



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-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	S1512112-R1	Description	61W White 3000K SSL	Type Commercial
Test Date	11 December 2015	Serial Number	SRIS 2216	Description 61SSL-CY963
Report Date	17 December 2015	Photometric Method	Absolute	Manufacturer Mean Well
Ambient	25.4°C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	28.2 %	Test Position	Axial	Voltage Tap 120.00 V
Lamp Type	SSL	Comments	Clusters of 48 Cree XPE2 LED's	Power Factor 0.9900

Floodlight Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	48 Collimators	X 4.0000
Name	LUMENFACADE	Housing	Extruded Aluminum	Y 0.1667
Catalog No.	LOG-HO-120-48-30K-10x60-SI-NO	Lens	Polycarbonate	Z 0.0000

Lamp Stabilization Time: 1 hour, 15 minutes

Tested By: Marc Viwonou Sena

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	Elgar	CW801	30527	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2014/10/30	2016/10/30
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	120504178	2014/04/16	2016/04/16



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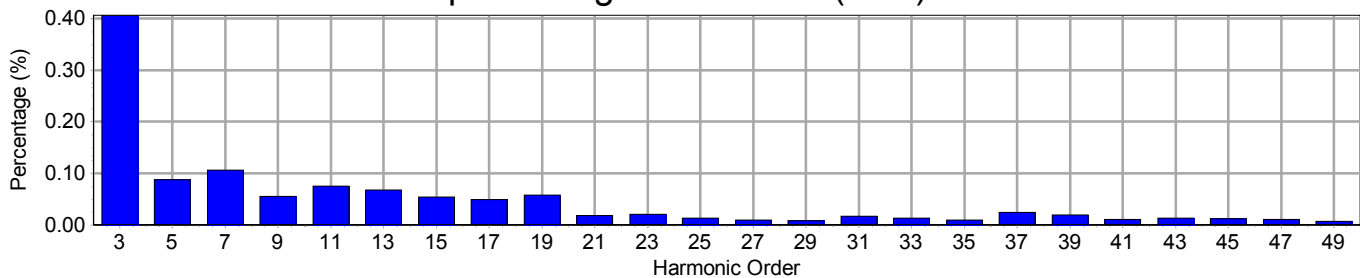
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Electrical Measurements

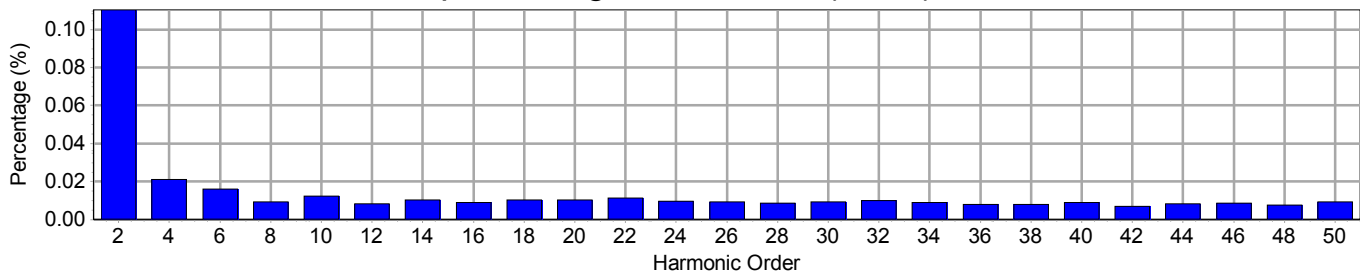
Input

Frequency	60 Hz	Active Power	61.36 W	THDV [ANSI]	0.47 %
Voltage	120.1 V(rms)	Apparent Power	61.67 VA	THDA [ANSI]	5.29 %
Current	0.5136 A(rms)	Power Factor	0.995	Max. Harmonic At	5th order

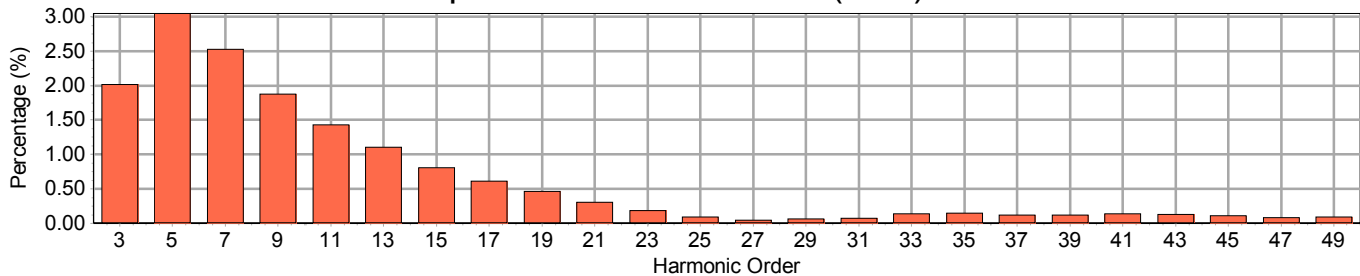
Input Voltage Harmonics (Odd)



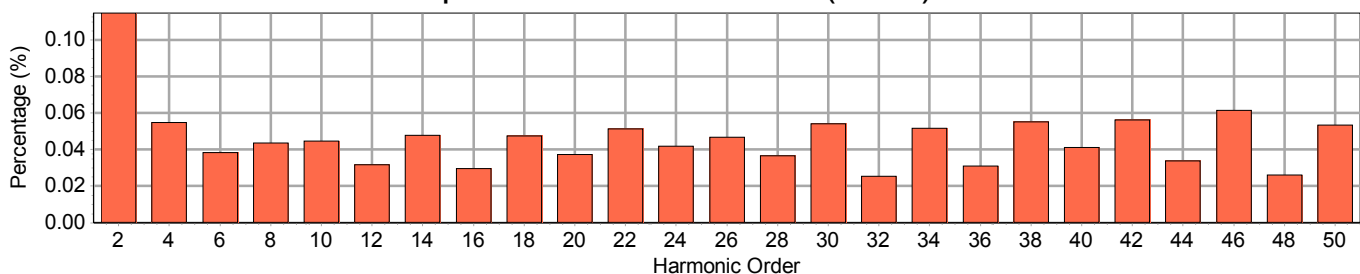
Input Voltage Harmonics (Even)



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	0.110	0.115
3	180	0.407	2.011	4	240	0.021	0.055
5	300	0.087	3.054	6	360	0.016	0.038
7	420	0.106	2.525	8	480	0.009	0.044
9	540	0.055	1.877	10	600	0.012	0.045
11	660	0.075	1.433	12	720	0.008	0.032
13	780	0.068	1.104	14	840	0.010	0.048
15	900	0.054	0.807	16	960	0.009	0.030
17	1020	0.049	0.613	18	1080	0.010	0.047
19	1140	0.058	0.456	20	1200	0.010	0.037
21	1260	0.018	0.299	22	1320	0.011	0.051
23	1380	0.021	0.184	24	1440	0.010	0.042
25	1500	0.013	0.084	26	1560	0.009	0.047
27	1620	0.009	0.045	28	1680	0.009	0.037
29	1740	0.008	0.065	30	1800	0.009	0.054
31	1860	0.017	0.073	32	1920	0.010	0.025
33	1980	0.014	0.138	34	2040	0.009	0.052
35	2100	0.009	0.142	36	2160	0.008	0.031
37	2220	0.024	0.116	38	2280	0.008	0.055
39	2340	0.019	0.118	40	2400	0.009	0.041
41	2460	0.010	0.133	42	2520	0.007	0.056
43	2580	0.013	0.123	44	2640	0.008	0.034
45	2700	0.012	0.109	46	2760	0.009	0.061
47	2820	0.011	0.078	48	2880	0.008	0.026
49	2940	0.007	0.086	50	3000	0.009	0.053



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NVLAP LAB CODE: 200899-0

Photometric Report: S1512112-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-30K-10x60-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	61.00 W	
Measured Input Voltage	120.07 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	3086	
Measured Input Power	61.36 W	
Floodlight Luminous Efficacy	50.3 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	13768	
Maximum Candela Location	0.0 H, 0.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	66.0 °	
Vertical Beam Angle (50%)	9.5 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	95.0 °	
Vertical Field Angle (10%)	22.0 °	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%)	1554	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	2584	
Field Efficiency (10%)	N/A	
Spill Lumens	503	
Total Floodlight Lumens	3086	
Total Floodlight Efficiency	N/A	



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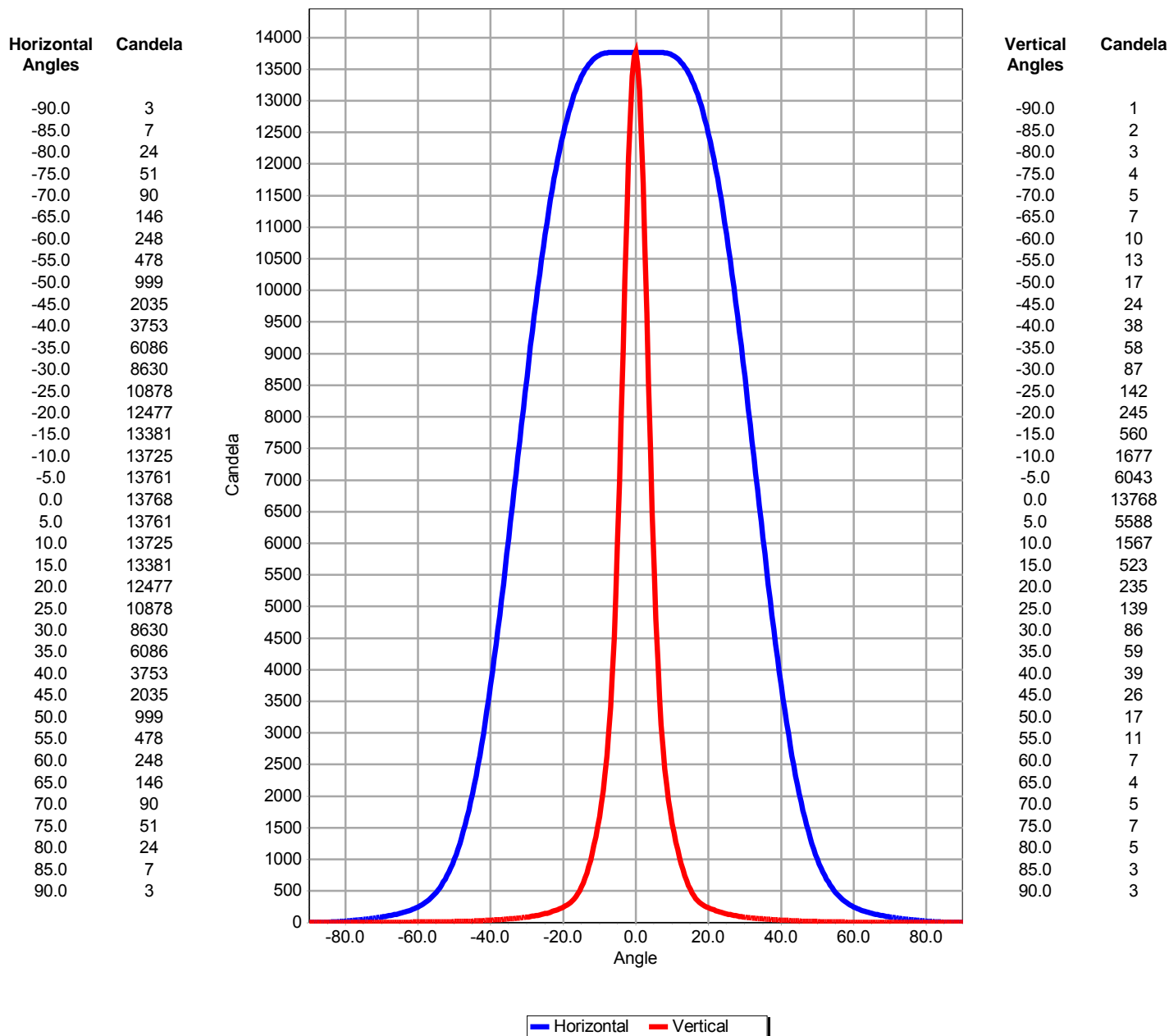
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Prepared for: Lumenpulse · Test Date: 11 December 2015

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Maximum Candela Trace (Max. Location: 0.0 H, 0.0 V)





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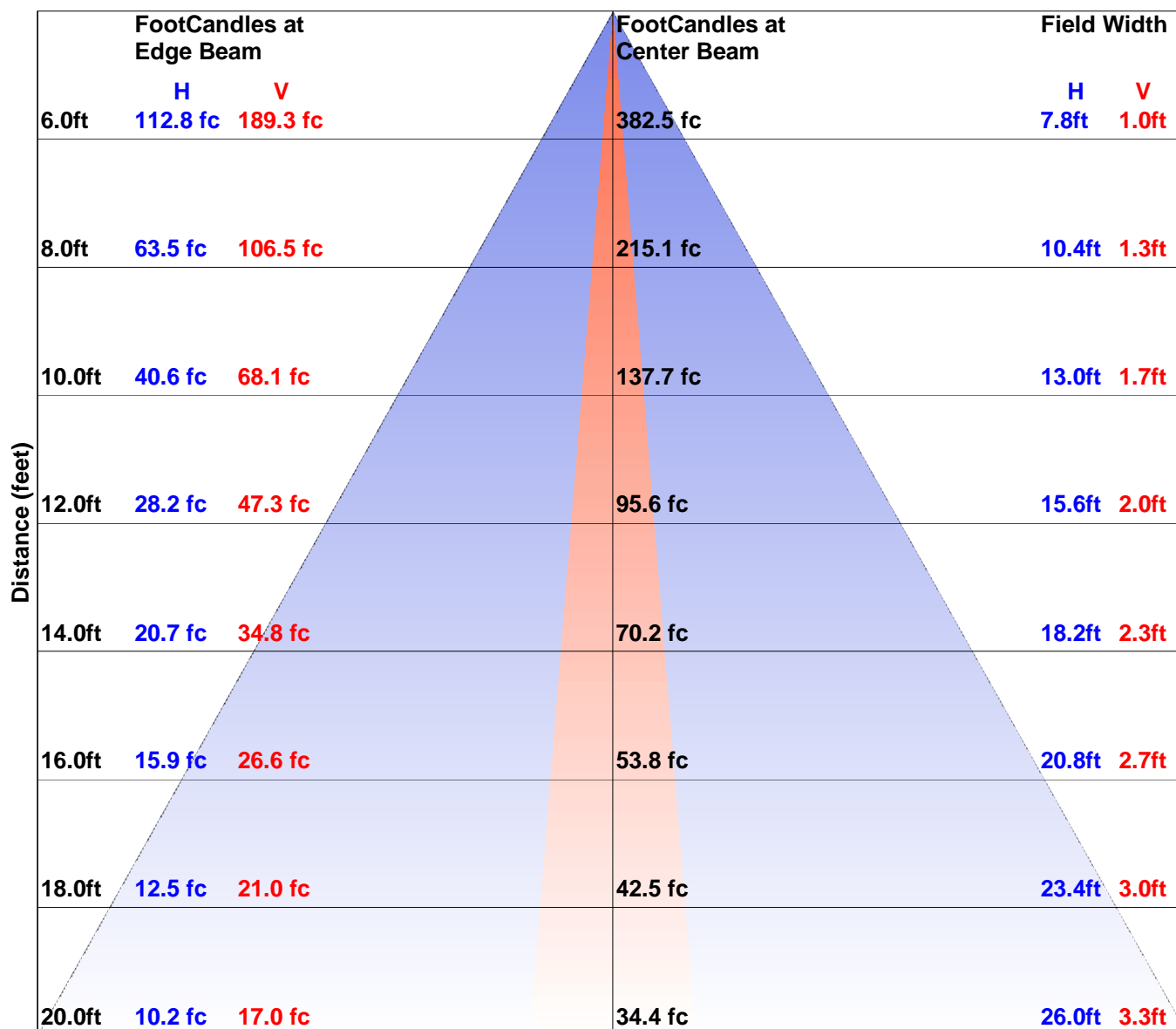
NVLAP LAB CODE: 200899-0

Photometric Report: S1512112-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-30K-10x60-SI-NO

Downlight Beam



— Horizontal (66.0 °) — Vertical (9.5 °)



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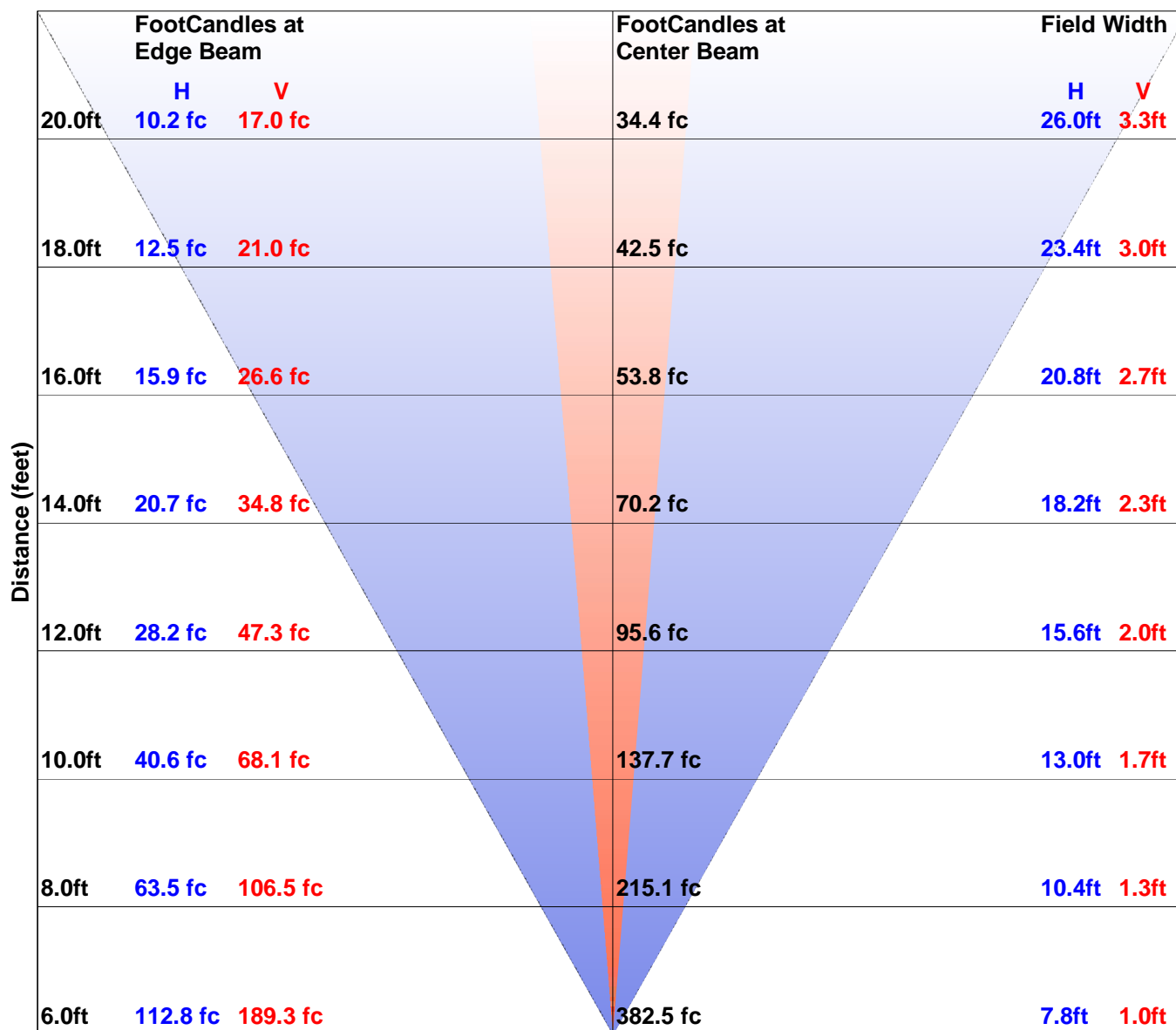
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Photometric Report: S1512112-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-30K-10x60-SI-NO

Uplight Beam



— Horizontal (66.0 °) — Vertical (9.5 °)



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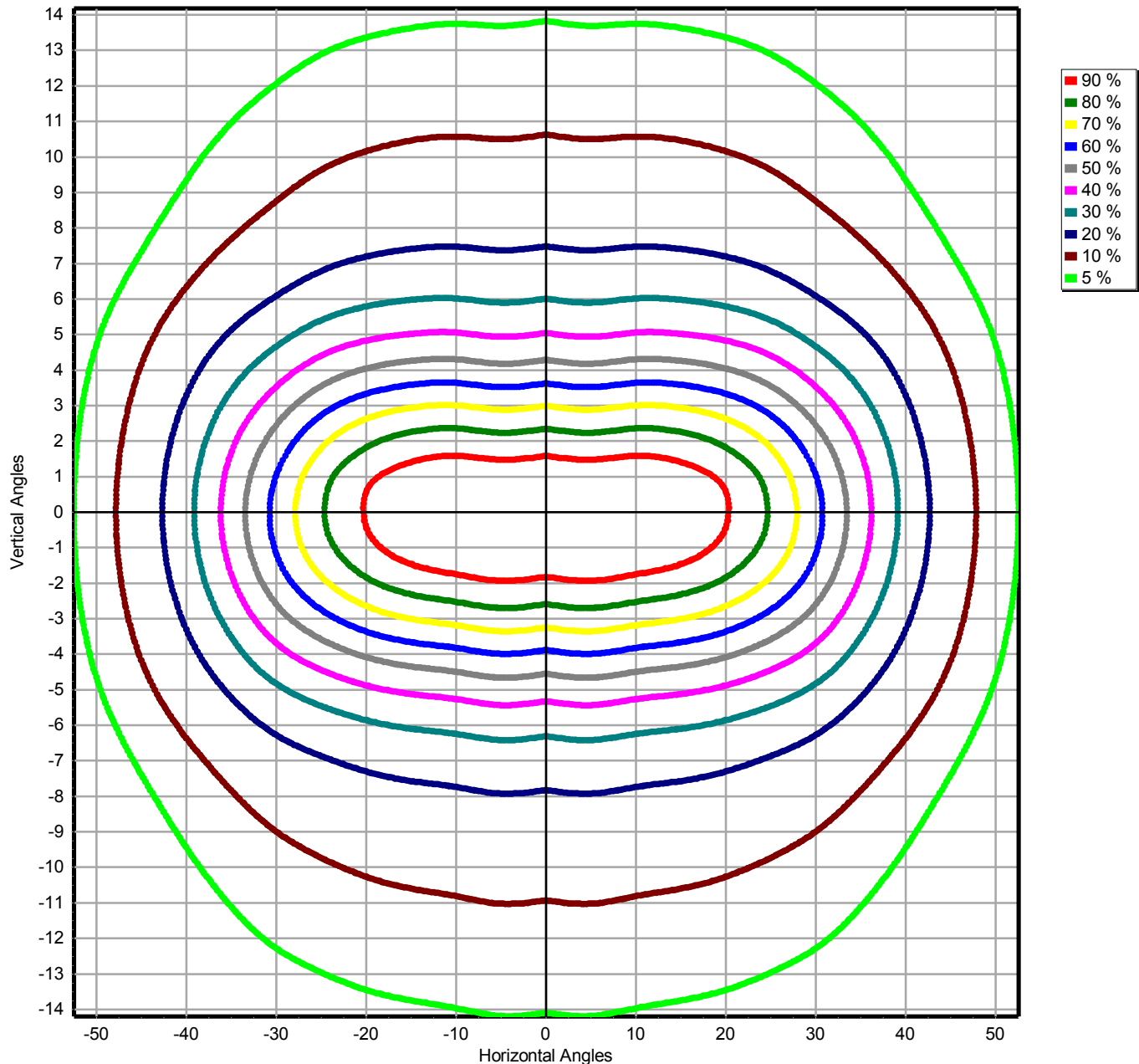
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Photometric Report: S1512112-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-30K-10x60-SI-NO

ISO Candela Diagram





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 11 December 2015
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1512112-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOG-HO-120-48-30K-10x60-SI-NO
[LUMINAIRE] LUMENFACADE
[LAMP] (Clusters of 48 Cree XPE2 LED's) 61W SSL c/w Driver LPF-60-24 @ 120.00V
[_BURNING] Axial (3,086 Luminaire Lumens)
[_REFLECTOR] 48 Collimators
[_LENS] Polycarbonate
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 5Hx2V (Max. CP at 0.0H,0.0V)
[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	-90.0	1	3	3	3	3	5	5	5
	-85.0	2	2	3	3	4	4	4	4
	-75.0	4	4	4	6	4	4	5	6
	-65.0	7	8	8	7	7	8	7	8
	-55.0	13	11	13	11	10	10	10	9
	-45.0	24	25	23	24	23	21	22	19
	-35.0	58	60	57	55	55	52	49	46
	-25.0	142	142	138	134	129	121	114	104
	-20.0	245	247	240	231	223	209	192	171
	-15.0	560	572	543	518	481	433	382	315
	-12.5	986	1006	959	915	853	763	656	521
	-12.0	1099	1121	1069	1022	951	850	731	577
	-11.5	1223	1245	1189	1136	1060	946	811	637
	-11.0	1356	1384	1322	1264	1178	1051	899	704
	-10.5	1506	1537	1469	1406	1311	1169	998	777
	-10.0	1677	1711	1634	1564	1457	1299	1107	859
	-9.5	1868	1906	1823	1744	1626	1447	1232	952
A n g l e s	-9.0	2085	2132	2037	1949	1816	1615	1374	1057
	-8.5	2340	2397	2286	2189	2039	1814	1540	1179
	-8.0	2635	2703	2579	2469	2301	2045	1735	1323
	-7.5	2988	3071	2924	2805	2613	2322	1970	1494
	-7.0	3407	3507	3339	3201	2984	2653	2249	1699
	-6.5	3911	4033	3838	3679	3433	3052	2584	1944
	-6.0	4510	4657	4430	4249	3961	3522	2977	2227
	-5.5	5224	5397	5136	4925	4591	4077	3434	2555
	-5.0	6043	6242	5950	5703	5314	4708	3944	2915
	-4.5	6977	7200	6872	6589	6133	5419	4513	3306
	-4.0	8001	8238	7883	7566	7034	6196	5117	3717
	-3.5	9077	9324	8956	8601	7991	7014	5750	4142



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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	13768	13761	13725	13381	12477	10878	8630	6086	3753
	0.5	13591	13526	13560	13295	12424	10793	8537	6029	3724
	1.0	13166	13049	13151	12894	12108	10520	8284	5867	3638
	1.5	12524	12359	12518	12271	11471	10005	7898	5616	3501
	2.0	11684	11481	11689	11477	10738	9371	7397	5287	3321
	2.5	10710	10483	10722	10543	9875	8626	6821	4909	3113
	3.0	9635	9392	9655	9510	8917	7806	6189	4492	2885
	3.5	8544	8305	8561	8445	7933	6965	5549	4068	2647
	4.0	7473	7245	7498	7403	6969	6140	4916	3645	2406
	4.5	6480	6274	6501	6427	6061	5363	4319	3236	2166
	5.0	5588	5402	5604	5543	5239	4653	3763	2847	1931
	5.5	4806	4650	4819	4766	4508	4014	3264	2489	1709
	6.0	4146	4009	4150	4104	3882	3463	2825	2166	1503
	6.5	3587	3474	3587	3540	3348	2990	2443	1883	1318
	7.0	3128	3034	3125	3076	2907	2595	2124	1644	1161
	7.5	2747	2666	2737	2690	2537	2264	1857	1442	1023
	8.0	2432	2364	2417	2373	2235	1995	1639	1277	910
	8.5	2162	2106	2149	2104	1981	1767	1457	1138	817
A n g l e s	9.0	1938	1887	1922	1879	1767	1578	1304	1020	737
	9.5	1740	1695	1723	1685	1584	1417	1172	919	667
	10.0	1567	1530	1553	1516	1425	1273	1056	833	609
	10.5	1414	1378	1399	1366	1283	1148	953	753	555
	11.0	1277	1244	1262	1231	1157	1035	861	683	506
	11.5	1149	1121	1138	1108	1039	930	775	618	462
	12.0	1035	1007	1023	996	934	836	698	558	420
	12.5	931	903	916	892	838	751	627	504	381
	15.0	523	507	515	500	469	423	362	301	244
	20.0	235	231	232	227	220	207	189	167	143
	25.0	139	137	138	134	130	122	114	104	94
	35.0	59	59	59	57	57	55	51	47	42
45.0	26	24	25	24	23	22	20	20	17	
55.0	11	11	11	11	11	11	10	10	10	
65.0	4	7	6	8	8	8	8	7	7	
75.0	7	4	4	5	5	4	5	5	5	
85.0	3	3	3	4	2	4	4	3	4	
90.0	3	2	3	4	3	3	3	4	4	



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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	-90.0	5	5	5	6	5	6	6	7
	-85.0	6	5	5	5	5	6	5	5
	-75.0	5	6	5	5	6	6	6	6
	-65.0	7	6	7	6	7	6	5	5
	-55.0	10	8	10	9	7	8	6	6
	-45.0	15	15	12	10	10	5	6	5
	-35.0	34	29	24	18	15	10	9	5
	-25.0	79	68	54	42	31	21	13	7
	-20.0	121	97	76	59	44	29	18	10
	-15.0	193	148	109	82	60	41	25	11
	-12.5	280	198	139	99	72	49	29	14
	-12.0	305	212	146	104	73	49	29	15
	-11.5	331	227	156	108	76	53	31	16
	-11.0	359	242	162	113	80	53	32	17
	-10.5	389	259	171	118	83	54	33	17
	-10.0	424	278	183	123	85	58	34	17
	-9.5	460	298	193	129	89	59	35	18
	-9.0	503	321	204	135	93	61	37	18
	-8.5	550	345	217	141	96	64	37	18
A n g l e s	-8.0	606	375	230	149	101	65	39	19
	-7.5	672	410	246	157	104	68	40	20
	-7.0	749	448	266	164	108	71	42	20
	-6.5	839	492	285	174	115	73	43	21
	-6.0	941	542	307	183	118	75	45	20
	-5.5	1054	595	330	192	123	80	45	21
	-5.0	1172	649	351	202	128	80	46	23
	-4.5	1295	704	373	212	131	81	48	22
	-4.0	1417	756	395	218	134	85	48	23
	-3.5	1536	806	413	226	138	85	49	23
	-3.0	1648	852	430	233	141	86	50	23
	-2.5	1754	894	445	238	141	89	50	23
	-2.0	1846	929	456	242	144	88	51	23
	-1.5	1925	959	466	246	146	89	51	24
	-1.0	1986	980	474	247	144	91	51	23
	-0.5	2023	995	477	249	145	90	51	24
	0.0	2035	999	478	248	146	90	51	24
	0.5	2022	995	478	248	145	91	52	24
	1.0	1981	980	473	247	145	90	51	24
	1.5	1919	957	466	243	143	88	51	24
	2.0	1837	928	457	240	141	88	50	23
	2.5	1742	892	445	237	140	87	49	23
	3.0	1637	853	432	233	137	86	49	23
	3.5	1527	808	417	226	133	85	47	22
	4.0	1410	759	398	219	131	82	47	23
	4.5	1291	709	379	211	128	80	47	22
	5.0	1170	657	358	202	123	80	46	22
	5.5	1050	602	335	194	120	77	44	21
	6.0	938	548	313	185	116	74	43	20
	6.5	835	497	291	175	110	72	42	20
	7.0	742	451	269	167	106	69	40	20
	7.5	663	410	249	157	102	67	40	19
	8.0	598	375	234	148	96	65	38	18
	8.5	540	344	217	141	93	60	37	18
	9.0	493	317	204	134	89	59	36	17



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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	451	296	193	127	84	56	34	17	7
	10.0	415	275	181	122	82	54	34	16	6
	10.5	381	256	171	115	79	52	32	16	6
	11.0	352	238	162	110	75	52	31	17	5
	11.5	324	222	152	105	73	49	30	15	6
	12.0	297	208	144	101	70	46	30	14	6
	12.5	274	194	137	95	67	46	29	14	5
	15.0	188	143	107	79	57	39	25	12	6
	20.0	120	96	77	58	43	29	18	10	5
	25.0	81	68	55	43	31	22	14	8	5
	35.0	38	31	27	20	16	11	9	7	5
	45.0	15	13	12	11	10	8	8	6	5
	55.0	8	9	8	9	8	7	7	7	5
	65.0	7	7	8	6	5	5	6	5	5
	75.0	4	7	4	6	6	5	6	5	6
	85.0	5	4	4	5	7	5	6	4	5
	90.0	4	5	5	5	5	5	5	4	5

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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	-90.0 5
	-85.0 6
	-75.0 6
	-65.0 5
	-55.0 5
	-45.0 5
	-35.0 5
	-25.0 5
	-20.0 4
	-15.0 4
	-12.5 4
	-12.0 4
	-11.5 5
	-11.0 4
	-10.5 3
	-10.0 5
	-9.5 4
	-9.0 5
	-8.5 4
	-8.0 4
A n g l e s	-7.5 4
	-7.0 5
	-6.5 4
	-6.0 3
	-5.5 4
	-5.0 3
	-4.5 4
	-4.0 5
	-3.5 4
	-3.0 4
	-2.5 4
	-2.0 4
	-1.5 3
	-1.0 4
	-0.5 3
	0.0 3
	0.5 4
	1.0 4
	1.5 3
	2.0 5
	2.5 4
	3.0 3
	3.5 5
	4.0 3
	4.5 3
	5.0 5
	5.5 4
	6.0 3
	6.5 5
	7.0 4
	7.5 3
	8.0 5
	8.5 4
	9.0 4



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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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