NVLAP LAB CODE 201074-0

Test Report

Company & Adderess			
Company Name	Espen Technology, Inc.		
Address	12257 FLORENCE AVE SANTA FE SPRINGS, CA 90670 USA		
Contact	Maofu Miao		
Telephone	+86-21-33507615x8009	Fax/ E-mail Address	maofu@espentech.com

Manufacturer	Espen Technology, Inc.
Contry of Origin	China
Contry of Export	USA, Canada
Product Description	Lamp type: Four-Foot Linear Replacement Lamps - 2-lamp External Driver Lamp-Style Retrofit Kits (UL Type C) Total Amount of Light Source: 120pcs Manufacturer of Light Source: EVERLIGHT ELECTRONICS CO., LTD Model Number of Light Source: 67-21S Series
LED Driver Model No.	VPL50-xxx-MVHDA-PD-2C
LED Driver Manufacturer	Espen Technology, Inc.
Lamp Model Number	L48T5/840/24G-XT N
Electrical Specification	Rated Voltage: 120-277Vac
	Frequency: 60 Hz
	Wattage: 15W
	Nominal CCT: 4000K
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
Receipt Date of	2016/8/21	Test Period	See individual test page
Test by		Approved by	
Wangzun Zhu /Wangzun Zhu		Kevin Jia /Kevin Jia	
Test Personnel Name & Signatory		Approved Name & Signatory	

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Test Results

Statement of Results

Test No.	Test Method	Sample No.	Sample Serial No.	Result ~~(Pass/Fail/NA)~~
1	Integrating Sphere	A2	DLF1608105	Evaluated by Customer
2	Goniophotometer	A2	DLF1608105	Evaluated by Customer
3	Total Harmonic Distortion Test-120V	A2	DLF1608105	Evaluated by Customer
4	Total Harmonic Distortion Test-277V	A2	DLF1608105	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.

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Test Report

Test No.1: Integrating Sphere Test

Environmental Conditions			
Temperature (℃)	24.6	Relative Humidity (%)	51

Test Equipment			
Equipment ID	Equipment Name	Date	Calibration Due Date
DLF107	Integrating Sphere System	2016/1/5	2017/1/4
DLF108	Auxiliary Lamp	2016/1/5	2017/1/4
DLF122	Measurement Standard Lamp	2016/1/5	2017/1/4
	Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional		
DLF116	AC Power Source	2016/1/5	2017/1/4
DLF113	Power Meter	2016/1/5	2017/1/4
DLF112	Temperature Recorder	2016/1/5	2017/1/4
DLF114	Temperature & Humidity Datalogger	2016/1/5	2017/1/4
Test Sample	A2		
Test Date	2016/8/24		

Test Method

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

Photometric paramters 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 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.

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	0.143	17.00	0.992	Light Down	45	30

Test Type	CCT (K)	Color Rendering Index Ra	R9	Luminous Flux (lm)	DUV	Luminous Efficacy (lm/W)
Output	4026	83.3	8.5	2476.0	9.30E-04	145.6

* Note:Test was conducted with one LED driver operating two LED tube lamps. One of the LED tube lamps was installed in integrating sphere and measured for photometric data. Wattage and current was assigned to be one quarter of the totally system wattage/current.

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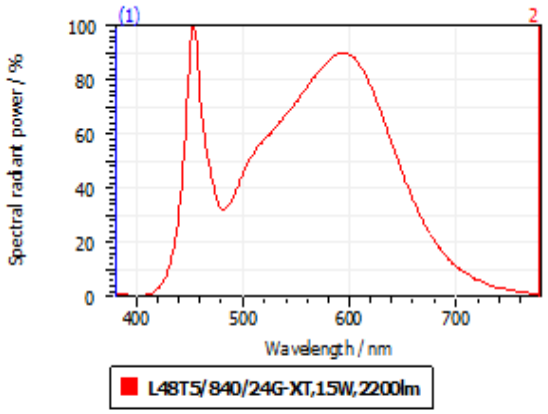
Spectroradiometric Parameters



Spectral values

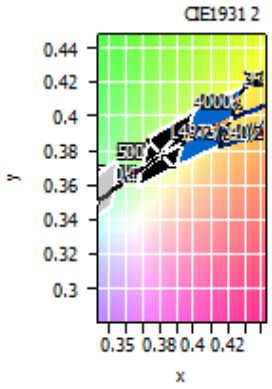
Luminous Flux	2.476 klm
DominantWavelength	578.47 nm
Purity	0.276
PeakWavelength	453.47 nm
Radiant Power	7.531 W
Width50%:	23.81 nm

Color Coordinates

Correlated Color Temperatur 4026 K

x:	0.3800	u:	0.2241	u':	0.2241
y:	0.3784	v:	0.3348	v':	0.5023

ResultsCRICRI01	81.7	ResultsCRICRI09	8.5
ResultsCRICRI02	91.4	ResultsCRICRI10	79.3
ResultsCRICRI03	95.8	ResultsCRICRI11	79.1
ResultsCRICRI04	80.3	ResultsCRICRI12	63.1
ResultsCRICRI05	81.6	ResultsCRICRI13	84.4
ResultsCRICRI06	87.5	ResultsCRICRI14	98.2
ResultsCRICRI07	84.9	ResultsCRICRI15	75.1
ResultsCRICRI08	63.3	ResultsCRICRI16	71.7
ResultsCRI	83.3		



Nominal CCT 4000K

PlanckDistance 9.3E-004

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Test Report

Test No.2: Goniophotometer Test

Environmental Conditions			
Temperature (℃)	25.0	Relative Humidity (%)	45

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF101	Goniophotometer	2016/1/5	2017/1/4
DLF125	Standard Lamp	2016/1/5	2017/1/4
	Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional		
DLF104	AC Power Source	2016/1/5	2017/1/4
DLF507	DC Power Source	2016/1/5	2017/1/4
DLF102	Power Meter	2016/1/5	2017/1/4
DLF111	Temperature & Humidity Datalogger	2016/1/5	2017/1/4

Test Sample	A2
Test Date	2016/8/22

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.

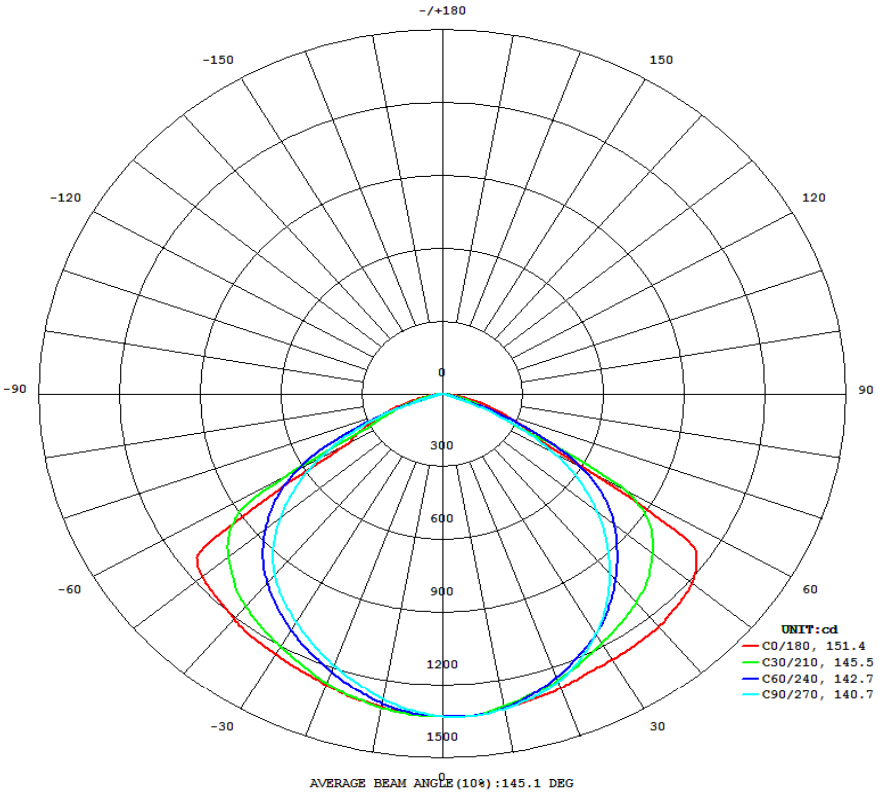
The sample is mounted in Troffer, Lithonia 2PM3N G B 2 28T5 12LD MVOLT GEB10PS.

Test Results

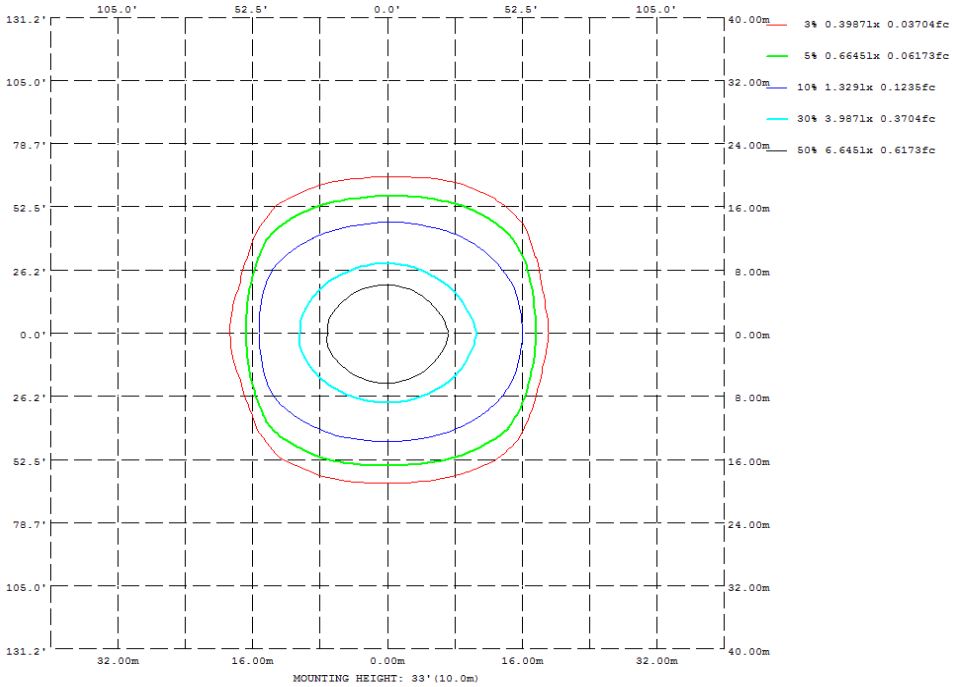
Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	120.03	60.00	0.286	33.9	0.989	Light Down	60	30

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	3755.6	140.7	151.4	108.3	117.1	87.3%	1.42	1.23	110.8

Light Distrubtion Curve



Isolux Plot



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PlotZonal Lumen Tabulation

DEG	LUMINOUS INTENSITY:cd												UNIT:lm			
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	$lum,lamp				
10	1317	1312	1318	1327	1311	1307	1278	1289	0- 10	126.0	126.0	3.35,3.35				
20	1289	1244	1260	1281	1275	1241	1188	1207	10- 20	361.9	487.9	13,13				
30	1263	1158	1140	1202	1239	1160	1087	1115	20- 30	559.1	1047	27.9,27.9				
40	1249	1058	970.3	1092	1207	1075	970.8	1024	30- 40	706.2	1753	46.7,46.7				
50	1210	929.3	749.5	944.1	1169	945.5	786.6	928.7	40- 50	787.5	2541	67.7,67.7				
60	597.7	684.3	467.3	662.5	405.7	707.3	530.3	737.6	50- 60	737.1	3278	87.3,87.3				
70	242.5	152.9	110.5	135.0	223.4	160.0	185.3	203.5	60- 70	361.2	3639	96.9,96.9				
80	74.71	30.65	16.95	27.22	64.10	33.77	25.18	39.15	70- 80	98.49	3737	99.5,99.5				
90	0.6929	0.0088	0	0	0	0.0197	0.0977	0.6860	80- 90	15.47	3753	99.9,99.9				
100	0	0	0	0	0.0421	0.5998	0.6397	0.6904	90-100	0.0883	3753	99.9,99.9				
110	0	0.5567	0	0.4774	1.463	2.186	1.618	1.775	100-110	0.5302	3753	99.9,99.9				
120	0.8814	0	0	0	1.086	1.257	1.298	1.429	110-120	0.8588	3754	100,100				
130	0	0.0394	0	0	1.086	1.142	0.1989	1.350	120-130	0.4456	3755	100,100				
140	0.0393	0.1665	0.0200	0	1.086	0.8371	0.0799	0.9515	130-140	0.3092	3755	100,100				
150	0.0790	0.1382	0.0200	0.0405	1.027	0.5041	0.0799	0.5978	140-150	0.2203	3755	100,100				
160	0.0790	0.1556	0.0200	0.0507	0.9566	0.5102	0.0799	0.3495	150-160	0.1396	3755	100,100				
170	0.3950	0.3201	0.0799	0.1849	0.7702	0.4482	0.0799	0.2499	160-170	0.0842	3756	100,100				
180	0.5530	0.3045	0.0799	0.2938	0.7110	0.3339	0.0799	0.1824	170-180	0.0276	3756	100,100				

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Intensity Data(cd)

CANDELA TABULATION

	0	10	20	30	40	50	60	70	80	90
0	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595
5	1332.330	1334.140	1334.220	1334.400	1335.100	1335.560	1335.000	1333.460	1331.400	1323.810
10	1318.320	1321.650	1323.630	1325.000	1326.230	1328.210	1329.650	1327.200	1325.220	1310.690
15	1295.760	1299.590	1303.130	1303.860	1304.370	1307.530	1314.340	1317.860	1316.360	1297.070
20	1259.820	1266.270	1269.920	1272.980	1276.290	1285.670	1294.680	1299.030	1300.230	1274.950
25	1208.060	1214.600	1220.210	1229.880	1239.830	1253.120	1266.920	1277.780	1285.480	1254.720
30	1140.360	1146.440	1154.060	1171.760	1189.780	1213.360	1240.390	1260.440	1273.840	1239.170
35	1061.800	1066.540	1078.840	1102.530	1131.370	1168.060	1207.250	1238.160	1260.850	1227.640
40	970.300	975.200	993.140	1024.410	1069.030	1115.690	1167.920	1212.990	1244.450	1207.440
45	865.190	870.750	898.030	939.690	997.300	1054.940	1113.390	1170.330	1215.540	1186.990
50	749.490	755.630	792.390	846.080	912.000	976.170	1048.660	1128.900	1191.400	1168.990
55	619.690	629.140	674.540	733.840	796.770	872.670	956.430	1044.060	1087.050	1037.630
60	467.270	482.220	527.960	574.890	627.670	697.310	610.880	489.470	414.730	405.690
65	291.850	302.560	335.790	357.980	399.250	273.570	268.430	292.050	315.400	317.700
70	110.470	113.910	125.670	144.630	123.800	146.130	169.720	193.770	217.460	223.380
75	42.370	43.170	46.010	48.980	55.250	68.130	89.440	110.760	129.550	137.810
80	16.950	17.190	18.700	20.860	24.580	29.860	37.300	47.890	58.600	64.100
85	3.970	4.060	4.580	5.390	6.590	8.170	10.410	13.620	17.360	20.500
90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
105	0.000	0.000	0.000	0.000	0.340	0.240	0.000	0.000	0.000	0.540
110	0.000	0.000	0.000	0.000	0.000	0.950	0.270	0.920	0.550	1.460
115	0.000	0.000	0.000	0.000	0.000	0.000	0.370	1.020	1.360	2.190
120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	1.090
125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	1.090
130	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.020	1.090
135	0.000	0.020	0.000	0.040	0.000	0.000	0.000	0.020	0.020	1.090
140	0.020	0.040	0.000	0.040	0.000	0.000	0.020	0.020	0.020	1.090
145	0.020	0.040	0.000	0.040	0.020	0.060	0.040	0.040	0.040	1.090
150	0.020	0.040	0.020	0.040	0.020	0.060	0.040	0.040	0.040	1.030
155	0.020	0.040	0.020	0.040	0.040	0.060	0.040	0.040	0.060	0.970
160	0.020	0.040	0.020	0.040	0.040	0.060	0.040	0.040	0.040	0.960
165	0.020	0.040	0.020	0.040	0.160	0.060	0.100	0.060	0.080	0.940
170	0.080	0.060	0.040	0.040	0.260	0.110	0.340	0.270	0.340	0.770
175	0.080	0.080	0.100	0.080	0.280	0.240	0.330	0.290	0.360	0.740
180	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080

Vert. Angles	Horizontal Angles									
	100	110	120	130	140	150	160	170	180	190
0	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595
5	1327.470	1326.440	1328.130	1326.510	1323.620	1319.990	1315.740	1313.840	1310.100	1312.190
10	1313.420	1312.990	1314.330	1309.670	1304.000	1296.130	1288.580	1285.250	1277.520	1280.510
15	1297.720	1298.010	1293.750	1281.760	1270.610	1259.430	1248.990	1241.850	1231.770	1236.740
20	1277.840	1277.410	1267.630	1250.990	1230.230	1215.000	1203.020	1197.940	1187.600	1191.970
25	1259.720	1252.900	1233.430	1211.890	1189.660	1171.970	1155.990	1148.720	1138.430	1141.440
30	1246.620	1232.610	1204.080	1171.890	1147.340	1124.780	1104.440	1097.930	1086.560	1089.320
35	1233.260	1210.150	1173.180	1136.110	1101.700	1073.250	1052.760	1042.870	1033.060	1033.350
40	1215.910	1185.680	1139.450	1095.870	1054.970	1014.210	992.880	978.820	970.760	971.970
45	1188.030	1149.130	1095.680	1045.740	995.560	944.680	912.340	893.170	890.610	893.210
50	1166.050	1112.900	1039.430	972.610	918.300	858.710	813.540	787.120	786.620	793.290
55	1072.430	1044.810	960.600	883.700	815.350	758.460	704.550	669.650	667.010	677.430
60	426.140	514.920	666.010	735.980	678.620	627.520	579.070	537.400	530.280	548.100
65	318.650	301.840	282.190	329.720	464.470	431.540	411.620	378.820	370.840	392.770
70	220.680	202.900	183.740	167.280	152.780	206.310	199.810	189.470	185.270	202.140
75	134.350	119.330	100.920	82.730	70.080	65.820	66.600	65.840	66.170	71.230
80	61.720	53.330	43.940	36.370	31.160	27.540	25.970	24.990	25.180	26.760
85	19.610	16.720	13.870	11.840	10.180	8.750	7.850	7.490	7.540	8.120

Light Distrubtion Curve (Cont'd)

CANDELA TABULATION - (Cont.)

90	0.000	0.000	0.000	0.000	0.040	0.120	0.100	0.100	0.100	0.180
95	0.000	0.020	0.000	0.080	0.240	0.300	0.260	0.240	0.180	0.100
100	0.100	0.260	0.370	0.550	0.650	0.770	0.800	0.660	0.640	0.460
105	0.550	0.630	0.750	0.960	1.680	1.760	1.170	1.100	1.100	0.970
110	1.340	1.420	1.500	2.380	1.990	1.280	1.320	1.510	1.620	1.390
115	1.810	1.930	2.140	1.490	1.270	1.140	1.110	1.490	1.580	1.300
120	1.100	1.120	1.180	1.260	1.260	0.870	0.850	1.250	1.300	1.090
125	1.080	1.190	1.240	1.270	1.100	0.550	0.380	0.680	0.860	0.700
130	1.080	1.190	1.240	1.280	1.010	0.330	0.140	0.140	0.200	0.140
135	1.080	1.180	1.240	1.230	0.920	0.180	0.140	0.080	0.080	0.080
140	1.080	1.170	1.240	1.070	0.610	0.180	0.140	0.080	0.080	0.080
145	1.060	1.160	1.190	0.940	0.310	0.180	0.140	0.080	0.080	0.080
150	1.050	1.080	1.020	0.730	0.280	0.180	0.140	0.080	0.080	0.080
155	0.960	0.950	0.940	0.680	0.330	0.180	0.140	0.080	0.080	0.080
160	0.950	0.930	0.920	0.670	0.350	0.180	0.140	0.080	0.080	0.080
165	0.920	0.910	0.900	0.630	0.340	0.220	0.140	0.080	0.080	0.080
170	0.790	0.840	0.740	0.570	0.330	0.300	0.140	0.080	0.080	0.080
175	0.590	0.630	0.640	0.410	0.300	0.310	0.140	0.080	0.080	0.080
180	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080

Vert. Angles	Horizontal Angles									
	200	210	220	230	240	250	260	270	280	290
0	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595
5	1313.210	1314.140	1316.740	1319.050	1321.090	1322.900	1322.990	1332.550	1330.330	1329.880
10	1283.810	1285.760	1288.120	1289.030	1293.470	1297.350	1301.290	1317.160	1309.800	1308.810
15	1239.830	1238.620	1244.700	1251.310	1265.080	1271.860	1280.350	1302.190	1294.210	1288.910
20	1191.550	1191.140	1201.050	1213.370	1234.060	1246.700	1257.390	1288.710	1277.220	1267.790
25	1136.900	1139.740	1155.460	1170.650	1196.820	1215.170	1232.780	1269.070	1254.150	1237.130
30	1084.480	1090.420	1105.630	1124.670	1154.890	1188.300	1214.550	1262.770	1240.750	1211.110
35	1028.890	1038.450	1054.270	1080.380	1120.810	1161.640	1200.890	1256.020	1226.490	1189.160
40	974.430	983.840	1006.410	1040.710	1086.010	1135.910	1188.800	1249.410	1215.420	1165.970
45	907.260	926.870	960.450	999.680	1049.680	1101.800	1162.540	1232.010	1188.900	1129.440
50	819.640	860.760	906.520	950.830	997.720	1057.830	1128.730	1210.410	1155.180	1085.800
55	715.470	772.380	832.100	879.010	933.520	993.380	1067.690	1153.220	1091.260	1012.790
60	595.950	657.730	711.100	764.080	805.030	718.630	635.480	597.700	596.760	660.020
65	437.800	477.910	516.140	484.390	314.700	303.330	323.530	345.440	321.690	297.280
70	228.800	246.770	222.490	184.520	192.900	206.030	224.150	242.540	220.900	198.040
75	77.240	78.430	81.710	94.360	109.140	123.970	141.740	156.650	138.110	117.120
80	29.560	32.180	36.310	41.990	49.280	58.160	67.670	74.710	64.880	53.350
85	9.210	10.680	12.900	15.350	17.630	20.480	24.190	26.350	22.260	17.760
90	0.320	0.530	0.630	0.750	0.810	0.920	1.130	0.690	0.350	0.000
95	0.080	0.180	0.350	0.040	0.000	0.000	0.000	0.000	0.000	0.000
100	0.430	0.510	0.730	0.650	0.160	0.020	0.000	0.000	0.000	0.000
105	0.810	1.150	1.240	0.910	0.630	0.500	0.400	0.000	0.000	0.000
110	1.010	0.990	1.720	1.830	1.240	0.950	0.800	0.000	0.000	0.070
115	0.950	0.980	1.450	1.600	2.070	1.600	1.770	0.830	0.890	0.780
120	0.730	0.770	1.260	1.590	1.460	1.400	1.730	0.880	0.430	0.020
125	0.400	0.410	1.120	1.610	1.490	1.290	1.000	0.000	0.020	0.040
130	0.160	0.340	1.080	1.620	1.490	1.270	1.000	0.000	0.020	0.040
135	0.100	0.160	0.990	1.580	1.440	1.270	1.000	0.000	0.040	0.040
140	0.100	0.120	0.590	1.320	1.430	1.230	0.960	0.040	0.040	0.040
145	0.100	0.120	0.330	1.240	1.400	1.150	0.950	0.080	0.060	0.100
150	0.100	0.120	0.300	0.890	1.320	1.050	0.950	0.080	0.140	0.080
155	0.100	0.120	0.290	0.590	1.290	1.000	0.770	0.080	0.110	0.080
160	0.100	0.120	0.220	0.480	1.300	0.990	0.730	0.080	0.100	0.080
165	0.100	0.120	0.150	0.410	1.070	0.870	0.710	0.140	0.160	0.140
170	0.100	0.120	0.140	0.360	0.360	0.600	0.600	0.390	0.390	0.330
175	0.090	0.110	0.110	0.320	0.330	0.360	0.400	0.420	0.430	0.370
180	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080

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Light Distrubtion Curve (Cont'd)

CANDELA TABULATION - (Cont.)

Vert. Angles	Horizontal Angles						
	300	310	320	330	340	350	360
0	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595	1329.595
5	1330.590	1330.460	1329.900	1330.710	1331.000	1329.940	1332.330
10	1307.440	1310.900	1313.840	1315.020	1316.050	1318.450	1318.320
15	1280.410	1278.480	1280.240	1282.700	1289.550	1297.030	1295.760
20	1254.300	1246.280	1241.310	1240.450	1248.930	1261.230	1259.820
25	1219.150	1207.820	1201.530	1192.030	1194.560	1207.090	1208.060
30	1183.490	1164.690	1151.430	1141.080	1132.360	1141.340	1140.360
35	1153.700	1123.540	1094.530	1076.410	1062.100	1062.880	1061.800
40	1119.840	1080.450	1036.450	1001.790	978.940	969.270	970.300
45	1080.330	1027.000	973.520	921.100	883.760	866.850	865.190
50	1020.560	959.380	899.180	835.430	780.340	752.530	749.490
55	941.010	865.260	798.540	729.900	664.780	627.200	619.690
60	766.030	718.490	650.010	585.300	523.510	480.200	467.270
65	277.980	384.650	439.430	383.850	343.190	305.110	291.850
70	178.660	158.900	146.840	171.190	142.480	120.370	110.470
75	97.210	76.640	61.060	53.590	49.240	44.670	42.370
80	42.560	33.700	27.590	23.200	20.230	18.000	16.950
85	13.870	10.760	8.370	6.560	5.350	4.490	3.970
90	0.000	0.010	0.010	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.160	0.000	0.000	0.000
110	0.090	0.720	0.390	0.000	0.000	0.000	0.000
115	0.880	0.000	0.000	0.000	0.000	0.000	0.000
120	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125	0.000	0.000	0.020	0.000	0.000	0.000	0.000
130	0.000	0.020	0.060	0.100	0.020	0.040	0.000
135	0.000	0.020	0.270	0.110	0.020	0.040	0.000
140	0.020	0.080	0.250	0.140	0.020	0.060	0.020
145	0.020	0.060	0.240	0.140	0.020	0.060	0.020
150	0.020	0.060	0.220	0.140	0.020	0.060	0.020
155	0.020	0.060	0.230	0.140	0.020	0.060	0.020
160	0.020	0.060	0.250	0.140	0.020	0.060	0.020
165	0.270	0.180	0.270	0.140	0.080	0.060	0.020
170	0.390	0.310	0.330	0.140	0.080	0.100	0.080
175	0.380	0.300	0.320	0.140	0.080	0.080	0.080
180	0.080	0.080	0.080	0.080	0.080	0.080	0.080

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Test Report

Test No.3: Total Harmonic Distortion Test -120V

Environmental Conditions			
Temperature (℃)	24.9	Relative Humidity (%)	53

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF119	Power Meter	2016/1/5	2017/1/4
DLF114	AC Power Supply	2016/1/5	2017/1/4
DLF115	Temperature & Humidity Datalogger	2016/1/5	2017/1/4

Test Sample	A2
Test Date	2016/8/29

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 25º C ± 1º 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.

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD (%)	Operate time (Min.)	Stabilization time (Min.)
Input	120.02	60	0.288	34.28	0.994	7.16	40	30

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Test Report

Test No.4: Total Harmonic Distortion Test -277V

Environmental Conditions			
Temperature (℃)	24.9	Relative Humidity (%)	54

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF119	Power Meter	2016/1/5	2017/1/4
DLF114	AC Power Supply	2016/1/5	2017/1/4
DLF115	Temperature & Humidity Datalogger	2016/1/5	2017/1/4

Test Sample	A2
Test Date	2016/8/29

Test Method

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

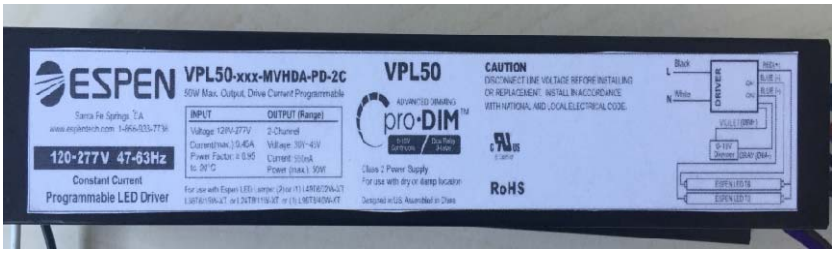
The total harmonic distortion shall be measured to the 40th order.

The ambient temperature condition was maintained at 25º C ± 1º 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.

Test Results

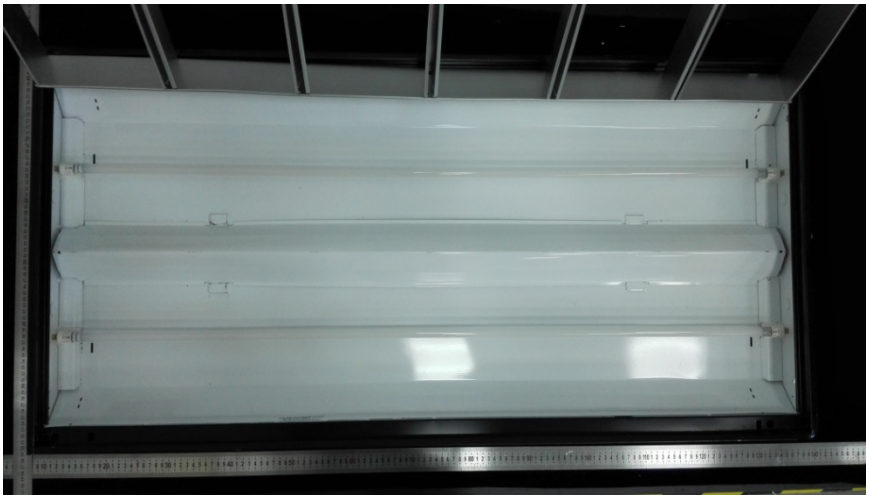
Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD (%)	Operate time (Min.)	Stabilization time (Min.)
Input	276.98	60	0.135	34.75	0.929	14.68	40	30

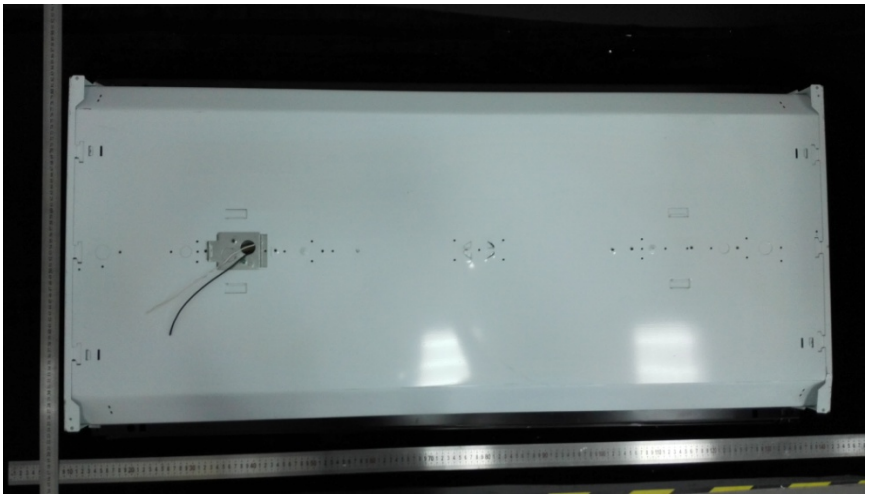
Test Report	
Test Sample	A2
Photos of Sample	



NVLAP LAB CODE 201074-0

Photos of Sample





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Photos of Sample

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