



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	S1611158-R1	Description	61W White 2700K SSL	Type Commercial
Test Date	15 November 2016	Serial Number	SRIS-2590	Description 61SSL-CY810
Report Date	17 November 2016	Photometric Method	Absolute	Manufacturer MEAN WELL
Ambient	24.5 °C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	46.3 %	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-120/277-48-27K -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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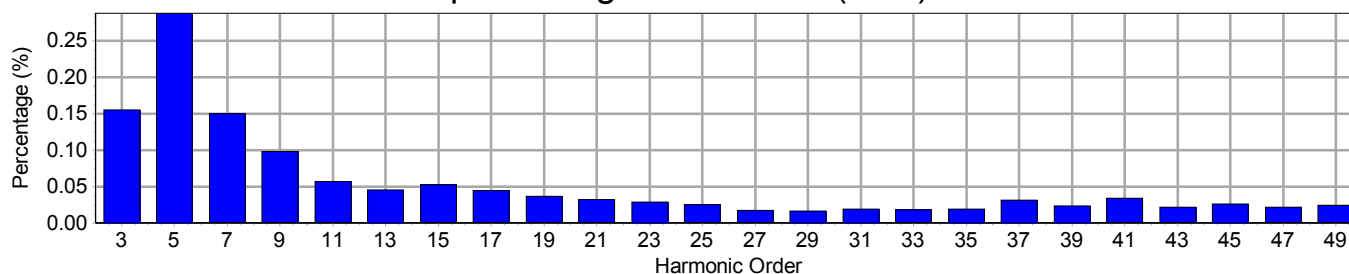
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Electrical Measurements

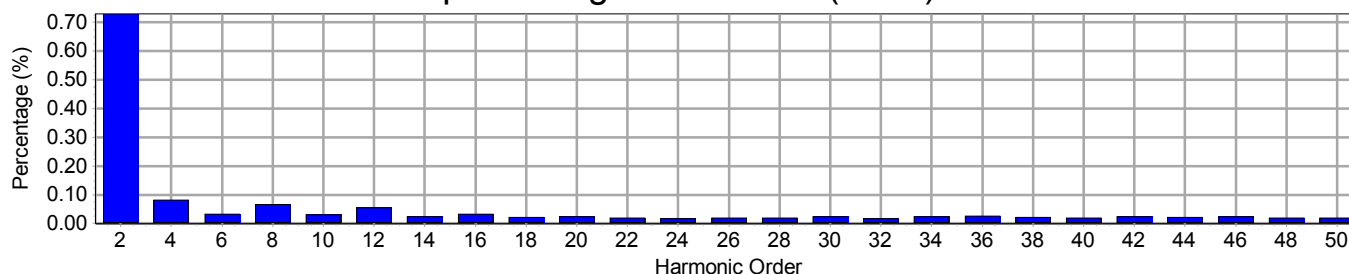
Input

Frequency	60 Hz	Active Power	60.92 W	THDV [ANSI]	0.84 %
Voltage	120.0 V(rms)	Apparent Power	61.33 VA	THDA [ANSI]	4.66 %
Current	0.5109 A(rms)	Power Factor	0.993	Max. Harmonic At	5th order

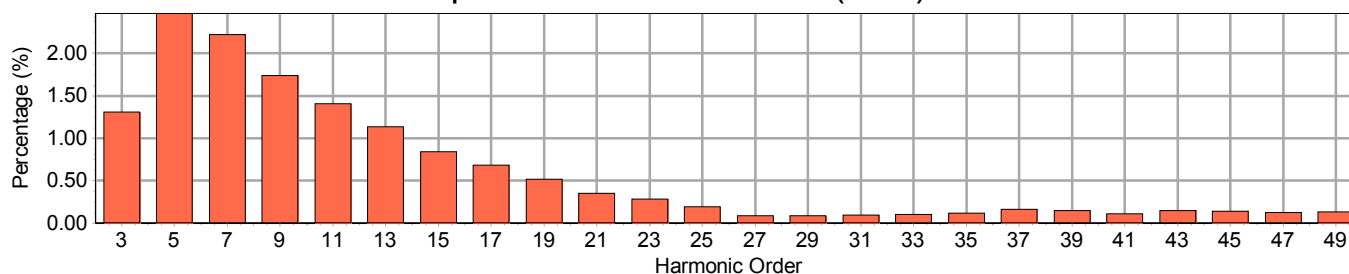
Input Voltage Harmonics (Odd)



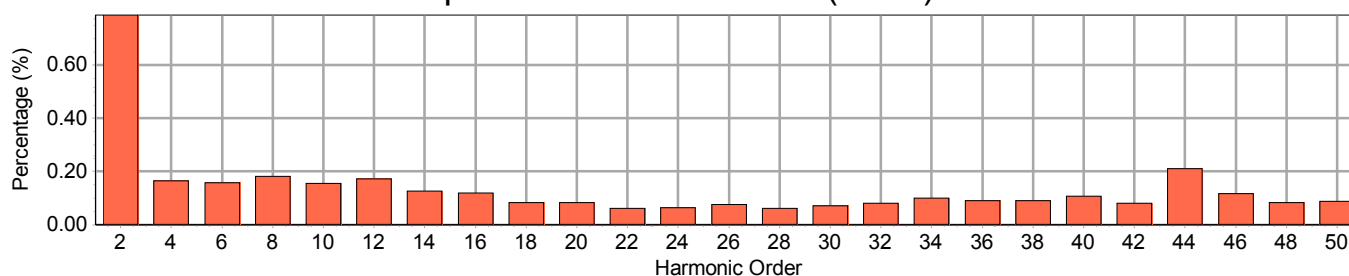
Input Voltage Harmonics (Even)



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	0.731	0.788
3	180	0.155	1.307	4	240	0.081	0.163
5	300	0.288	2.473	6	360	0.031	0.158
7	420	0.150	2.221	8	480	0.065	0.181
9	540	0.098	1.736	10	600	0.030	0.154
11	660	0.056	1.409	12	720	0.055	0.171
13	780	0.046	1.134	14	840	0.023	0.126
15	900	0.052	0.838	16	960	0.032	0.119
17	1020	0.045	0.683	18	1080	0.021	0.082
19	1140	0.037	0.517	20	1200	0.024	0.082
21	1260	0.032	0.352	22	1320	0.020	0.061
23	1380	0.029	0.286	24	1440	0.016	0.064
25	1500	0.025	0.193	26	1560	0.018	0.076
27	1620	0.017	0.087	28	1680	0.019	0.061
29	1740	0.016	0.089	30	1800	0.023	0.070
31	1860	0.019	0.095	32	1920	0.017	0.081
33	1980	0.018	0.098	34	2040	0.024	0.099
35	2100	0.019	0.117	36	2160	0.026	0.090
37	2220	0.031	0.159	38	2280	0.021	0.090
39	2340	0.023	0.148	40	2400	0.019	0.107
41	2460	0.033	0.111	42	2520	0.024	0.081
43	2580	0.021	0.150	44	2640	0.022	0.209
45	2700	0.026	0.140	46	2760	0.024	0.118
47	2820	0.021	0.123	48	2880	0.019	0.084
49	2940	0.024	0.133	50	3000	0.018	0.088



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Photometric Report: S1611158-R1

Prepared for: Lumenpulse · Test Date: 15 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-27K-WW-NO

Photometric Floodlight Characteristics

Nominal SSL Power	61.00 W	
Measured Input Voltage	120.04 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	2968	
Measured Input Power	60.92 W	
Floodlight Luminous Efficacy	48.7 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	4225	
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%)	19.5 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	129.0 °	
Vertical Field Angle (10%)	67.5 °	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	6Hx4V	
Beam Lumens (50%)	1112	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	2397	
Field Efficiency (10%)	N/A	
Spill Lumens	571	
Total Floodlight Lumens	2968	
Total Floodlight Efficiency	N/A	



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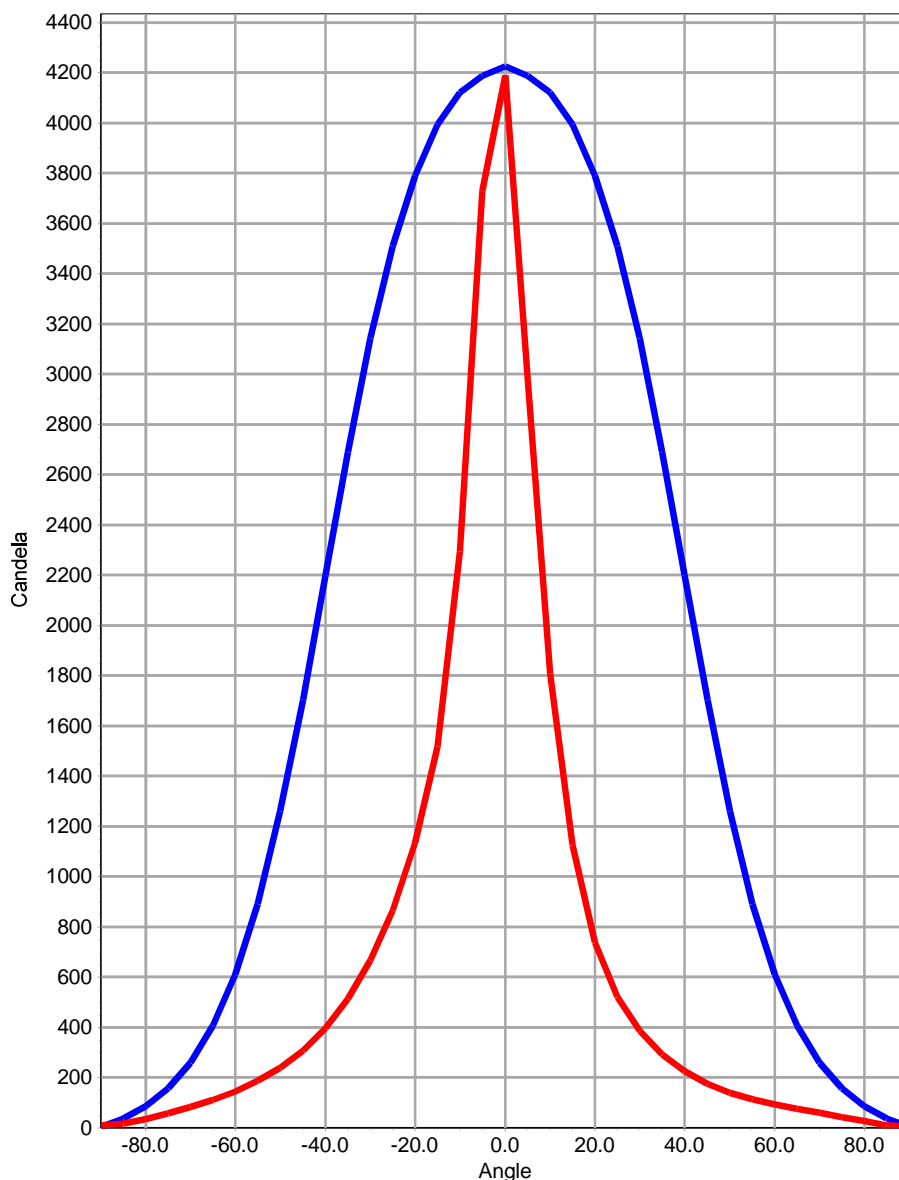
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Prepared for: Lumenpulse · Test Date: 15 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-27K-WW-NO

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

Horizontal Angles	Candela
-90.0	4
-85.0	36
-80.0	85
-75.0	157
-70.0	259
-65.0	405
-60.0	610
-55.0	891
-50.0	1260
-45.0	1704
-40.0	2200
-35.0	2689
-30.0	3143
-25.0	3509
-20.0	3790
-15.0	3994
-10.0	4122
-5.0	4188
0.0	4225
5.0	4188
10.0	4122
15.0	3994
20.0	3790
25.0	3509
30.0	3143
35.0	2689
40.0	2200
45.0	1704
50.0	1260
55.0	891
60.0	610
65.0	405
70.0	259
75.0	157
80.0	85
85.0	36
90.0	4



Vertical Angles	Candela
-90.0	9
-85.0	15
-80.0	35
-75.0	57
-70.0	83
-65.0	112
-60.0	145
-55.0	187
-50.0	240
-45.0	306
-40.0	395
-35.0	514
-30.0	666
-25.0	864
-20.0	1134
-15.0	1518
-10.0	2295
-5.0	3729
0.0	4191
5.0	2977
10.0	1809
15.0	1126
20.0	739
25.0	521
30.0	387
35.0	293
40.0	225
45.0	174
50.0	139
55.0	114
60.0	92
65.0	74
70.0	59
75.0	43
80.0	28
85.0	9
90.0	6

— Horizontal — Vertical



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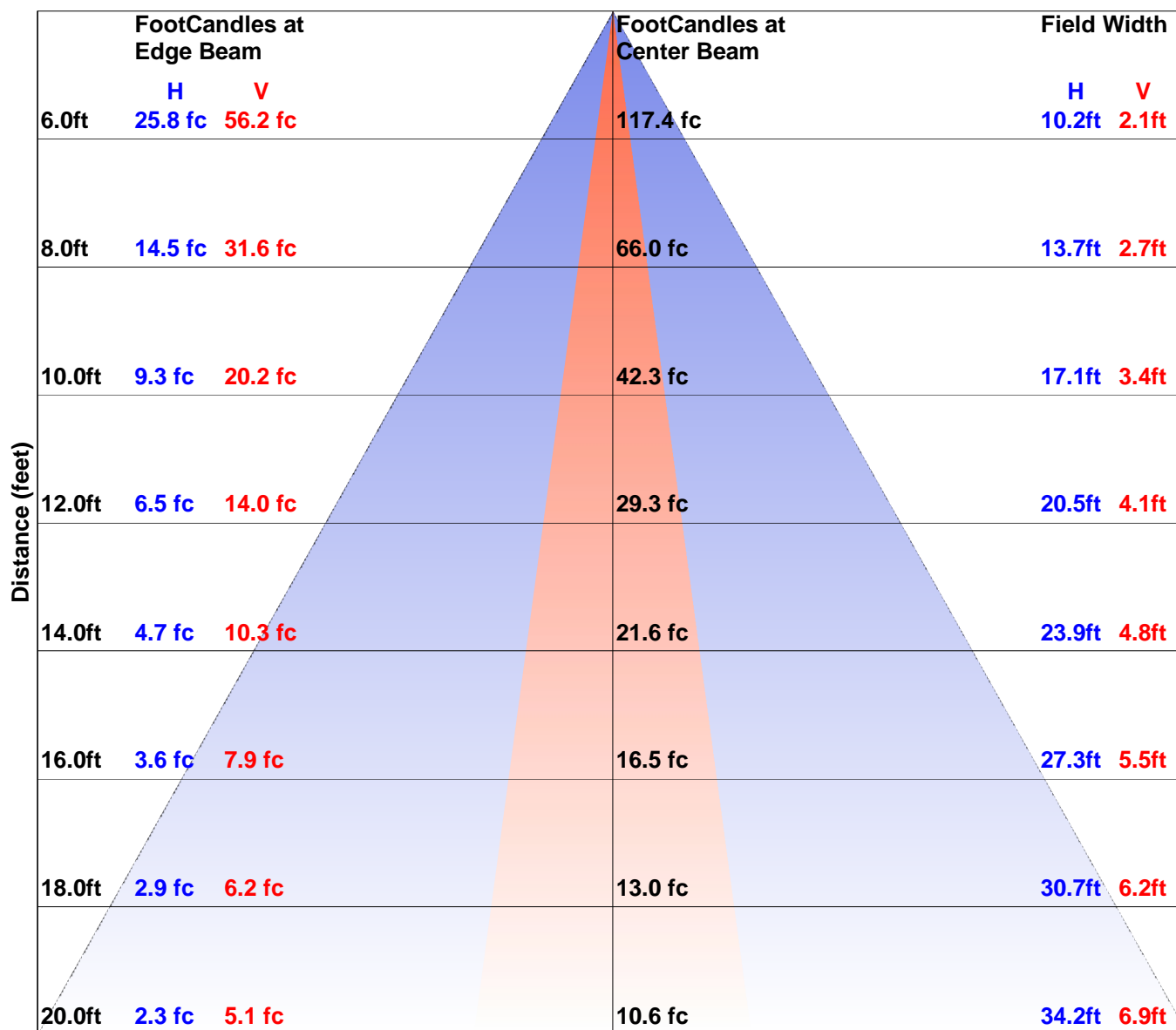
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Photometric Report: S1611158-R1

Prepared for: Lumenpulse · Test Date: 15 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-27K-WW-NO

Downlight Beam



— Horizontal (81.0 °) — Vertical (19.5 °)



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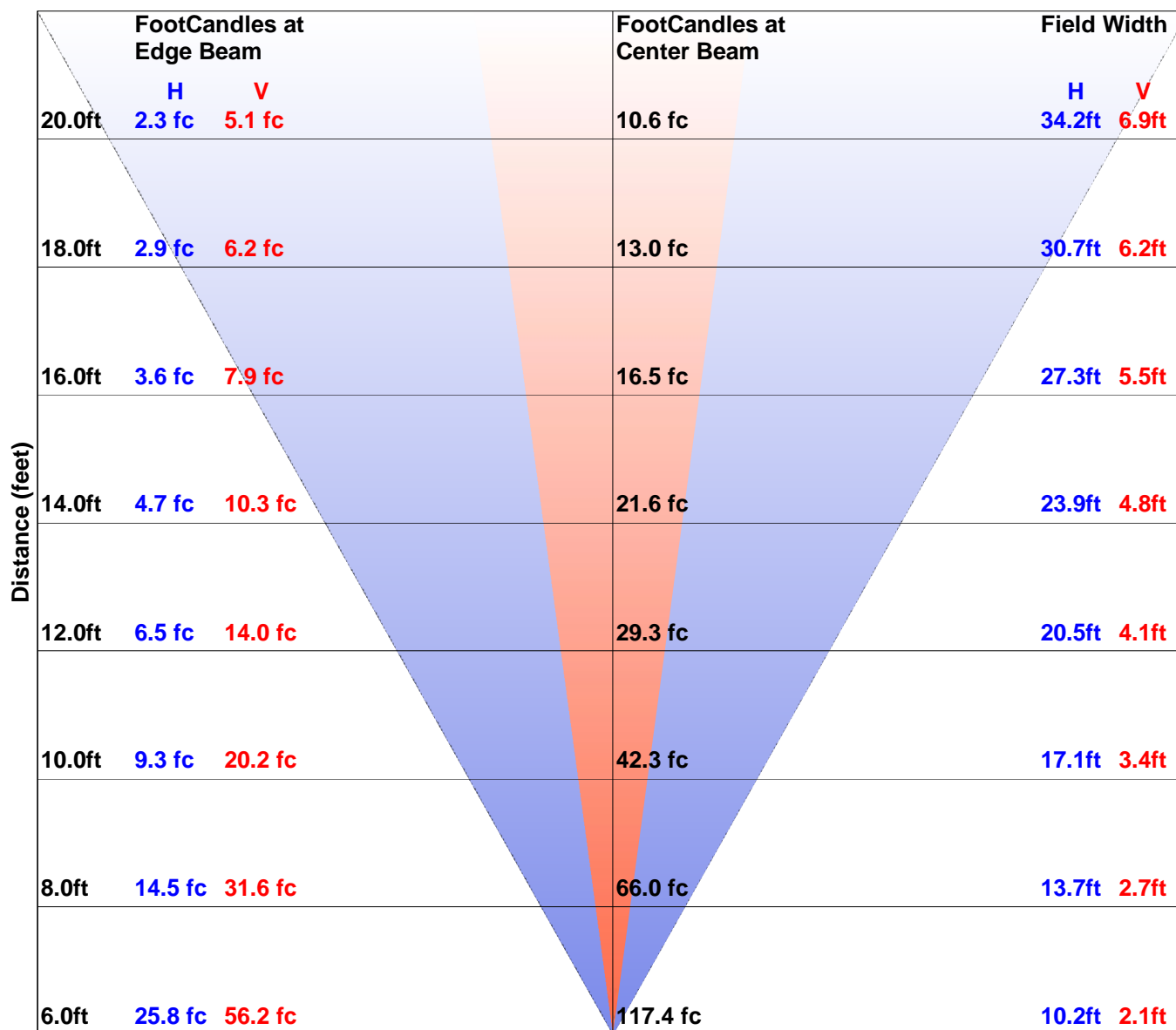
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Prepared for: Lumenpulse · Test Date: 15 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-27K-WW-NO

Uplight Beam



— Horizontal (81.0 °) — Vertical (19.5 °)



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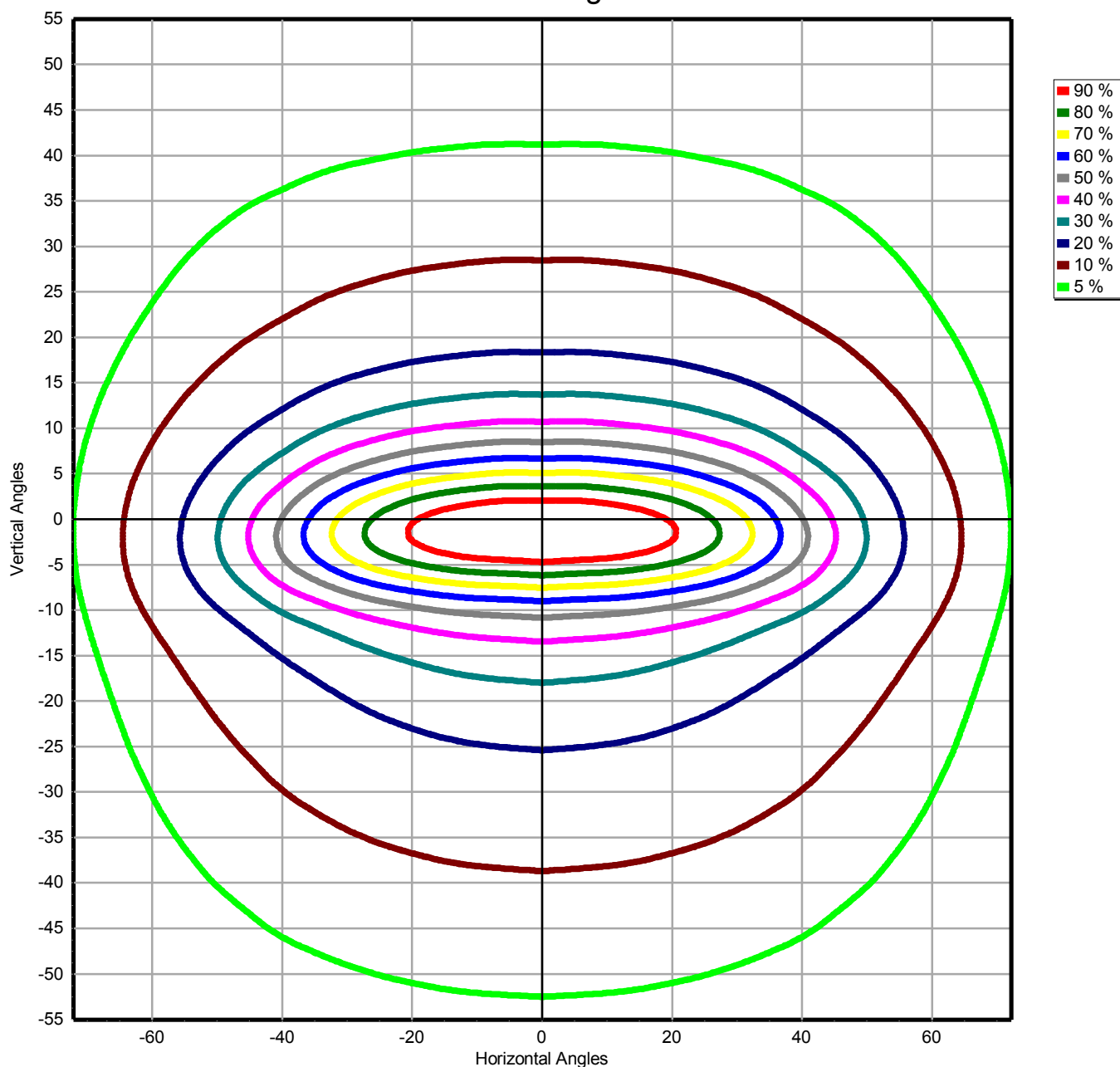
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Photometric Report: S1611158-R1

Prepared for: Lumenpulse · Test Date: 15 November 2016

Floodlight: LUMENFACADE · Lumcat: LOGi HO-120/277-48-27K-WW-NO

ISO Candela Diagram





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IES File Headers

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IESNA:LM-63-2002
[ISSUEDATE] 15 November 2016
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1611158-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOGi HO-120/277-48-27K-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 (2,968 Luminaire Lumens)
[_REFLECTOR] None
[_LENS] Acrylic Half-Frosted Flat Lens with Polycarbonate Diffuser
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 6Hx4V (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	9	9	9	9	9	9	9	9
	-87.5	6	5	5	6	6	5	6	6
	-85.0	15	15	15	15	14	14	14	14
	-82.5	25	24	24	24	24	23	22	22
	-80.0	35	34	34	34	33	31	30	30
	-77.5	46	46	45	45	44	41	39	38
	-75.0	57	57	57	56	55	51	49	47
	-72.5	70	69	68	68	66	62	59	56
	-70.0	83	82	81	80	78	73	70	66
	-67.5	96	96	95	93	91	89	85	77
	-65.0	112	110	109	108	105	101	93	88
	-62.5	128	126	125	123	120	116	106	100
	-60.0	145	144	142	140	136	132	126	113
	-57.5	165	163	161	159	154	149	142	127
	-55.0	187	185	183	179	175	168	161	142
	-52.5	211	210	207	203	197	190	170	159
	-50.0	240	236	233	229	222	213	190	177
	-47.5	271	267	264	258	250	239	227	198
A n g l e s	-45.0	306	303	299	292	281	269	254	220
	-42.5	348	343	338	330	318	303	285	245
	-40.0	395	390	384	374	359	342	321	273
	-37.5	450	444	437	425	406	386	361	304
	-35.0	514	506	497	483	462	436	406	338
	-32.5	586	577	567	549	524	494	458	376
	-30.0	666	658	645	624	593	557	514	418
	-27.5	758	747	732	708	672	629	578	466
	-25.0	864	851	834	805	763	712	652	520
	-22.5	989	975	954	920	869	809	738	582
	-20.0	1134	1117	1092	1053	994	924	839	655
	-17.5	1304	1284	1257	1210	1142	1061	962	744
	-15.0	1518	1494	1463	1411	1332	1238	1122	862
	-12.5	1825	1791	1758	1698	1607	1496	1355	1036
	-10.0	2295	2249	2214	2143	2034	1898	1720	1301
	-7.5	2972	2915	2875	2788	2650	2475	2239	1657
	-5.0	3729	3671	3620	3513	3339	3108	2799	2012



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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	4225	4188	4122	3994	3790	3509	3143	2689	2200
	0.0	4191	4183	4105	3968	3760	3463	3090	2631	2131
	2.5	3679	3691	3616	3488	3304	3034	2706	2306	1866
	5.0	2977	2996	2934	2825	2679	2463	2203	1889	1541
	7.5	2326	2344	2296	2212	2100	1936	1742	1506	1244
	10.0	1809	1822	1786	1722	1638	1515	1371	1197	1002
	12.5	1419	1428	1402	1352	1289	1198	1090	961	816
	15.0	1126	1134	1113	1075	1028	959	879	782	673
	17.5	906	911	895	867	830	778	718	645	562
	20.0	739	742	731	709	681	642	596	540	477
	22.5	614	617	608	590	569	539	503	460	411
	25.0	521	522	515	502	485	460	432	398	359
	27.5	447	449	443	432	419	399	376	349	317
	30.0	387	389	383	374	364	348	330	308	282
	32.5	336	337	333	327	317	305	290	272	251
	35.0	293	294	291	285	278	268	256	241	224
	37.5	256	258	254	250	244	236	227	214	200
	40.0	225	226	224	220	215	208	200	191	179
	42.5	198	198	197	193	190	184	178	170	160
	45.0	174	175	173	171	168	164	159	153	144
A n g l e s	47.5	155	156	154	153	150	146	142	137	130
	50.0	139	139	139	137	135	132	128	124	118
	52.5	125	126	125	123	121	119	116	112	107
	55.0	114	114	113	112	110	107	105	101	96
	57.5	102	103	102	101	100	97	94	92	87
	60.0	92	93	92	91	90	88	86	83	76
	62.5	84	83	83	82	81	79	77	71	66
	65.0	74	75	75	73	73	71	66	61	56
	67.5	66	67	66	65	64	62	56	52	47
	70.0	59	59	58	58	57	50	47	43	40
	72.5	51	51	51	50	44	41	38	36	34
	75.0	43	44	43	39	35	33	32	30	29
	77.5	36	36	33	29	28	26	25	24	23
	80.0	28	26	23	22	21	19	19	19	19
	82.5	16	17	16	15	14	14	14	14	14
	85.0	9	8	8	8	8	9	10	10	9
	87.5	1	2	4	4	5	6	6	7	7
	90.0	6	6	6	6	6	6	6	6	6



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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	9	9	9	9	9	9	9	9
	-87.5	6	6	6	7	6	6	6	6
	-85.0	13	13	12	12	11	10	9	6
	-82.5	21	19	18	16	15	13	11	7
	-80.0	27	26	24	22	19	17	14	8
	-77.5	35	33	30	27	24	20	17	9
	-75.0	44	40	36	33	29	24	19	10
	-72.5	52	48	44	39	34	28	23	11
	-70.0	61	57	51	45	39	32	26	11
	-67.5	71	65	58	51	44	36	28	12
	-65.0	81	74	67	58	50	41	31	14
	-62.5	92	84	75	66	56	45	35	14
	-60.0	104	94	84	73	62	50	38	15
	-57.5	116	105	94	81	68	55	41	16
	-55.0	130	118	104	90	75	60	45	17
	-52.5	145	130	115	98	82	65	49	18
	-50.0	161	144	127	109	90	71	53	19
	-47.5	179	160	140	119	98	77	57	20
	-45.0	198	176	153	130	107	84	61	21
	-42.5	219	194	169	142	116	90	65	22
A n g l e s	-40.0	243	214	185	155	125	97	71	23
	-37.5	269	235	202	168	135	104	75	24
	-35.0	297	259	220	183	146	112	79	25
	-32.5	329	285	241	198	157	119	85	25
	-30.0	364	312	262	214	169	127	90	27
	-27.5	402	343	286	232	182	136	95	28
	-25.0	446	378	313	252	195	144	101	29
	-22.5	496	417	342	272	210	154	106	30
	-20.0	554	461	375	296	226	164	111	31
	-17.5	625	516	416	325	245	175	118	32
	-15.0	718	587	467	360	267	189	125	33
	-12.5	851	687	537	406	296	204	132	34
	-10.0	1052	831	634	466	329	221	141	34
	-7.5	1314	1010	746	531	365	239	148	35
	-5.0	1569	1177	845	586	393	253	153	36
	-2.5	1704	1260	891	610	405	259	157	36
	0.0	1657	1224	866	597	400	259	157	36
	2.5	1470	1099	791	556	380	251	154	35
	5.0	1235	942	695	501	351	237	149	35
	7.5	1015	791	599	443	319	222	142	34
	10.0	831	663	514	391	289	206	134	33
	12.5	689	561	445	346	261	190	127	32
	15.0	577	479	388	307	236	175	118	31
	17.5	489	412	339	274	214	161	110	30
	20.0	420	359	300	246	195	148	104	29
	22.5	365	316	268	222	179	138	97	27
	25.0	322	282	241	202	164	128	91	26
	27.5	287	254	219	186	152	119	85	25
	30.0	257	229	200	170	140	111	80	23
	32.5	230	207	181	156	129	103	75	22
	35.0	207	187	166	144	119	96	70	21
	37.5	186	169	151	131	110	89	65	20
	40.0	167	154	137	120	101	82	60	19
	42.5	151	139	125	110	93	76	56	18



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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	136	126	114	101	86	70	51	33	17
	47.5	123	115	104	92	79	64	47	31	16
	50.0	112	104	94	84	71	58	43	28	14
	52.5	101	94	86	75	64	51	38	25	13
	55.0	92	85	75	65	56	44	33	22	12
	57.5	81	74	65	58	48	39	29	19	11
	60.0	70	64	57	50	42	35	25	17	10
	62.5	61	55	50	43	37	29	22	15	9
	65.0	52	48	42	38	32	26	20	14	9
	67.5	44	40	37	33	28	24	18	13	8
	70.0	38	35	32	28	25	20	16	12	8
	72.5	33	30	27	25	21	18	14	11	7
	75.0	27	25	24	21	18	16	13	10	7
	77.5	22	21	19	17	15	13	11	9	7
	80.0	18	17	15	14	12	11	10	8	6
	82.5	13	12	12	11	11	10	8	7	6
	85.0	10	10	9	9	9	8	7	6	5
87.5	7	7	6	7	6	6	6	5	5	
90.0	6	6	6	6	6	6	6	6	6	
A n g l e s										



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Horizontal Angles

	90.0
V e r t i c a l	-90.0 9
	-87.5 6
	-85.0 5
	-82.5 6
	-80.0 6
	-77.5 5
	-75.0 6
	-72.5 6
	-70.0 5
	-67.5 6
	-65.0 5
	-62.5 5
	-60.0 5
	-57.5 5
	-55.0 4
	-52.5 5
	-50.0 5
	-47.5 4
	-45.0 4
	-42.5 5
A n g l e s	-40.0 4
	-37.5 4
	-35.0 4
	-32.5 4
	-30.0 4
	-27.5 4
	-25.0 4
	-22.5 4
	-20.0 4
	-17.5 4
	-15.0 4
	-12.5 4
	-10.0 4
	-7.5 3
	-5.0 4
	-2.5 4
	0.0 3
	2.5 4
	5.0 4
	7.5 4
	10.0 4
	12.5 4
	15.0 4
	17.5 4
	20.0 4
	22.5 4
	25.0 5
	27.5 5
	30.0 4
	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	