



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	S1512115-R1	Description	61W White 2700K SSL	Type Commercial
Test Date	11 December 2015	Serial Number	SRIS 2226	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	27.9 %	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-120-48-27K-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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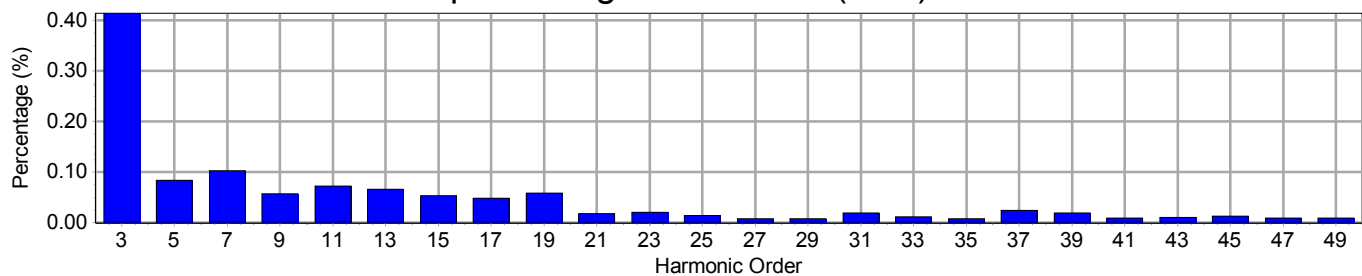
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Electrical Measurements

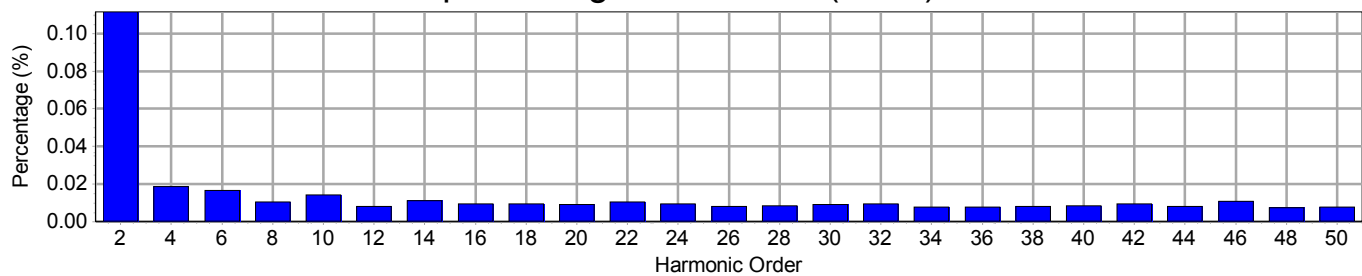
Input

Frequency	60 Hz	Active Power	60.93 W	THDV [ANSI]	0.48 %
Voltage	120.1 V(rms)	Apparent Power	61.25 VA	THDA [ANSI]	5.25 %
Current	0.5101 A(rms)	Power Factor	0.995	Max. Harmonic At	5th order

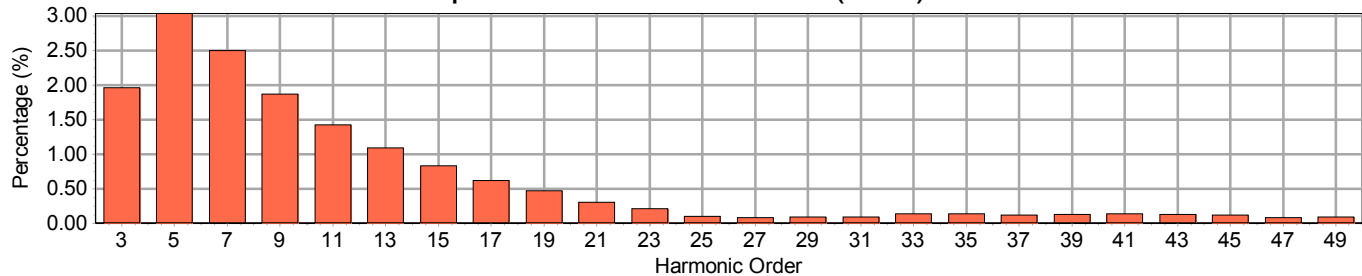
Input Voltage Harmonics (Odd)



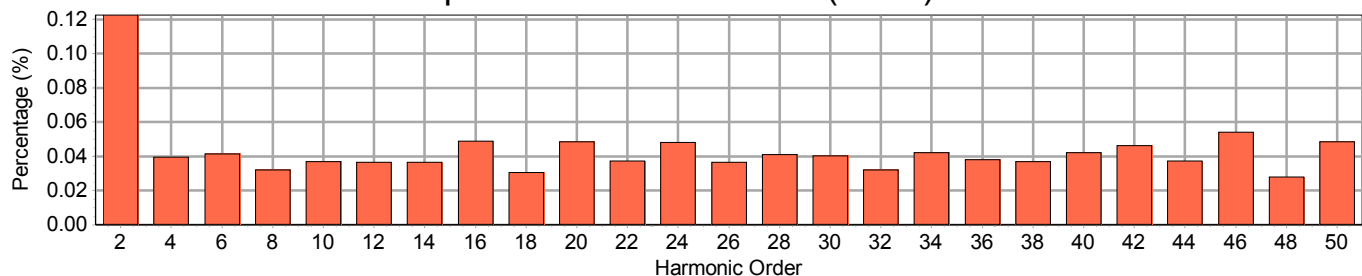
Input Voltage Harmonics (Even)



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	0.112	0.123
3	180	0.414	1.958	4	240	0.019	0.039
5	300	0.085	3.038	6	360	0.017	0.041
7	420	0.103	2.499	8	480	0.010	0.032
9	540	0.057	1.865	10	600	0.014	0.037
11	660	0.073	1.419	12	720	0.008	0.036
13	780	0.067	1.088	14	840	0.011	0.036
15	900	0.054	0.828	16	960	0.009	0.049
17	1020	0.048	0.620	18	1080	0.009	0.030
19	1140	0.059	0.472	20	1200	0.009	0.048
21	1260	0.018	0.298	22	1320	0.010	0.037
23	1380	0.021	0.210	24	1440	0.009	0.048
25	1500	0.015	0.093	26	1560	0.008	0.037
27	1620	0.008	0.079	28	1680	0.008	0.041
29	1740	0.008	0.086	30	1800	0.009	0.040
31	1860	0.020	0.087	32	1920	0.009	0.032
33	1980	0.012	0.131	34	2040	0.008	0.042
35	2100	0.008	0.136	36	2160	0.008	0.038
37	2220	0.025	0.114	38	2280	0.008	0.037
39	2340	0.020	0.124	40	2400	0.008	0.042
41	2460	0.010	0.138	42	2520	0.009	0.046
43	2580	0.011	0.123	44	2640	0.008	0.037
45	2700	0.013	0.120	46	2760	0.011	0.054
47	2820	0.010	0.080	48	2880	0.007	0.028
49	2940	0.009	0.088	50	3000	0.008	0.048



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Photometric Report: S1512115-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-27K-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	2885	
Measured Input Power	60.93 W	
Floodlight Luminous Efficacy	47.3 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	13293	
Maximum Candela Location	5.0 H, 0.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	65.0 °	
Vertical Beam Angle (50%)	9.0 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	93.0 °	
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%)	1420	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	2392	
Field Efficiency (10%)	N/A	
Spill Lumens	494	
Total Floodlight Lumens	2885	
Total Floodlight Efficiency	N/A	



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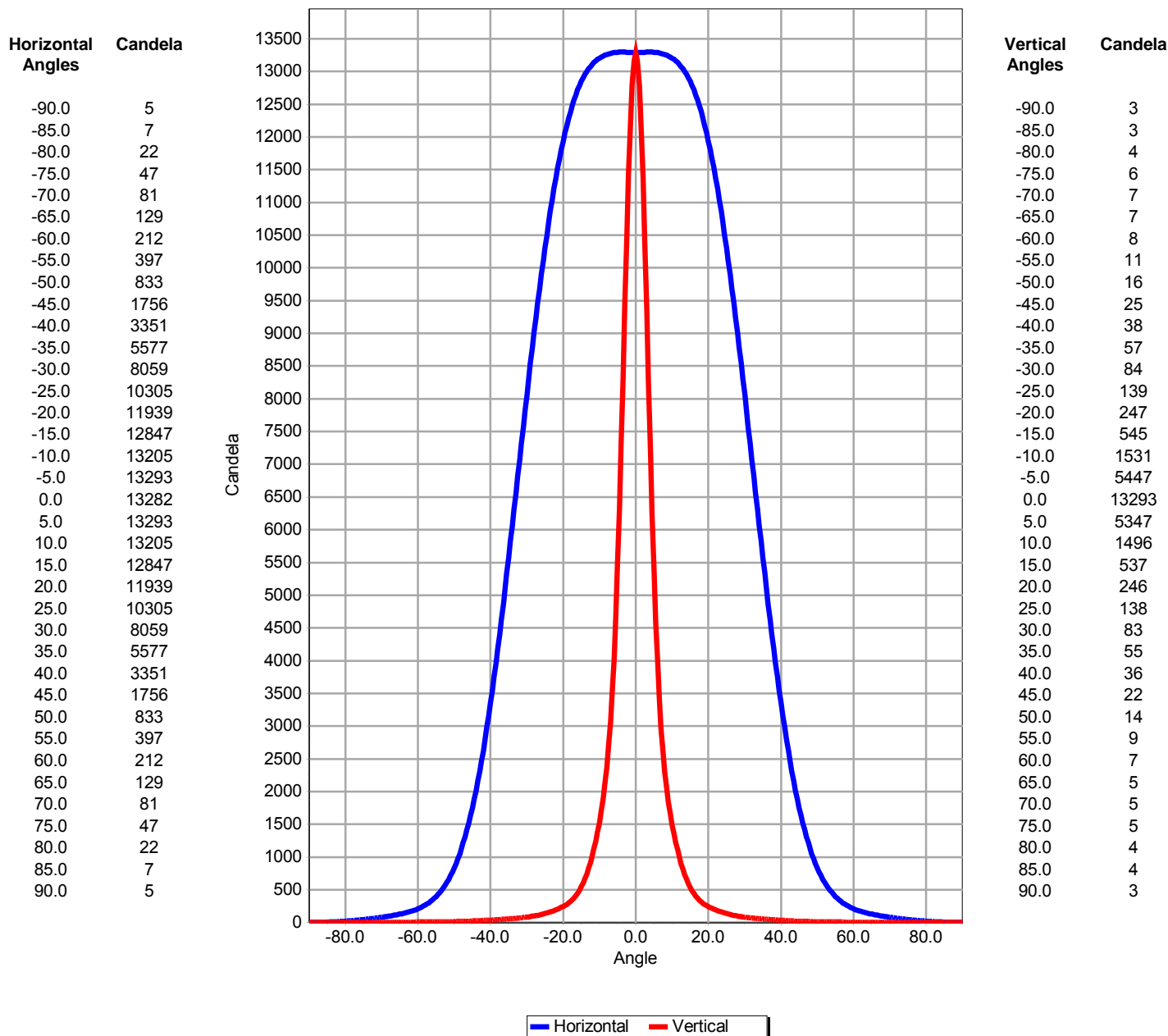
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Prepared for: Lumenpulse · Test Date: 11 December 2015

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Maximum Candela Trace (Max. Location: 5.0 H, 0.0 V)





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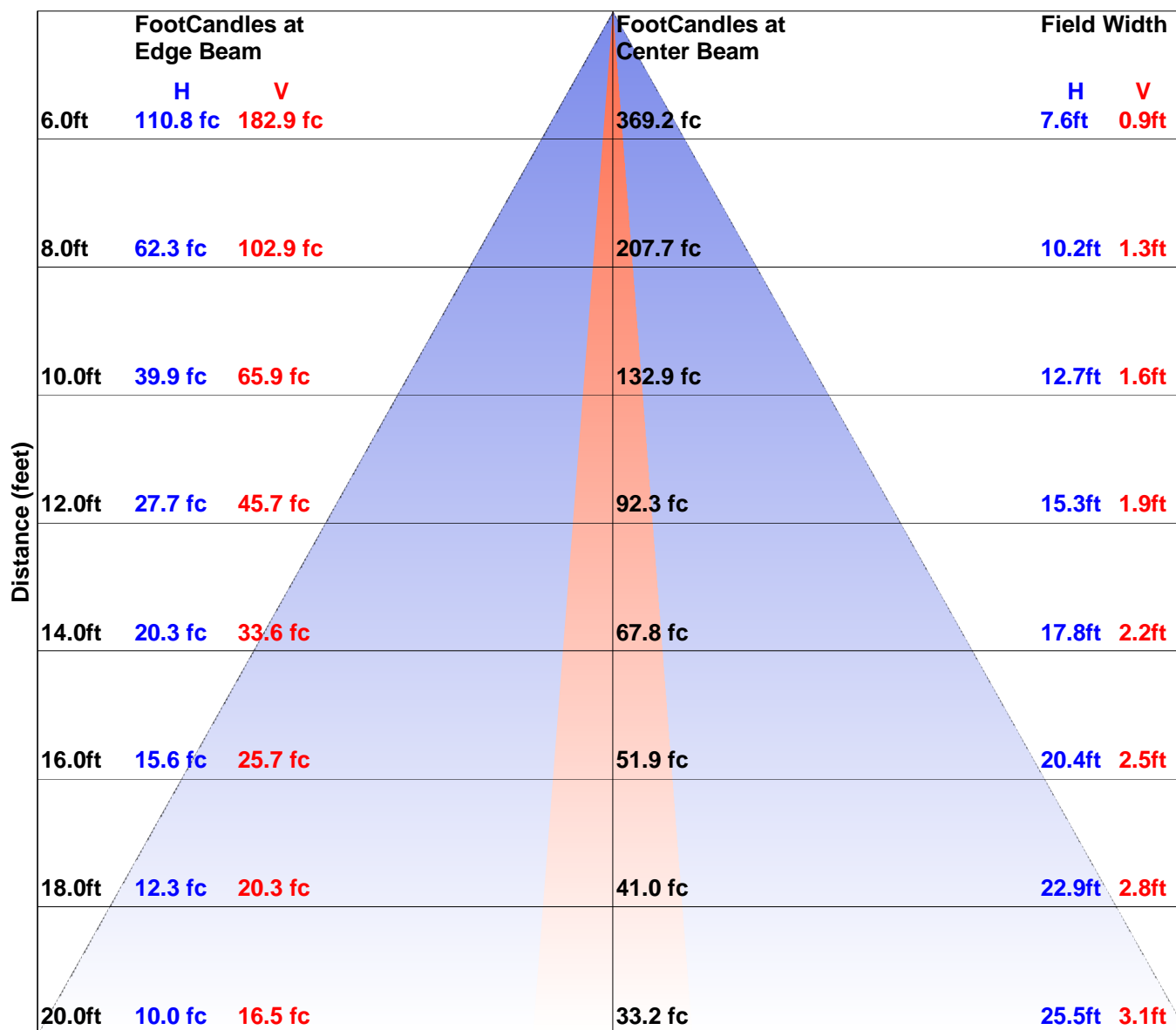
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Photometric Report: S1512115-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-27K-10x60-SI-NO

Downlight Beam



— Horizontal (65.0 °) — Vertical (9.0 °)



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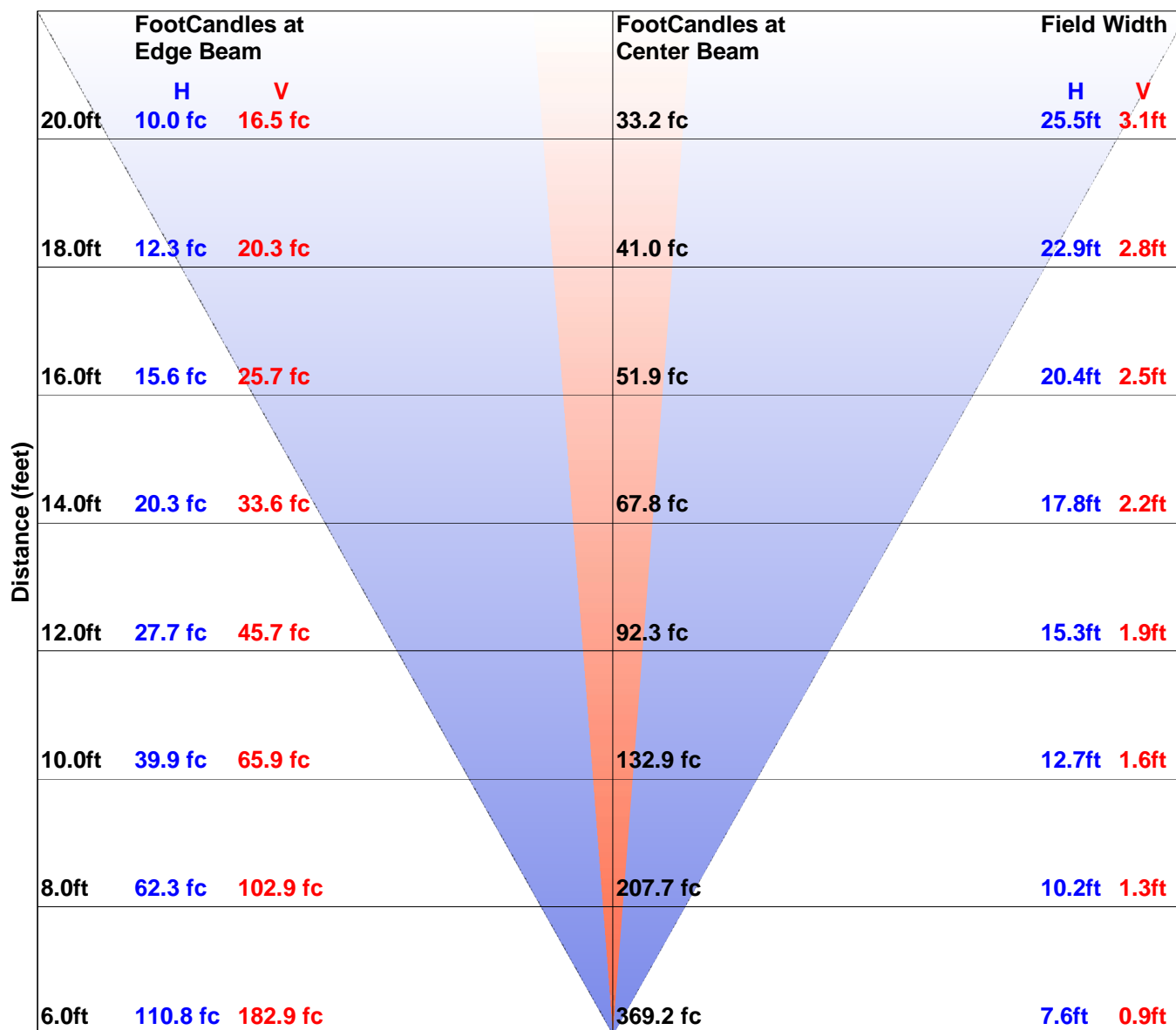
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Photometric Report: S1512115-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-27K-10x60-SI-NO

Uplight Beam



— Horizontal (65.0 °) — Vertical (9.0 °)



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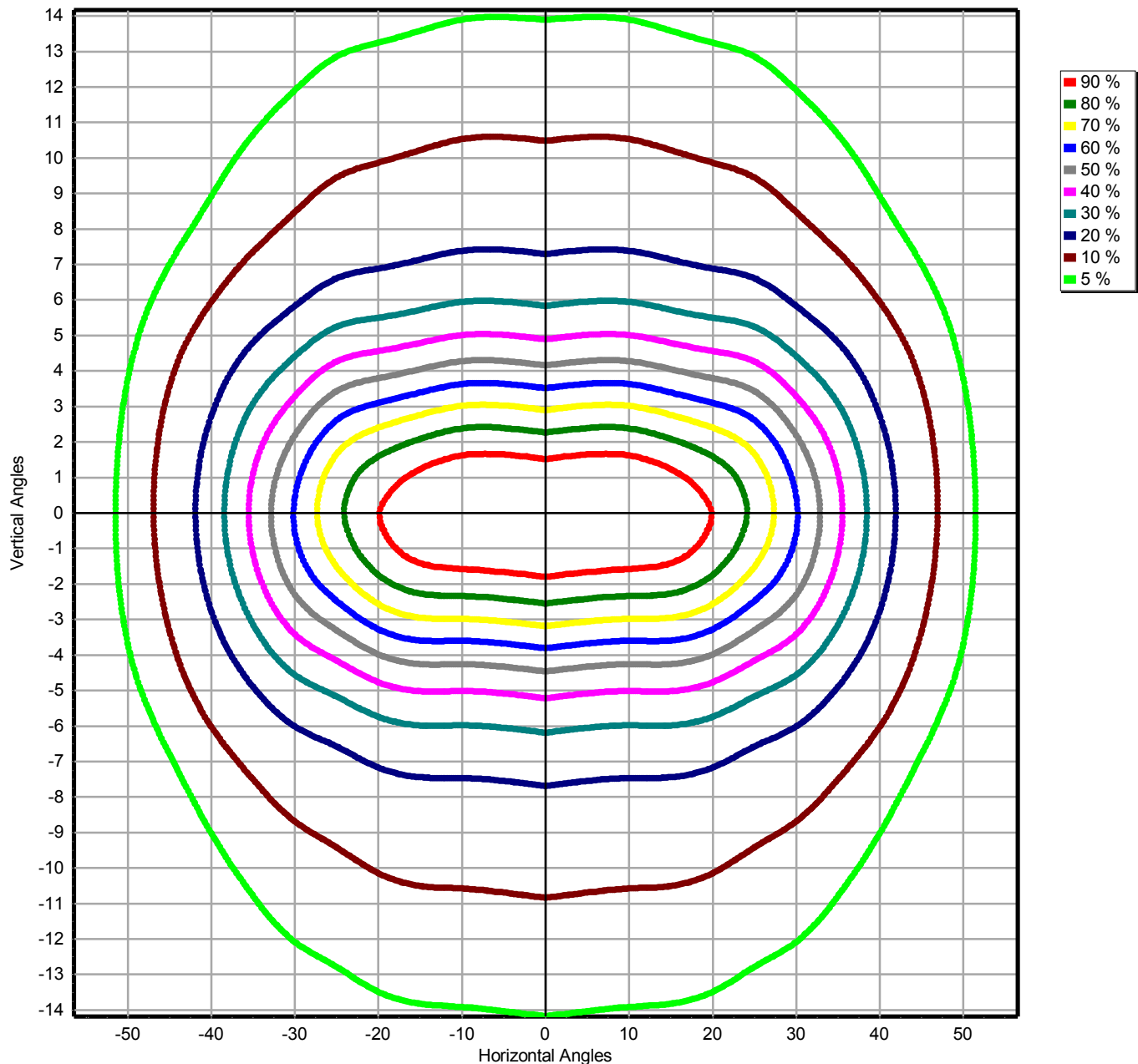
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Photometric Report: S1512115-R1

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ISO Candela Diagram





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 11 December 2015
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1512115-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOG-HO-120-48-27K-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 (2,885 Luminaire Lumens)
[_REFLECTOR] 48 Collimators
[_LENS] Polycarbonate
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 5Hx2V (Max. CP at 5.0H,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	4	4	3	3	4	4
	-85.0	3	3	3	4	2	4	4	4
	-75.0	5	6	5	5	4	5	6	6
	-65.0	6	7	7	7	7	6	8	7
	-55.0	11	11	10	11	11	10	11	10
	-45.0	23	25	24	23	23	21	20	18
	-35.0	56	57	57	55	52	51	47	41
	-25.0	141	139	137	133	128	118	111	88
	-20.0	252	247	245	240	228	209	190	140
	-15.0	561	545	528	519	484	422	372	240
	-12.5	946	918	896	880	818	705	611	357
	-12.0	1052	1019	993	977	908	782	676	390
	-11.5	1164	1129	1101	1084	1007	867	747	426
	-11.0	1287	1248	1220	1201	1115	960	824	463
	-10.5	1425	1383	1350	1331	1235	1062	910	507
	-10.0	1580	1531	1496	1476	1370	1178	1007	554
	-9.5	1754	1699	1663	1640	1522	1308	1117	606
	-9.0	1957	1893	1849	1828	1699	1453	1241	667
A n g l e s	-8.5	2189	2116	2071	2050	1903	1628	1388	1053
	-8.0	2462	2378	2328	2308	2145	1830	1562	1180
	-7.5	2789	2690	2633	2619	2435	2074	1769	1331
	-7.0	3180	3061	2997	2990	2782	2366	2017	1512
	-6.5	3649	3510	3439	3436	3198	2716	2319	1729
	-6.0	4211	4045	3964	3967	3693	3130	2668	1979
	-5.5	4889	4693	4597	4605	4283	3622	3076	2269
	-5.0	5671	5447	5339	5345	4963	4189	3535	2589
	-4.5	6578	6321	6195	6200	5747	4836	4052	2939
	-4.0	7574	7297	7157	7145	6610	5555	4615	3314
	-3.5	8635	8346	8198	8165	7545	6335	5217	3707
	-3.0	9702	9422	9266	9199	8496	7141	5824	4100
	-2.5	10730	10465	10310	10203	9423	7941	6420	4488
	-2.0	11637	11414	11266	11102	10257	8684	6966	4844
	-1.5	12384	12205	12070	11851	10957	9320	7428	5147
	-1.0	12924	12804	12683	12403	11474	9817	7778	5382
	-0.5	13227	13170	13067	12741	11802	10145	7996	5530



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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	13282	13293	13205	12847	11939	10305	8059	5577	3351
	0.5	13090	13163	13091	12643	11713	10205	7962	5523	3324
	1.0	12650	12784	12730	12232	11334	9932	7722	5370	3241
	1.5	11996	12184	12142	11611	10758	9483	7347	5128	3114
	2.0	11144	11375	11345	10791	10001	8874	6856	4815	2948
	2.5	10165	10423	10403	9845	9130	8154	6294	4454	2755
	3.0	9089	9366	9350	8809	8171	7354	5678	4055	2545
	3.5	8011	8278	8267	7760	7209	6531	5061	3654	2328
	4.0	6960	7216	7208	6745	6276	5729	4459	3259	2107
	4.5	5999	6229	6221	5816	5419	4977	3896	2881	1893
	5.0	5145	5347	5339	4984	4653	4297	3381	2526	1684
	5.5	4412	4580	4572	4269	3991	3697	2925	2205	1488
	6.0	3794	3938	3927	3670	3432	3184	2530	1917	1310
	6.5	3287	3400	3385	3169	2963	2746	2189	1669	1150
	7.0	2868	2961	2947	2760	2578	2386	1907	1461	1013
	7.5	2525	2600	2582	2424	2260	2085	1673	1283	897
	8.0	2244	2303	2286	2145	1999	1839	1482	1140	802
	8.5	2001	2051	2035	1909	1778	1635	1322	1020	721
	9.0	1798	1842	1824	1714	1595	1464	1187	917	655
	9.5	1622	1656	1639	1541	1434	1314	1069	831	597
A n g l e s	10.0	1465	1496	1480	1391	1294	1188	968	755	545
	10.5	1324	1354	1338	1257	1169	1073	876	685	499
	11.0	1201	1226	1211	1139	1057	970	794	625	458
	11.5	1085	1108	1095	1027	954	878	721	568	419
	12.0	981	1002	990	928	862	793	652	517	385
	12.5	887	905	893	837	778	715	590	470	353
	15.0	527	537	529	493	460	427	359	295	235
	20.0	245	246	243	232	221	209	187	165	141
	25.0	138	138	136	131	125	120	110	99	86
	35.0	55	55	55	52	52	49	47	42	38
	45.0	20	22	21	21	20	20	19	17	15
	55.0	10	9	10	11	9	10	9	10	8
	65.0	5	5	7	6	6	6	7	7	6
	75.0	3	5	5	4	4	5	5	5	5
	85.0	2	4	3	4	2	2	3	4	4
	90.0	1	3	2	3	3	4	4	3	5



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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	4	4	6	6	5	6	7	5	5
	-85.0	5	6	5	6	7	6	5	5	5
	-75.0	7	6	6	5	6	5	6	6	5
	-65.0	7	7	7	6	6	6	7	7	6
	-55.0	9	8	9	8	8	7	6	5	5
	-45.0	16	14	12	11	9	8	7	6	5
	-35.0	35	31	26	19	16	11	8	7	5
	-25.0	74	63	52	40	31	22	13	7	5
	-20.0	114	91	71	55	40	27	18	9	6
	-15.0	182	137	102	76	53	38	23	12	6
	-12.5	251	178	127	90	64	44	28	15	6
	-12.0	271	191	134	94	66	46	28	14	6
	-11.5	291	202	141	98	68	48	27	15	6
	-11.0	314	214	146	101	71	49	30	16	6
	-10.5	339	229	155	106	73	50	31	15	5
	-10.0	365	244	163	110	77	53	30	16	6
	-9.5	397	260	170	115	80	54	33	17	8
	-9.0	433	280	182	120	81	55	34	16	6
	-8.5	470	301	193	126	86	59	34	17	7
	A n g l e s	-8.0	516	325	203	131	90	61	36	19
-7.5		572	354	219	137	92	62	37	17	7
-7.0		634	387	234	145	96	64	38	19	8
-6.5		711	425	249	152	101	67	39	19	7
-6.0		796	465	268	160	103	67	40	19	7
-5.5		888	509	285	167	108	71	41	20	8
-5.0		989	553	301	175	112	72	42	21	8
-4.5		1093	597	319	181	114	73	44	20	7
-4.0		1195	639	334	187	118	76	44	21	7
-3.5		1298	679	349	194	121	79	45	22	7
-3.0		1396	716	362	198	123	77	45	21	8
-2.5		1485	749	373	202	125	80	46	22	8
-2.0		1569	776	380	205	127	81	46	23	8
-1.5		1642	800	388	208	127	80	47	21	8
-1.0		1698	817	393	210	129	82	47	22	7
-0.5		1738	829	395	211	130	83	48	23	8
0.0		1756	833	397	212	129	81	47	22	7
0.5		1749	829	395	211	129	83	48	23	7
1.0		1723	820	392	210	129	82	48	23	7
1.5		1674	803	388	209	127	80	47	21	7
2.0	1607	780	382	207	128	81	47	22	8	
2.5	1530	752	372	204	126	80	47	22	8	
3.0	1440	721	363	201	123	78	46	21	8	
3.5	1344	685	351	196	123	78	45	22	8	
4.0	1245	647	337	191	121	77	44	22	8	
4.5	1142	603	323	185	117	74	44	20	6	
5.0	1036	560	304	179	114	73	43	21	7	
5.5	934	515	286	172	111	71	43	21	8	
6.0	837	471	270	165	106	69	41	19	7	
6.5	744	430	252	157	103	67	39	19	7	
7.0	666	392	234	150	100	65	39	20	7	
7.5	597	357	220	141	95	61	37	18	6	
8.0	536	329	206	134	91	61	36	18	6	
8.5	489	304	192	128	87	58	35	18	7	
9.0	448	281	182	122	84	54	34	16	6	



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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

	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	410	263	172	117	80	53	33	17	6
	10.0	380	245	162	113	78	52	32	17	6
	10.5	351	229	155	107	75	49	30	14	5
	11.0	323	216	147	102	71	49	30	15	6
	11.5	302	203	139	99	70	47	29	16	5
	12.0	280	190	133	94	67	44	29	13	5
	12.5	258	180	126	90	64	44	28	13	5
	15.0	184	136	102	75	54	36	24	11	5
	20.0	116	91	70	54	39	28	18	10	5
	25.0	76	63	50	40	29	21	13	7	5
	35.0	33	29	24	19	15	10	8	7	6
	45.0	13	13	11	9	9	7	6	6	5
	55.0	9	8	7	7	8	7	5	6	5
	65.0	7	6	8	6	7	5	5	7	6
	75.0	5	4	6	5	6	6	6	5	4
	85.0	3	4	4	6	5	6	5	5	5
	90.0	3	4	5	4	5	5	6	5	5

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Horizontal Angles

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



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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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