



Ningbo TengLi Testing Co., Ltd

2nd floor, Block B, Ningbo Testing and Certification Base, No. 66
Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
Fax: 86574-8783 5902

LM-79-08 Test Report

For

Antec Lighting Inc

(Brand Name: )

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

Model name(s):

AOK-18WiE-NV-LV2-XX-XX70-T402-P

Report Type: Testing and Report According to IES LM-79-2008

Type of Luminaire: Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Report Date: 2019-03-20

Ningbo TengLi Testing Co., Ltd

Prepared By: 2nd floor, Block B, Ningbo Testing and Certification Base,
No. 66 Qingyi Road, Ningbo National Hi-Tech Zone,
Ningbo, Zhejiang

Test & Report By:

Xeon Ren

Engineer: Xeon Ren

Review By:

Johnson Sun

Manager: Johnson Sun

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:		
Model Number	AOK-18WiE-NV-LV2-XX-XX70-T402-P	
Remark	The first “XX” can be “00” =no photocontrol or “PH”=photocontrol provided. The second “XX” could be 27/30/35/40/45/50/57 refers to CCT. This is multiple listed report, the Project Number of the original report is JAE190121-N-R1.	
Representative (Tested) Model	AOK-18WiE-NV-LV2-00-2770-T402-P	
Model Difference	All construction and rating are the same, except CCT	
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	
LED Manufacturer	Lumileds	
LED Model	LUXEON V Family	
Dimming	Dimmable	
Sample Number	JAE190121-N1	
Date of Receipt	Feb.23, 2019	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

1.2 Rated Values:	
Rated Voltage / Frequency	100-277Vac, 50/60Hz
Nominal Power	18W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,3500K,4000K,4500K,5000K, 5700K



1.3 Test Specifications:

Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Electrical Parameters
Reference Standard	1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2015 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
Reference Work Instruction	QD25

1.4 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° vertical intervals and 22.5° horizontal intervals.

2) 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 Summary of Test Result

Criteria Item	Measured Value			Compliance	Requirement (DLC V4.4)	
Power (W)	2700K	120V	18.20	N/A	N/A	
		277V	18.77			
Power Factor	2700K	120V	0.9758	Pass	$\geq 0.9(-3\%)$	
		277V	0.8752			
THD %	2700K	120V	9.85	Pass	$\leq 20(+5)$	
		277V	15.81			
Luminous Intensity Distribution	Zonal lumens in the 0-90 °		100	Pass	$\geq 100(-1)$	
	Zonal lumens in the 80-90 °		1.0	Pass	$\leq 10(+3)$	
Total Luminous	2700K	120V	2492.4	Pass	$\geq 1000(-10\%)$	
		277V	2497.4			
Luminous Efficacy	2700K	120V	136.95	Pass	Standard: $\geq 90(-3\%)$	Premium: $\geq 110(-3\%)$
		277V	133.05			



2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2019-02-28	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AOK-18WiE-NV-LV2-00-2770-T4 02-P		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE190121-N1	120.0	60	0.1554	18.20	0.9758	9.85
	277.0	60	0.0775	18.77	0.8742	15.81

Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	2492.4	2497.4
Luminous Efficacy (lm/W)	136.95	133.05
Zonal lumens in the 0-90 °	100	--
Zonal lumens in the 80-90 °	1.0	--
Beam Angle (°)	88.7	--
Center Beam Candle Power (cd)	268	--



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	379.6	15.2%
0-40	705.9	28.3%
0-60	1,563.5	62.8%
60-90	928.1	37.2%
70-100	372.6	15%
90-120	0	0%
0-90	2,491.6	100%
90-180	0	0%
0-180	2,491.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	31.5	1.3%	90-100	0	0%
10-20	119.5	4.8%	100-110	0	0%
20-30	228.6	9.2%	110-120	0	0%
30-40	326.3	13.1%	120-130	0	0%
40-50	390.1	15.7%	130-140	0	0%
50-60	467.5	18.8%	140-150	0	0%
60-70	555.4	22.3%	150-160	0	0%
70-80	347.9	14.0%	160-170	0	0%
80-90	24.7	1.0%	170-180	0	0%

Photometric Data

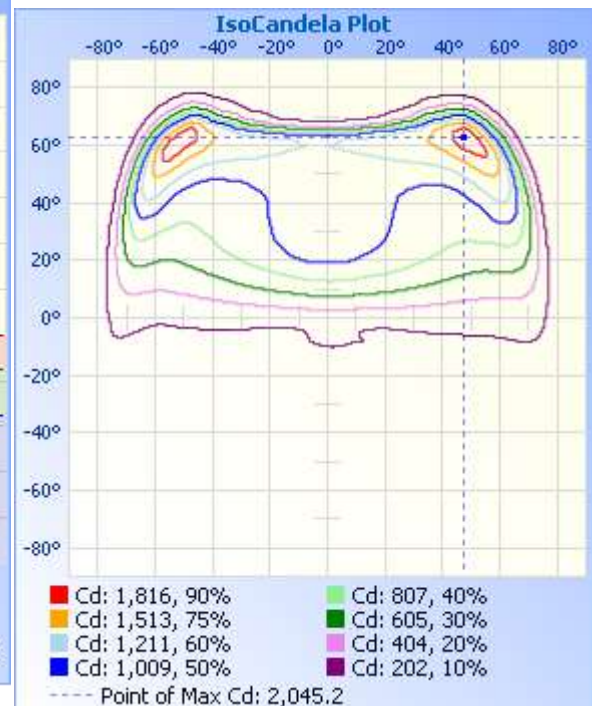
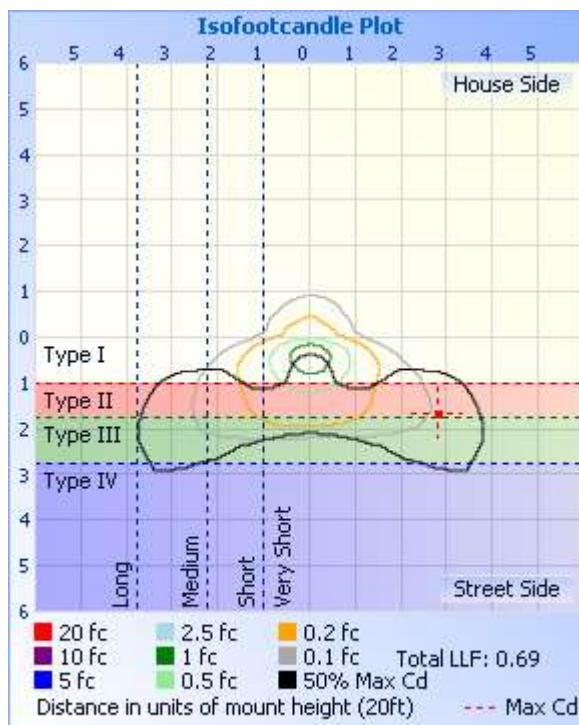
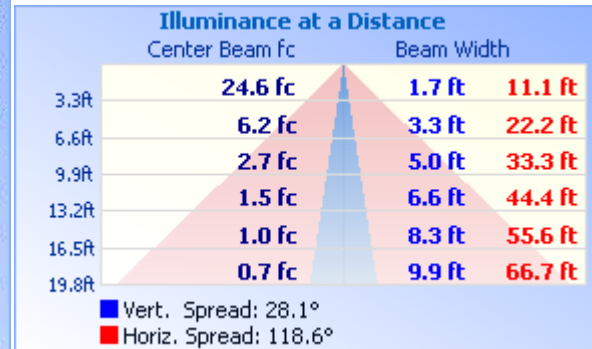
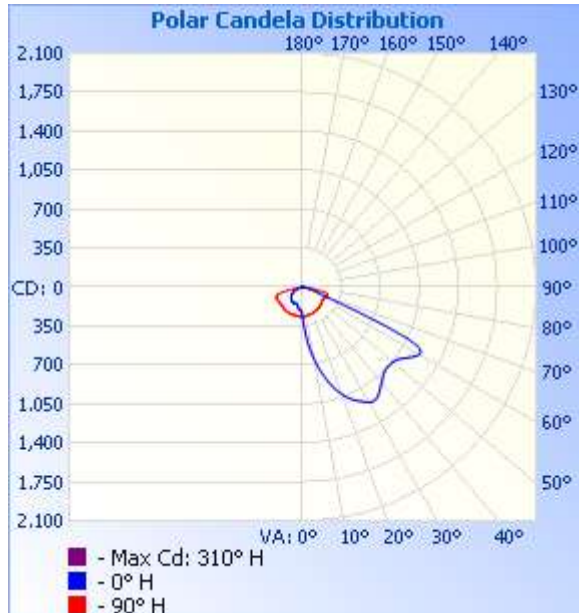




Table--1

UNIT: °C

C (DEG) T (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
5	265	298	334	369	402	430	452	469	480	484	480	469	452	428	400	368	334	297	265
10	261	329	403	474	537	592	632	664	684	691	682	663	630	585	530	468	397	323	258
15	261	364	471	569	654	730	792	838	864	875	861	836	789	725	645	554	456	348	253
20	262	397	534	652	755	842	922	982	1015	1021	1010	986	926	838	739	633	512	375	250
25	263	424	585	725	837	931	1010	1082	1120	1121	1113	1093	1022	920	821	700	560	398	247
30	262	449	628	783	898	988	1042	1129	1186	1194	1176	1146	1056	970	884	756	601	418	244
35	259	469	663	820	933	998	1041	1134	1187	1186	1172	1160	1046	979	913	795	633	435	239
40	256	486	693	847	940	988	1037	1073	1104	1110	1104	1080	1028	973	918	818	654	448	233
45	252	501	721	865	932	983	1026	1036	1047	1052	1044	1032	1014	966	915	830	675	460	228
50	249	524	752	875	928	982	1042	1054	1056	1054	1049	1042	1030	965	906	832	699	478	223
55	247	555	797	900	949	1023	1115	1133	1135	1113	1109	1110	1084	1000	920	844	726	497	216
60	250	616	891	987	1051	1168	1266	1274	1244	1212	1210	1235	1226	1128	993	895	787	543	214
65	256	697	1081	1240	1355	1435	1422	1276	999	821	931	1198	1352	1364	1250	1092	965	644	223
70	250	726	1271	1715	1900	1577	888	284	164	140	158	245	689	1452	1720	1693	1289	753	235
75	214	461	787	1347	1756	789	240	118	82.2	72.7	80.1	113	207	573	1796	1722	1045	552	229
80	51.1	65.3	111	236	375	228	96.9	54.8	40.5	38.2	39.4	53.1	89.6	198	473	373	193	91.6	87.6
85	6.55	7.85	12.7	27.2	47.6	39.1	19.7	13.1	10.6	10.3	10.7	13.2	20.4	35.2	66.9	43.9	17.5	9.78	8.34
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.00	0.00	0.00



Ningbo TengLi Testing Co., Ltd

2nd floor, Block B, Ningbo Testing and Certification Base, No. 66
Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
Fax: 86574-8783 5902

Table--2

UNIT: cd

C (DEG) T (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268		
5	240	225	216	212	210	210	210	210	210	210	209	209	209	211	215	223	239		
10	217	203	200	201	202	202	201	200	200	202	203	205	205	205	203	204	219		
15	202	193	192	186	176	173	172	173	174	174	174	178	186	198	202	199	206		
20	192	187	178	163	156	156	156	158	159	159	159	160	165	178	195	198	197		
25	183	180	162	152	151	152	155	158	160	159	157	156	158	164	179	194	190		
30	176	173	153	151	152	155	159	163	164	163	161	159	160	164	170	186	184		
35	168	163	149	152	152	156	158	161	162	161	159	159	159	165	167	179	177		
40	161	154	150	147	150	153	153	154	154	154	152	152	152	157	163	171	170		
45	153	145	145	140	145	147	147	147	146	145	144	145	143	146	156	161	161		
50	144	134	134	133	136	138	137	135	134	133	134	134	133	134	144	148	151		
55	132	123	121	122	124	126	124	121	121	120	121	122	120	120	127	134	138		
60	115	106	104	107	109	108	106	103	103	102	103	104	104	103	106	115	121		
65	97.3	86.9	85.1	88.5	88.5	87.6	86.5	82.7	81.9	80.3	82.5	81.9	83.5	84.1	84.5	93.5	102		
70	76.7	67.4	66.0	68.5	65.3	61.7	58.7	55.1	54.7	52.6	54.3	56.5	60.5	63.8	63.5	70.5	82.4		
75	62.8	47.9	44.9	44.4	38.0	32.3	26.8	22.3	21.2	21.0	24.4	29.3	34.4	40.6	41.4	48.3	67.3		
80	36.5	25.4	22.3	19.1	12.8	5.82	1.12	0.33	0.30	0.33	0.90	4.95	10.5	16.5	19.9	24.8	36.1		
85	8.75	5.62	3.76	1.95	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	1.37	3.52	5.30	8.31		
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.00		



2.4 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-18WiE-NV-LV2-00-2770-T402-P	2700K	2492.4	18.20	136.95
AOK-18WiE-NV-LV2-00-3070-T402-P	3000K	2506.4	18.20	137.72
AOK-18WiE-NV-LV2-00-3570-T402-P	3500K	2529.6	18.20	138.99
AOK-18WiE-NV-LV2-00-4070-T402-P	4000K	2552.6	18.20	140.25
AOK-18WiE-NV-LV2-00-4570-T402-P	4500K	2574.5	18.20	141.46
AOK-18WiE-NV-LV2-00-5070-T402-P	5000K	2597.4	18.20	142.72
AOK-18WiE-NV-LV2-00-5770-T402-P	5700K	2611.6	18.20	143.50

According to the test report JAE190121-A-R

Scaled Methodology Explanation:

18W 3000K eff / 18W 2700K eff = 132.02 / 131.29 = 1.0056

18W 3500K eff / 18W 2700K eff = 133.24 / 131.29 = 1.0149

18W 4000K eff / 18W 2700K eff = 134.45 / 131.29 = 1.0241

18W 4500K eff / 18W 2700K eff = 135.61 / 131.29 = 1.0329

18W 5000K eff / 18W 2700K eff = 136.82 / 131.29 = 1.0421

18W 5700K eff / 18W 2700K eff = 137.56 / 131.29 = 1.0478

3000K eff = 2700K eff * 1.0056

3500K eff = 2700K eff * 1.0149

4000K eff = 2700K eff * 1.0241

4500K eff = 2700K eff * 1.0329

5000K eff = 2700K eff * 1.0421

5700K eff = 2700K eff * 1.0478

18-T2 3000K eff / 18W-T3 3000K eff = 132.52 / 131.29 = 1.0094

18-T4 3000K eff / 18W-T3 3000K eff = 136.95 / 131.29 = 1.0431

T2 Type eff = T3 Type eff * 1.0094

T4 Type eff = T3 Type eff / 1.0431



3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp	2019-02-12	2020-02-11
ST-R-711	Power Meter for Goniophotometer	2019-01-06	2020-01-05
Uncertainty: Photometric Measurement(Goniophotometer):1.62%			

4. Product Photo



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