

Test Report

Applicant & Address	
Applicant Name	P.Q.L., Inc.
Address	2285 Ward Avenue Simi Valley, CA 93065
Telephone	800-323-8107
Country of Origin	China
Country of Export	USA, Canada
Product Description	Lamp type: T8 Four-Foot Linear Replacement Lamps - Replacement Lamps ("Plug and Play") (UL Type A) Manufacturer of Light Source: Seoul Semiconductor Co., Ltd Model Number of Light Source 3528
Model Number	91030
Electrical Specification	Rated Voltage: 120-277Vac
	Frequency: 50/60 Hz
	Wattage: 14 W
	Nominal CCT: 3000K
Test Laboratory & Address	
Test Laboratory	Deliver Co., Ltd.
Address	Block 11, 78 Keling Road, SSTP, Suzhou, China, 215000

Telephone	0512-6680 1969	Fax	0512-6680 1916
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Receipt Date of Test Samples	2017/7/20	Test Period	See individual test page
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Test by	Approved by
<i>Wangzun Zhu</i> /Wangzun Zhu	<i>Kevin Jia</i> /Kevin Jia
Test Personnel Name & Signatory	Approved Name & Signatory



Test Results

Statement of Results

Test No.	Test Method	Sample No.	Sample Serial No.	Result (Pass/Fail/NA)
1	Integrating Sphere	A1	DLF1707113	Evaluated by Customer
2	Goniophotometer	A1,A2	DLF1707113	Evaluated by Customer
3	Total Harmonic Distortion Test	A1	DLF1707113	Evaluated by Customer

Deviation from Test Method (if any)

N/A

Remark (if any)

This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

Test Report

Test No.1: Integrating Sphere Test

Environmental Conditions

Temperature (°C)	25.3	Relative Humidity (%)	58.2
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Test Equipment

Equipment ID	Equipment Name	Date	Calibration Due Date
DLF107	Integrating Sphere System	2016/12/28	2017/12/27
DLF108	Auxiliary Lamp	2016/12/28	2017/12/27
DLF122	Measurement Standard Lamp	2016/12/28	2017/12/27
	Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-directional		
DLF116	AC Power Source	2016/12/28	2017/12/27
DLF113	Power Meter	2016/12/28	2017/12/27
DLF112	Temperature Recorder	2016/12/28	2017/12/27
DLF114	Temperature & Humidity Datalogger	2016/12/28	2017/12/27
Test Sample	A1		
Test Date	2017/7/20		

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric 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 voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

The sample is operated off ballast Model QHE 2x32T8/UNV ISN-SC , manufactured by OSRAM.

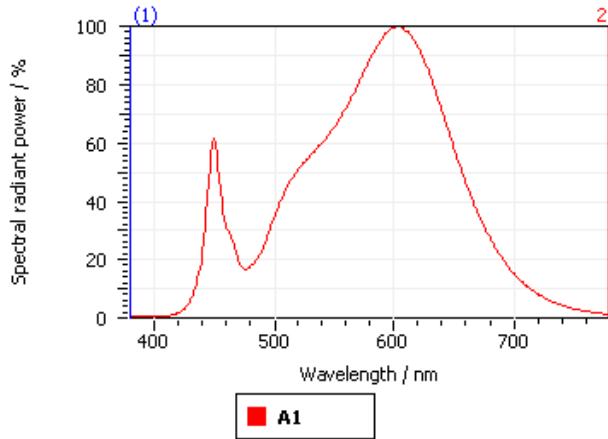
Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	119.94	60.00	0.109	13.11	0.998	Light Down	60	30

Test Type	CCT (K)	Color Rendering Index Ra	R9	Luminous Flux (lm)	Luminous Efficacy (lm/W)
Output	3107	82.7	7.4	1650.0	125.9

Spectroradiometric Parameters

Results



Spectral values

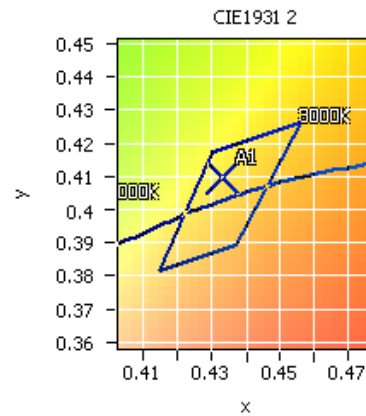
ResultsPhotometric	1.65 klm
DominantWavelength	581.43 nm
Purity	0.530
PeakWavelength	603.57 nm
Width50%:	138.01 nm

Color Coordinates

Correlated Color Temperature 3107 K

x: 0.4333 u: 0.2459 u': 0.2459
 y: 0.4097 v: 0.3487 v': 0.5230

ResultsCRICRI01	80.6	ResultsCRICRI09	7.4
ResultsCRICRI02	89.3	ResultsCRICRI10	75.8
ResultsCRICRI03	97.0	ResultsCRICRI11	81.3
ResultsCRICRI04	81.8	ResultsCRICRI12	66.4
ResultsCRICRI05	80.7	ResultsCRICRI13	82.4
ResultsCRICRI06	87.2	ResultsCRICRI14	98.5
ResultsCRICRI07	84.7	ResultsCRICRI15	72.7
ResultsCRICRI08	60.6	ResultsCRICRI16	70.6
ResultsCRI	82.7		



Nominal CCT:3000K

PlanckDistance 2.8E-003

Test Report

Test No.2: Goniophotometer Test

Environmental Conditions

Temperature (°C)	25.0	Relative Humidity (%)	58.2
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Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF101	Goniophotometer	2016/12/28	2017/12/27
DLF125	Standard Lamp	2016/12/28	2017/12/27
	Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-directional		
DLF104	AC Power Source	2016/12/28	2017/12/27
DLF507	DC Power Source	2016/12/28	2017/12/27
DLF102	Power Meter	2016/12/28	2017/12/27
DLF111	Temperature & Humidity Datalogger	2016/12/28	2017/12/27

Test Sample A1,A2

Test Date 2017/7/20

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric paramters were measured using a type C 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 voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 10° horizontal intervals.

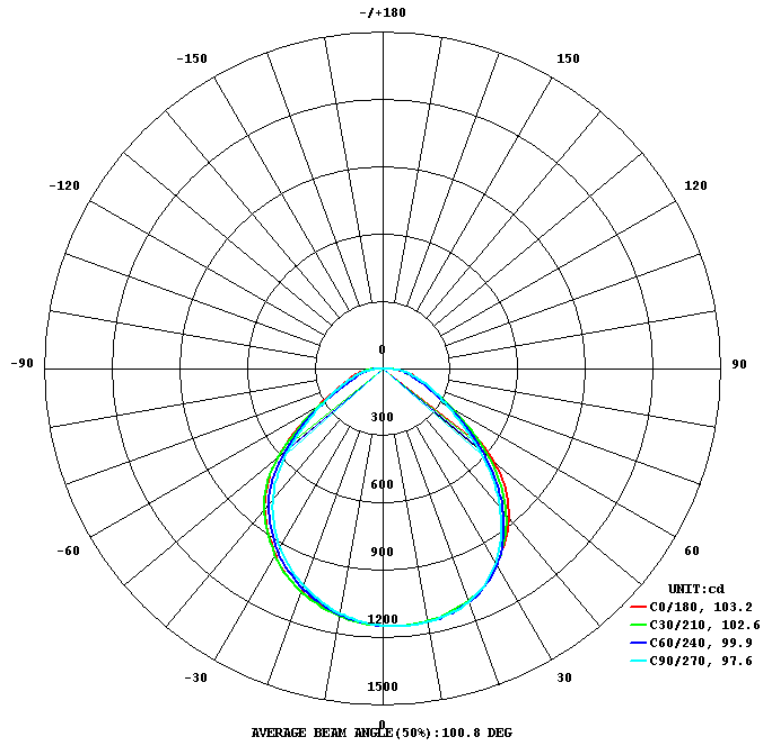
The sample is operated off ballast Model QHE 2x32T8/UNV ISN-SC , manufactured by OSRAM.

The sample is mounted on Troffer, which model number is Lithonia 2GT8 2 32 A12 MVOL GEB10IS.

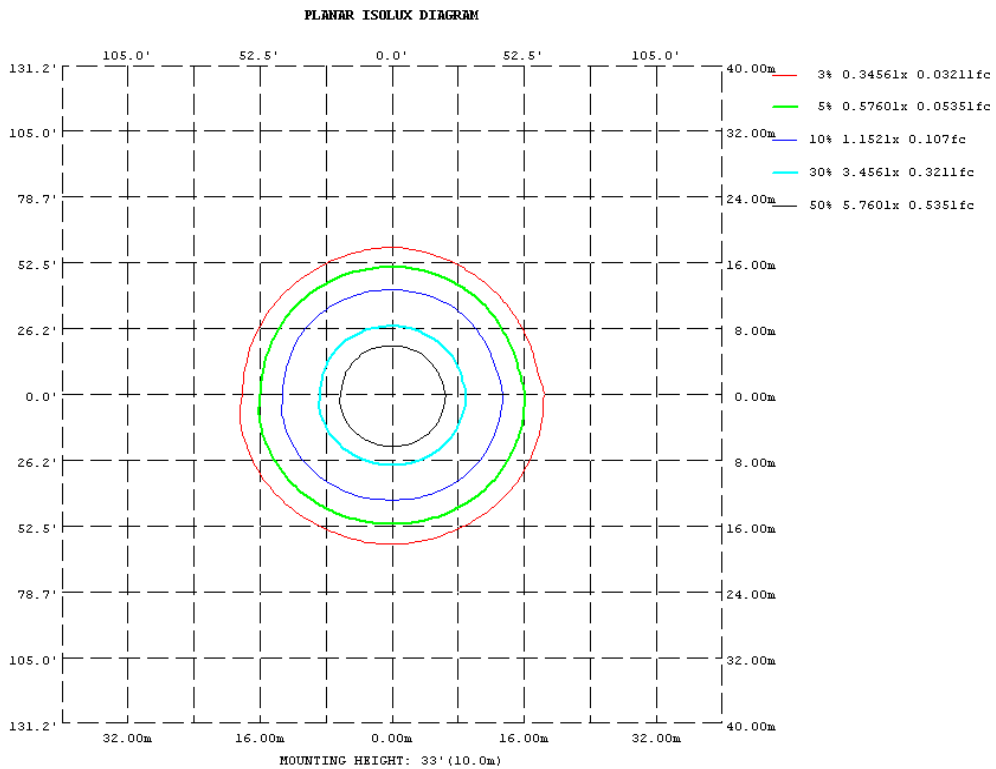
Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)	
Input	120.06	50.00	0.224	26.13	0.974	Light Down	120	60	
Test Type	Total Flux (lm)	Field angle (10%)		Beam angle (50%)		Zonal Lumen Result	Spacing Criteria		Luminous Efficacy (lm/W)
		C90-270	C0-180	C90-270	C0-180	0°-60°	0°-180°	90°-270°	
Output	2861.7	156.8	159.2	97.6	103.2	84.3%	1.24	1.20	109.5

Light Distrubtion Curve



Isolux Plot



PlotZonal Lumen Tabulation

DEG	LUMINOUS INTENSITY:cd										Less than 25% Percent = 6.3 %		UMIT:lm	
	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	φ lum, lamp		
7														
10	1144	1144	1145	1137	1118	1116	1108	1120	0-10	108.6	108.6	3.8,3.8		
20	1103	1106	1108	1093	1058	1053	1031	1051	10-20	312.5	421.1	14.7,14.7		
30	1011	1016	1001	1006	957.1	952.4	918.5	937.4	20-30	475.5	896.6	31.3,31.3		
40	871.8	845.9	811.2	845.1	817.1	811.1	761.3	783.8	30-40	563.7	1460	51,51		
50	641.3	603.3	549.1	613.0	607.6	594.7	538.0	560.1	40-50	548.1	2008	70.2,70.2		
60	344.8	350.1	330.2	358.7	330.7	319.6	311.4	296.7	50-60	404.4	2413	84.3,84.3		
70	195.3	178.9	204.5	181.6	182.5	147.6	175.3	139.9	60-70	241.4	2654	92.7,92.7		
80	115.3	99.19	111.9	102.4	108.1	90.14	92.46	87.36	70-80	146.0	2800	97.9,97.9		
90	1.867	3.436	3.721	9.457	4.464	1.117	0.4150	6.260	80-90	58.66	2859	99.9,99.9		
100	0	0	0	0	0.0819	0.3610	0.9930	0.4733	90-100	0.6378	2860	99.9,99.9		
110	0	0	0	0	0.4304	0.8128	1.482	1.037	100-110	0.3577	2860	99.9,99.9		
120	0	0	0.0207	0	0.8027	0.9709	1.257	1.400	110-120	0.4931	2860	100,100		
130	0	0.0410	0.0413	0.0202	1.004	0.8900	0.3232	1.370	120-130	0.4038	2861	100,100		
140	0.0403	0.0823	0.0413	0.0922	1.101	0.7844	0.2976	1.014	130-140	0.3242	2861	100,100		
150	0.1274	0.1374	0.0620	0.1855	1.086	0.4834	0.3395	0.7448	140-150	0.2654	2861	100,100		
160	0.1787	0.2206	0.1239	0.2187	0.9939	0.5383	0.3439	0.6285	150-160	0.1902	2862	100,100		
170	0.3072	0.3443	0.2742	0.5023	0.8891	0.5441	0.3482	0.5089	160-170	0.1225	2862	100,100		
180	0.6142	0.4217	0.3099	0.6255	0.7985	0.4731	0.3512	0.4716	170-180	0.0436	2862	100,100		



Intensity Data(cd)

CANDELA TABULATION

	<u>0</u>	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>	<u>80</u>	<u>90</u>
0	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099
5	1150.060	1149.720	1148.280	1149.000	1146.820	1146.160	1145.600	1145.750	1145.620	1137.320
10	1145.470	1145.050	1143.140	1141.610	1138.020	1135.920	1134.770	1133.180	1133.430	1118.120
15	1132.330	1131.430	1128.530	1125.960	1120.390	1117.800	1115.270	1114.090	1113.590	1091.930
20	1108.030	1106.030	1103.000	1099.940	1095.140	1091.370	1089.900	1087.750	1086.670	1058.110
25	1065.570	1063.890	1062.150	1061.240	1058.060	1056.170	1054.720	1052.280	1050.850	1015.440
30	1001.220	1000.470	1002.990	1006.260	1007.100	1005.640	1003.870	1001.190	998.080	957.090
35	915.540	917.060	922.270	929.000	933.860	935.980	936.350	934.930	934.350	890.840
40	811.230	812.840	819.440	828.820	840.130	850.100	856.480	859.670	861.990	817.110
45	688.620	691.630	701.120	714.280	728.880	744.470	756.670	765.530	771.770	726.810
50	549.130	558.390	573.790	586.840	603.910	622.040	634.790	644.460	653.740	607.630
55	428.040	436.450	450.300	458.470	475.040	488.840	493.910	497.970	504.530	459.210
60	330.210	334.350	333.070	339.330	353.860	363.520	366.410	367.430	367.650	330.750
65	260.800	256.810	249.490	250.410	253.410	260.970	271.600	274.720	268.610	240.250
70	204.450	195.240	191.210	185.110	178.180	184.990	204.340	212.570	204.690	182.540
75	154.190	150.930	148.510	138.890	129.920	136.480	152.520	163.220	160.060	145.920
80	111.860	110.600	105.150	102.400	100.310	104.510	108.720	119.190	122.140	108.150
85	59.500	61.790	58.380	59.850	60.480	60.230	67.360	73.080	73.990	57.990
90	3.720	6.450	7.880	8.040	8.520	10.400	11.440	12.480	13.210	4.460
95	0.020	0.080	0.040	0.040	0.020	0.040	0.000	0.000	0.020	0.060
100	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080
105	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200
110	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.430
115	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.000	0.640
120	0.020	0.020	0.000	0.000	0.000	0.000	0.020	0.020	0.000	0.800
125	0.040	0.040	0.040	0.000	0.000	0.000	0.020	0.020	0.000	0.860
130	0.040	0.040	0.040	0.000	0.020	0.020	0.020	0.020	0.060	1.000
135	0.040	0.040	0.040	0.000	0.020	0.040	0.040	0.020	0.040	1.110
140	0.040	0.040	0.040	0.060	0.120	0.060	0.060	0.020	0.040	1.100
145	0.040	0.040	0.060	0.080	0.170	0.170	0.090	0.080	0.060	1.090
150	0.060	0.040	0.060	0.080	0.180	0.190	0.140	0.220	0.130	1.090
155	0.080	0.060	0.060	0.080	0.190	0.220	0.180	0.220	0.160	1.030
160	0.120	0.080	0.080	0.080	0.200	0.240	0.230	0.210	0.190	0.990
165	0.240	0.120	0.120	0.120	0.350	0.260	0.280	0.210	0.220	0.950
170	0.270	0.290	0.230	0.250	0.600	0.410	0.410	0.390	0.450	0.890
175	0.300	0.300	0.320	0.300	0.620	0.530	0.450	0.470	0.510	0.820
180	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310

Vert. Horizontal Angles

	<u>100</u>	<u>110</u>	<u>120</u>	<u>130</u>	<u>140</u>	<u>150</u>	<u>160</u>	<u>170</u>	<u>180</u>	<u>190</u>
0	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099
5	1137.150	1136.780	1137.040	1135.430	1135.420	1134.590	1133.010	1131.510	1131.350	1132.610
10	1118.350	1118.710	1118.570	1116.820	1115.210	1112.380	1109.980	1108.050	1107.680	1108.370
15	1092.310	1092.860	1092.480	1089.620	1086.410	1081.730	1078.340	1074.710	1073.830	1075.370
20	1060.350	1060.690	1059.580	1055.340	1050.050	1043.440	1036.580	1032.430	1030.530	1032.760
25	1018.590	1019.260	1017.400	1013.050	1005.460	996.540	988.210	982.370	979.570	981.420
30	961.110	962.330	960.010	956.060	948.690	939.580	930.280	922.340	918.480	919.710
35	895.330	896.180	893.340	889.780	880.990	868.740	859.140	850.310	845.310	845.340
40	824.520	826.410	822.300	816.600	805.680	790.920	778.030	767.720	761.300	760.500
45	736.560	741.140	734.620	726.630	713.890	696.910	681.630	669.170	661.170	661.500
50	614.150	612.280	607.130	602.520	586.870	567.070	555.820	545.020	538.000	539.380
55	460.500	454.740	457.500	460.980	453.230	434.940	424.560	416.200	410.990	412.740
60	325.050	326.290	325.350	322.290	316.910	310.420	306.630	309.340	311.350	304.940
65	235.980	237.710	228.540	215.210	211.350	215.630	222.040	228.720	235.240	223.740
70	182.600	183.550	169.680	150.540	144.600	154.080	167.550	173.180	175.290	171.290
75	144.750	143.300	131.770	116.850	110.260	114.650	128.190	132.390	130.240	133.010
80	108.240	106.180	98.190	92.660	87.620	87.080	87.750	91.320	92.460	91.850
85	61.490	60.180	56.700	51.540	46.010	45.740	43.470	44.990	42.080	44.750



Light Distrubtion Curve (Cont'd)

CANDELA TABULATION - (Cont.)

90	6.370	4.450	3.110	1.800	0.430	0.330	7.270	0.490	0.420	0.550
95	0.060	0.080	0.990	0.490	0.290	0.330	0.390	0.540	0.480	0.520
100	0.080	0.160	0.210	0.290	0.430	0.490	0.600	0.850	0.990	0.830
105	0.270	0.350	0.410	0.510	0.680	0.850	0.970	1.180	1.280	1.200
110	0.470	0.510	0.600	0.720	0.910	0.990	1.170	1.330	1.480	1.230
115	0.680	0.720	0.800	0.870	1.010	0.990	1.080	1.350	1.420	1.270
120	0.820	0.900	0.990	0.900	1.040	0.780	0.860	1.180	1.260	1.130
125	0.900	0.960	1.070	0.930	0.960	0.440	0.330	0.660	0.740	0.620
130	1.010	1.110	1.070	0.960	0.820	0.260	0.230	0.280	0.320	0.260
135	1.020	1.150	1.080	0.990	0.720	0.250	0.230	0.230	0.250	0.260
140	1.030	1.170	1.080	1.010	0.550	0.270	0.270	0.290	0.300	0.270
145	1.040	1.140	1.090	0.950	0.310	0.290	0.310	0.300	0.340	0.300
150	1.040	1.090	1.010	0.660	0.310	0.310	0.310	0.310	0.340	0.310
155	0.980	1.000	0.900	0.650	0.350	0.320	0.310	0.310	0.340	0.330
160	0.940	0.970	0.880	0.640	0.440	0.330	0.310	0.310	0.340	0.340
165	0.890	0.940	0.880	0.630	0.460	0.350	0.310	0.310	0.350	0.330
170	0.700	0.820	0.800	0.620	0.470	0.350	0.310	0.310	0.350	0.320
175	0.630	0.620	0.680	0.450	0.490	0.350	0.310	0.310	0.350	0.310
180	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310

Vert. Horizontal Angles

Vert. Angles	200	210	220	230	240	250	260	270	280	290
0	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099
5	1132.980	1135.790	1137.620	1139.930	1141.510	1142.440	1143.160	1151.200	1149.200	1149.270
10	1111.330	1113.530	1118.050	1121.850	1124.920	1126.390	1127.860	1144.360	1141.400	1141.530
15	1078.580	1082.110	1087.630	1092.980	1099.060	1101.950	1103.720	1127.320	1124.020	1125.260
20	1036.130	1040.430	1047.700	1054.670	1063.730	1068.730	1071.760	1102.730	1099.140	1100.540
25	985.340	990.440	997.760	1006.590	1016.570	1023.120	1027.040	1065.950	1063.390	1064.260
30	923.370	927.970	933.660	941.170	950.790	958.200	964.660	1010.700	1008.170	1010.470
35	847.380	851.370	858.980	867.890	878.560	887.000	895.410	944.730	940.980	940.110
40	762.870	768.170	777.770	789.800	802.840	812.920	820.590	871.780	864.400	857.990
45	665.690	670.280	678.900	690.380	703.430	715.880	722.770	775.220	763.860	753.490
50	540.690	545.600	557.250	562.890	564.660	570.590	582.740	641.280	633.950	622.380
55	415.030	420.770	429.740	425.780	419.110	420.090	430.500	480.840	479.930	476.550
60	298.980	296.090	296.950	296.520	297.550	300.150	304.440	344.840	347.070	351.440
65	215.170	203.620	197.220	201.470	214.210	223.560	224.730	252.860	256.810	263.610
70	161.110	144.540	136.040	143.820	162.960	174.570	175.580	195.260	197.830	204.530
75	122.650	110.150	106.680	114.360	128.780	137.140	140.550	156.250	154.330	155.350
80	85.740	85.230	84.600	90.120	95.030	102.410	104.440	115.330	115.270	112.380
85	43.420	42.770	41.660	46.330	51.750	54.200	54.490	61.240	65.740	63.590
90	0.500	5.990	4.880	7.640	0.060	0.040	0.040	1.870	3.760	3.760
95	0.500	0.450	0.290	0.160	0.060	0.040	0.020	0.020	0.080	0.060
100	0.640	0.700	0.580	0.370	0.190	0.100	0.060	0.000	0.000	0.000
105	0.930	0.910	0.860	0.740	0.470	0.350	0.290	0.000	0.000	0.000
110	1.010	1.010	1.090	0.990	0.740	0.570	0.490	0.000	0.000	0.000
115	1.010	1.040	1.260	1.250	1.040	0.860	0.730	0.000	0.000	0.000
120	0.880	0.880	1.300	1.500	1.290	1.030	0.900	0.000	0.000	0.000
125	0.330	0.370	1.290	1.620	1.370	1.120	0.940	0.000	0.000	0.000
130	0.250	0.310	1.110	1.630	1.600	1.250	1.080	0.000	0.000	0.000
135	0.230	0.300	0.960	1.620	1.580	1.250	1.160	0.020	0.040	0.020
140	0.310	0.320	0.570	1.450	1.590	1.260	1.150	0.040	0.040	0.040
145	0.330	0.340	0.490	1.310	1.580	1.270	1.140	0.100	0.100	0.110
150	0.320	0.350	0.470	1.020	1.370	1.250	1.120	0.130	0.120	0.140
155	0.320	0.370	0.440	0.880	1.370	1.080	1.000	0.150	0.130	0.170
160	0.320	0.360	0.410	0.850	1.370	1.040	0.990	0.180	0.140	0.200
165	0.310	0.350	0.390	0.800	1.230	0.980	0.960	0.200	0.200	0.230
170	0.310	0.340	0.360	0.660	0.850	0.810	0.800	0.310	0.330	0.360
175	0.310	0.330	0.340	0.630	0.700	0.630	0.630	0.470	0.470	0.430
180	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310



Light Distrubtion Curve (Cont'd)

Vert. Angles	Horizontal Angles						
	300	310	320	330	340	350	360
0	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099	1147.099
5	1149.010	1149.620	1149.760	1150.830	1149.670	1150.380	1150.060
10	1142.120	1143.680	1144.890	1146.010	1145.840	1146.960	1145.470
15	1126.230	1128.520	1131.520	1132.540	1133.540	1134.950	1132.330
20	1102.270	1104.280	1107.310	1108.480	1109.810	1110.470	1108.030
25	1066.610	1068.220	1070.340	1070.090	1068.980	1068.550	1065.570
30	1013.240	1015.500	1016.200	1013.400	1008.510	1004.710	1001.220
35	940.510	940.220	938.530	932.000	925.060	918.950	915.540
40	855.090	850.010	841.860	830.380	820.600	814.790	811.230
45	745.090	736.520	722.590	709.290	698.780	691.550	688.620
50	617.150	610.630	595.950	581.410	568.890	556.110	549.130
55	477.270	477.230	467.870	454.050	445.530	435.220	428.040
60	354.260	353.200	346.900	336.080	332.040	332.160	330.210
65	264.000	254.560	249.290	248.170	249.180	255.960	260.800
70	197.800	181.460	176.330	184.640	191.380	195.680	204.450
75	147.300	134.060	129.130	139.190	149.070	151.920	154.190
80	103.010	100.450	97.920	101.500	105.600	111.360	111.860
85	60.820	54.860	55.710	57.440	57.770	61.720	59.500
90	3.960	3.840	3.030	4.020	4.110	3.910	3.720
95	0.060	0.020	0.020	0.080	0.060	0.020	0.020
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115	0.000	0.000	0.000	0.000	0.000	0.060	0.000
120	0.000	0.000	0.000	0.000	0.060	0.040	0.020
125	0.000	0.000	0.000	0.020	0.040	0.040	0.040
130	0.000	0.040	0.040	0.040	0.040	0.040	0.040
135	0.040	0.040	0.060	0.060	0.040	0.040	0.040
140	0.080	0.080	0.080	0.060	0.040	0.040	0.040
145	0.140	0.150	0.090	0.080	0.080	0.040	0.040
150	0.190	0.160	0.120	0.080	0.130	0.060	0.060
155	0.230	0.170	0.140	0.140	0.150	0.120	0.080
160	0.280	0.180	0.260	0.140	0.160	0.140	0.120
165	0.330	0.270	0.310	0.170	0.240	0.250	0.240
170	0.470	0.350	0.340	0.250	0.290	0.300	0.270
175	0.460	0.430	0.350	0.320	0.300	0.330	0.300
180	0.310	0.310	0.310	0.310	0.310	0.310	0.310

Test Report

Test No.3: Total Harmonic Distortion Test

Environmental Conditions

Temperature (°C)	25.3	Relative Humidity (%)	58.2
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Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF119	Power Meter	2016/12/28	2017/12/27
DLF116	AC Power Supply	2016/12/28	2017/12/27
DLF114	Temperature & Humidity Datalogger	2016/12/28	2017/12/27

Test Sample	A1
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Test Date	2017/7/20
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Test Method

The samples were tested according to the ANSI C82.77:2002.

The total harmonic distortion shall be measured to the 40th order.

The ambient temperature condition was maintained at 25° C ± 1° C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

The sample is operated off ballast Model QHE 2x32T8/UNV ISN-SC , manufactured by OSRAM.

Test Results

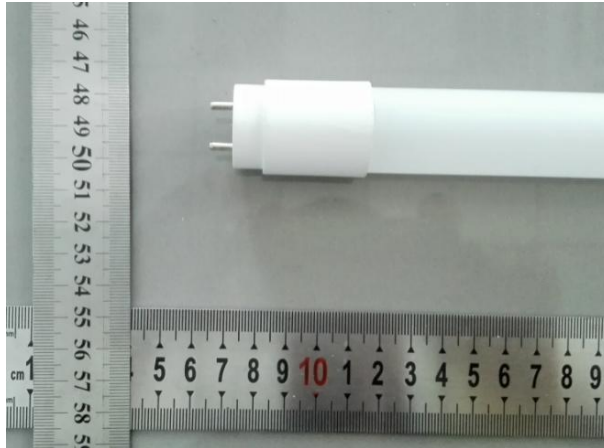
Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD (%)	Operate time (Min.)	Stabilization time (Min.)
Input	276.90	60	0.101	26.74	0.957	10.36	40	30

Test Report

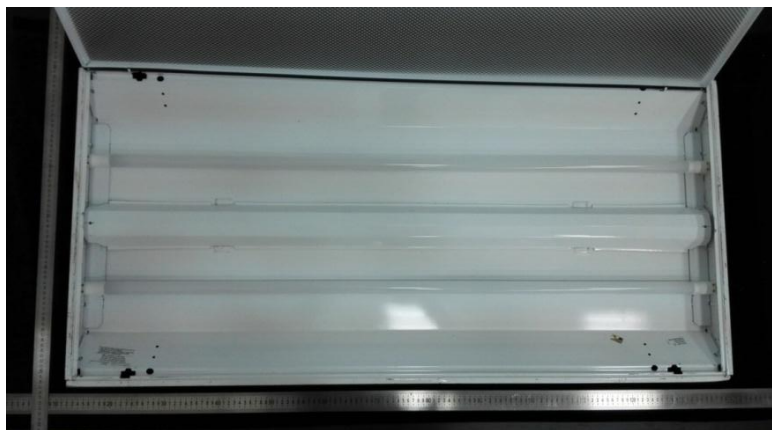
Test Sample

A1,A2

Photos of Sample



Photos of Sample



***** End of Test Report*****