



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	S1611176-R1	Description	61W White 3500K SSL	Type Commercial
Test Date	17 November 2016	Serial Number	SRIS-2592	Description 61SSL-CY810
Report Date	17 November 2016	Photometric Method	Absolute	Manufacturer MEAN WELL
Ambient	23.9 °C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	29.5 %	Test Position	Axial	Voltage Tap 120.00 V
Lamp Type	SSL	Comments	4 Rows of 12 CREE XPE2 LED's	Power Factor 0.9900

Floodlight Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	None	X 4.0200
Name	LUMENFACADE	Housing	Extruded Aluminum	Y 0.1667
Catalog No.	LOGi HO-120/277-48-35K -WW-NO	Lens	Acrylic Half-Frosted Flat Lens with Polycarbonate Diffuser	Z 0.0000

Lamp Stabilization Time: 1 hour

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	974998	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	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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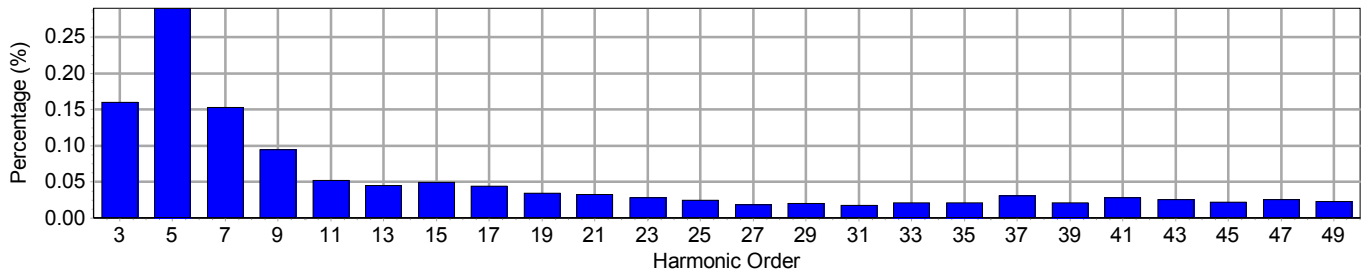
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Electrical Measurements

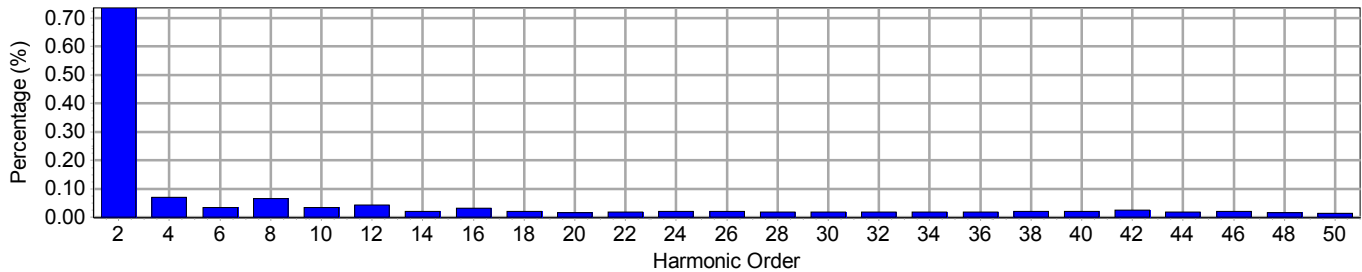
Input

Frequency	60 Hz	Active Power	60.93 W	THDV [ANSI]	0.85 %
Voltage	120.6 V(rms)	Apparent Power	61.35 VA	THDA [ANSI]	4.82 %
Current	0.5088 A(rms)	Power Factor	0.993	Max. Harmonic At	5th order

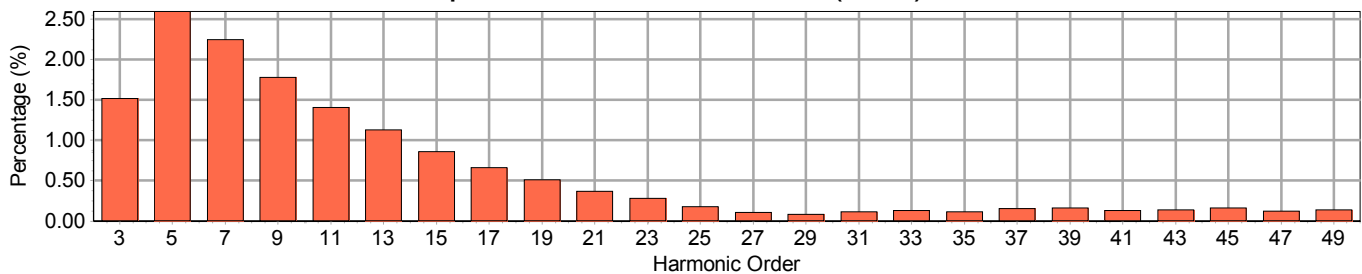
Input Voltage Harmonics (Odd)



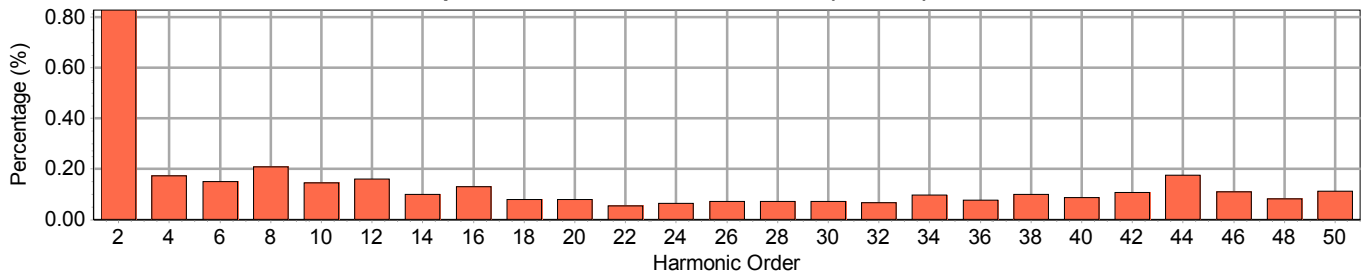
Input Voltage Harmonics (Even)



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	0.737	0.830
3	180	0.160	1.521	4	240	0.071	0.173
5	300	0.290	2.600	6	360	0.036	0.151
7	420	0.153	2.243	8	480	0.067	0.208
9	540	0.095	1.782	10	600	0.034	0.146
11	660	0.052	1.403	12	720	0.045	0.161
13	780	0.045	1.129	14	840	0.022	0.101
15	900	0.049	0.860	16	960	0.032	0.130
17	1020	0.044	0.666	18	1080	0.022	0.079
19	1140	0.034	0.511	20	1200	0.018	0.079
21	1260	0.033	0.365	22	1320	0.019	0.055
23	1380	0.028	0.285	24	1440	0.020	0.063
25	1500	0.024	0.180	26	1560	0.022	0.071
27	1620	0.018	0.107	28	1680	0.019	0.073
29	1740	0.020	0.083	30	1800	0.020	0.073
31	1860	0.018	0.116	32	1920	0.018	0.066
33	1980	0.021	0.127	34	2040	0.019	0.097
35	2100	0.020	0.114	36	2160	0.020	0.078
37	2220	0.030	0.158	38	2280	0.020	0.099
39	2340	0.021	0.160	40	2400	0.021	0.086
41	2460	0.028	0.133	42	2520	0.025	0.108
43	2580	0.025	0.140	44	2640	0.020	0.175
45	2700	0.021	0.159	46	2760	0.021	0.111
47	2820	0.025	0.124	48	2880	0.016	0.083
49	2940	0.023	0.142	50	3000	0.014	0.112



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NVLAP LAB CODE: 200899-0

Photometric Report: S1611176-R1

Prepared for: Lumenpulse · Test Date: 17 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-35K-WW-NO

Photometric Floodlight Characteristics

Nominal SSL Power	61.00 W	
Measured Input Voltage	120.57 V	Notes
Test SSL Current	0.3000 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	3168	
Measured Input Power	60.93 W	
Floodlight Luminous Efficacy	52.0 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	4358	
Maximum Candela Location	0.0 H, -2.5 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	81.0 °	
Vertical Beam Angle (50%)	20.5 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	129.0 °	
Vertical Field Angle (10%)	70.0 °	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	6Hx5V	
Beam Lumens (50%)	1173	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	2566	
Field Efficiency (10%)	N/A	
Spill Lumens	602	
Total Floodlight Lumens	3168	
Total Floodlight Efficiency	N/A	



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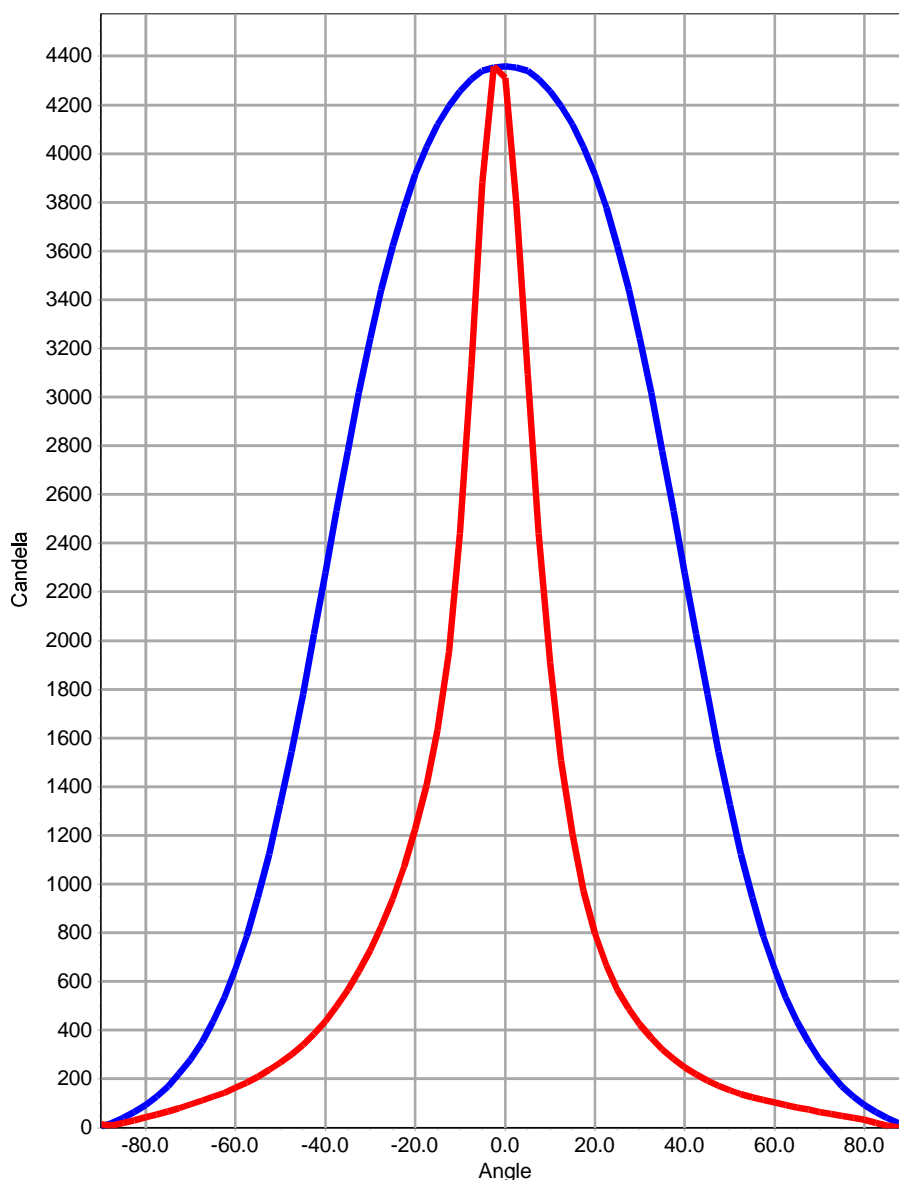
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Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-35K-WW-NO

Maximum Candela Trace (Max. Location: 0.0 H, -2.5 V)

Horizontal Angles	Candela
-90.0	4
-85.0	40
-80.0	93
-75.0	171
-70.0	281
-65.0	436
-60.0	651
-55.0	944
-50.0	1325
-45.0	1780
-40.0	2280
-35.0	2780
-30.0	3241
-25.0	3622
-20.0	3914
-15.0	4120
-10.0	4256
-5.0	4340
0.0	4358
5.0	4340
10.0	4256
15.0	4120
20.0	3914
25.0	3622
30.0	3241
35.0	2780
40.0	2280
45.0	1780
50.0	1325
55.0	944
60.0	651
65.0	436
70.0	281
75.0	171
80.0	93
85.0	40
90.0	4



Vertical Angles	Candela
-90.0	14
-85.0	20
-80.0	43
-75.0	68
-70.0	95
-65.0	127
-60.0	164
-55.0	210
-50.0	267
-45.0	341
-40.0	437
-35.0	566
-30.0	730
-25.0	941
-20.0	1227
-15.0	1633
-10.0	2441
-5.0	3880
0.0	4311
5.0	3096
10.0	1910
15.0	1204
20.0	797
25.0	565
30.0	423
35.0	322
40.0	248
45.0	193
50.0	154
55.0	126
60.0	103
65.0	84
70.0	66
75.0	48
80.0	32
85.0	10
90.0	7



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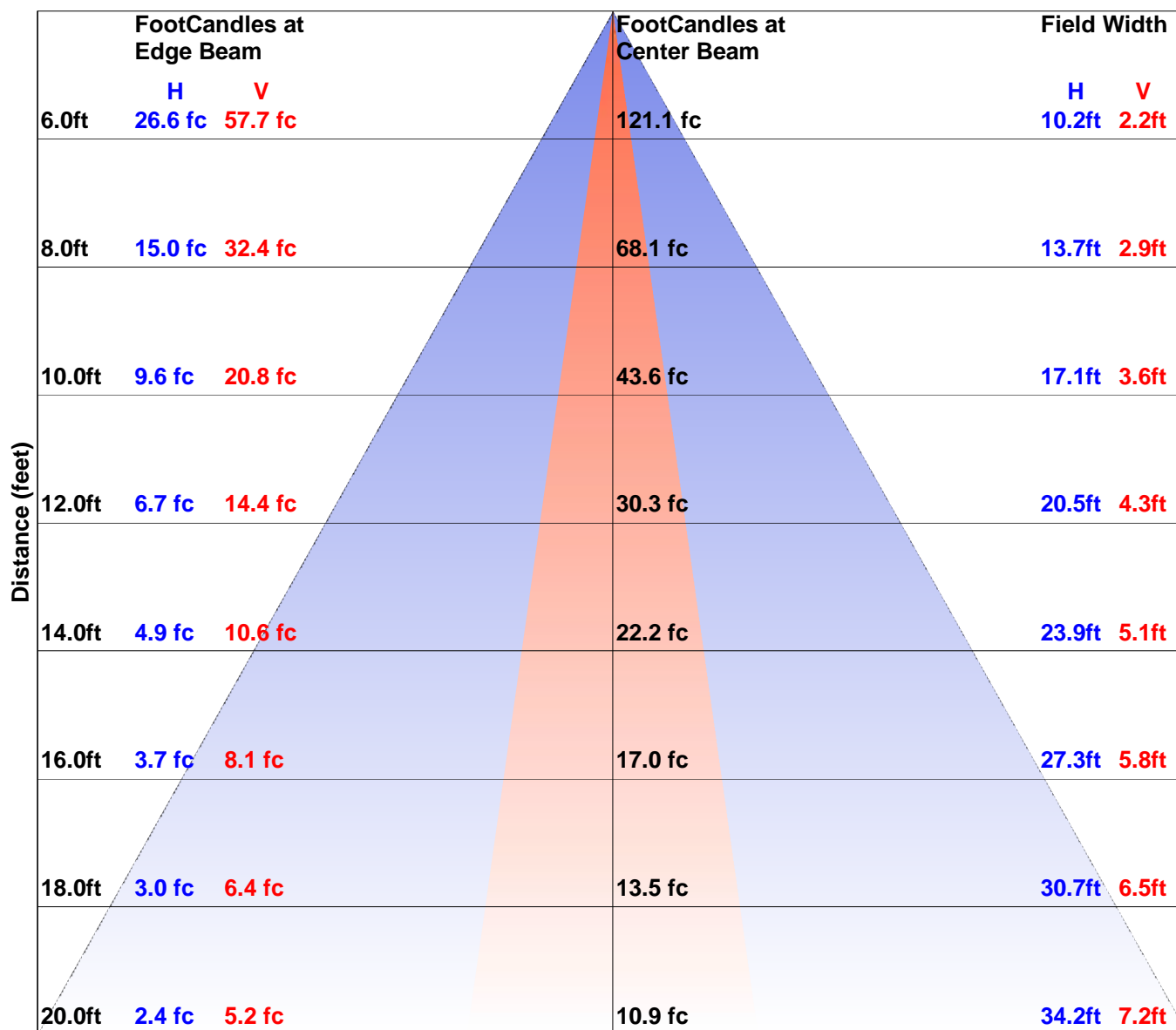
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Photometric Report: S1611176-R1

Prepared for: Lumenpulse · Test Date: 17 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-35K-WW-NO

Downlight Beam



— Horizontal (81.0 °) — Vertical (20.5 °)



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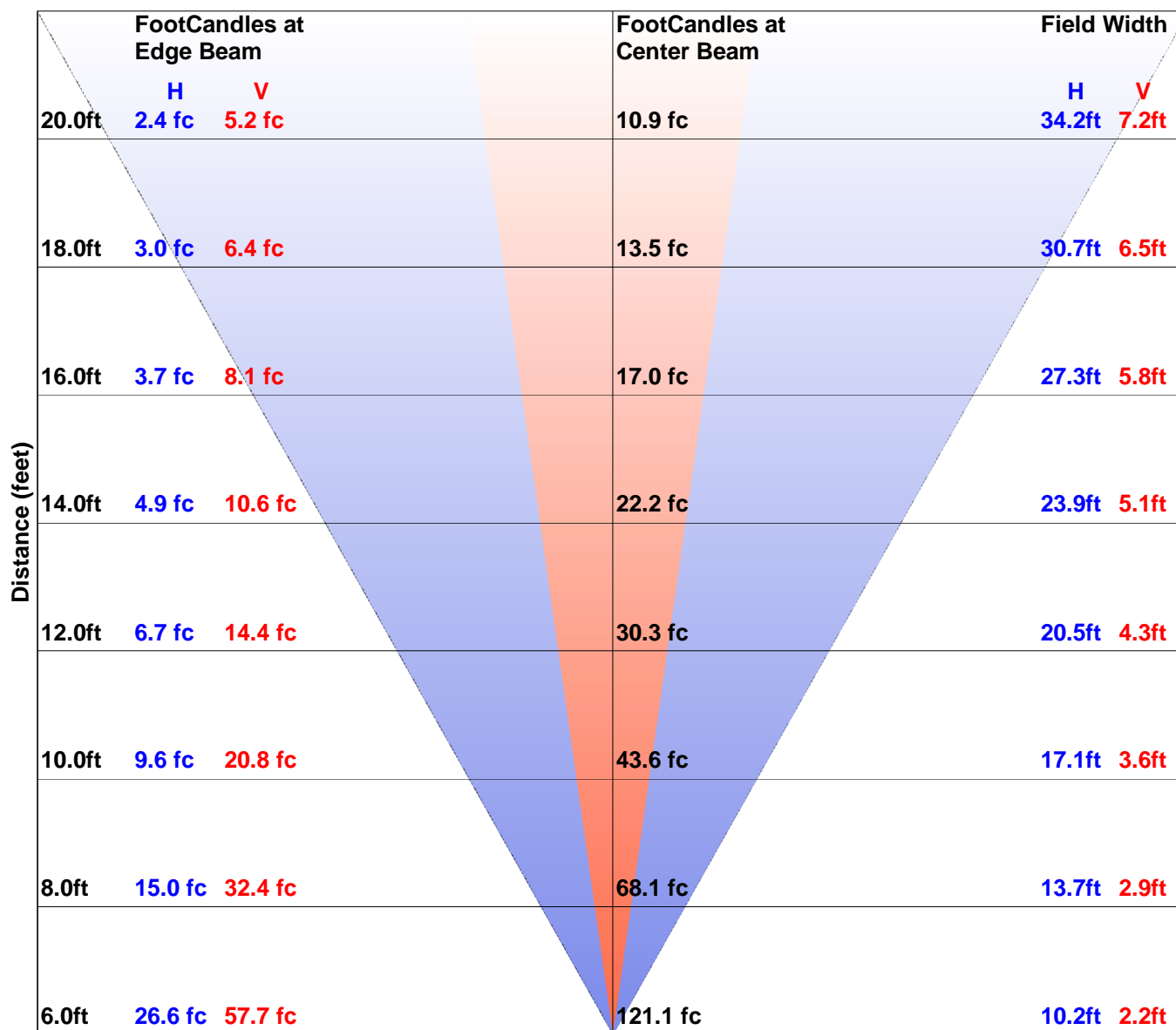
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Prepared for: Lumenpulse · Test Date: 17 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-35K-WW-NO

Uplight Beam



— Horizontal (81.0 °) — Vertical (20.5 °)



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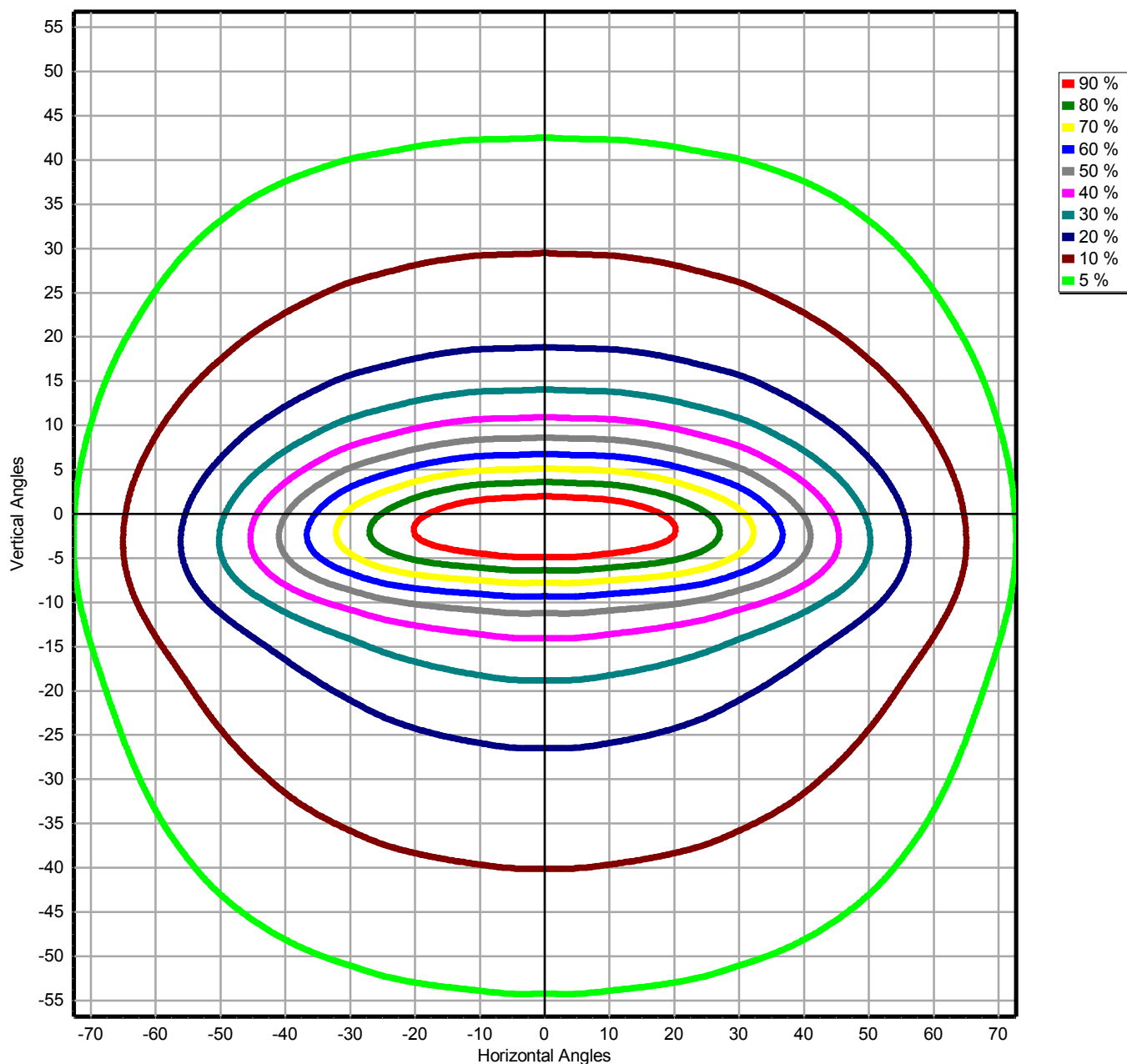
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Photometric Report: S1611176-R1

Prepared for: Lumenpulse · Test Date: 17 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-35K-WW-NO

ISO Candela Diagram





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IES File Headers

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IESNA:LM-63-2002
[ISSUEDATE] 17 November 2016
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1611176-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOGi HO-120/277-48-35K-WW-NO
[LUMINAIRE] LUMENFACADE
[LAMP] (4 Rows of 12 CREE XPE2 LED's) White 61W SSL c/w MEAN WELL Driver LPF-60-24 @ 120.00V
[_BURNING] Axial (3,168 Luminaire Lumens)
[_REFLECTOR] None
[_LENS] Acrylic Half-Frosted Flat Lens with Polycarbonate Diffuser
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 6Hx5V (Max. CP at 0.0H,-2.5V)
[MORE] (Based on IES LM-35-1989)
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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	14	14	14	14	14	14	14	14
	-87.5	10	10	10	10	11	10	11	11
	-85.0	20	21	20	20	20	19	19	19
	-82.5	31	31	31	31	30	29	28	28
	-80.0	43	43	42	42	40	39	38	36
	-77.5	55	55	54	54	52	50	48	46
	-75.0	68	68	67	66	63	61	59	56
	-72.5	81	82	80	79	76	73	70	66
	-70.0	95	96	94	93	91	89	85	78
	-67.5	111	111	109	108	106	103	99	90
	-65.0	127	127	125	123	121	118	113	102
	-62.5	144	145	143	140	138	134	128	116
	-60.0	164	164	161	159	156	151	144	130
	-57.5	186	186	183	179	176	170	162	145
	-55.0	210	210	207	203	198	191	182	162
	-52.5	237	237	233	228	223	215	204	181
	-50.0	267	267	262	257	250	241	228	201
	-47.5	301	301	296	289	281	271	256	224
A n g l e s	-45.0	341	341	334	326	317	304	286	248
	-42.5	386	386	378	368	357	341	320	275
	-40.0	437	437	428	416	402	384	359	306
	-37.5	497	497	486	472	455	432	403	340
	-35.0	566	565	552	535	514	487	453	377
	-32.5	643	642	627	607	581	549	508	419
	-30.0	730	729	710	686	657	618	570	465
	-27.5	828	826	804	777	741	696	638	516
	-25.0	941	938	913	881	839	785	718	575
	-22.5	1073	1070	1040	1003	954	891	811	643
	-20.0	1227	1223	1189	1145	1088	1014	920	723
	-17.5	1407	1402	1363	1313	1248	1164	1054	823
	-15.0	1633	1630	1583	1529	1456	1360	1231	958
	-12.5	1953	1953	1898	1839	1759	1649	1493	1158
	-10.0	2441	2446	2378	2313	2222	2092	1893	1453
	-7.5	3130	3137	3054	2978	2864	2695	2433	1823
	-5.0	3880	3880	3790	3688	3532	3301	2967	2151



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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	-2.5	4358	4340	4256	4120	3914	3622	3241	2780	2280
	0.0	4311	4275	4204	4052	3816	3498	3123	2652	2160
	2.5	3798	3754	3701	3557	3330	3038	2716	2300	1878
	5.0	3096	3055	3018	2898	2709	2471	2219	1888	1557
	7.5	2439	2407	2380	2287	2141	1959	1770	1519	1268
	10.0	1910	1885	1865	1796	1685	1548	1408	1220	1033
	12.5	1507	1489	1473	1421	1338	1235	1130	990	849
	15.0	1204	1190	1179	1138	1076	998	920	815	708
	17.5	973	962	954	924	876	817	758	678	596
	20.0	797	789	782	759	723	678	634	572	509
	22.5	666	659	654	635	608	573	538	490	441
	25.0	565	561	556	542	520	492	464	427	387
	27.5	488	484	480	468	451	429	406	376	343
	30.0	423	420	417	407	394	375	357	333	306
	32.5	369	366	364	356	344	330	315	295	273
	35.0	322	320	318	312	302	290	279	262	244
	37.5	282	280	279	274	266	256	247	233	219
	40.0	248	246	246	241	235	227	219	208	196
	42.5	218	217	216	213	208	201	195	185	176
A n g l e s	45.0	193	192	191	188	184	179	174	167	158
	47.5	171	171	170	168	164	160	156	150	143
	50.0	154	153	152	151	148	144	140	135	130
	52.5	139	138	138	136	134	130	127	123	118
	55.0	126	125	125	123	121	118	116	111	107
	57.5	114	113	113	112	110	107	105	101	97
	60.0	103	103	102	101	99	97	95	92	85
	62.5	93	92	92	91	89	87	86	79	73
	65.0	84	83	83	82	80	78	75	68	63
	67.5	74	74	74	73	72	69	62	58	53
	70.0	66	65	65	65	63	56	52	48	45
	72.5	57	57	57	56	49	45	42	40	38
	75.0	48	48	48	44	39	36	35	33	32
	77.5	40	40	37	32	30	29	28	27	25
	80.0	32	30	25	25	23	21	21	21	20
	82.5	19	19	18	17	15	15	15	16	15
	85.0	10	9	10	9	9	10	11	11	11
	87.5	2	2	4	5	6	6	7	7	7
	90.0	7	7	7	7	7	7	7	7	7



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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	14	14	14	14	14	14	14	14
	-87.5	11	11	11	11	11	11	11	10
	-85.0	19	19	17	17	16	15	14	11
	-82.5	27	26	24	23	21	19	17	12
	-80.0	35	33	31	28	26	23	20	16
	-77.5	43	41	38	34	30	27	23	18
	-75.0	53	49	45	41	36	31	26	20
	-72.5	62	58	53	47	42	36	29	22
	-70.0	73	67	61	54	47	40	32	24
	-67.5	84	77	70	62	53	45	36	26
	-65.0	95	87	79	69	60	50	39	29
	-62.5	107	99	88	77	66	54	43	30
	-60.0	120	110	98	86	73	60	46	33
	-57.5	134	122	109	95	80	65	50	35
	-55.0	150	136	120	104	87	71	54	37
	-52.5	166	151	133	115	96	77	58	40
	-50.0	184	166	146	125	104	84	63	43
	-47.5	204	184	160	137	113	90	67	45
	-45.0	226	202	176	150	123	98	72	48
	-42.5	249	222	193	163	133	105	77	50
A n g l e s	-40.0	276	244	211	177	143	112	82	53
	-37.5	304	268	230	192	155	120	87	56
	-35.0	336	294	250	208	166	129	92	59
	-32.5	371	322	272	225	179	137	98	61
	-30.0	408	353	296	243	192	146	103	65
	-27.5	451	387	322	263	206	155	109	68
	-25.0	498	425	351	284	220	165	115	71
	-22.5	554	469	384	308	237	175	120	74
	-20.0	619	520	423	335	255	187	127	77
	-17.5	701	584	470	369	277	200	134	80
	-15.0	811	670	532	412	304	216	142	83
	-12.5	972	793	618	467	337	234	150	86
	-10.0	1201	959	727	533	374	252	159	89
	-7.5	1475	1146	843	599	409	269	165	92
	-5.0	1704	1288	926	643	431	279	170	93
	-2.5	1780	1325	944	651	436	281	171	93
	0.0	1681	1250	897	625	424	277	169	93
	2.5	1474	1108	811	577	401	266	166	92
	5.0	1240	950	713	519	370	252	160	90
	7.5	1027	804	618	462	338	236	152	87
	10.0	851	681	536	411	308	219	145	84
	12.5	712	581	467	366	280	203	136	80
	15.0	603	501	410	327	255	188	128	76
	17.5	515	435	362	293	232	173	120	73
	20.0	446	381	322	265	212	161	113	69
	22.5	390	338	288	240	195	149	106	65
	25.0	345	302	261	220	180	139	99	62
	27.5	309	273	238	201	166	130	93	58
	30.0	277	247	216	185	154	121	87	55
	32.5	249	224	198	170	142	112	82	51
	35.0	225	203	181	156	132	104	76	48
	37.5	202	184	165	144	121	97	71	45
	40.0	182	167	150	132	112	90	66	42
	42.5	165	151	137	121	103	83	61	39



Les Industries Spectralux Inc. Spectralux Industries Inc.

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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	45.0	149	137	125	111	95	76	56	36	18
	47.5	135	125	114	101	87	70	52	34	16
	50.0	123	114	104	92	80	64	48	31	15
	52.5	111	103	94	83	71	56	42	27	14
	55.0	101	93	83	73	63	49	37	24	12
	57.5	90	81	72	64	55	44	32	21	12
	60.0	78	70	63	56	47	38	28	19	11
	62.5	68	61	55	48	41	33	25	16	10
	65.0	57	53	48	42	36	29	22	15	9
	67.5	49	45	41	36	31	26	20	14	9
	70.0	42	39	35	32	28	22	17	13	8
	72.5	36	33	30	27	24	20	15	12	8
	75.0	30	28	25	23	20	17	14	11	7
	77.5	25	23	21	19	17	14	12	9	7
	80.0	19	18	17	15	14	12	10	8	6
	82.5	15	14	13	12	12	10	9	8	6
85.0	11	10	10	10	9	8	7	6	5	
87.5	7	7	7	7	7	7	6	6	5	
90.0	7	7	7	7	7	7	7	7	7	
A n g l e s										



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Horizontal Angles

	90.0
V e r t i c a l	-90.0 14
	-87.5 10
	-85.0 10
	-82.5 10
	-80.0 10
	-77.5 10
	-75.0 10
	-72.5 10
	-70.0 10
	-67.5 9
	-65.0 9
	-62.5 9
	-60.0 9
	-57.5 9
	-55.0 8
	-52.5 8
	-50.0 8
	-47.5 8
	-45.0 7
	-42.5 7
A n g l e s	-40.0 7
	-37.5 6
	-35.0 7
	-32.5 6
	-30.0 6
	-27.5 6
	-25.0 6
	-22.5 5
	-20.0 5
	-17.5 5
	-15.0 5
	-12.5 5
	-10.0 4
	-7.5 4
	-5.0 4
	-2.5 4
	0.0 4
	2.5 4
	5.0 4
	7.5 4
	10.0 4
	12.5 4
	15.0 4
	17.5 5
	20.0 4
	22.5 5
	25.0 5
	27.5 5
	30.0 5
	32.5 5
	35.0 5
	37.5 5
	40.0 5
	42.5 5



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Horizontal Angles

	90.0
	45.0
	47.5
	50.0
	52.5
	55.0
	57.5
	60.0
	62.5
	65.0
V	67.5
e	70.0
r	72.5
t	75.0
i	77.5
c	80.0
a	82.5
l	85.0
	87.5
	90.0
A	
n	
g	
l	
e	
s	