



Report No.:GZE150120-D

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-160WiL

Representative (Tested) Model:AOK-160WiL(3000K)  
AOK-160WiL(5700K)

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

Test & Report By:

*Sean Zhuo*

Engineer: Sean Zhuo

Date: Mar.10,2015

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: 8th floor, Block B, No. 11 Caipin Road, Guangzhou Science City, Tianhe, Guangzhou 510663, China

Tel: 8620-3229 0320

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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	Mar.10,2015
Test Report No.	GZE150120-D
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	AOK LED LIGHT COMPANY LIMITED	
Brand Name	AOK	
Model Number	AOK-160WiL(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	

**Integrating Sphere**
**Goniophotometer**
**Electrical Measurements:**
**Output**
**Output**

Input Wattage	--	161.2	W
Input Current	--	1.351	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9939	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	16479	lm
Initial Lumen Efficacy	--	102.26	lm/w
Correlated color temperature / CCT	3057	--	K
Color rendering index / CRI	72.0		
R9 Value	0	--	
Duv	-0.0007	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		6875	cd
Beam angle (if applicable)		115.6	°
Zonal lumens in the 0°-60° zone		78.7	%
Zonal lumens in the 60°-90° zone	-----	21.1	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0.1	%

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**Laboratory Information:**

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Test Report No.	GZE150120-D
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	AOK LED LIGHT COMPANY LIMITED	
Brand Name	AOK	
Model Number	AOK-160WiL(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	

	Integrating Sphere	Goniophotometer	
Electrical Measurements:	Output	Output	
Input Wattage	161.9	--	W
Input Current	1.356	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9948	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	17899	--	lm
Initial Lumen Efficacy	110.56	--	lm/w
Correlated color temperature / CCT	5707	--	K
Color rendering index / CRI	74.3	--	
R9 Value	0	--	
Duv	-0.0031	--	
<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	: Mar.06, 2015
Date of Test	: Mar.09, 2015
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 120 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 120 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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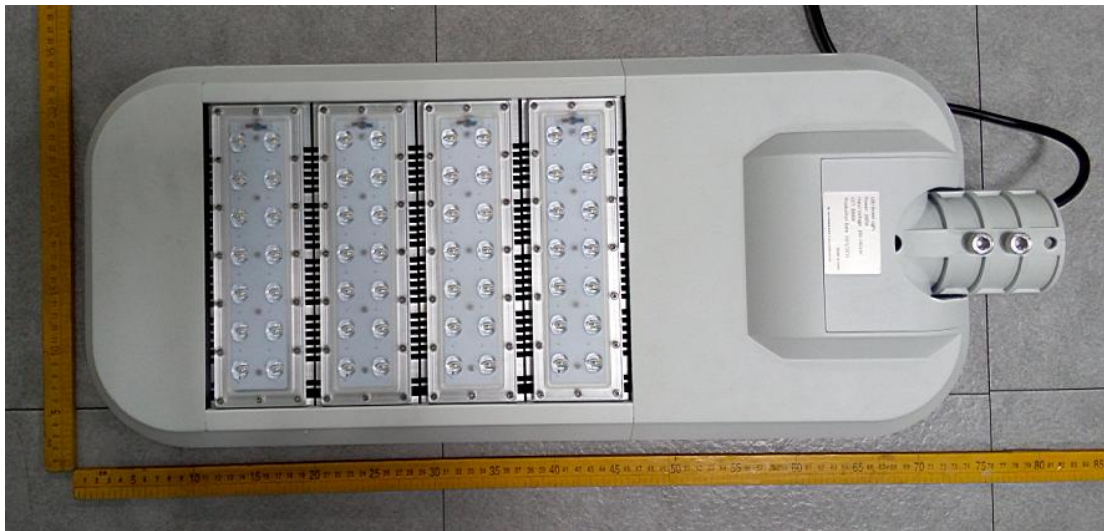
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**1. Product Information:**

Brand Name	AOK
Model Number	AOK-160WiL
Luminaire Type	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Rated Voltage / Frequency	90 ~ 305 Vac, 47-63 Hz
Nominal Power	160W
Rated Initial Lamp Lumen	--
Declared CCT	3000K,3500K,4000K,4500K,5000K,5700K
LED Manufacturer	Philips
LED Model	LXM8-PW30
Sample Receipt Date	Mar.06, 2015
Sample Number	150120-7(3000K),-8(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>	2015-03-09	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As Intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AOK-160WiL(3000K)		

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
150120-7	120.0	60	1.351	161.2	0.9939	6.78
	305.0	60	0.5681	158.00	0.9118	12.01

### Sphere-Spectroradiometer Method:

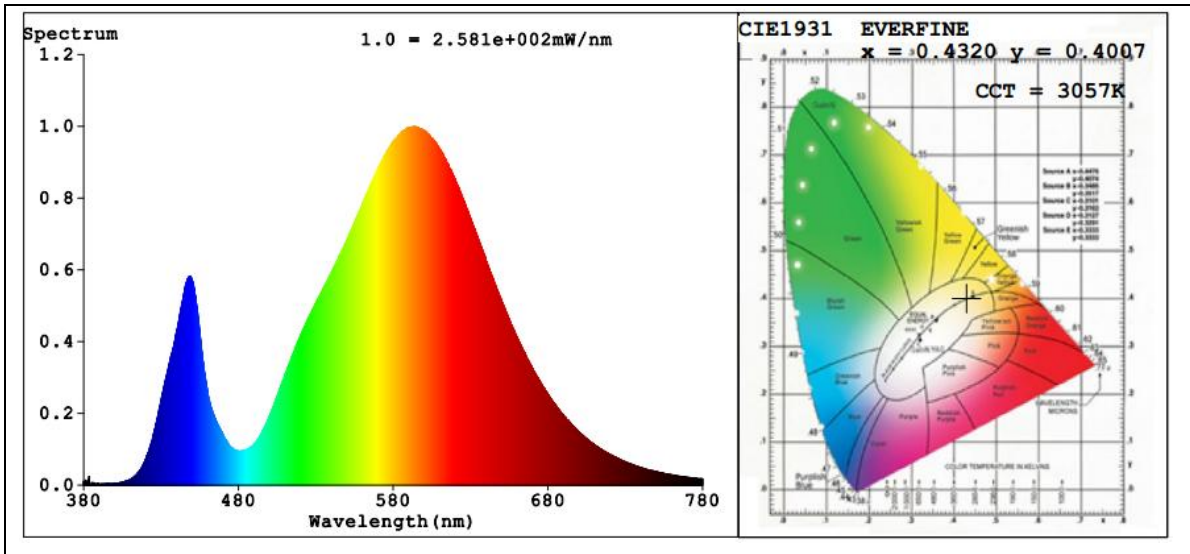
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	72.0
R9	0
CCT (K)	3057
Chromaticity (x, y)	x=0.4320 y=0.4007
Chromaticity (u', v')	u'=0.2488 v'=0.5193
Duv	-0.0007

Special Color Rendering Indices			
R1	69	R9	0
R2	81	R10	55
R3	91	R11	62
R4	69	R12	48
R5	67	R13	70
R6	72	R14	95
R7	79	R15	63
R8	48	--	--

### Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	16479
Luminous Efficacy (lm/W)	102.26
Beam Angle °	115.6
Center Beam Candle Power (cd)	6875
S/MH(C0/180)	2.05
S/MH(C90/270)	0.88

**Spectral Power Distribution & Chromaticity Diagram**



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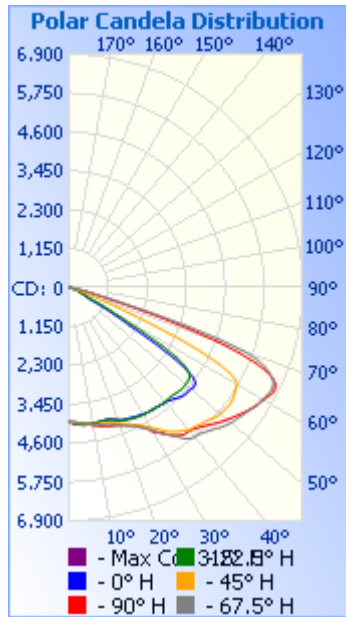
**Zonal Lumen Tabulation**

<b>Zonal Lumen Summary</b>			
Zone	Lumens	% Lamp	% Luminaire
0-30	3,355.0	20.4%	20.4%
0-40	5,999.5	36.4%	36.4%
0-60	12,968.5	78.7%	78.7%
60-90	3,481.7	21.1%	21.1%
70-100	677.4	4.1%	4.1%
90-120	7.3	0%	0%
0-90	16,450.2	99.8%	99.9%
90-180	24.3	0.1%	0.1%
0-180	16,474.5	100%	100%

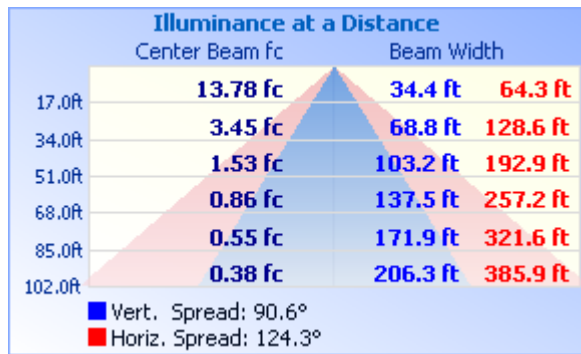
<b>Lumens Per Zone</b>					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	377.6	2.3%	90-100	1.2	0%
10-20	1,115.4	6.8%	100-110	2.3	0%
20-30	1,862.0	11.3%	110-120	3.7	0%
30-40	2,644.5	16.1%	120-130	4.2	0%
40-50	3,284.2	19.9%	130-140	4.0	0%
50-60	3,684.8	22.4%	140-150	3.5	0%
60-70	2,805.5	17.0%	150-160	2.9	0%
70-80	626.7	3.8%	160-170	1.9	0%
80-90	49.4	0.3%	170-180	0.6	0%



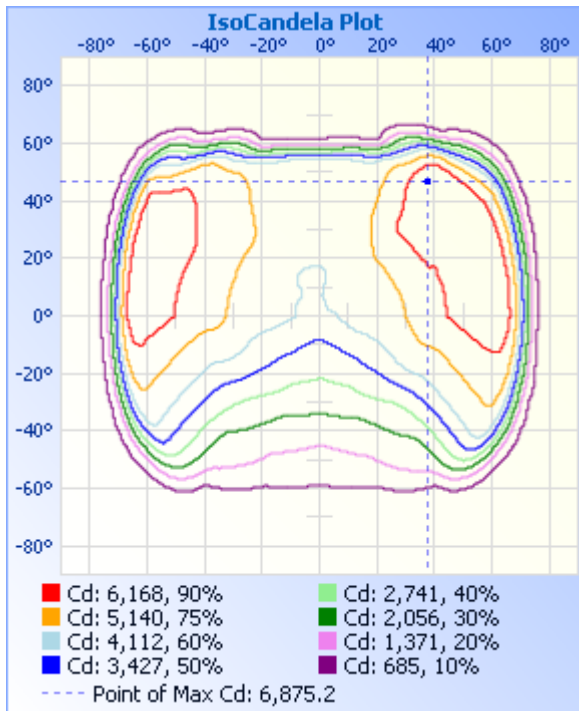
### Photometric Data



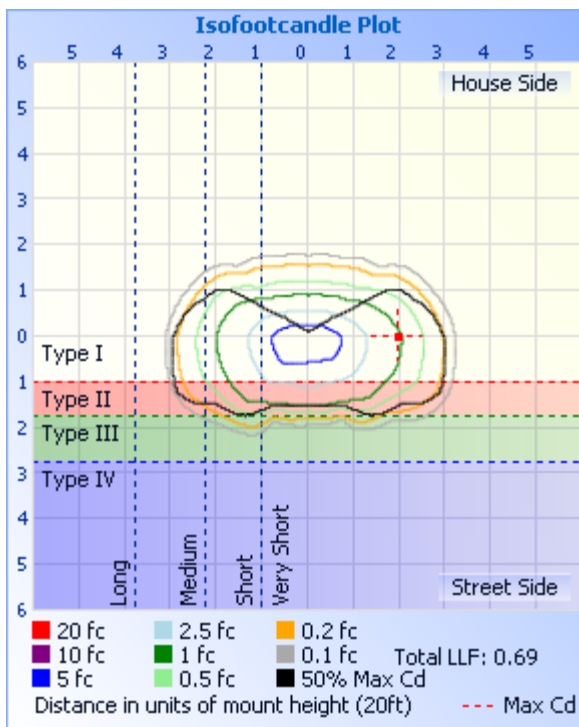
### Illuminance Plots



### 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	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984	3984
1	4016	4014	4000	3980	3988	3967	3958	3940	3939	3945	3965	3991	3990	4003	4012	4017	4016
2	4042	4034	4014	3980	3997	3953	3923	3886	3885	3899	3946	3997	4005	4029	4050	4045	4042
3	4061	4053	4028	3997	4006	3947	3885	3829	3817	3855	3926	3999	4023	4059	4092	4067	4061
4	4076	4064	4038	4018	4017	3941	3845	3766	3740	3803	3905	4008	4045	4088	4125	4088	4076
5	4089	4070	4045	4029	4035	3934	3804	3693	3653	3745	3880	4022	4069	4114	4153	4105	4089
6	4100	4070	4052	4044	4056	3931	3771	3616	3567	3677	3855	4027	4104	4145	4180	4121	4100
7	4104	4069	4063	4059	4083	3934	3736	3545	3485	3611	3829	4032	4143	4176	4207	4134	4104
8	4107	4072	4079	4078	4103	3934	3701	3485	3408	3548	3803	4050	4175	4211	4228	4148	4107
9	4103	4073	4101	4098	4127	3944	3680	3433	3344	3491	3774	4069	4201	4249	4247	4159	4103
10	4092	4075	4119	4120	4152	3955	3660	3379	3297	3444	3738	4087	4229	4291	4273	4164	4092
11	4087	4081	4135	4147	4175	3962	3646	3330	3244	3396	3705	4097	4259	4331	4300	4164	4087
12	4085	4079	4141	4168	4196	3963	3628	3287	3190	3350	3671	4103	4282	4365	4323	4169	4085
13	4077	4072	4139	4178	4213	3965	3598	3246	3135	3299	3641	4106	4305	4393	4353	4176	4077
14	4072	4067	4145	4199	4231	3966	3571	3202	3081	3254	3616	4105	4334	4432	4389	4184	4072
15	4073	4067	4159	4228	4253	3975	3541	3164	3033	3220	3585	4101	4368	4468	4426	4194	4073
16	4077	4072	4172	4255	4272	3982	3516	3126	2984	3174	3554	4097	4398	4505	4460	4215	4077
17	4087	4093	4188	4272	4289	3976	3485	3088	2936	3129	3524	4093	4421	4553	4498	4239	4087
18	4111	4121	4214	4296	4306	3977	3455	3048	2895	3083	3502	4094	4450	4600	4549	4265	4111
19	4143	4149	4250	4323	4320	3975	3418	3004	2845	3041	3484	4095	4471	4641	4602	4298	4143
20	4179	4184	4282	4351	4341	3968	3392	2959	2793	2996	3473	4102	4505	4692	4659	4338	4179
21	4206	4213	4327	4381	4364	3974	3380	2913	2742	2952	3468	4115	4544	4743	4712	4383	4206
22	4230	4244	4369	4420	4384	3977	3363	2868	2690	2909	3465	4134	4591	4791	4771	4417	4230
23	4246	4266	4412	4464	4407	3970	3347	2821	2637	2864	3445	4155	4632	4844	4835	4445	4246
24	4259	4283	4452	4497	4440	3981	3327	2771	2584	2815	3430	4176	4679	4898	4890	4469	4259
25	4270	4304	4495	4537	4484	3994	3305	2724	2531	2769	3406	4191	4738	4958	4958	4495	4270
26	4283	4323	4538	4595	4544	4003	3281	2675	2479	2723	3368	4213	4806	5020	5035	4518	4283
27	4300	4334	4589	4661	4614	4025	3249	2622	2421	2675	3339	4244	4877	5088	5115	4538	4300
28	4313	4343	4648	4728	4685	4051	3218	2573	2367	2627	3309	4286	4948	5156	5198	4554	4313
29	4327	4351	4710	4796	4785	4074	3167	2517	2309	2574	3268	4348	5043	5223	5281	4566	4327

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30	4342	4364	4780	4880	4941	4088	3116	2458	2255	2514	3230	4406	5173	5302	5368	4590	4342
31	4360	4366	4858	4977	5008	4091	3065	2398	2196	2449	3193	4437	5349	5406	5457	4616	4360
32	4369	4373	4947	5105	5066	4100	3014	2336	2136	2384	3144	4471	5440	5535	5555	4629	4369
33	4371	4379	5042	5192	5160	4116	2962	2274	2075	2319	3095	4514	5551	5634	5654	4630	4371
34	4372	4395	5141	5262	5276	4118	2913	2214	2008	2258	3046	4534	5658	5701	5763	4630	4372
35	4385	4397	5222	5346	5363	4100	2864	2142	1937	2193	2990	4539	5782	5781	5859	4642	4385
36	4388	4392	5285	5472	5428	4078	2815	2081	1862	2124	2928	4532	5894	5883	5945	4654	4388
37	4400	4402	5357	5598	5486	4038	2764	2014	1792	2057	2867	4505	5999	5990	6027	4664	4400
38	4409	4413	5395	5692	5534	3991	2712	1953	1723	1993	2808	4470	6054	6074	6106	4672	4409
39	4434	4416	5451	5752	5534	3946	2668	1896	1658	1933	2754	4439	6092	6134	6187	4688	4434
40	4444	4417	5510	5793	5549	3929	2612	1831	1600	1872	2703	4420	6096	6172	6256	4689	4444
41	4457	4416	5540	5800	5574	3932	2555	1781	1542	1815	2646	4422	6078	6177	6291	4687	4457
42	4488	4414	5555	5820	5621	3929	2502	1732	1488	1760	2594	4428	6095	6178	6332	4679	4488
43	4521	4415	5585	5872	5665	3932	2447	1678	1437	1700	2547	4452	6125	6170	6367	4659	4521
44	4564	4429	5620	5914	5712	3940	2396	1620	1392	1653	2500	4468	6169	6188	6384	4660	4564
45	4608	4445	5648	5970	5779	3959	2337	1566	1348	1600	2451	4504	6215	6212	6399	4657	4608
46	4644	4460	5677	6020	5848	3970	2287	1515	1302	1556	2397	4535	6273	6257	6426	4648	4644
47	4667	4483	5723	6096	5913	3976	2226	1473	1261	1513	2340	4572	6351	6293	6471	4653	4667
48	4680	4494	5774	6149	5976	3991	2162	1433	1216	1479	2281	4597	6414	6344	6520	4645	4680
49	4684	4494	5815	6204	6039	4006	2097	1398	1178	1440	2222	4599	6465	6394	6579	4623	4684
50	4695	4489	5834	6251	6100	4022	2044	1359	1142	1403	2160	4618	6507	6443	6652	4589	4695
51	4715	4483	5854	6288	6161	4031	1984	1320	1107	1363	2103	4644	6552	6474	6718	4537	4715
52	4715	4485	5869	6322	6219	4031	1931	1280	1070	1322	2049	4655	6583	6504	6767	4491	4715
53	4680	4451	5878	6355	6278	4041	1888	1237	1026	1280	1997	4677	6640	6519	6810	4436	4680
54	4543	4403	5884	6388	6346	4044	1838	1195	975	1233	1945	4694	6689	6528	6850	4356	4543
55	4244	4300	5880	6425	6407	4050	1791	1143	914	1182	1889	4714	6720	6535	6858	4275	4244
56	3750	4102	5866	6473	6457	4049	1738	1084	852	1126	1842	4730	6748	6557	6863	4130	3750
57	2989	3782	5834	6532	6508	4045	1690	1017	784	1058	1796	4731	6779	6606	6875	3881	2989
58	2112	3256	5798	6584	6560	4044	1637	937	710	974	1746	4735	6802	6594	6862	3488	2112
59	1638	2549	5772	6607	6594	4047	1581	845	636	884	1687	4728	6816	6601	6814	2897	1638
60	1165	1763	5756	6662	6634	4050	1511	752	561	787	1617	4725	6830	6641	6720	2188	1165
61	693	1369	5636	6656	6702	4035	1423	656	489	687	1534	4753	6815	6620	6568	1691	693

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62	621	982	5382	6697	6762	4036	1310	564	427	593	1424	4761	6798	6595	6378	1197	621
63	566	594	4974	6717	6809	4040	1179	488	375	510	1284	4749	6741	6533	6071	703	566
64	520	518	4367	6711	6792	4042	1037	427	333	441	1116	4694	6625	6423	5603	583	520
65	475	464	3627	6679	6742	3985	874	378	300	386	929	4524	6448	6270	4960	510	475
66	430	418	2771	6593	6599	3820	716	338	272	342	747	4194	6184	6046	4175	450	430
67	381	377	1940	6441	6357	3410	577	306	250	309	594	3613	5846	5748	3332	401	381
68	340	334	1510	6252	5962	2999	472	278	231	281	480	3031	5358	5371	2466	346	340
69	308	289	1084	5978	5397	2586	400	254	216	257	400	2449	4733	4921	1721	292	308
70	266	245	659	5524	4684	2034	349	237	202	238	348	1839	3983	4312	1267	247	266
71	229	214	559	4725	3759	1491	310	221	190	224	310	1302	3114	3547	815	213	229
72	197	191	470	3684	2835	1057	279	205	179	208	282	886	2215	2649	599	190	197
73	171	176	384	2541	1911	752	254	193	168	196	258	618	1723	1792	454	173	171
74	154	165	312	1618	1271	571	230	182	158	184	235	477	1238	1402	351	160	154
75	140	156	253	1166	914	465	211	171	147	173	214	400	754	1017	283	149	140
76	128	147	214	730	724	395	192	161	132	162	197	348	635	633	238	141	128
77	117	137	183	591	586	341	177	153	116	154	181	307	548	536	202	134	117
78	106	127	162	492	451	299	163	144	105	145	167	268	459	462	171	127	106
79	91	117	146	406	319	266	150	133	89	133	154	226	331	388	148	117	91
80	75	106	132	330	240	240	137	113	71	112	141	177	205	302	133	101	75
81	59	90	122	270	177	216	124	96	52	94	125	138	118	201	122	83	59
82	44	72	115	211	124	183	102	78	39	76	95	100	70	123	102	65	44
83	33	56	104	156	85	144	79	60	28	60	59	64	39	71	72	51	33
84	19	42	83	101	46	92	45	36	17	35	28	23	15	34	44	29	19
85	9	23	53	57	16	36	20	18	8	15	8	4	2	6	18	13	9
86	0	9	25	18	4	3	5	6	2	3	1	3	1	1	3	0	0
87	0	0	6	1	4	2	0	1	0	0	1	3	1	1	0	0	0
88	0	0	0	0	4	2	0	0	0	0	1	3	0	0	0	0	0
89	0	0	0	0	3	2	0	0	0	0	1	3	0	0	0	0	0
90	0	0	0	0	3	1	0	0	0	0	2	6	2	2	0	0	0
91	0	0	0	0	3	1	0	0	0	1	1	6	4	9	5	0	0
92	0	0	0	0	3	2	0	0	0	1	1	4	4	6	5	0	0
93	0	0	0	1	4	2	0	0	0	0	1	3	3	3	2	0	0

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94	0	0	0	2	3	2	0	0	0	0	1	3	2	2	0	0	0
95	0	0	0	0	3	2	1	0	0	0	1	3	1	1	0	0	0
96	0	0	0	0	3	2	1	0	0	0	1	3	1	0	0	0	0
97	0	0	0	0	3	3	1	0	0	0	2	3	1	0	0	0	0
98	0	0	0	0	3	3	2	0	0	0	2	4	1	0	0	0	0
99	0	0	0	0	3	4	2	0	0	0	2	4	1	0	0	0	0
100	0	0	0	0	4	4	2	0	0	0	3	4	1	1	0	0	0
101	0	0	0	0	4	4	3	0	0	0	3	5	2	1	0	0	0
102	0	0	0	0	5	5	3	0	0	1	3	5	2	1	0	0	0
103	0	0	0	1	5	5	3	1	0	1	4	6	2	1	0	0	0
104	0	0	0	1	6	6	4	1	0	1	4	6	3	2	0	0	0
105	0	0	0	1	6	6	4	1	0	1	4	7	3	2	0	0	0
106	0	0	0	1	7	7	4	1	0	1	5	7	4	2	0	0	0
107	0	0	0	1	7	7	4	1	1	1	5	7	4	2	0	0	0
108	0	0	0	2	8	7	4	1	1	1	5	8	4	3	0	0	0
109	0	0	0	2	8	7	5	2	1	2	5	8	5	3	0	0	0
110	0	0	0	2	8	8	5	2	1	2	6	8	5	3	1	0	0
111	0	0	0	2	8	8	5	2	1	2	6	8	5	4	1	0	0
112	0	0	0	3	8	8	6	2	2	3	6	8	5	4	1	0	0
113	0	0	0	3	8	9	6	2	2	3	6	8	5	4	1	0	0
114	0	0	0	3	8	9	6	3	2	3	6	8	5	4	1	0	0
115	0	0	1	3	8	9	6	3	2	4	6	8	5	4	1	0	0
116	0	0	1	4	8	9	6	3	3	4	6	7	6	4	1	0	0
117	0	0	1	4	8	9	6	3	3	4	6	7	6	5	1	0	0
118	0	0	1	4	8	9	6	4	3	5	6	7	6	5	1	0	0
119	0	0	1	4	8	8	6	4	4	5	6	7	7	5	2	1	0
120	1	0	1	4	8	8	6	4	4	5	6	7	7	5	2	1	1
121	1	0	1	4	8	8	6	4	4	5	6	7	7	5	2	1	1
122	1	0	1	4	8	8	6	5	5	5	6	7	7	5	2	1	1
123	1	1	1	4	8	8	6	5	5	6	6	7	7	5	2	1	1
124	1	1	1	4	8	8	6	5	5	6	6	7	7	5	2	1	1
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126	1	1	1	4	7	8	6	6	6	6	6	7	7	5	2	1	1
127	1	1	2	5	7	8	6	6	6	6	7	6	7	5	2	1	1
128	1	1	2	5	7	8	7	6	6	6	7	6	7	5	2	1	1
129	1	1	2	5	7	8	7	6	6	7	7	6	7	5	3	2	1
130	2	1	2	4	7	7	7	6	6	7	7	6	7	5	3	2	2
131	2	1	2	4	7	7	7	7	7	7	7	6	7	5	3	2	2
132	2	1	2	4	7	7	7	7	7	7	7	6	6	5	3	2	2
133	2	1	2	4	7	7	7	7	7	7	7	6	6	4	3	2	2
134	2	2	2	4	7	7	7	7	7	7	7	6	6	4	3	2	2
135	3	2	2	4	7	7	7	7	7	7	7	6	6	4	3	2	3
136	3	2	2	4	7	7	7	7	7	7	7	6	6	4	3	2	3
137	3	2	2	4	8	7	7	8	7	7	7	6	6	4	3	2	3
138	3	2	2	4	11	7	7	8	7	7	7	6	6	4	3	3	3
139	3	2	2	4	7	7	7	8	8	7	7	6	6	4	3	3	3
140	3	2	2	4	7	7	7	8	8	7	7	6	6	4	3	3	3
141	3	2	2	4	7	7	7	8	8	7	7	6	6	4	4	3	3
142	4	2	2	4	7	7	7	8	8	8	7	6	6	4	4	3	4
143	4	2	3	4	7	7	7	8	8	8	7	6	6	4	4	3	4
144	4	2	3	4	7	7	7	8	8	8	7	6	6	4	4	4	4
145	4	3	3	4	7	7	7	8	8	8	7	6	6	4	4	4	4
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147	4	3	3	4	7	7	7	8	8	8	7	6	6	4	4	4	4
148	4	3	3	4	7	7	7	8	8	8	7	6	6	4	5	4	4
149	4	3	3	4	7	7	7	8	8	8	8	7	5	4	5	5	4
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151	4	4	4	4	7	7	7	8	9	9	8	7	6	4	5	5	4
152	5	4	4	4	7	7	7	8	9	8	8	7	5	5	5	5	5
153	5	4	4	4	7	7	7	8	9	9	8	7	5	5	5	5	5
154	5	4	4	4	7	7	7	8	9	9	8	7	5	5	5	5	5
155	5	4	4	5	7	7	7	8	9	9	8	7	5	5	6	5	5
156	5	4	4	5	6	7	7	8	9	9	8	7	5	5	6	6	5
157	5	4	4	5	6	7	7	8	9	9	8	7	5	5	6	6	5

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158	5	5	4	5	6	7	7	8	9	9	8	7	5	5	6	6	5
159	6	5	4	5	6	7	7	8	9	9	8	7	5	5	6	6	6
160	6	5	4	5	6	7	7	8	9	9	8	7	5	5	6	6	6
161	6	5	4	5	7	6	7	8	9	9	8	7	6	5	6	6	6
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167	7	6	5	5	7	7	6	8	8	9	8	7	6	5	6	7	7
168	7	6	5	5	7	7	6	8	8	9	8	7	6	6	6	7	7
169	7	6	5	5	7	7	6	8	8	8	8	7	6	6	6	7	7
170	7	6	5	5	7	7	6	7	8	8	8	7	6	6	6	7	7
171	7	6	5	5	7	7	6	7	8	8	8	7	6	6	6	7	7
172	7	6	5	5	7	7	6	7	8	8	7	7	6	6	6	7	7
173	7	6	5	5	7	7	6	7	7	8	7	7	6	6	6	7	7
174	6	6	5	6	7	7	6	7	7	7	7	7	6	6	6	7	6
175	6	6	6	6	7	7	6	7	7	7	7	7	6	6	6	7	6
176	6	6	6	6	7	7	6	6	7	7	7	7	6	6	6	7	6
177	6	6	6	6	6	7	6	6	6	7	7	6	6	6	6	6	6
178	6	6	6	6	6	6	6	6	6	7	7	6	6	6	6	6	6
179	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
180	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

<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>	2015-03-09	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As Intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AOK-160WiL(5700K)		

### Electrical Measurement for Bare Lamp:

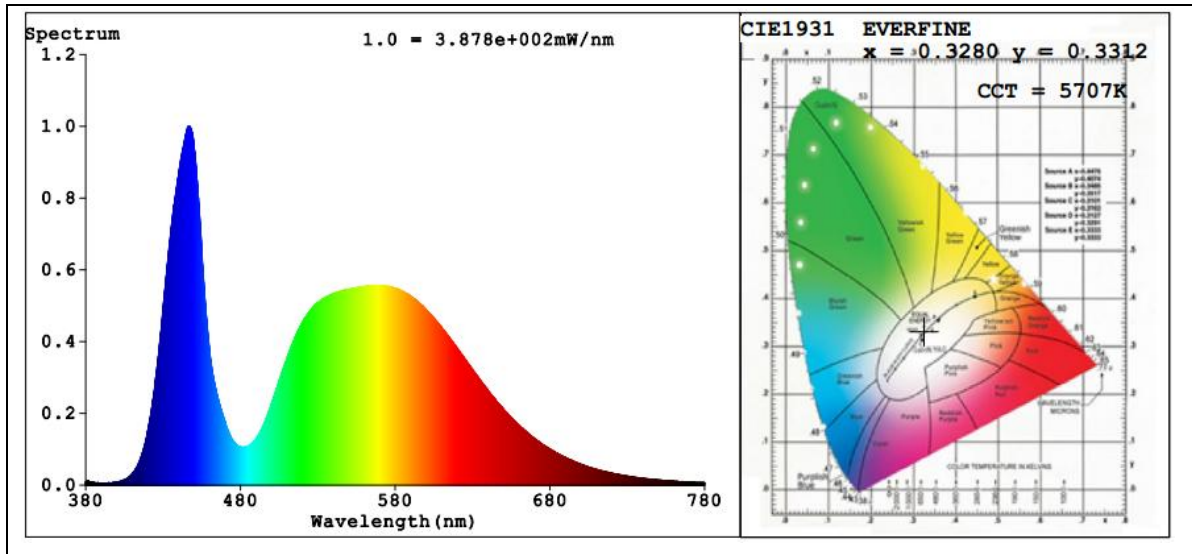
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
150120-8	120.0	60	1.356	161.9	0.9948	6.49
	305.0	60	0.5662	158.5	0.9180	12.59

### Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	74.3
R9	0
CCT (K)	5707
Chromaticity (x, y)	x=0.3280 y=0.3312
Chromaticity (u', v')	u'=0.2077 v'=0.4718
Duv	-0.0031
Total Initial Lumen Output(lm)	17899
Initial Lumen Efficacy(lm/w)	110.56

Special Color Rendering Indices			
R1	75	R9	0
R2	77	R10	44
R3	76	R11	77
R4	77	R12	51
R5	76	R13	74
R6	69	R14	86
R7	79	R15	71
R8	65	--	--

**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	2014-07-01	2015-06-30
ST-R-331	Spectral analysis system HAAS-2000	2014-07-01	2015-06-30
D204	Standard Lamp	2014-07-01	2015-06-30
PF2010	Power Meter for Integrating Sphere	2014-07-01	2015-06-30
EE-09	Goniophotometer system	2014-07-01	2015-06-30
D908S	Standard Lamp	2014-07-01	2015-06-30
PF210	Power Meter for Goniophotometer	2014-07-01	2015-06-30
ST-R-181A	Temperature Tester	2014-07-01	2015-06-30

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