

## LM-79-08 Test Report

For

### Antec Lighting Inc

(Brand Name: )  
Quality, Honesty, Service and Innovation

Uniy C, 3979 E Guasti Road, Ontario, CA 91761

### Architectural Flood and Spot Luminaires

Model name(s): AOK-750WoF-NV-L5-XX-XX70-30-P

Remark: The first "XX" can be "00" for without sensor or "PH" for Plug-In photocontrol, The last "XX" represents different CCT as below: 30=3000K, 40=4000K, 50=5000K, 57=5700K, "P" represents mounting option which can be as following: A; B; C

Representative (Tested) Model:

AOK-750WoF-NV-L5-00-3070-30-C

AOK-750WoF-NV-L5-00-5770-30-C

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

Test & Report By:

*Leo Wang*

Engineer: Leo Wang

Date: Jan.16,2020

Review By:

*Garman Mo*

Manager: Garman Mo

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	Antec Lighting Inc	
Brand Name	 Quality, Honesty, Service and Innovation	
Model Number	AOK-750WoF-NV-L5-XX-XX70-30-P	
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	750W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K,5000K,5700K	
LED Manufacturer	LUMILEDS	
LED Model	LUXEON 5050	
Sample Number	JAE191234-B1(3000K),B2(5700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
<b>Photo</b>		
		

## 1.2 Test Specifications:

Date of Receipt	Dec.29,2019
Date of Test	Dec.31,2019
Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>

## 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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 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 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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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 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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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	2019-12-31	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	AOK-750WoF-NV-L5-00-3070 -30-C	Total Operating Time (min)	90

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE191234-	120.1	60	6.305	757.0	0.9997	2.46
B1	277.1	60	2.622	713.5	0.9821	5.85
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

### Chromaticity Measurement - Sphere-Spectroradiometer

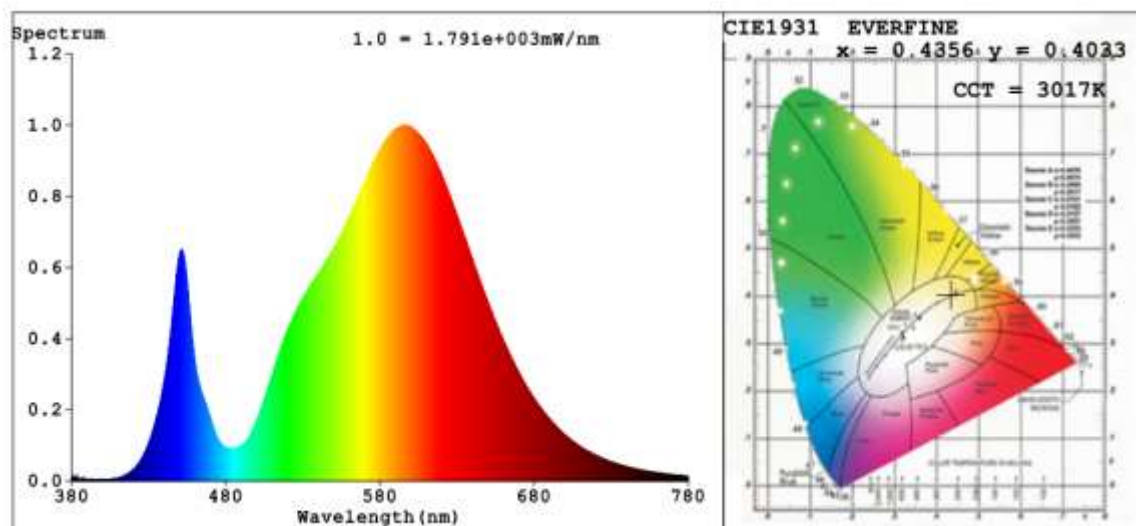
#### Method(Self-absorption:1.1225):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	70	R9	0
Frequency (Hz)	60	R2	82	R10	59
CCT (K)	3017	R3	92	R11	64
Duv	-0.0001	R4	70	R12	47
Chromaticity (x, y)	x=0.4356 y=0.4033	R5	69	R13	72
Chromaticity (u', v')	u'=0.2500 v'=0.5209	R6	75	R14	95
Color Rendering Index (CRI)	73.3	R7	80	R15	64
R9	0	R8	48	--	--

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

Parameter	Result		DLC V4.4 Pass Criteria	
Test Voltage (V)	120.1	277.1	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	105710	105658	>=10000 (-10%)	
Luminous Efficacy (lm/W)	139.65	148.09	Standard: >= 105(-3%)	Premium: >= 130(-3%)
Zonal lumens in the 0-90 °zone (%)	99.6	--	>= 85(-3)	
Beam Angle (°)	32.5	--	--	
Center Beam Candle Power (cd)	216105	--	--	

### Spectral Power Distribution & Chromaticity Diagram



### Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	75,466.8	71.4%
0-40	89,737.5	84.9%
0-60	101,424.4	96%
60-90	3,820.2	3.6%
70-100	1,330.4	1.3%
90-120	34.0	0%
0-90	105,244.6	99.6%
90-180	416.1	0.4%
0-180	105,660.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	18,194.3	17.2%	90-100	6.7	0%
10-20	32,869.3	31.1%	100-110	10.1	0%
20-30	24,403.2	23.1%	110-120	17.1	0%
30-40	14,270.7	13.5%	120-130	33.9	0%
40-50	7,435.6	7.0%	130-140	58.8	0.1%
50-60	4,251.3	4.0%	140-150	88.5	0.1%
60-70	2,496.5	2.4%	150-160	99.7	0.1%
70-80	1,162.4	1.1%	160-170	73.0	0.1%
80-90	161.3	0.2%	170-180	28.1	0%



## Photometric Data

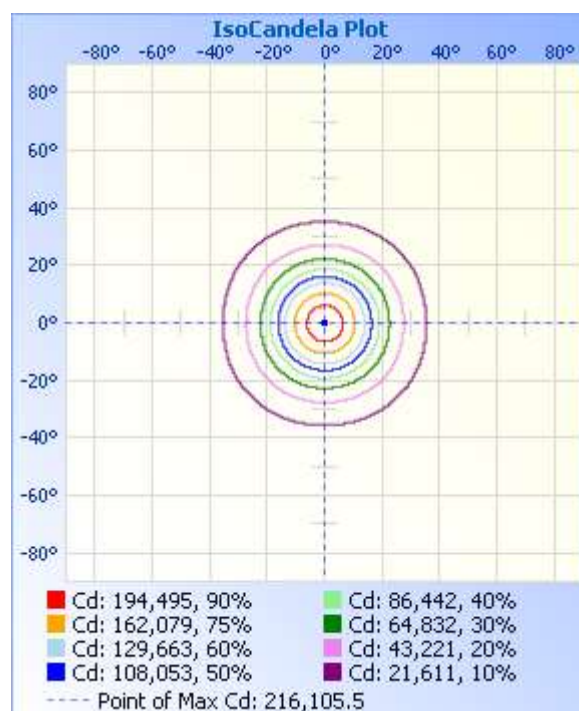
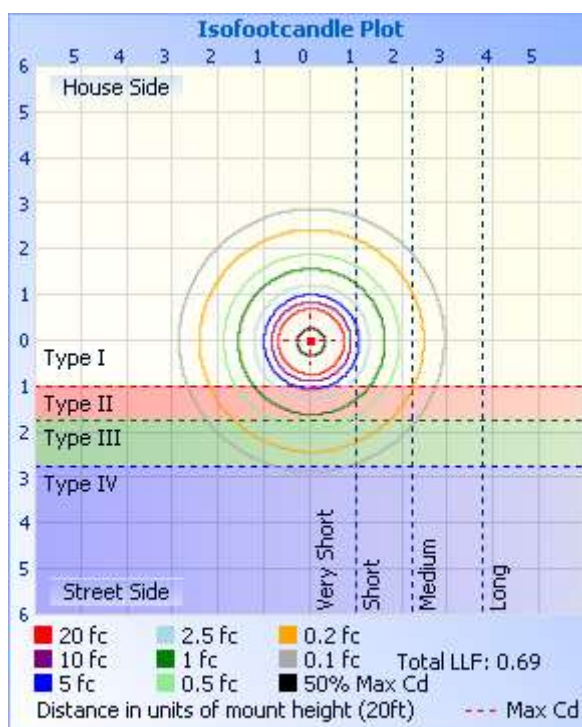
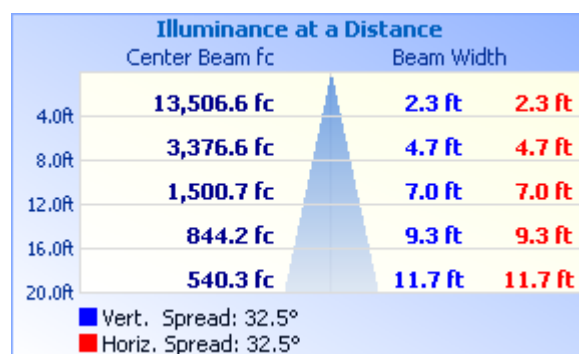
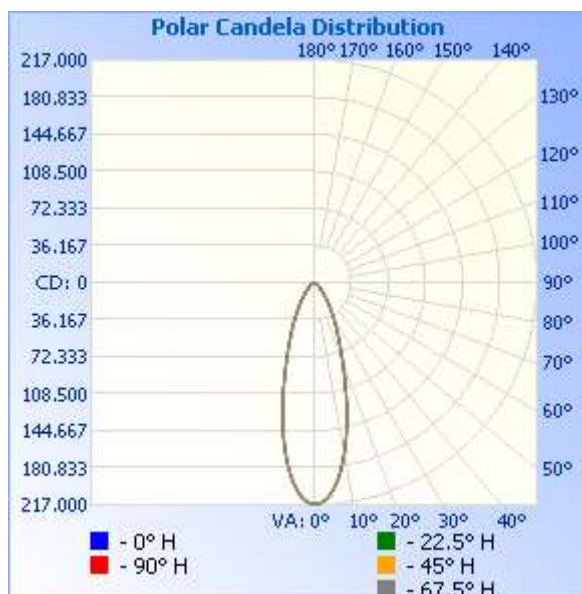


Table--1

UNIT: ×100cd

C (DEG) □ (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	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	2161	
5	2015	2021	2030	2037	2042	2045	2046	2045	2042	2037	2031	2023	2018	2014	2013	2014	
10	1644	1653	1666	1678	1686	1693	1695	1692	1692	1683	1672	1658	1651	1645	1643	1644	
15	1174	1184	1196	1206	1213	1222	1226	1220	1223	1215	1203	1189	1181	1175	1173	1177	
20	772	778	784	791	795	801	804	803	804	800	791	786	779	776	774	776	
25	515	520	524	528	530	534	537	537	537	534	530	525	521	519	518	519	
30	340	343	346	350	352	355	358	358	359	358	353	349	345	344	343	345	
35	217	220	222	225	227	230	232	233	233	230	226	222	219	218	217	218	
40	140	141	143	144	146	148	149	149	148	145	143	140	139	137	138	138	
45	90.7	90.8	92.7	93.5	95.1	95.8	97.2	97.4	97.4	95.6	93.6	91.6	91.2	89.6	89.7	90.3	
50	63.6	63.9	64.9	65.3	66.5	66.9	67.8	68.0	68.2	66.9	65.5	64.1	63.6	62.7	62.9	63.1	
55	45.3	45.9	46.6	46.4	46.8	47.6	48.6	48.4	48.5	48.4	47.6	46.1	45.3	45.2	45.4	45.4	
60	33.0	33.1	33.2	33.4	33.2	33.8	34.3	34.8	35.0	35.0	34.7	33.9	33.2	33.3	33.3	33.5	
65	25.0	24.7	24.4	24.3	24.4	24.6	24.9	25.7	26.0	26.1	25.7	25.4	25.1	24.9	24.9	25.0	
70	17.8	17.2	16.9	16.6	17.0	16.8	17.3	18.0	18.6	18.5	18.5	18.2	18.2	17.8	17.9	17.7	
75	10.8	10.4	9.95	9.67	9.87	9.88	10.3	11.0	11.5	11.7	11.8	11.7	11.5	11.3	11.3	11.1	
80	4.90	4.52	4.21	3.82	3.76	3.99	4.53	5.05	5.42	5.59	5.81	5.81	5.70	5.56	5.42	5.15	
85	0.88	0.77	0.52	0.60	0.63	0.69	0.62	0.98	1.20	1.21	1.20	1.22	1.02	1.05	1.06	0.97	
90	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	
95	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	
100	0.08	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.07	0.08	0.07	0.07	0.08	0.08	
105	0.11	0.10	0.09	0.08	0.08	0.08	0.08	0.09	0.08	0.09	0.10	0.10	0.10	0.09	0.12	0.12	
110	0.15	0.13	0.11	0.10	0.10	0.10	0.11	0.12	0.11	0.12	0.14	0.15	0.15	0.14	0.16	0.18	
115	0.21	0.18	0.15	0.13	0.13	0.12	0.14	0.16	0.15	0.17	0.20	0.19	0.19	0.16	0.23	0.25	
120	0.28	0.24	0.21	0.17	0.14	0.16	0.20	0.22	0.20	0.23	0.31	0.29	0.22	0.25	0.33	0.34	
125	0.40	0.35	0.29	0.28	0.28	0.27	0.26	0.32	0.28	0.36	0.47	0.51	0.48	0.44	0.51	0.52	
130	0.57	0.49	0.36	0.40	0.40	0.38	0.34	0.45	0.42	0.57	0.65	0.81	0.71	0.64	0.74	0.75	
135	0.82	0.70	0.48	0.60	0.57	0.56	0.46	0.62	0.61	0.84	0.87	1.17	0.96	0.93	0.93	1.07	
140	1.17	0.99	0.54	0.80	0.76	0.79	0.56	0.87	0.89	1.18	1.06	1.59	1.29	1.40	1.00	1.51	
145	1.60	1.32	0.81	1.10	0.86	1.08	0.82	1.21	1.27	1.58	1.30	2.18	1.41	2.02	1.78	1.98	
150	2.07	1.63	1.28	1.41	1.51	1.47	0.96	1.64	1.67	1.93	1.36	2.86	2.52	2.62	2.88	2.14	
155	2.45	1.94	1.64	1.73	1.90	1.82	1.38	2.11	2.00	2.23	1.52	3.41	2.71	2.74	3.31	1.67	
160	2.62	2.15	1.96	2.10	2.26	2.11	1.98	2.33	2.29	2.40	2.46	3.72	3.45	3.12	2.97	2.08	
165	2.76	2.31	2.18	2.01	2.13	1.93	2.39	2.46	2.51	2.49	2.66	3.43	2.90	2.79	2.92	2.93	
170	2.84	2.58	2.45	2.58	2.28	2.45	2.85	2.78	2.78	2.78	2.83	3.07	3.53	3.08	3.32	3.28	
175	2.89	2.82	2.64	2.83	2.99	2.75	3.07	2.90	2.88	2.89	2.95	2.93	3.44	3.48	3.13	3.25	
180	2.79	2.86	2.71	3.00	3.14	2.74	3.03	2.93	2.78	2.80	2.85	2.70	2.97	3.12	2.73	3.01	

## 2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2019-12-31	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	AOK-750WoF-NV-L5-00-5770 -30-C	Total Operating Time (min)	90

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE191234-	120.0	60	6.458	761.0	0.9820	3.31
B2	277.0	60	2.660	717.3	0.9735	6.12
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

### Chromaticity Measurement - Sphere-Spectroradiometer

#### Method(Self-absorption:1.2109):

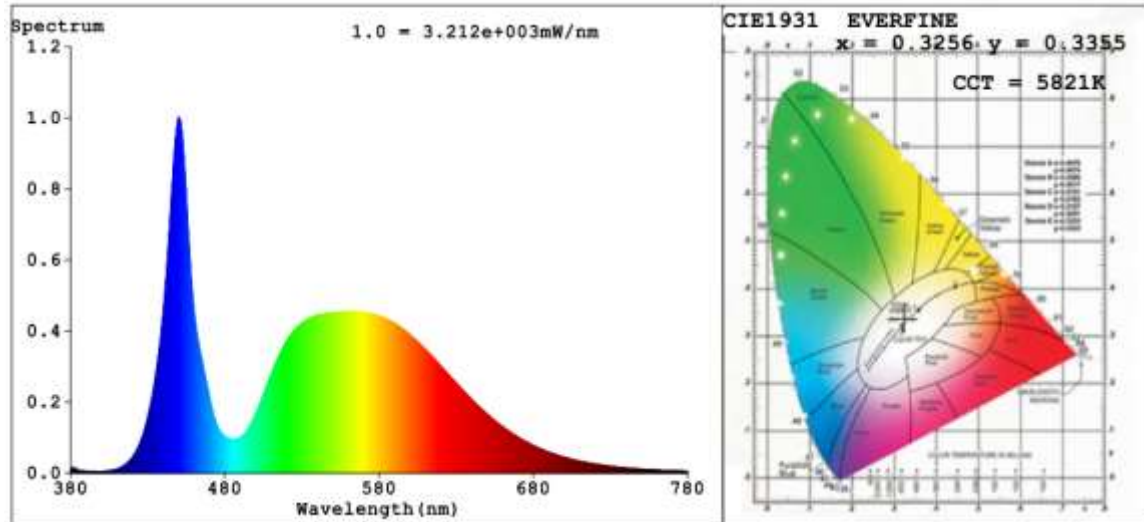
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	74	R9	0
Frequency (Hz)	60	R2	79	R10	47
CCT (K)	5821	R3	80	R11	74
Duv	0.0003	R4	77	R12	43
Chromaticity (x, y)	x=0.3256 y=0.3355	R5	75	R13	75
Chromaticity (u', v')	u'=0.2043 v'=0.4736	R6	70	R14	88
Color Rendering Index (CRI)	75.2	R7	83	R15	71
R9	0	R8	64	--	--

### Photometric Measurement –Spectroradiometer Method:

Parameter	Result		DLC V4.4 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	114515	114458	>=10000 (-10%)	
Luminous Efficacy (lm/W)	150.48	159.57	Standard: >= 105(-3%)	Premium: >= 130(-3%)



**Spectral Power Distribution & Chromaticity Diagram**



**Laboratory: Standard-Tech Co., Ltd. Testing Center**

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### 2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-750WoF-NV-L5-00-3070-30-C	3000K	105710	757.0	139.65
AOK-750WoF-NV-L5-00-4070-30-C	4000K	109232 <sup>*1</sup>	759.0 <sup>*2</sup>	143.92 <sup>*3</sup>
AOK-750WoF-NV-L5-00-5070-30-C	5000K	112754 <sup>*1</sup>	759.0 <sup>*2</sup>	148.56 <sup>*3</sup>
AOK-750WoF-NV-L5-00-5770-30-C	5700K	114515	761.0	150.48

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

$$109232 = (114515 - 105710) / 5 * 2 + 105710$$

$$112754 = (114515 - 105710) / 5 * 4 + 105710$$

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

$$759.0 = (757.0 + 761.0) / 2$$

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

$$143.92 = 109232 / 759.0$$

$$148.56 = 112754 / 759.0$$

**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	2019-07-09	2020-07-08
ST-R-333	Power Meter for Integrating Sphere	2019-06-27	2020-06-26
ST-R-405	Temperature Probe for Integrating Sphere	2019-01-24	2020-01-23
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2019-07-09	2020-07-08
ST-R-358	Power Meter for Goniophotometer	2019-06-27	2020-06-26
ST-R-354	hygrothermograph for Goniophotometer	2019-06-28	2020-06-27
Expand Uncertainty: Photometric Measurement (Sphere):3.06%, k=2 Chromaticity Measurement(Sphere):43.46K, k=2 Photometric Measurement(Goniophotometer):3.38%, k=2			

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