

## 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-180WiT-HV

Representative (Tested) Model: AOK-180WiT-HV(3000K)  
AOK-180WiT-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>

<b>Performance Assessment:</b>
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Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-180WiT-HV(3000K)	3000	24369	184.5	132.09
AOK-180WiT-HV(3500K)	3500	24698 <sup>*1</sup>	185.1 <sup>*2</sup>	133.46 <sup>*3</sup>
AOK-180WiT-HV(4000K)	4000	25026 <sup>*1</sup>	185.1 <sup>*2</sup>	135.24 <sup>*3</sup>
AOK-180WiT-HV(4500K)	4500	25355 <sup>*1</sup>	185.1 <sup>*2</sup>	137.02 <sup>*3</sup>
AOK-180WiT-HV(5000K)	5000	25683 <sup>*1</sup>	185.1 <sup>*2</sup>	138.79 <sup>*3</sup>
AOK-180WiT-HV(5700K)	5700	26012	185.6	140.15

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

$$24698 = (26012 - 24369) / 5 + 24369$$

$$25026 = (26012 - 24369) / 5 + 24698$$

$$25355 = (26012 - 24369) / 5 + 25026$$

$$25683 = (26012 - 24369) / 5 + 25355$$

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

$$185.1 = (185.6 + 184.5) / 2$$

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

$$133.46 = 24698 / 185.1$$

$$135.24 = 25026 / 185.1$$

$$137.02 = 25355 / 185.1$$

$$138.79 = 25683 / 185.1$$

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-J
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	AOK LED LIGHT COMPANY LIMITED		
Brand Name	AOK		
Model Number	AOK-180WiT-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	--	184.5	W
Input Current	--	0.6773	A
Input Voltage (ac)	--	277.0	V
Power Factor	--	0.9832	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	24369	lm
Initial Lumen Efficacy	--	132.09	lm/w
Correlated color temperature / CCT	3040	--	K
Color rendering index / CRI	72.3	--	
R9 Value	0	--	
Duv	-0.0013	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		6644	cd
Beam angle (if applicable)		96.8	°
Zonal lumens in the 0°-60° zone	-----	89	%
Zonal lumens in the 60°-90° zone		10.8	%
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-J
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	AOK LED LIGHT COMPANY LIMITED		
Brand Name	AOK		
Model Number	AOK-180WiT-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	185.6	--	W
Input Current	0.6836	--	A
Input Voltage (ac)	277.0	--	V
Power Factor	0.9802	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	26012	--	lm
Initial Lumen Efficacy	140.15	--	lm/w
Correlated color temperature / CCT	5841	--	K
Color rendering index / CRI	75.9	--	
R9 Value	0	--	
Duv	-0.0002	--	
<b>Luminous Intensity Distribution</b>			
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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ , 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  $1\text{ }^{\circ}$  vertical intervals and  $22.5\text{ }^{\circ}$  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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ . 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.

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**1. Product Information:**

Brand Name	AOK
Model Number	AOK-180WiT-HV
Luminaire Type	Outdoor Pole/Arm-mounted Area and Roadway Luminaires
Rated Voltage / Frequency	277~ 480Vac, 50/60Hz
Nominal Power	180W
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-J1(3000K),J2(5700K)

**Photo**



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<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2016-01-30	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AOK-180WiT-HV(3000K)		

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151161	277.0	60	0.6773	184.5	0.9832	7.68
-J1	480.0	60	0.4104	182.9	0.9284	10.95

### Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	69	R9	0
Frequency (Hz)	60	R2	83	R10	59
Color Rendering Index (CRI)	72.3	R3	93	R11	60
R9	0	R4	67	R12	48
CCT (K)	3040	R5	68	R13	71
Chromaticity (x, y)	x=0.4323 y=0.3993	R6	75	R14	96
Chromaticity (u', v')	u'=0.2497 v'=0.5188	R7	78	R15	62
Duv	-0.0013	R8	46	--	--

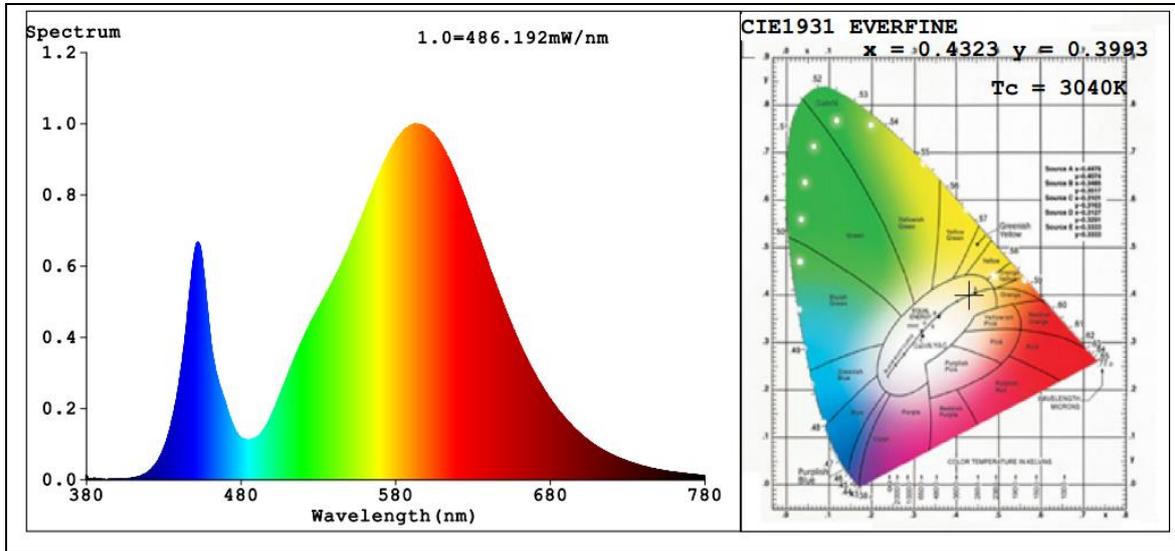
### Goniophotometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	24369
Luminous Efficacy (lm/W)	132.09
Beam Angle °	96.8
Center Beam Candle Power (cd)	6644

### Goniophotometer Method:

Parameter	Result
Test Voltage (V)	480.0
Frequency (Hz)	60
Total Luminous (lm)	24139
Luminous Efficacy (lm/W)	131.97

**Spectral Power Distribution & Chromaticity Diagram**



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**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	5,609.1	23%
0-40	10,057.8	41.3%
0-60	21,678.3	89%
60-90	2,640.5	10.8%
70-100	843.6	3.5%
90-120	10.0	0%
0-90	24,318.8	99.8%
90-180	45.2	0.2%
0-180	24,363.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	625.8	2.6%	90-100	0.6	0%
10-20	1,827.0	7.5%	100-110	2.6	0%
20-30	3,156.2	13.0%	110-120	6.8	0%
30-40	4,448.7	18.3%	120-130	9.7	0%
40-50	5,997.8	24.6%	130-140	9.5	0%
50-60	5,622.7	23.1%	140-150	7.1	0%
60-70	1,797.5	7.4%	150-160	4.8	0%
70-80	711.2	2.9%	160-170	2.9	0%
80-90	131.8	0.5%	170-180	1.2	0%

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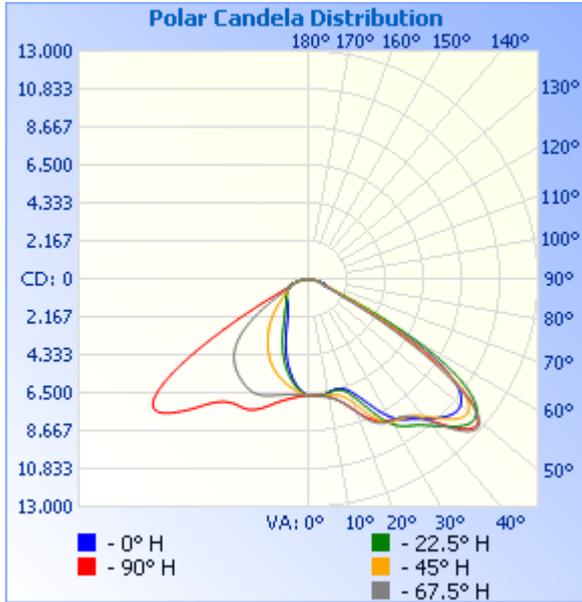
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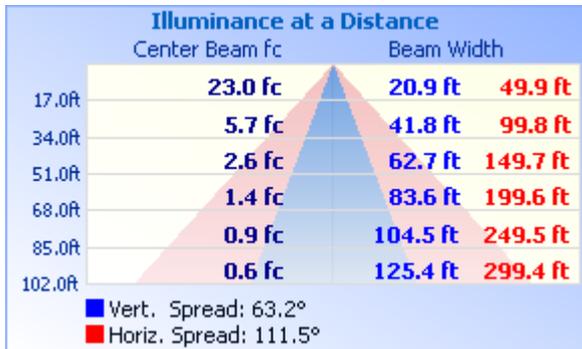
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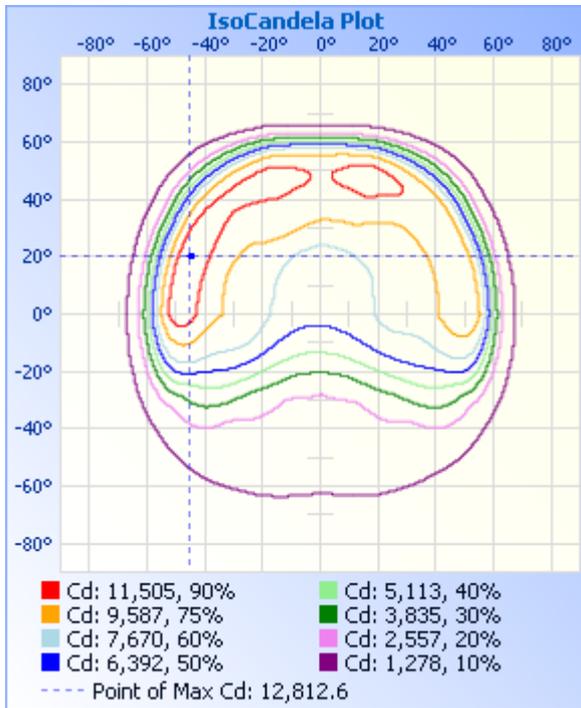
### Photometric Data



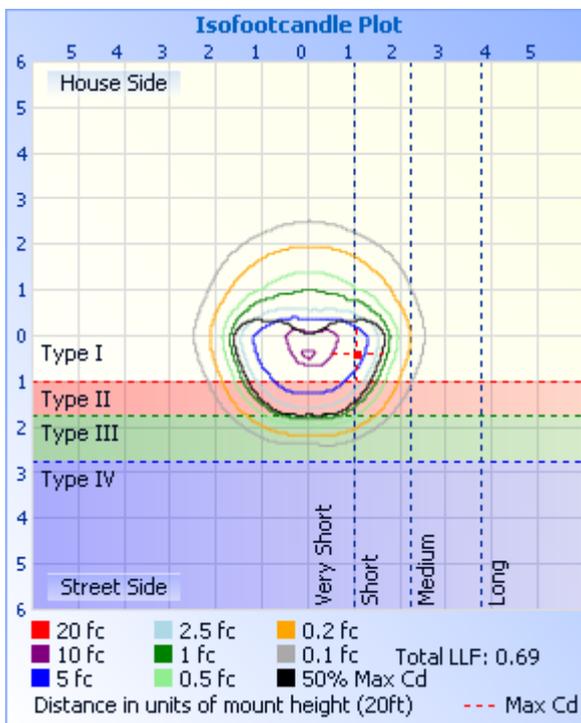
### Illuminance Plots



### 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	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644	6644
1	6681	6674	6666	6653	6636	6619	6605	6597	6592	6602	6617	6637	6656	6671	6679	6684	6681
2	6707	6696	6683	6666	6632	6598	6562	6535	6527	6549	6585	6631	6673	6700	6711	6715	6707
3	6721	6708	6697	6682	6634	6582	6516	6465	6449	6483	6548	6630	6696	6731	6740	6735	6721
4	6723	6712	6708	6700	6642	6568	6464	6384	6357	6408	6507	6633	6722	6764	6763	6743	6723
5	6716	6709	6716	6722	6657	6555	6408	6292	6252	6319	6462	6639	6753	6798	6783	6744	6716
6	6699	6696	6722	6746	6677	6547	6351	6193	6138	6224	6416	6648	6789	6832	6798	6739	6699
7	6676	6678	6728	6773	6707	6543	6290	6081	6012	6119	6367	6660	6830	6867	6808	6723	6676
8	6646	6655	6731	6804	6743	6547	6228	5963	5871	6010	6314	6675	6875	6902	6814	6703	6646
9	6609	6629	6735	6841	6788	6555	6165	5836	5725	5891	6263	6695	6928	6938	6816	6679	6609
10	6570	6601	6738	6881	6841	6566	6102	5708	5567	5765	6210	6714	6982	6981	6817	6650	6570
11	6533	6576	6747	6929	6901	6583	6037	5568	5405	5632	6157	6737	7042	7026	6820	6622	6533
12	6504	6555	6763	6989	6974	6605	5970	5428	5238	5497	6096	6761	7109	7074	6826	6597	6504
13	6483	6542	6786	7062	7061	6637	5902	5282	5062	5354	6033	6793	7182	7129	6839	6580	6483
14	6473	6540	6821	7150	7163	6675	5836	5129	4879	5205	5971	6828	7263	7192	6860	6575	6473
15	6476	6553	6874	7256	7276	6723	5767	4974	4692	5053	5909	6865	7353	7265	6890	6582	6476
16	6497	6587	6951	7387	7406	6777	5699	4811	4500	4896	5845	6906	7450	7349	6937	6608	6497
17	6538	6649	7056	7542	7553	6837	5631	4648	4304	4735	5778	6946	7551	7443	6996	6656	6538
18	6602	6739	7189	7722	7714	6905	5564	4478	4106	4573	5706	6990	7653	7540	7074	6728	6602
19	6688	6861	7355	7917	7888	6980	5495	4307	3912	4409	5633	7035	7758	7635	7176	6823	6688
20	6801	7018	7547	8128	8070	7057	5419	4134	3719	4244	5557	7079	7860	7729	7298	6950	6801
21	6940	7210	7767	8343	8258	7140	5340	3960	3533	4077	5478	7119	7954	7814	7438	7104	6940
22	7103	7432	8000	8552	8437	7218	5260	3790	3359	3910	5394	7152	8038	7893	7586	7289	7103
23	7295	7689	8244	8750	8605	7288	5173	3620	3184	3743	5310	7177	8113	7962	7745	7490	7295
24	7508	7964	8488	8912	8758	7353	5081	3454	3010	3580	5214	7192	8171	8016	7908	7709	7508
25	7750	8253	8716	9049	8892	7409	4986	3299	2868	3422	5114	7193	8209	8049	8065	7946	7750
26	8004	8551	8925	9158	9006	7451	4888	3144	2731	3276	5009	7186	8228	8065	8208	8192	8004
27	8270	8844	9104	9240	9100	7478	4781	2989	2609	3131	4900	7169	8236	8061	8334	8442	8270
28	8540	9127	9249	9293	9175	7492	4672	2854	2502	2985	4787	7144	8237	8044	8436	8676	8540
29	8800	9378	9360	9323	9240	7490	4559	2734	2411	2861	4679	7107	8242	8023	8510	8897	8800

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30	9034	9584	9437	9347	9297	7475	4443	2624	2328	2747	4568	7066	8259	8004	8562	9091	9034
31	9235	9756	9482	9369	9350	7444	4330	2525	2253	2641	4450	7023	8284	7995	8600	9257	9235
32	9414	9896	9516	9397	9407	7408	4214	2437	2188	2541	4333	6972	8326	8004	8633	9411	9414
33	9560	10011	9547	9432	9475	7353	4097	2354	2130	2450	4216	6916	8381	8040	8669	9538	9560
34	9680	10112	9586	9479	9549	7291	3979	2278	2077	2368	4102	6869	8455	8106	8712	9657	9680
35	9783	10209	9632	9556	9642	7224	3864	2209	2029	2291	3986	6813	8553	8207	8774	9777	9783
36	9892	10317	9697	9664	9753	7145	3746	2145	1984	2220	3868	6755	8676	8338	8860	9911	9892
37	10010	10442	9780	9817	9890	7054	3628	2087	1942	2153	3754	6689	8830	8504	8966	10063	10010
38	10147	10584	9895	10010	10053	6956	3510	2031	1904	2091	3637	6620	9013	8705	9094	10248	10147
39	10293	10752	10043	10258	10254	6848	3391	1977	1869	2034	3521	6544	9234	8941	9250	10455	10293
40	10436	10935	10219	10549	10490	6731	3266	1927	1839	1980	3398	6466	9484	9206	9430	10677	10436
41	10581	11132	10422	10882	10769	6603	3142	1880	1813	1929	3271	6379	9751	9487	9625	10905	10581
42	10715	11341	10641	11242	11094	6463	3018	1838	1790	1880	3144	6284	10025	9775	9838	11133	10715
43	10840	11537	10865	11599	11434	6318	2896	1798	1769	1835	3017	6179	10287	10066	10047	11370	10840
44	10960	11722	11099	11944	11761	6158	2773	1763	1750	1795	2891	6065	10540	10354	10269	11603	10960
45	11080	11901	11320	12255	12071	5997	2653	1731	1731	1757	2766	5931	10787	10621	10476	11827	11080
46	11187	12073	11512	12523	12338	5819	2534	1703	1713	1724	2639	5788	11017	10863	10677	12024	11187
47	11261	12219	11669	12713	12539	5626	2415	1678	1696	1693	2513	5626	11218	11059	10856	12179	11261
48	11296	12316	11782	<b>12813</b>	12661	5429	2301	1655	1679	1665	2389	5444	11367	11186	11002	12302	11296
49	11288	12353	11835	12792	12680	5210	2188	1635	1662	1638	2268	5247	11450	11224	11105	12386	11288
50	11244	12334	11810	12642	12578	4973	2080	1617	1645	1615	2151	5022	11451	11156	11148	12412	11244
51	11151	12253	11704	12347	12359	4725	1980	1599	1627	1593	2037	4782	11344	10972	11114	12377	11151
52	10997	12103	11500	11899	12001	4456	1886	1582	1607	1572	1930	4515	11098	10649	10986	12264	10997
53	10771	11862	11182	11288	11494	4182	1801	1566	1584	1552	1829	4224	10702	10161	10749	12041	10771
54	10456	11514	10744	10517	10848	3885	1725	1549	1560	1532	1740	3913	10152	9513	10374	11701	10456
55	10053	11064	10167	9631	10061	3589	1660	1532	1534	1514	1659	3593	9433	8708	9867	11243	10053
56	9536	10500	9462	8626	9157	3285	1603	1514	1508	1493	1591	3258	8586	7800	9200	10657	9536
57	8900	9841	8652	7563	8173	2981	1555	1494	1482	1473	1532	2923	7626	6810	8409	9954	8900
58	8081	9067	7748	6459	7132	2677	1513	1474	1452	1452	1482	2589	6604	5777	7493	9088	8081
59	7071	8157	6774	5404	6090	2401	1477	1452	1419	1430	1439	2287	5578	4784	6504	8044	7071
60	5951	7135	5799	4422	5101	2151	1445	1427	1381	1406	1403	2021	4588	3863	5502	6881	5951
61	4762	6019	4831	3559	4204	1923	1416	1399	1334	1378	1370	1789	3719	3074	4519	5628	4762

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62	3601	4898	3942	2825	3541	1727	1387	1368	1277	1349	1339	1603	2974	2430	3637	4422	3601
63	2605	3833	3155	2247	2878	1562	1358	1335	1238	1318	1308	1452	2383	1944	2862	3357	2605
64	1866	2926	2484	1809	2217	1425	1326	1300	1227	1285	1276	1333	1930	1681	2239	2501	1866
65	1532	2188	1953	1574	1814	1314	1292	1262	1220	1249	1240	1238	1609	1422	1760	1859	1532
66	1211	1646	1654	1347	1521	1220	1254	1220	1214	1212	1202	1156	1432	1163	1502	1555	1211
67	890	1339	1360	1119	1315	1134	1214	1175	1205	1171	1162	1079	1257	1051	1248	1256	890
68	833	1034	1065	1011	1179	1054	1172	1124	1191	1126	1118	1006	1174	980	994	958	833
69	820	909	928	938	1087	978	1127	1075	1168	1078	1070	938	1126	936	876	898	820
70	822	868	829	895	1025	908	1079	1029	1136	1032	1020	869	1096	901	794	906	822
71	908	859	741	877	969	835	1029	985	1094	986	971	796	1066	853	728	919	908
72	1023	840	666	857	918	764	977	943	1043	941	921	724	1028	787	670	915	1023
73	965	812	605	799	872	693	923	897	981	892	870	656	978	709	616	892	965
74	815	758	550	716	821	629	868	845	909	842	818	596	906	631	567	837	815
75	651	681	501	630	757	575	814	787	835	783	765	541	814	561	517	758	651
76	531	599	456	550	679	526	757	729	760	725	708	494	713	492	461	666	531
77	442	519	407	479	598	484	696	669	685	665	646	453	610	426	404	561	442
78	363	427	357	414	515	443	624	606	611	601	571	415	510	364	346	446	363
79	290	337	308	354	442	406	535	543	538	536	483	380	426	308	295	340	290
80	232	255	263	301	377	369	421	477	465	470	376	341	352	263	249	251	232
81	194	187	223	255	319	329	326	412	392	401	287	301	284	226	206	179	194
82	162	134	183	215	260	292	272	346	319	329	233	262	215	191	160	127	162
83	132	94	143	179	210	252	217	276	247	254	182	219	180	156	121	88	132
84	98	64	110	144	175	205	161	204	178	180	140	175	151	122	88	58	98
85	62	41	80	110	144	157	117	137	111	114	99	131	123	90	61	37	62
86	27	23	53	77	113	113	78	78	50	58	62	90	92	60	37	19	27
87	4	8	27	46	77	69	44	22	6	11	31	52	54	32	14	5	4
88	1	1	7	14	18	12	10	4	3	3	7	5	5	4	1	1	1
89	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
90	1	1	1	1	1	0	0	1	0	0	0	0	1	0	0	1	1
91	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1	1
92	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	1
93	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1

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94	1	0	0	1	1	0	0	1	1	0	0	0	1	0	0	1	1
95	1	0	0	0	1	0	0	1	1	0	0	0	1	0	0	1	1
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97	1	0	0	0	1	1	0	1	1	1	0	1	1	0	1	1	1
98	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1
99	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1
100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
101	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1
102	1	1	1	1	2	1	1	2	1	2	1	1	2	1	1	1	1
103	1	1	1	1	2	1	2	2	2	2	2	2	3	1	1	1	1
104	1	1	1	1	2	2	2	3	2	3	2	2	3	2	1	1	1
105	1	1	1	2	3	2	3	3	3	4	3	3	4	2	1	1	1
106	1	1	1	2	3	3	3	4	4	4	4	3	5	2	1	1	1
107	1	1	1	2	4	3	4	4	4	5	5	4	6	3	2	1	1
108	1	1	1	2	5	4	5	5	5	6	5	5	7	3	2	2	1
109	2	0	1	3	5	4	5	6	5	6	6	6	8	3	2	2	2
110	2	1	2	3	6	5	6	6	6	7	7	6	9	4	2	2	2
111	2	2	2	4	7	6	7	7	7	7	7	7	11	4	2	2	2
112	2	1	2	4	8	7	7	7	7	8	8	8	12	5	2	2	2
113	2	1	2	5	9	8	8	8	7	9	9	9	13	5	2	2	2
114	2	2	2	5	9	9	9	8	8	9	10	10	14	5	2	2	2
115	2	2	2	6	10	9	9	8	9	9	10	11	14	6	2	2	2
116	2	2	2	6	10	10	10	8	10	9	11	11	15	6	2	2	2
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120	2	2	3	8	12	12	12	12	11	13	14	13	17	8	3	2	2
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122	3	2	3	9	13	13	13	14	14	15	14	14	18	9	4	3	3
123	3	2	4	9	13	13	13	14	15	15	15	15	19	9	4	3	3
124	3	3	4	10	13	13	13	14	16	15	15	15	19	10	4	3	3
125	3	3	4	10	13	14	13	14	16	16	15	16	20	11	4	3	3

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126	3	3	4	11	14	14	13	14	17	16	15	16	20	11	4	3	3
127	3	3	4	11	14	14	13	15	17	16	16	17	21	12	4	3	3
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138	3	4	6	12	14	14	13	19	18	19	15	17	19	12	6	4	3
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141	3	5	6	12	14	14	11	17	16	18	14	17	19	12	6	5	3
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154	7	7	9	10	11	11	12	12	13	14	14	13	11	9	10	8	7
155	7	8	10	10	10	11	11	12	12	13	14	12	11	9	10	8	7
156	7	8	10	10	10	11	11	11	12	12	13	12	10	9	10	8	7
157	8	8	10	10	9	11	11	11	11	12	13	12	10	9	10	8	8

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158	8	8	10	10	9	11	11	11	11	11	12	12	10	9	10	9	8
159	8	8	10	10	9	10	11	11	11	11	12	11	10	9	10	9	8
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166	9	10	10	9	9	9	10	10	10	10	11	12	10	9	11	10	9
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168	10	11	11	9	10	10	10	12	12	12	13	13	10	9	11	10	10
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170	11	12	12	10	12	11	12	13	14	14	14	14	11	10	12	12	11
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179	12	12	13	10	11	11	11	12	12	12	11	12	11	11	12	12	12
180	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

<b>2.2 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2016-01-30	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AOK-180WiT-HV(5700K)		

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151161	277.0	60	0.6836	185.6	0.9802	7.27
-J2	480.0	60	0.4135	184.1	0.9276	10.61

### Sphere-Spectroradiometer Method:

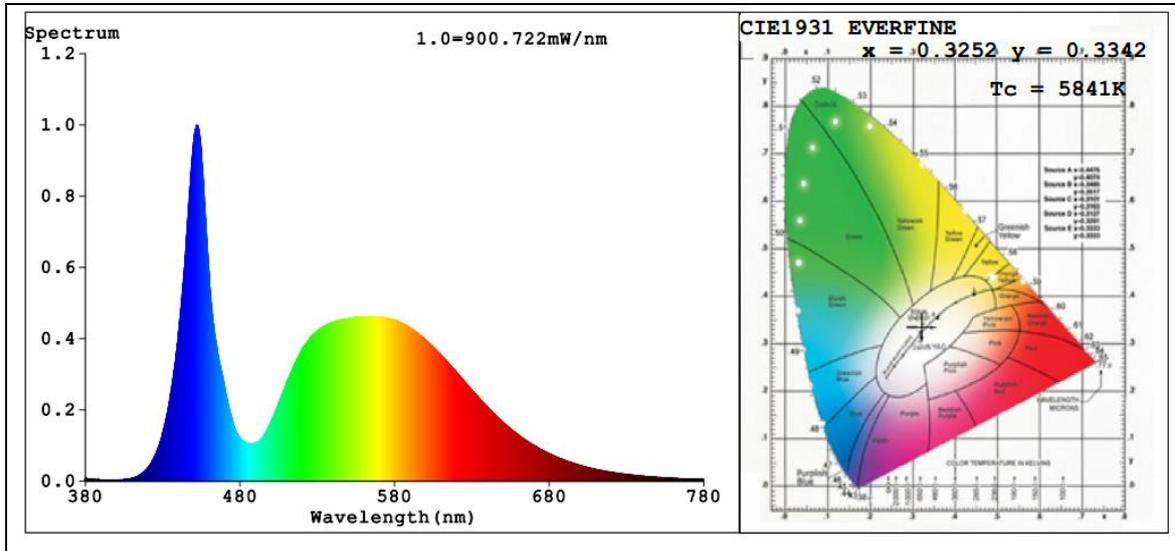
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Color Rendering Index (CRI)	75.9
R9	0
CCT (K)	5841
Chromaticity (x, y)	x=0.3252 y=0.3342
Chromaticity (u', v')	u'=0.2045 v'=0.4729
Duv	-0.0002
Total Luminous (lm)	26012
Luminous Efficacy (lm/W)	140.15

Special Color Rendering Indices			
R1	75	R9	0
R2	80	R10	51
R3	82	R11	73
R4	76	R12	43
R5	75	R13	76
R6	71	R14	89
R7	84	R15	71
R8	64	--	--

### Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	480.0
Frequency (Hz)	60
Total Initial Lumen Output(lm)	25781
Initial Lumen Efficacy(lm/w)	140.04

**Spectral Power Distribution & Chromaticity Diagram**



**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%			

**\*\*\*\*\* END OF DATASHEET PACKAGE \*\*\*\*\***