LM-79-19 Test Report

For

AOK Industrial Company Limited

(Brand Name: AOK)

1/F of 1#Building, East Block of 3/F of Building 1,And 2/F of Building 4, ST George's Science and Technology Industrial Park, Northside of Xinyu Road,Xiangshan Community, Xianqiao Street Baoan District,518000 Shenzhen, Guangdong, CHINA

Architectural Flood and Spot Luminaires

Model name(s):
AOK-800WiSF-NV-S5-[00,SN,PH]-5070-35-[A;C;U]
Remark: The "[00,SN,PH]" represents sensor, 00=Without sensor; SN=Motion sensor; PH=Photocell; The "[A;C;U]" represents mounting, can be A=Top-fixed I, C=Top-fixed II, U=Yoke mount.

Representative (Tested) Model: AOK-800WiSF-NV-S5-00-5070-35-A

Model Different: N/A

Test & Report By:

Ferrum Li

Engineer: Ferrum Li

Review By:

Garman Mo

Manager: Garman Mo

Date: May.26,2023

Note: 1.The results contained in this report pertain only to the tested samples.

2.This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.

1.1 Product Information:

Organization Name	AOK Industrial Company Limited	
Brand Name	AOK	
Model Number	AOK-800WiSF-NV-S5-[00,SN,PH]-5070-35-[A;C;U]	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	100-277Vac, 50/60Hz	
Nominal Power	800W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	Seoul Semiconductor Co., LTD	
LED Model	S1W0-5050507006-00000000-00002	
Integral Controls Availability	No	
Dimming	Continuous	
Sample Number	JAE230414-B1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo

1.2 Test Specifications:

Date of Receipt	May.10,2023
Date of Test	May.12,2023
Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	1. IES LM-79-2019 Optical and Electrical Measurements of Solid-State Lighting Products 2. ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method: Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.
2) Chromaticity Measurement – Sphere-Spectroradiometer Method: Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.
3) Electrical Measurements: Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25º C ± 1º C. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements

Test date	2023-05-12	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	AOK-800WiSF-NV-S5-00-5070-35-A	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE230414-B1	120.1	60	6.855	821.7	0.9984	5.33
	277.2	60	2.833	776.4	0.9887	7.62
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Photometric Measurement – Goniophotometer Method(Test Distance: 26.000m):

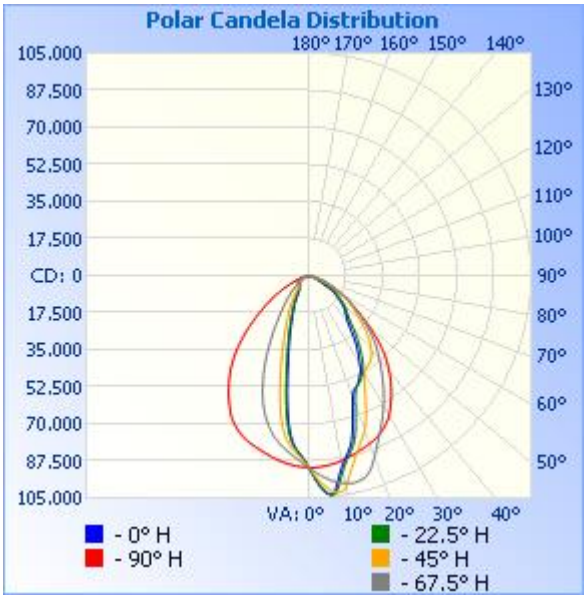
Parameter	Result		DLC V5.1 Pass Criteria	
Test Voltage (V)	120	277	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	117539	114791	>=1000(-10%)	
Luminous Efficacy (lm/W)	143.05	147.85	Standard: >= 105(-3%)	Premium: >= 120(-3%)
Zonal lumens in the0-90° zone (%)	100	--	>=85(-3)	
BUG Ratings	B5-U0-G4	--	--	
Beam Angle (°)	65.7	--	--	
Center Beam Candle Power (cd)	90555	--	--	

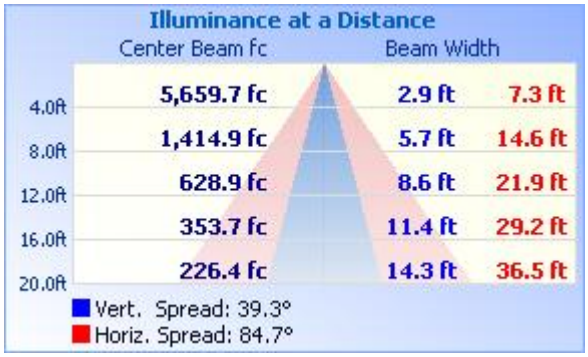
Zonal Lumen Tabulation

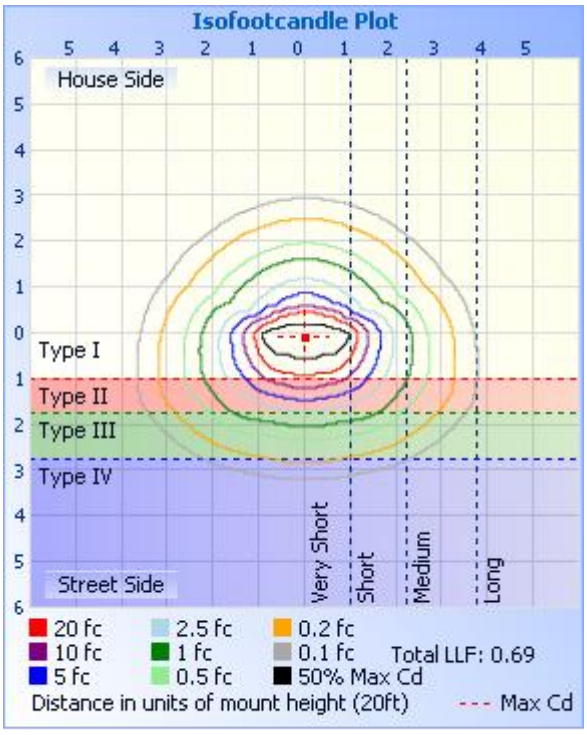
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	52,187.9	44.4%
0-40	74,909.3	63.7%
0-60	107,546.5	91.5%
60-90	9,992.5	8.5%
70-100	2,771.9	2.4%
90-120	0	0%
0-90	117,538.9	100%
90-180	0	0%
0-180	117,538.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	8,481.4	7.2%	90-100	0	0%
10-20	20,094.0	17.1%	100-110	0	0%
20-30	23,612.5	20.1%	110-120	0	0%
30-40	22,721.4	19.3%	120-130	0	0%
40-50	19,103.6	16.3%	130-140	0	0%
50-60	13,533.6	11.5%	140-150	0	0%
60-70	7,220.6	6.1%	150-160	0	0%
70-80	2,454.1	2.1%	160-170	0	0%
80-90	317.8	0.3%	170-180	0	0%

Photometric Data







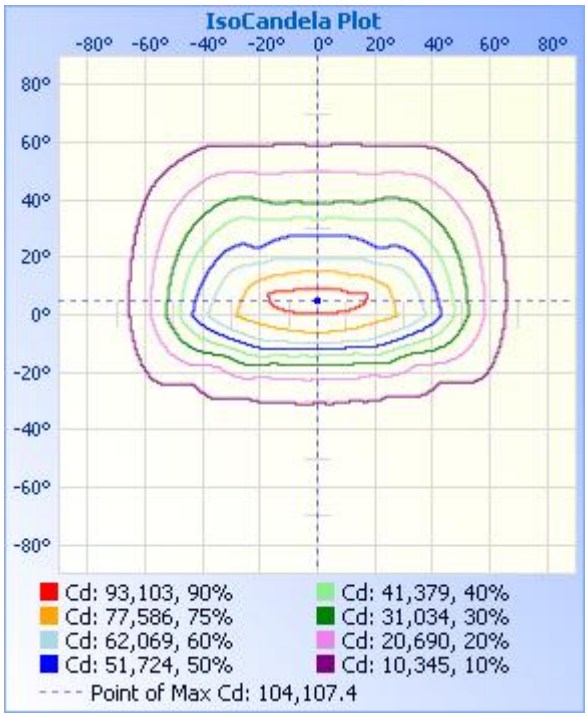
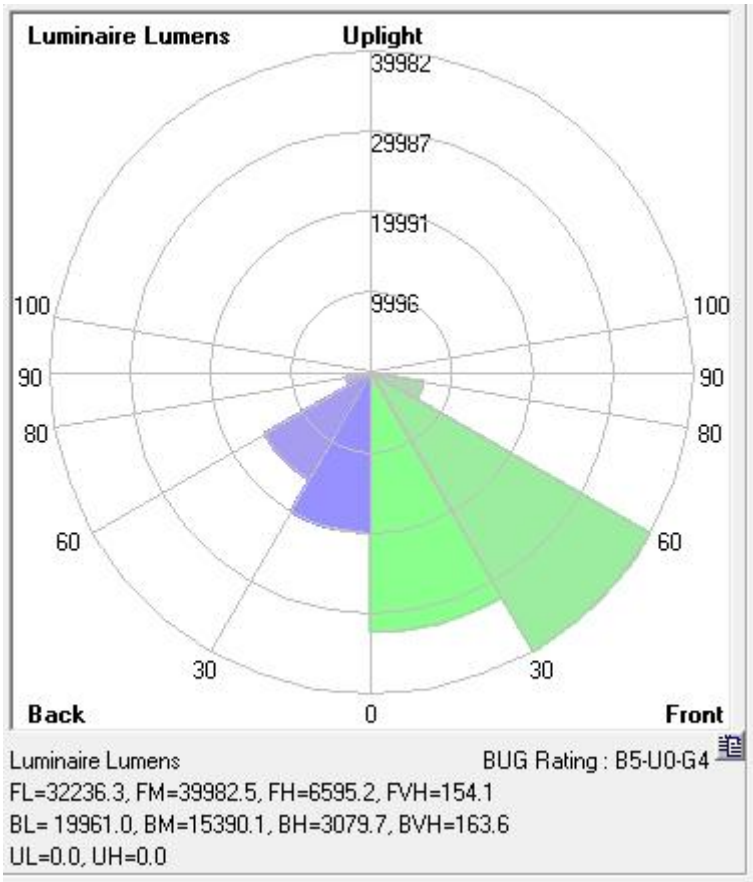


Table--1 UNIT: X100cd

C (DEG) / γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	906	906	906	906	906	906	906	906	906	906	906	906	906	906	906	906
5	897	955	1001	1027	1034	1030	1005	960	901	853	826	809	802	808	826	852
10	880	986	1004	932	913	936	1012	995	887	805	726	624	582	616	716	803
15	857	980	863	818	792	821	872	992	866	742	538	399	365	392	521	732
20	833	905	767	646	608	645	774	910	844	652	367	267	239	261	354	631
25	798	796	636	558	556	561	634	802	813	532	258	181	163	178	247	502
30	740	703	528	513	485	513	529	708	760	400	182	122	105	119	174	369
35	660	603	496	427	388	425	501	611	681	279	126	80.0	78.9	79.4	118	255
40	571	513	456	334	289	332	462	521	593	193	82.0	70.1	72.0	70.5	78.7	178
45	468	431	388	263	247	262	393	439	493	136	67.6	64.2	64.9	64.6	66.7	125
50	355	344	307	222	208	221	308	350	374	89.8	61.3	56.9	57.3	57.2	60.2	81.9
55	254	264	244	171	156	171	247	264	269	62.7	52.2	48.4	47.7	48.4	51.4	60.8
60	171	197	181	118	92.3	119	185	198	182	52.6	43.7	39.6	38.4	39.5	43.2	51.9
65	103	135	120	62.6	54.0	63.0	122	136	113	42.7	34.2	29.5	28.9	29.1	33.6	42.1
70	57.1	82.0	61.7	35.7	30.7	35.8	61.4	84.7	63.6	31.1	23.9	20.6	20.3	20.4	23.1	30.1
75	28.6	41.6	28.3	16.1	14.0	16.3	28.5	44.4	32.0	19.7	14.5	12.5	12.3	12.3	14.0	19.0
80	10.6	14.4	9.30	5.48	4.22	5.71	9.65	16.2	12.1	9.59	7.17	6.34	6.04	6.17	6.80	8.82
85	2.47	2.48	1.60	1.20	1.06	1.27	1.78	2.99	2.96	2.81	2.53	2.70	2.77	2.64	2.42	2.48
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

BUG


Luminaire Lumens
Uplight
39982
29987
19991
9996
100
100
90
90
80
80
60
60
30
30
Back
0
Front
Luminaire Lumens
BUG Rating : B5-U0-G4
FL=32236.3, FM=39982.5, FH=6595.2, FVH=154.1
BL= 19961.0, BM=15390.1, BH=3079.7, BVH=163.6
UL=0.0, UH=0.0

2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2023-05-12	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	AOK-800WiSF-NV-S5-00-5070-35-A	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE230414-B1	120.0	60	6.874	823.2	0.9980	5.36
	277.0	60	2.841	777.8	0.9883	7.65
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption:1.2788)(4π geometry):

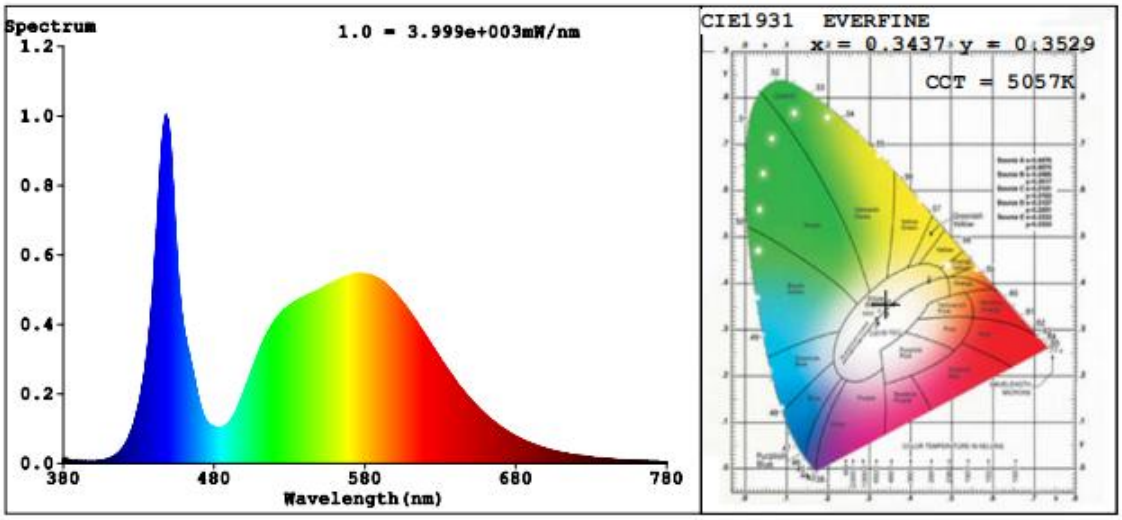
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	5057
Duv	0.0012
Chromaticity (x, y)	x=0.3437 y=0.3529
Chromaticity (u', v')	u'=0.2100 v'=0.4851

Parameter	Result
Color Rendering Index (CRI)	73.0
R9	-32
Rg	94
Rf	74
Rcs,h1(%)	-18

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria	
Test Voltage (V)	120	277	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	118100	115339	>=1000(-10%)	
Luminous Efficacy (lm/W)	143.46	148.29	Standard: >= 105(-3%)	Premium: >= 120(-3%)

Spectral Power Distribution & Chromaticity Diagram



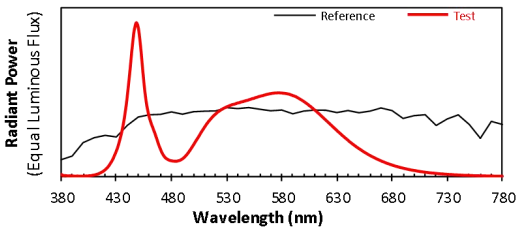
Special Color Rendering Indices

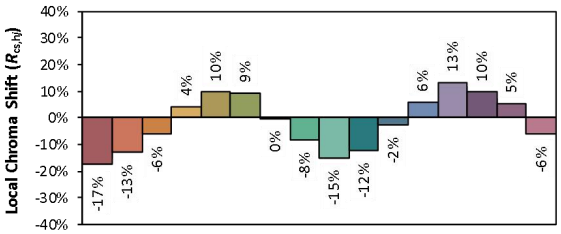
R1 =70	R2 =78	R3 =83	R4 =74	R5 =72	R6 =70	R7 =80	
R8 =55	R9 =-32	R10=48	R11=72	R12=46	R13=71	R14=91	R15=64

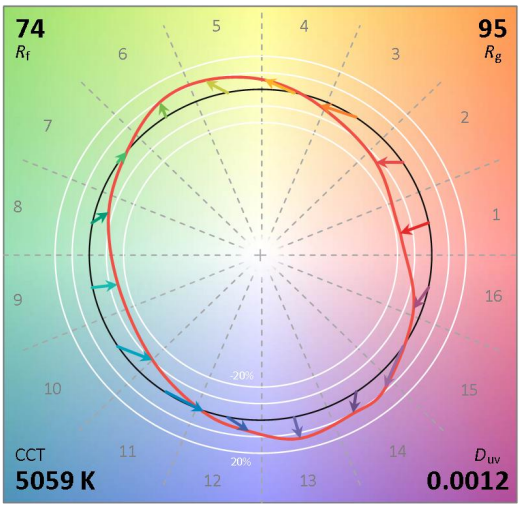
TM30

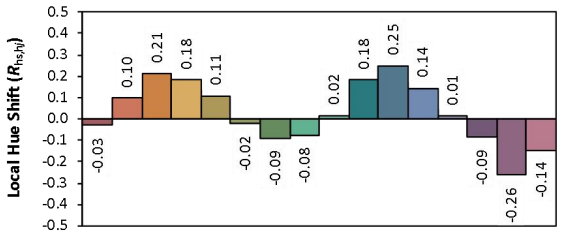
ANSI/IES TM-30-18 Color Rendition Report

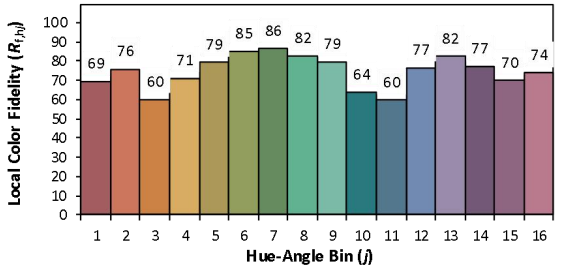
Source:	S1W0-5050507006-00000000-00002	**Manufacturer:**	AOK Industrial Company Limited
Date:	2023-05-12	**Model:**	AOK-800WiSF-NV-S5-00-5070-35-A

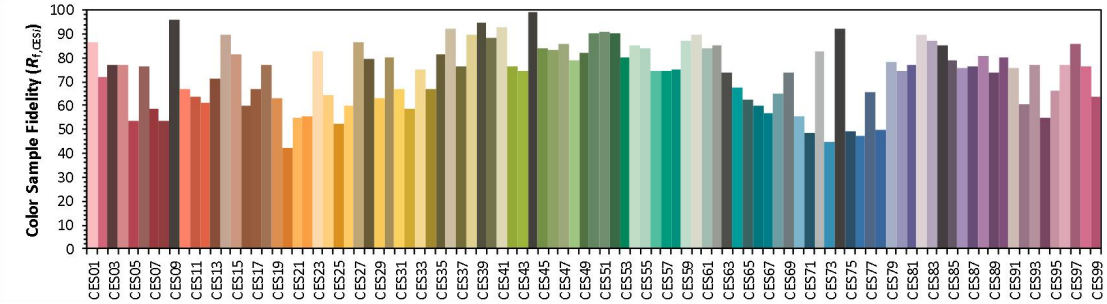












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3437
y	0.3527
u'	0.2100
v'	0.4850

CIE 13.3-1995 (CRI)

R_a	73
R_9	-32

lors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-423	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-327	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-332	Standard Lamp	2022-07-06	2023-07-05
ST-R-333	Power Meter for Integrating Sphere	2022-07-11	2023-07-10
ST-R-405	Temperature Probe for Integrating Sphere	2023-01-18	2024-01-17
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2022-07-06	2023-07-05
ST-R-358	Power Meter for Goniophotometer	2022-07-11	2023-07-10
ST-R-354	hygrothermograph for Goniophotometer	2022-07-11	2023-07-10
Expand Uncertainty: Photometric Measurement (Sphere):3.06%, k=2 Chromaticity Measurement(Sphere):43.20K, k=2 Photometric Measurement(Goniophotometer):3.36%, k=2			

******** END OF REPORT ********