0	0	0	0
101	0	0	0	1	1	1	2	2	2	2	1	0	0	1	0	0	0
102	0	0	0	1	2	1	2	3	2	2	1	0	1	1	0	0	0
103	0	0	0	1	2	1	3	3	3	2	1	1	1	1	0	0	0
104	0	0	0	1	3	2	3	3	3	3	2	1	2	1	1	0	0
105	0	0	0	1	4	2	3	4	3	3	2	1	2	1	0	0	0
106	0	0	0	2	4	3	4	4	4	4	2	1	3	2	0	0	0
107	0	0	0	2	5	3	4	5	4	4	3	2	3	2	0	0	0
108	0	1	1	2	6	4	4	5	5	4	3	2	4	2	1	0	0
109	1	1	1	3	6	4	5	5	5	4	4	3	5	3	1	0	1
110	1	1	1	3	7	5	5	5	5	5	4	3	6	3	1	1	1
111	1	1	1	4	8	5	5	5	5	5	4	4	7	3	1	1	1
112	1	1	1	4	9	6	6	5	6	5	5	4	7	4	1	1	1
113	1	1	1	4	9	7	6	6	6	6	5	5	8	4	1	1	1
114	1	1	1	5	9	7	6	6	6	6	5	5	9	5	1	1	1
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120	1	1	2	7	10	9	9	9	8	8	8	7	12	6	2	1	1
121	1	1	2	7	10	9	9	9	9	9	8	8	12	7	2	1	1

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122	2	1	2	7	11	9	9	10	10	10	8	8	13	7	2	1	2
123	2	2	2	8	11	10	9	10	11	10	8	8	13	8	2	2	2
124	2	2	2	8	11	10	9	10	11	10	9	9	13	8	2	2	2
125	2	2	2	8	11	10	9	11	11	10	9	9	14	8	3	2	2
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128	2	2	3	9	13	11	9	11	12	11	10	10	15	10	3	2	2
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130	2	2	3	9	13	11	10	11	12	11	11	11	15	10	3	2	2
131	2	2	3	9	12	10	10	10	12	12	11	11	15	10	4	2	2
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133	2	2	3	8	12	10	10	10	12	12	11	12	15	10	4	2	2
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138	2	3	4	8	10	10	9	11	11	12	11	13	15	10	5	3	2
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145	3	4	4	7	10	10	9	10	11	12	12	13	15	9	6	4	3
146	4	4	4	7	10	10	9	10	11	12	12	13	14	9	6	5	4
147	4	4	4	7	10	10	9	10	11	12	13	13	14	9	6	5	4
148	4	4	5	7	10	10	9	10	11	12	13	13	14	9	6	5	4
149	4	4	5	7	10	9	9	10	11	12	13	13	14	9	7	5	4
150	4	5	5	7	9	9	9	10	11	12	13	13	13	9	7	5	4
151	5	5	5	7	9	9	9	10	11	12	13	12	13	9	7	5	5
152	5	5	6	7	9	9	9	10	11	11	13	12	12	9	8	6	5

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153	5	5	6	7	8	9	9	9	10	11	13	12	12	9	8	6	5
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161	6	6	7	7	7	7	7	8	8	9	10	10	9	8	8	7	6
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167	7	7	7	6	7	7	7	8	8	9	10	10	9	8	8	7	7
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172	9	9	9	7	8	8	9	10	10	11	11	12	10	9	10	9	9
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177	10	9	9	8	8	8	9	9	10	10	10	11	9	9	10	9	10
178	10	9	9	8	8	8	9	9	9	10	10	10	9	9	10	9	10
179	10	9	10	8	8	8	9	9	9	9	9	10	8	9	9	9	10
180	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

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2.2 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	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-150WiT-HV(5700K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151161	277.0	60	0.5646	153.5	0.9815	7.06
-I2	480.0	60	0.3442	152.4	0.9224	16.29

Sphere-Spectroradiometer Method:

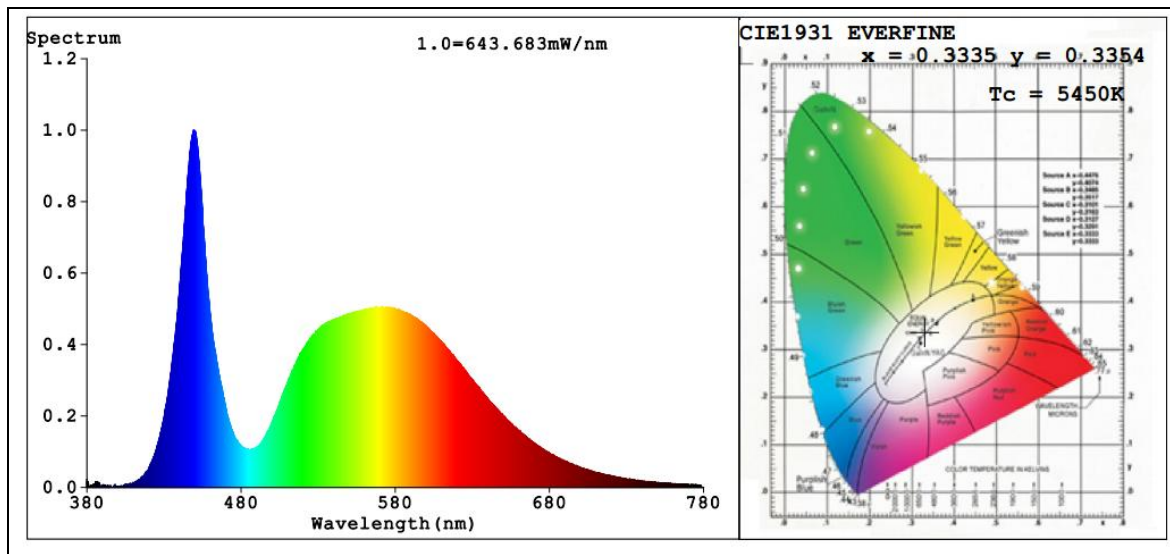
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Color Rendering Index (CRI)	76.4
R9	0
CCT (K)	5450
Chromaticity (x, y)	x=0.3335 y=0.3354
Chromaticity (u', v')	u'=0.2098 v'=0.4748
Duv	-0.0034
Total Luminous (lm)	19002
Luminous Efficacy (lm/W)	123.79

Special Color Rendering Indices			
R1	76	R9	0
R2	80	R10	51
R3	81	R11	75
R4	78	R12	48
R5	76	R13	76
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)	18804
Initial Lumen Efficacy(lm/w)	123.39

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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