



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
NVLAP LAB CODE: 200899-0

Moving Mirror Goniophotometer Test Report

Standard(s): , IESNA LM-35-02, IES LM-79-08, ANSI C82.77-2002

Customer Lumenpulse, 1751 Richardson, suite 1505, Montréal, Québec, Canada, H3K 1G6

General Information		SSL Details	Driver Details	
Test Report	S1607054-R1	Description	72W White 2200K SSL	Type Commercial
Test Date	5 July 2016	Serial Number	SRIS 2442	Description 71SSL-CY1101
Report Date	8 July 2016	Photometric Method	Absolute	Manufacturer Mean Well
Ambient	25.7 °C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	34.4 %	Test Position	Axial	Voltage Tap 120.00 V
Lamp Type	SSL	Comments	Clusters of CREE XPE2 LED's	Power Factor 0.9900

Floodlight Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	48 Collimators Acrylic	X 4.0000
Name	LUMENFACADE	Housing	Extruded Aluminum	Y 0.1667
Catalog No.	LOG-HO-120-48-22K-10x60-SI-NO	Lens	Glass/Polycarbonate	Z 0.0000

Lamp Stabilization Time: 55 minutes

Tested By: George Hedrei

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	iRDC	CIF-3000A	974997	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	91L236539	2016/05/05	2017/05/05
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	2015/10/05	2016/10/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	051202970	2014/10/24	2016/10/24



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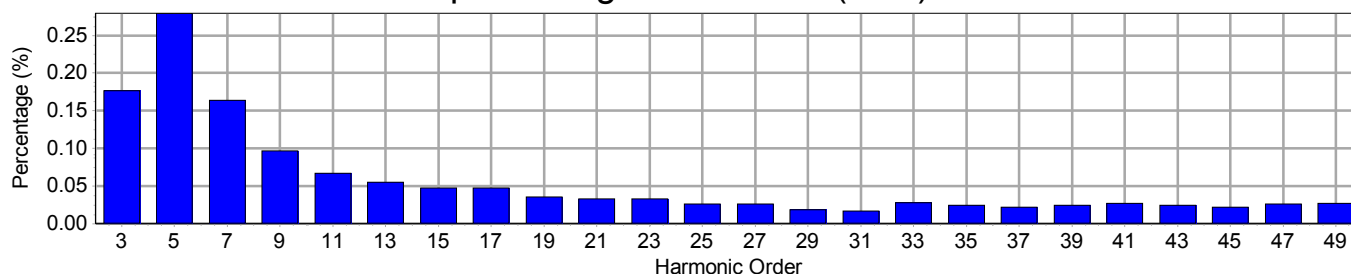
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Electrical Measurements

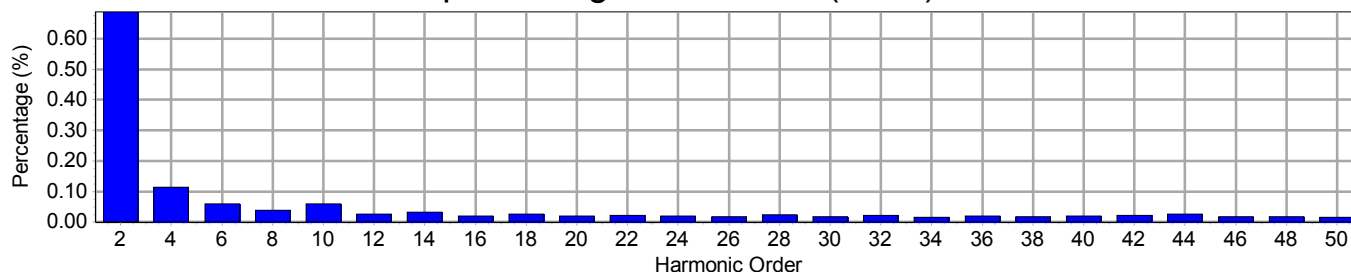
Input

Frequency	60 Hz	Active Power	61.43 W	THDV [ANSI]	0.82 %
Voltage	120.1 V(rms)	Apparent Power	61.86 VA	THDA [ANSI]	4.97 %
Current	0.5150 A(rms)	Power Factor	0.993	Max. Harmonic At	5th order

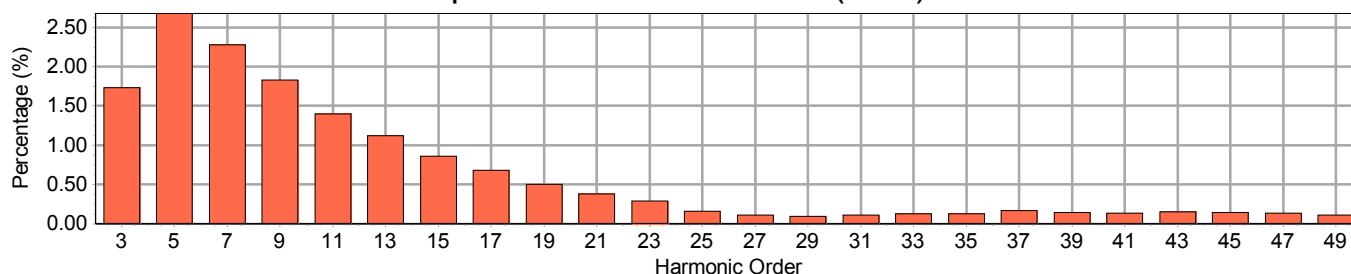
Input Voltage Harmonics (Odd)



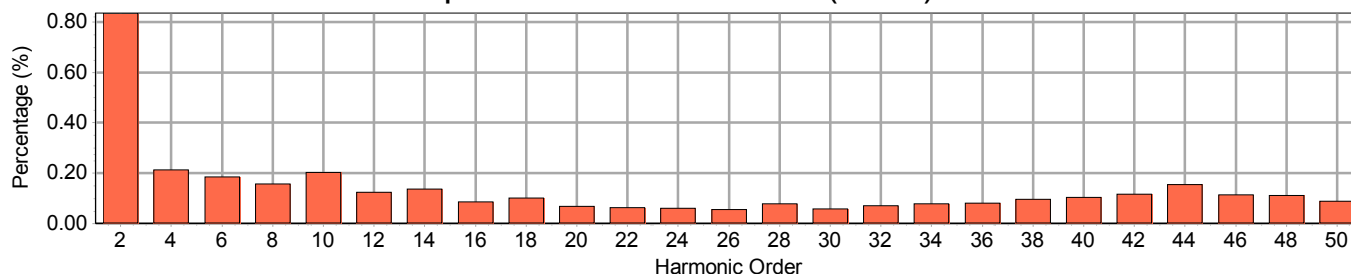
Input Voltage Harmonics (Even)



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	0.688	0.837
3	180	0.177	1.731	4	240	0.113	0.212
5	300	0.280	2.680	6	360	0.059	0.185
7	420	0.164	2.276	8	480	0.038	0.157
9	540	0.097	1.830	10	600	0.059	0.201
11	660	0.066	1.401	12	720	0.026	0.124
13	780	0.055	1.123	14	840	0.033	0.135
15	900	0.048	0.858	16	960	0.021	0.086
17	1020	0.048	0.677	18	1080	0.027	0.101
19	1140	0.035	0.504	20	1200	0.019	0.068
21	1260	0.033	0.376	22	1320	0.021	0.063
23	1380	0.033	0.289	24	1440	0.020	0.060
25	1500	0.026	0.161	26	1560	0.018	0.054
27	1620	0.026	0.108	28	1680	0.024	0.077
29	1740	0.019	0.090	30	1800	0.019	0.058
31	1860	0.016	0.106	32	1920	0.023	0.071
33	1980	0.027	0.125	34	2040	0.016	0.076
35	2100	0.025	0.127	36	2160	0.019	0.080
37	2220	0.021	0.169	38	2280	0.018	0.095
39	2340	0.025	0.140	40	2400	0.020	0.102
41	2460	0.026	0.135	42	2520	0.022	0.116
43	2580	0.024	0.148	44	2640	0.027	0.153
45	2700	0.021	0.140	46	2760	0.018	0.114
47	2820	0.026	0.137	48	2880	0.019	0.110
49	2940	0.027	0.110	50	3000	0.016	0.088



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Photometric Report: S1607054-R1

Prepared for: Lumenpulse · Test Date: 05 July 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-22K-10x60-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	72.00 W	
Measured Input Voltage	120.13 V	Notes
Test SSL Current	0.300 A	1) Floodlight tested in accordance to IES LM-35-1989 at a distance great enough so that the inverse-square law applies.
Floodlight Luminous Flux	2168	
Measured Input Power	61.43 W	
Floodlight Luminous Efficacy	35.3 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	9809	
Maximum Candela Location	5.0 H, -0.5 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	67.0 °	
Vertical Beam Angle (50%)	9.0 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	96.0 °	
Vertical Field Angle (10%)	21.5 °	5) The original electronic file or paper report cannot be edited in whole or in part without written consent of Spectralux Industries Inc.
IES/NEMA Type Classification	5Hx2V	
Beam Lumens (50%)	1096	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	1825	
Field Efficiency (10%)	N/A	
Spill Lumens	343	
Total Floodlight Lumens	2168	
Total Floodlight Efficiency	N/A	



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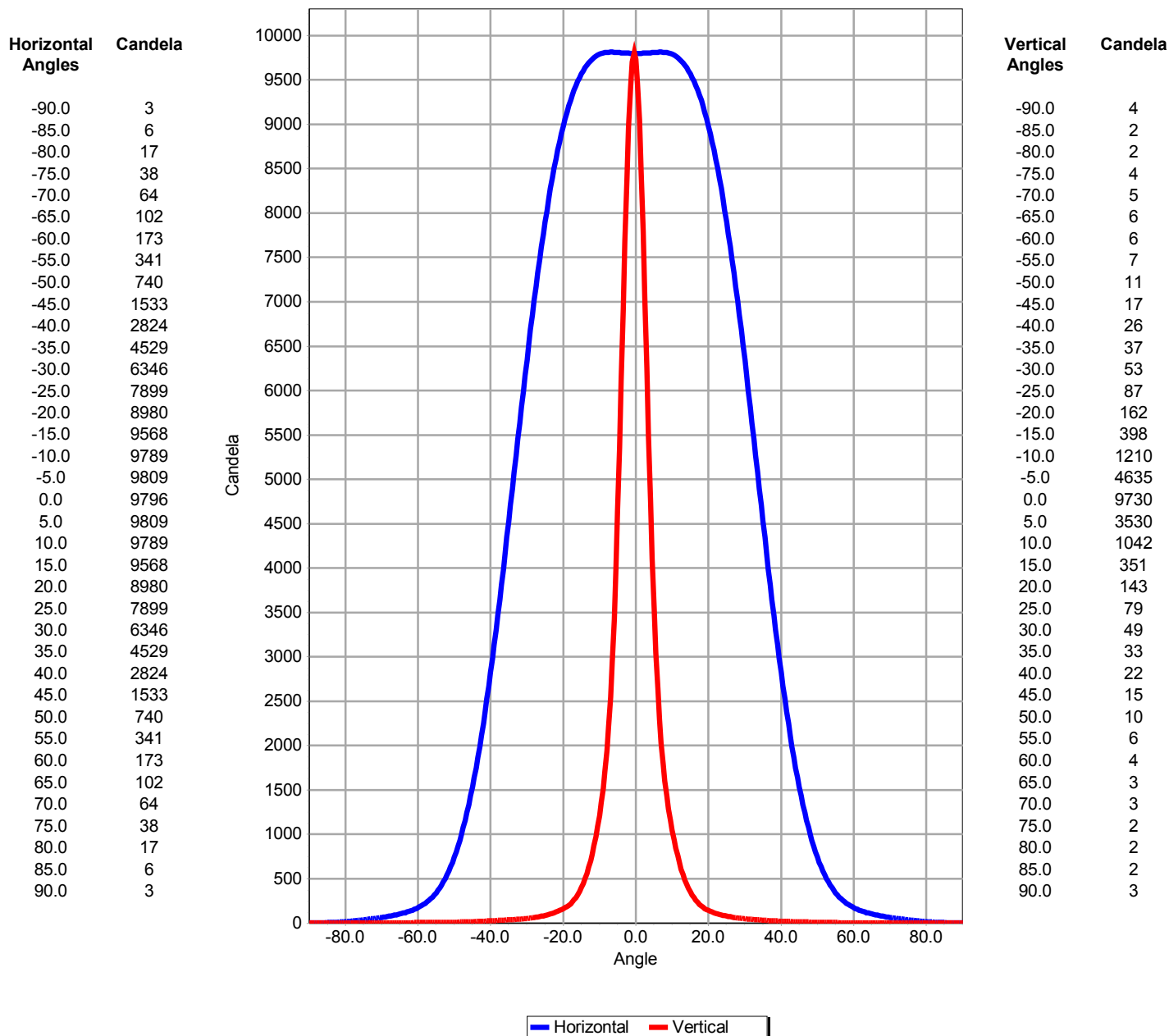
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Maximum Candela Trace (Max. Location: 5.0 H, -0.5 V)





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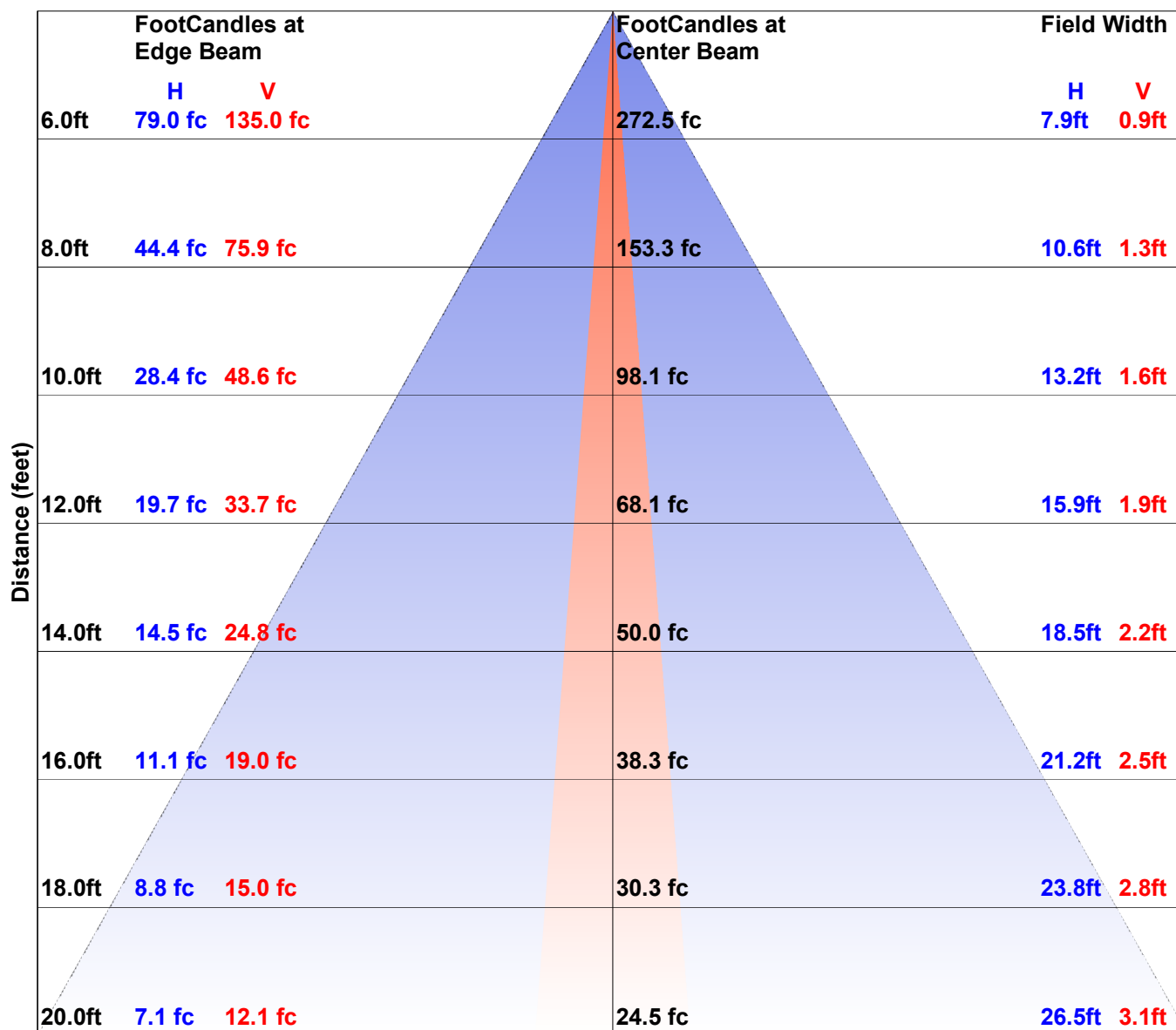
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Photometric Report: S1607054-R1

Prepared for: Lumenpulse · Test Date: 05 July 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-22K-10x60-SI-NO

Downlight Beam



— Horizontal (67.0 °) — Vertical (9.0 °)



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Uplight Beam



— Horizontal (67.0 °) — Vertical (9.0 °)



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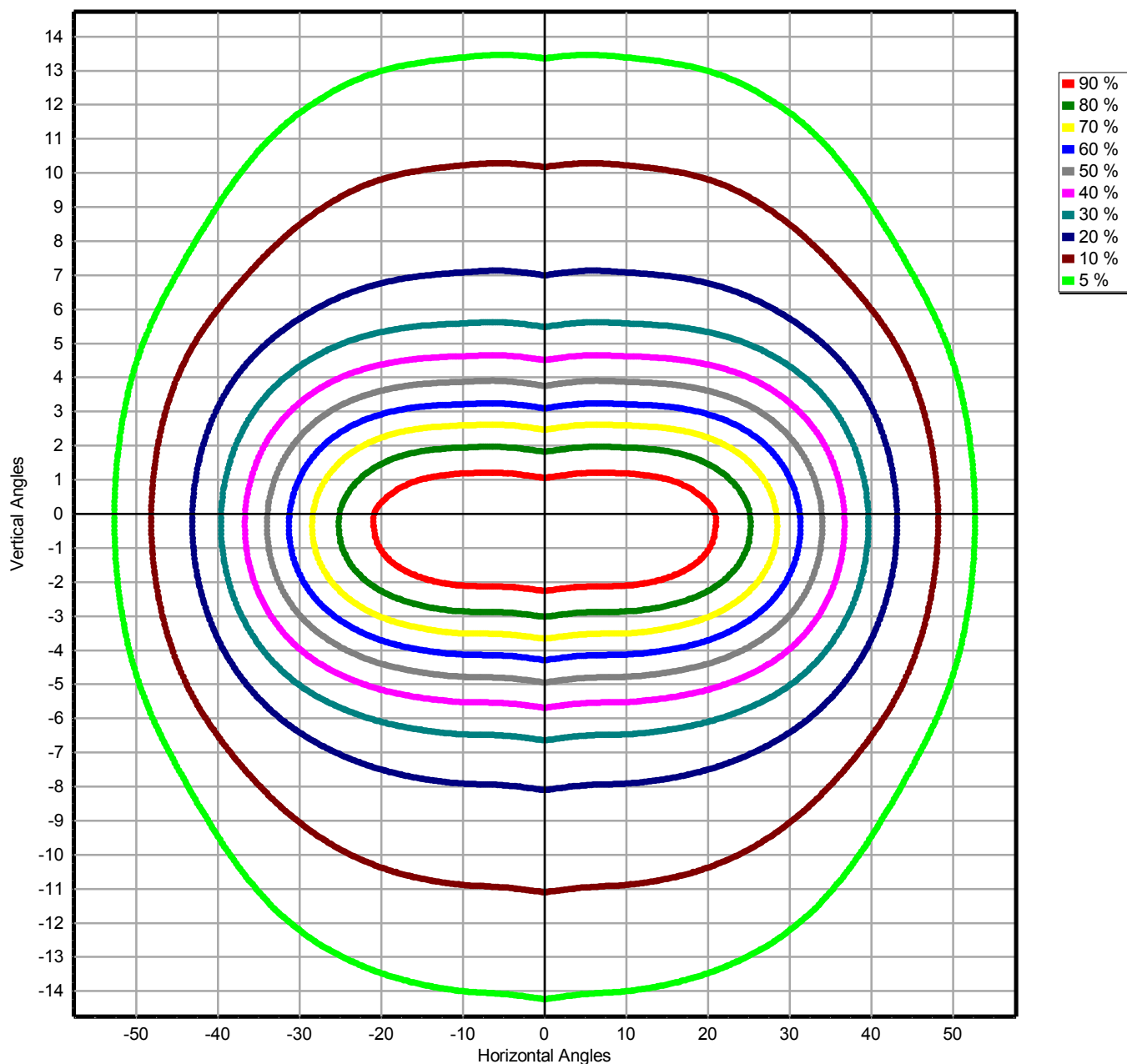
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ISO Candela Diagram





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 05 July 2016
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1607054-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOG-HO-120-48-22K-10x60-SI-NO
[LUMINAIRE] LUMENFACADE
[LAMP] (Clusters of CREE XPE2 LED's) White 72W SSL c/w Mean Well Driver LPF-60-24 @ 120.00V
[_BURNING] Axial (2,168 Luminaire Lumens)
[_REFLECTOR] 48 Collimators Acrylic
[_LENS] Glass/Polycarbonate
[_HOUSING] Extruded Aluminum
[_SKTPOSITION] None
[DISTRIBUTION] NEMA 5Hx2V (Max. CP at 5.0H,-0.5V)
[MORE] (Based on IES LM-35-1989)

Candela Table

Horizontal Angles

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
V e r t i c a l A n g l e s	-90.0	4	4	4	4	4	4	4	4
	-85.0	3	2	1	2	2	3	3	4
	-75.0	3	4	3	5	4	4	5	4
	-65.0	4	6	4	5	4	4	6	5
	-55.0	8	7	7	7	7	7	8	6
	-45.0	17	17	16	15	13	13	13	11
	-35.0	35	37	38	36	32	32	29	26
	-25.0	88	87	87	84	81	77	65	58
	-20.0	164	162	159	154	146	136	124	94
	-15.0	413	398	390	374	347	310	266	170
	-12.5	724	700	688	658	613	544	461	271
	-12.0	808	780	767	736	685	609	514	298
	-11.5	899	871	856	822	765	680	575	328
	-11.0	1003	972	956	918	854	759	638	364
	-10.5	1122	1083	1067	1026	954	847	712	399
	-10.0	1251	1210	1193	1146	1066	948	795	440
	-9.5	1401	1355	1335	1283	1195	1060	886	487
	-9.0	1573	1519	1497	1441	1342	1190	994	538
	-8.5	1775	1712	1689	1627	1514	1342	1121	602
	-8.0	2014	1941	1916	1845	1716	1522	1269	675
	-7.5	2305	2216	2188	2108	1962	1737	1447	761
	-7.0	2650	2544	2515	2422	2254	1996	1659	865
	-6.5	3073	2945	2912	2804	2608	2306	1912	984
	-6.0	3573	3421	3384	3262	3033	2676	2214	1123
	-5.5	4157	3983	3945	3801	3533	3114	2565	1281
	-5.0	4831	4635	4594	4428	4113	3616	2964	1452
	-4.5	5566	5353	5310	5124	4758	4174	3406	1636
	-4.0	6345	6126	6083	5878	5464	4787	3886	1829
	-3.5	7127	6912	6870	6647	6185	5415	4379	2025
	-3.0	7882	7682	7642	7412	6904	6043	4874	2220
	-2.5	8546	8377	8343	8103	7562	6624	5333	2402
	-2.0	9103	8971	8941	8700	8131	7130	5731	2562
	-1.5	9505	9419	9394	9155	8571	7521	6045	2690
	-1.0	9739	9703	9681	9450	8859	7785	6253	2780
	-0.5	9796	9809	9789	9568	8980	7899	6346	2824



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Horizontal Angles

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	
V e r t i c a l	0.0	9665	9730	9711	9525	8980	7882	6319	4515	2820
	0.5	9355	9469	9452	9258	8721	7685	6170	4418	2768
	1.0	8890	9043	9024	8846	8326	7344	5910	4244	2674
	1.5	8286	8470	8451	8289	7805	6892	5559	4009	2541
	2.0	7582	7790	7770	7624	7185	6355	5136	3723	2381
	2.5	6820	7039	7014	6884	6491	5752	4665	3405	2202
	3.0	6037	6257	6228	6118	5772	5126	4174	3074	2011
	3.5	5273	5479	5453	5353	5057	4501	3686	2739	1815
	4.0	4568	4758	4732	4643	4390	3918	3224	2418	1626
	4.5	3936	4100	4074	3997	3782	3382	2800	2118	1442
	5.0	3390	3530	3506	3435	3254	2916	2423	1846	1272
	5.5	2928	3043	3021	2956	2800	2512	2094	1605	1117
	6.0	2541	2638	2615	2557	2421	2172	1815	1398	979
	6.5	2221	2299	2279	2225	2106	1891	1582	1221	861
	7.0	1960	2025	2004	1952	1847	1657	1388	1073	762
	7.5	1740	1793	1773	1728	1633	1463	1228	953	678
	8.0	1553	1597	1581	1539	1454	1304	1093	849	607
A n g l e s	8.5	1394	1433	1416	1377	1300	1164	978	761	546
	9.0	1255	1287	1272	1237	1167	1044	878	687	495
	9.5	1128	1157	1143	1110	1048	939	791	620	449
	10.0	1017	1042	1028	997	942	844	712	558	408
	10.5	915	938	926	899	847	758	641	506	370
	11.0	821	843	831	806	761	682	577	457	336
	11.5	739	758	748	724	683	612	519	411	306
	12.0	663	681	671	649	611	547	465	373	277
	12.5	593	609	599	580	547	491	419	334	251
	15.0	342	351	343	333	312	282	244	202	159
	20.0	140	143	143	139	134	126	115	102	87
	25.0	78	79	79	77	75	71	67	61	56
	35.0	32	33	34	32	32	31	28	26	24
	45.0	15	15	15	15	13	13	13	13	12
	55.0	6	6	5	7	8	6	7	7	7
	65.0	5	3	5	4	5	4	4	5	3
	75.0	4	2	2	4	3	3	3	3	4
85.0	0	2	2	2	3	2	3	2	4	
90.0	3	3	3	3	3	3	3	3	3	



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Horizontal Angles

	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
V e r t i c a l A n g l e s	-90.0	4	4	4	4	4	4	4	4
	-85.0	2	4	4	6	5	5	5	5
	-75.0	4	3	4	4	6	5	4	3
	-65.0	5	5	4	6	5	4	5	3
	-55.0	6	6	7	6	6	5	4	5
	-45.0	12	9	8	8	7	5	4	4
	-35.0	23	19	16	14	11	7	6	4
	-25.0	50	44	35	27	22	14	9	7
	-20.0	76	63	50	39	29	21	14	7
	-15.0	129	95	72	54	38	28	17	9
	-12.5	191	131	93	66	47	33	22	11
	-12.0	207	142	98	69	48	34	21	10
	-11.5	227	153	103	71	49	33	23	13
	-11.0	247	163	109	75	52	36	24	12
	-10.5	269	177	115	78	55	38	23	11
	-10.0	294	190	122	81	56	37	24	14
	-9.5	322	204	129	87	59	40	27	13
	-9.0	352	221	139	91	61	42	26	13
	-8.5	389	240	147	95	63	42	27	15
	-8.0	430	261	159	101	67	44	28	15
	-7.5	481	288	170	106	70	46	29	13
	-7.0	539	317	182	111	73	47	30	16
	-6.5	606	350	198	120	77	50	31	16
	-6.0	683	386	213	125	79	53	31	14
	-5.5	768	425	230	131	83	53	32	17
	-5.0	858	466	247	140	87	56	33	17
	-4.5	952	507	263	146	89	58	35	16
	-4.0	1049	548	278	151	91	57	35	18
	-3.5	1145	588	292	157	94	60	36	18
	-3.0	1239	625	305	161	95	61	35	17
	-2.5	1325	658	317	164	98	61	37	18
	-2.0	1401	688	326	168	100	63	37	18
	-1.5	1464	712	334	170	100	64	36	17
	-1.0	1509	729	340	172	101	63	38	18
	-0.5	1533	740	341	173	102	64	38	17
	0.0	1534	740	344	173	101	65	36	16
	0.5	1515	733	343	172	101	63	37	18
	1.0	1472	720	337	173	101	64	37	18
	1.5	1414	697	332	170	100	63	36	17
	2.0	1341	671	322	166	97	63	37	18
	2.5	1257	640	312	163	97	62	37	18
	3.0	1167	603	301	158	96	61	35	17
	3.5	1071	564	286	153	92	59	35	17
	4.0	975	526	271	148	90	59	34	17
	4.5	880	483	256	142	88	57	33	16
	5.0	789	441	239	134	84	54	33	17
	5.5	703	401	222	128	81	54	31	16
	6.0	624	363	207	122	78	51	31	15
	6.5	555	329	191	114	75	50	31	16
	7.0	495	299	176	109	71	49	29	15
	7.5	445	271	164	102	68	46	27	13
	8.0	402	249	152	96	64	44	28	14
	8.5	365	229	141	92	62	43	26	14
	9.0	332	210	133	87	59	41	24	13



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Horizontal Angles

	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	
V e r t i c a l	9.5	304	195	125	82	55	39	25	13	4
	10.0	279	181	117	79	55	38	23	13	5
	10.5	255	168	112	76	53	35	22	11	5
	11.0	234	156	105	71	49	35	23	11	3
	11.5	215	146	98	69	48	34	21	12	5
	12.0	197	135	94	66	47	32	19	10	5
	12.5	181	126	88	62	44	30	20	11	4
	15.0	121	91	68	51	37	25	16	9	5
	20.0	73	58	47	36	27	18	13	5	3
	25.0	48	41	34	28	22	15	10	6	4
	35.0	24	19	16	14	10	7	6	4	4
	45.0	11	10	9	8	6	6	5	5	6
	55.0	6	6	7	5	7	6	5	6	4
	65.0	4	5	5	5	3	5	5	5	5
	75.0	4	5	5	4	6	6	4	5	5
	85.0	4	3	4	5	5	5	5	3	3
	90.0	3	3	3	3	3	3	3	3	3
A n g l e s										



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

Horizontal Angles

90.0	
V e r t i c a l A n g l e s	-90.0 4
	-85.0 4
	-75.0 4
	-65.0 4
	-55.0 5
	-45.0 4
	-35.0 4
	-25.0 4
	-20.0 3
	-15.0 3
	-12.5 3
	-12.0 4
	-11.5 5
	-11.0 4
	-10.5 3
	-10.0 3
	-9.5 4
	-9.0 2
	-8.5 3
	-8.0 4
	-7.5 4
	-7.0 3
	-6.5 4
	-6.0 3
	-5.5 4
	-5.0 3
	-4.5 2
	-4.0 4
	-3.5 3
	-3.0 2
	-2.5 5
	-2.0 3
	-1.5 3
	-1.0 4
	-0.5 3
	0.0 4
	0.5 3
	1.0 3
	1.5 3
	2.0 4
	2.5 4
	3.0 4
	3.5 4
	4.0 4
	4.5 2
	5.0 4
	5.5 2
	6.0 2
	6.5 4
	7.0 3
	7.5 2
	8.0 4
	8.5 3
	9.0 2



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NVLAP[®]
NVLAP LAB CODE: 200899-0

Horizontal Angles

	90.0
	9.5
	10.0
	10.5
	11.0
	11.5
	12.0
	12.5
	15.0
	20.0
	25.0
	35.0
	45.0
	55.0
	65.0
	75.0
	85.0
	90.0
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