



Les Industries Spectralux Inc. Spectralux Industries Inc.

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca

ISO/IEC 17025



NVLAP LAB CODE: 200899-0

Moving Mirror Goniophotometer Test Report

Standard(s): IESNA LM-15-03, IES LM-79-08, ANSI C82.77-2002

Customer Arancia Lighting Inc, 6048 Route 132 , Ste-Catherine , Québec, Canada, J5C2B1

General Information		SSL Details	Driver Details	
Test Report	S1709083-R1	Description	Cluster of Osram Sylvania LEDs	Type Commercial
Test Date	8 September 2017	Serial Number	2849-2	Description 60SSL-CY1374
Report Date	8 September 2017	Photometric Method	Absolute	Manufacturer HATCH
Ambient	25.2 °C	Lamp Lumens	-1	Catalog No. (2) XAC34-1050P-UNV-1
Humidity	40.1 %	Test Position	Vertical Base Down	Voltage 120.00 V
Lamp Type	SSL	Bca j b U ` Co ` cf ` 4000K		Power Factor 0.9000

Luminaire Data

General Information		Optics	Aperture (feet)	
Manufacturer	Arancia Lighting Inc	Reflector	None	X 0.1667
Name	Mini Jack	Housing	Aluminum Sheet Metal	Y 3.8333
Catalog No.	P90-I-04	Lens	Frosted Acrylic	Z 0.0000

Lamp Stabilization Time: 1 hour 15 minutes

Approved Signatory: Chrisnel Blot

Signature:



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Luminaire Test Method

Precise installation and alignment of the luminaire to the rotation axis of the photometer is governed by a servomotor controlled via a microcontroller. A laser is used to validate the luminaire positioning. Before photometric measurements are taken, luminaire is operated long enough to reach stabilization and temperature equilibrium.

All movement commands issued to the photometer axes are mediated by the software to ensure the motion is within the limits of operation. The photometric detector used is a silicon detector corrected to closely match the spectral luminous efficiency photopic curve with a quality index less than 1.5%. Proper shielding is incorporated to the photometric test bench such that only the light from the unit under test is measured.

Luminous intensity measurements are performed at a distance great enough so that the inverse-square law applies. During each measurement the computer records the luminous intensity associated to the corresponding angles of radiation, as well as input electrical operational parameters and temperature measurements. Candela values are reported in IES format as per LM-63.

Equipment, reference standards are traceable to National Institute of Standards and Technology (NIST) and National Research Council of Canada (NRC).





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Electrical Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Power Supply	KIKUSUI	SPEC 77766A	1450001	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	91L236539	2017/05/05	2018/05/05
Output Power Meter	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.

Photometric Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Photometer	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.
Photodetector	INPHORA	IPR-PDET 19	110802	2016/10/05	2017/10/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	051202970	2016/10/20	2017/10/20



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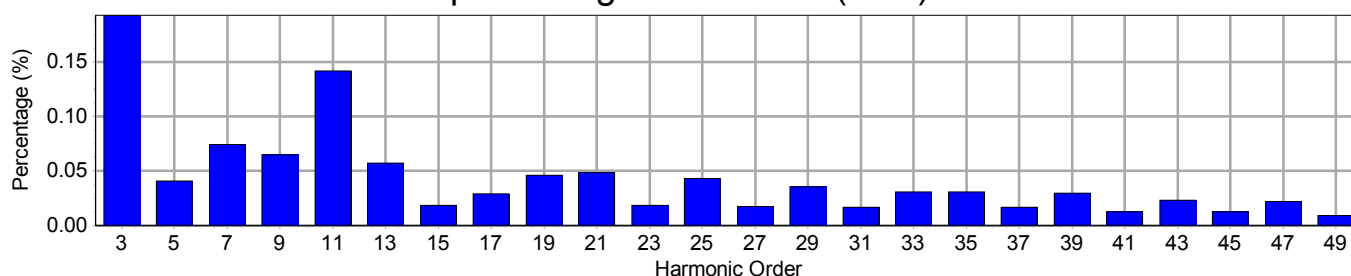
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Electrical Measurements

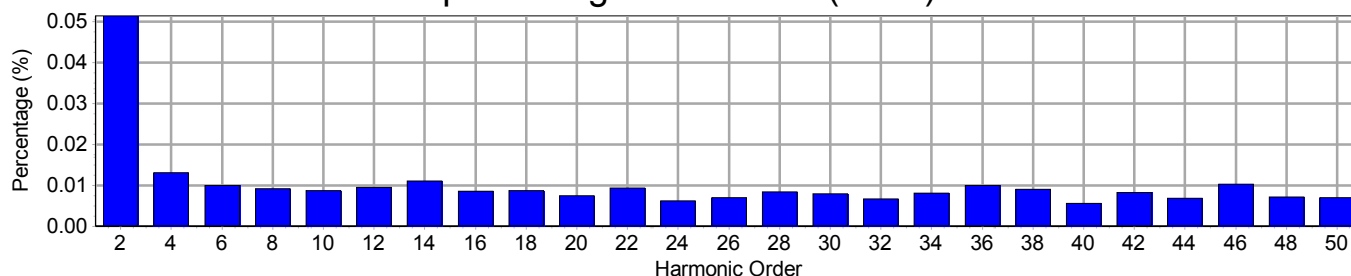
Input

Frequency	60 Hz	Active Power	59.46 W	THDV [ANSI]	0.30 %
Voltage	120.1 V(rms)	Apparent Power	59.63 VA	THDA [ANSI]	6.98 %
Current	0.4967 A(rms)	Power Factor	0.997	Max. Harmonic At	7th order

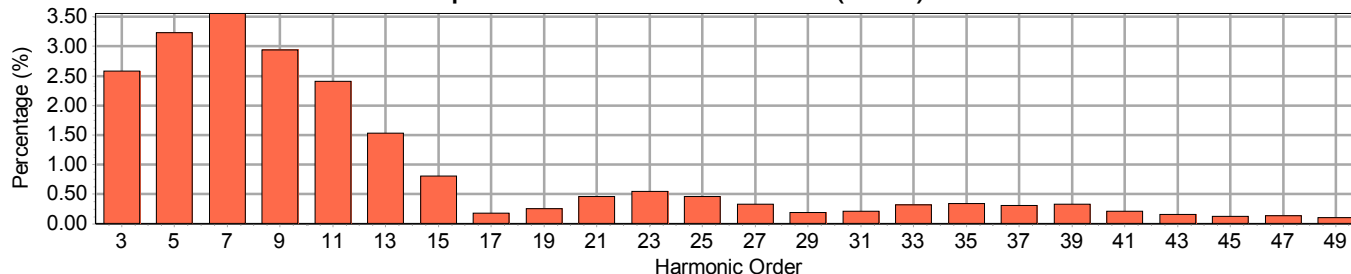
Input Voltage Harmonics (Odd)



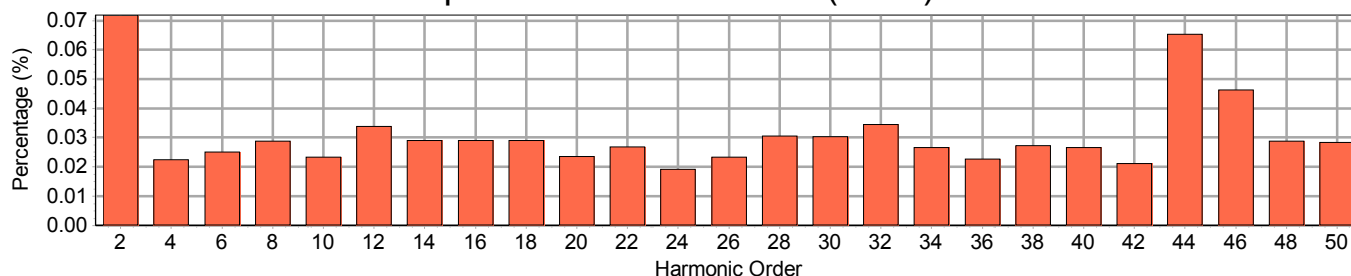
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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Harmonic Measurements

Odd Harmonics				Even Harmonics			
Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)	Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)
1	60	100.000	100.000	2	120	0.052	0.072
3	180	0.193	2.583	4	240	0.013	0.023
5	300	0.041	3.226	6	360	0.010	0.025
7	420	0.075	3.561	8	480	0.009	0.029
9	540	0.065	2.943	10	600	0.009	0.023
11	660	0.142	2.404	12	720	0.010	0.034
13	780	0.057	1.536	14	840	0.011	0.029
15	900	0.018	0.811	16	960	0.009	0.029
17	1020	0.029	0.174	18	1080	0.009	0.029
19	1140	0.046	0.250	20	1200	0.008	0.024
21	1260	0.049	0.457	22	1320	0.009	0.027
23	1380	0.019	0.545	24	1440	0.006	0.019
25	1500	0.043	0.456	26	1560	0.007	0.023
27	1620	0.018	0.328	28	1680	0.008	0.031
29	1740	0.036	0.191	30	1800	0.008	0.030
31	1860	0.017	0.210	32	1920	0.007	0.034
33	1980	0.031	0.324	34	2040	0.008	0.027
35	2100	0.031	0.340	36	2160	0.010	0.023
37	2220	0.017	0.312	38	2280	0.009	0.027
39	2340	0.030	0.335	40	2400	0.006	0.027
41	2460	0.012	0.209	42	2520	0.008	0.021
43	2580	0.023	0.159	44	2640	0.007	0.065
45	2700	0.013	0.129	46	2760	0.010	0.046
47	2820	0.022	0.141	48	2880	0.007	0.029
49	2940	0.009	0.104	50	3000	0.007	0.028



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NVLAP LAB CODE: 200899-0

Photometric Report: S1709083-R1

Prepared for: Arancia Lighting Inc · Test Date: 08 September 2017

Luminaire: Mini Jack · Lumcat: P90-I-04

Coefficients of Utilization - Zonal Cavity Method

RCR	RC				0.9				0.8				0.7				0.5			0.1			0
	RW	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0
0		110	110	110	110	95	95	95	95	82	82	82	82	56	56	56	11	11	11				1
1		100	95	91	87	87	83	79	76	74	71	68	65	49	47	45	10	9	9				1
2		91	83	76	70	79	72	66	62	67	62	57	53	43	40	37	8	8	8				0
3		83	73	64	58	72	63	56	51	61	54	49	44	37	34	31	7	7	6				0
4		76	64	55	49	65	56	48	43	56	48	42	37	33	29	26	6	6	5				0
5		69	56	48	41	60	49	42	36	51	42	36	32	29	25	22	6	5	5				0
6		64	50	41	35	55	44	36	31	47	38	32	27	26	22	19	5	4	4				0
7		58	45	36	30	50	39	32	27	43	34	28	23	23	20	17	5	4	3				0
8		54	40	32	26	47	35	28	23	40	30	24	20	21	17	14	4	4	3				0
9		50	36	28	23	43	32	25	20	37	28	22	18	19	15	13	4	3	3				0
10		46	33	25	20	40	29	22	18	34	25	19	16	17	14	11	3	3	2				0

Zonal Lumen Summary

Average Luminance (Cd/m²)

Zone	Lumens	% Lamp	% Luminaire	Angle	0 Degree	45 Degree	90 Degree
0 - 10	1	0.01	0.01				
10 - 20	2	0.04	0.04				
20 - 30	3	0.07	0.07				
30 - 40	4	0.10	0.10	45.0	162	159	153
40 - 50	5	0.11	0.11				
50 - 60	6	0.13	0.13	55.0	184	185	180
60 - 70	6	0.13	0.13				
70 - 80	6	0.13	0.13	65.0	213	217	250
80 - 90	6	0.15	0.15				
90 - 120	816	18.35	18.35	75.0	384	386	288
90 - 130	1474	33.17	33.17				
90 - 150	3063	68.94	68.94	85.0	1013	888	1011
90 - 180	4405	99.13	99.13				
0 - 180	4443	100.00	100.00				

Luminaire Luminous Flux: 4443

Measured Input Power: 59.46 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 74.7 lm/W

Luminaire Spacing Criterion (0 Degree): 1.4761

Luminaire Spacing Criterion (90 Degree): 1.4826

CIE Type: Indirect



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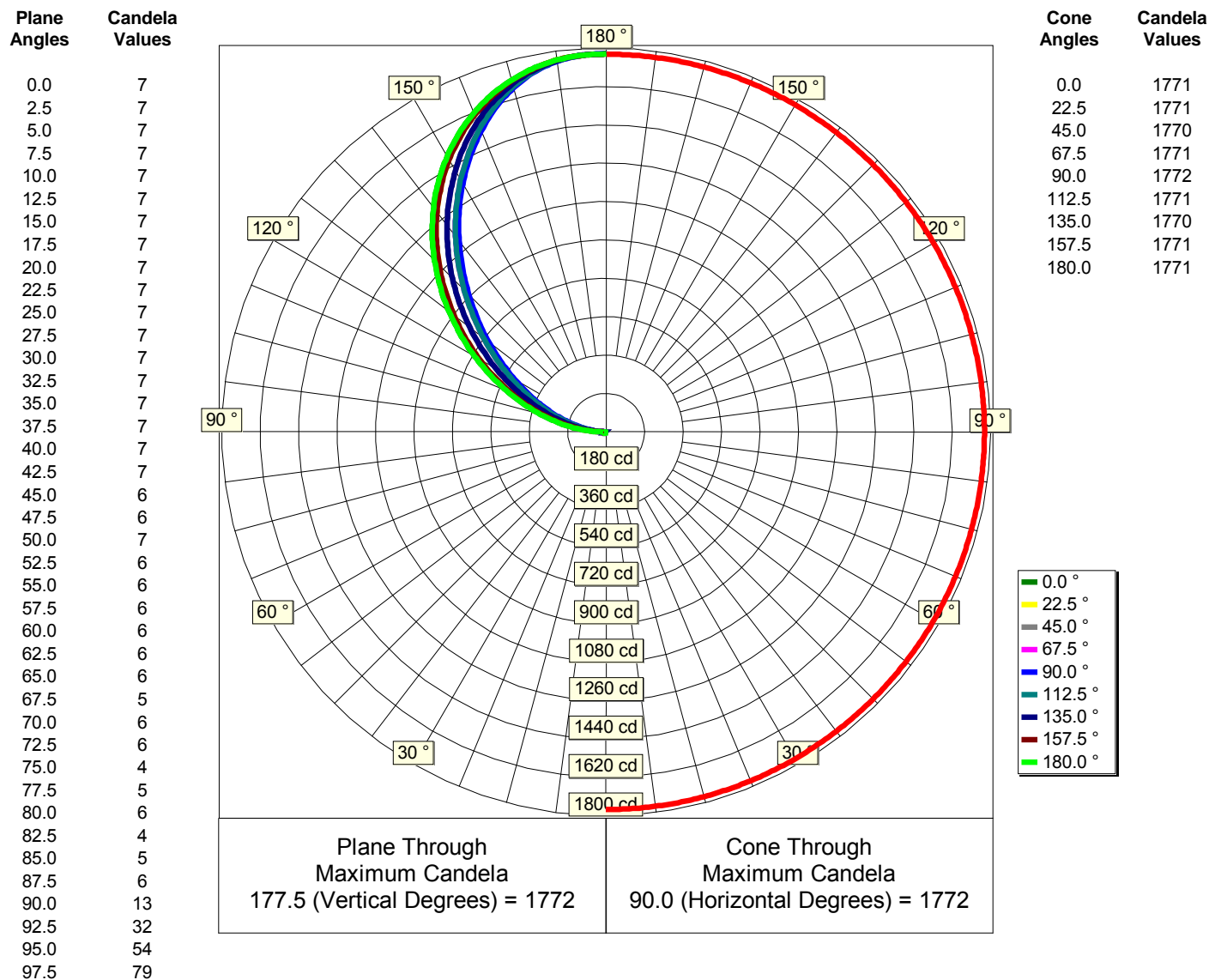
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Photometric Report: S1709083-R1

Prepared for: Arancia Lighting Inc · Test Date: 08 September 2017

Luminaire: Mini Jack · Lumcat: P90-I-04

Luminous Intensity - Polar Curve for each Plane(1)





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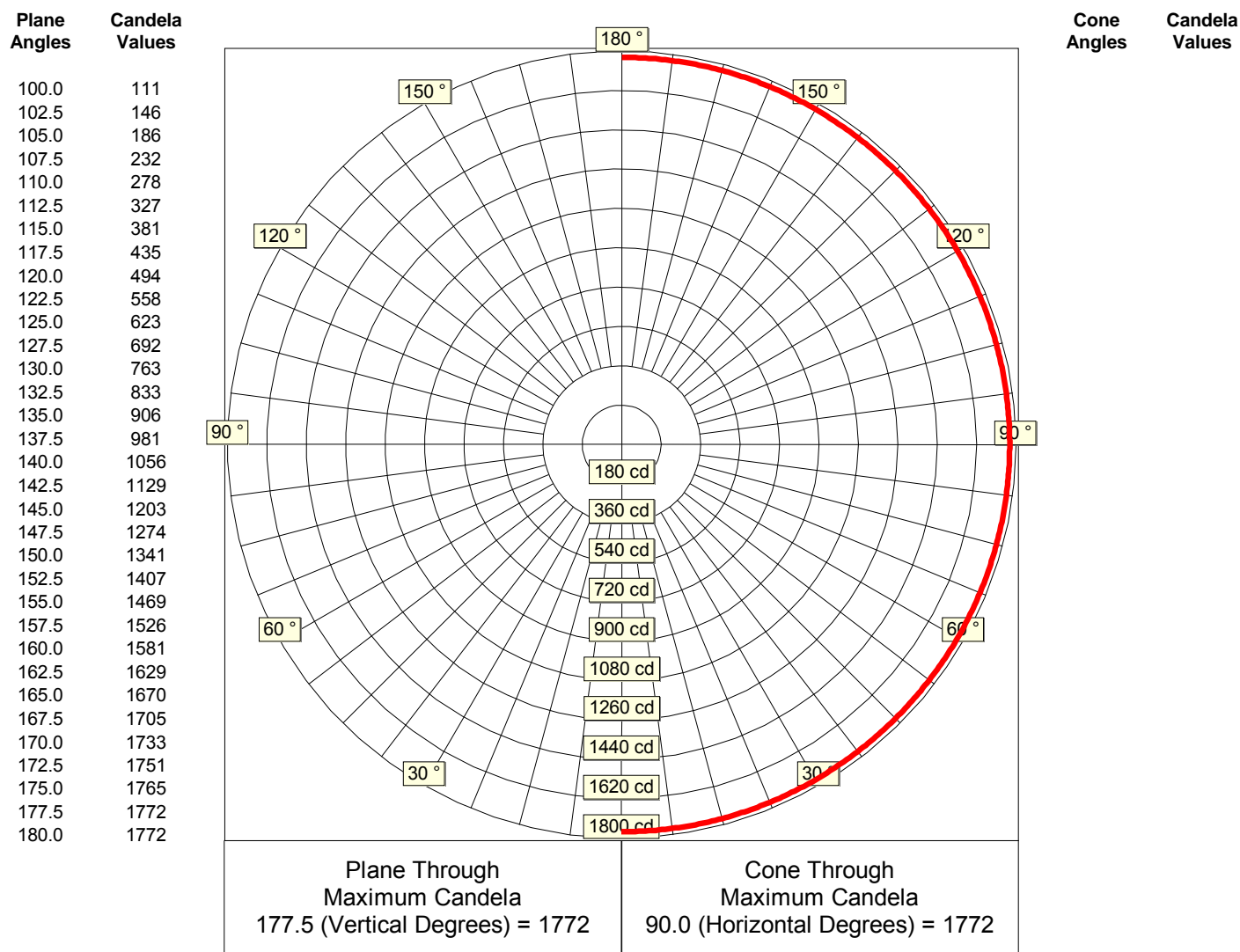
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Photometric Report: S1709083-R1

Prepared for: Arancia Lighting Inc · Test Date: 08 September 2017

Luminaire: Mini Jack · Lumcat: P90-I-04

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 08 September 2017
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1709083-R1
[MANUFAC] Arancia Lighting Inc
[LUMCAT] P90-I-04
[LUMINAIRE] Mini Jack
[LAMP] Clustetr of Osram Sylvania LEDs c/w HATCH Driver (2) XAC34-1050P-UNV-1 @ 120.00V
[_BURNING] Vertical Base Down (4,443 Luminaire Lumens)
[_REFLECTOR] None
[_LENS] Frosted Acrylic
[_HOUSING] Aluminum Sheet Metal
[_SKTPOSITION] SRIS 2849-2
[DISTRIBUTION] Indirect Type - Uplight

Candela Table

Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
V e r t i c a l	0.0	7	7	7	7	7	7	7	7
	2.5	7	7	7	7	7	7	7	7
	5.0	7	7	7	7	7	7	7	7
	7.5	7	7	7	7	7	7	7	7
	10.0	7	7	7	7	7	7	7	7
	12.5	7	7	7	7	7	7	7	7
	15.0	7	7	7	7	7	7	7	7
	17.5	7	7	7	7	7	7	7	7
	20.0	7	7	7	7	7	7	7	7
	22.5	7	7	7	7	7	7	7	7
	25.0	7	7	7	7	7	7	7	7
	27.5	7	7	7	7	7	7	7	7
	30.0	7	7	7	7	7	7	7	7
	32.5	7	7	7	7	7	7	7	7
	35.0	7	7	7	7	7	7	7	7
	37.5	7	7	7	7	7	7	7	7
	40.0	7	7	7	7	7	7	7	7
	42.5	7	7	7	7	7	7	7	7
	45.0	7	7	7	6	7	7	7	7
	47.5	6	6	7	6	7	7	6	6
A n g l e s	50.0	6	6	6	7	7	6	6	6
	52.5	7	6	6	6	6	6	6	7
	55.0	6	6	6	6	6	6	6	6
	57.5	6	6	6	6	6	6	6	6
	60.0	6	6	6	6	6	6	6	6
	62.5	6	6	6	6	6	6	6	6
	65.0	5	6	5	6	6	5	6	5
	67.5	6	6	6	5	5	6	6	6
	70.0	6	6	5	5	5	5	6	6
	72.5	5	6	5	6	6	5	6	5
	75.0	6	5	6	5	4	6	5	6
	77.5	5	5	5	5	5	5	5	5
	80.0	4	5	5	6	6	5	5	4
	82.5	6	5	6	5	4	6	5	6
	85.0	5	5	5	4	5	4	5	5
	87.5	4	5	4	6	6	4	5	4
	90.0	29	16	15	14	13	14	16	29



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Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
V e r t i c a l	92.5	69	51	33	32	32	33	51	69
	95.0	110	95	63	57	54	63	95	110
	97.5	157	141	103	85	79	85	141	157
	100.0	208	190	144	118	111	144	190	208
	102.5	259	244	190	159	146	159	244	259
	105.0	317	300	240	201	186	201	300	317
	107.5	377	358	290	247	232	247	358	377
	110.0	439	421	345	297	278	297	421	439
	112.5	505	484	406	348	327	348	484	505
	115.0	573	550	467	402	381	402	550	573
	117.5	640	619	531	462	435	462	619	640
	120.0	711	686	598	522	494	522	686	711
	122.5	783	755	664	587	558	587	755	783
	125.0	854	826	732	656	623	656	826	854
	127.5	926	896	803	724	692	724	896	926
	130.0	997	966	875	793	763	793	966	997
	132.5	1067	1036	946	865	833	865	1036	1067
	135.0	1135	1105	1018	938	906	938	1105	1135
A n g l e s	137.5	1202	1171	1088	1011	981	1011	1171	1202
	140.0	1265	1238	1155	1086	1056	1086	1238	1265
	142.5	1326	1301	1222	1158	1129	1158	1301	1326
	145.0	1384	1359	1288	1228	1203	1228	1359	1384
	147.5	1438	1417	1351	1297	1274	1297	1417	1438
	150.0	1489	1471	1412	1363	1341	1363	1471	1489
	152.5	1537	1520	1471	1425	1407	1425	1520	1537
	155.0	1580	1566	1523	1486	1469	1486	1566	1580
	157.5	1618	1607	1573	1541	1526	1541	1607	1618
	160.0	1652	1642	1618	1592	1581	1592	1642	1652
	162.5	1682	1676	1655	1638	1629	1638	1676	1682
	165.0	1708	1704	1689	1677	1670	1677	1704	1708
	167.5	1729	1725	1717	1708	1705	1708	1725	1729
	170.0	1746	1745	1738	1735	1733	1735	1745	1746
	172.5	1758	1759	1755	1754	1751	1754	1759	1758
	175.0	1767	1766	1767	1765	1765	1767	1766	1767
	177.5	1771	1771	1770	1771	1772	1771	1771	1771
	180.0	1772	1772	1772	1772	1772	1772	1772	1772