



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	S1512083-R1	Description	61W White 4000K SSL	Type Commercial
Test Date	8 December 2015	Serial Number	SRIS 2219	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	21.2 %	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.	LOGI-HO-120/277-48-40K-30x60-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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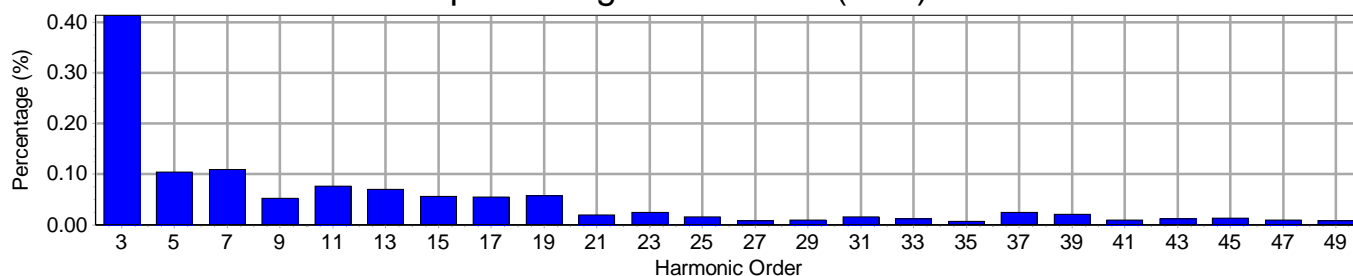
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Electrical Measurements

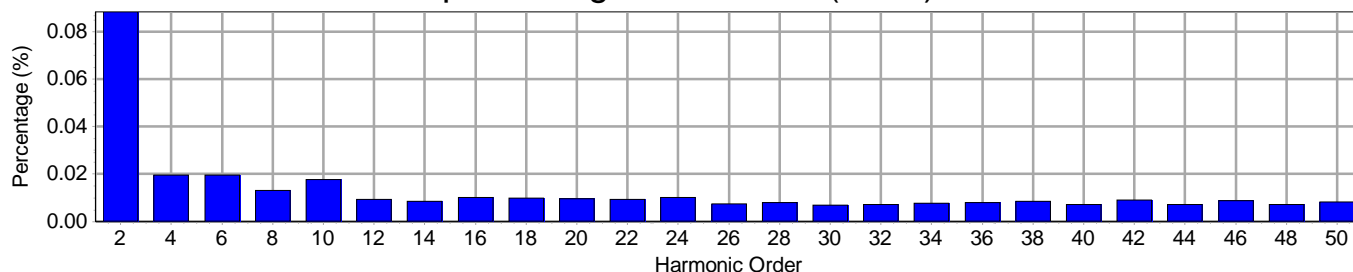
Input

Frequency	60 Hz	Active Power	61.29 W	THDV [ANSI]	0.48 %
Voltage	120.0 V(rms)	Apparent Power	61.59 VA	THDA [ANSI]	5.15 %
Current	0.5131 A(rms)	Power Factor	0.995	Max. Harmonic At	5th order

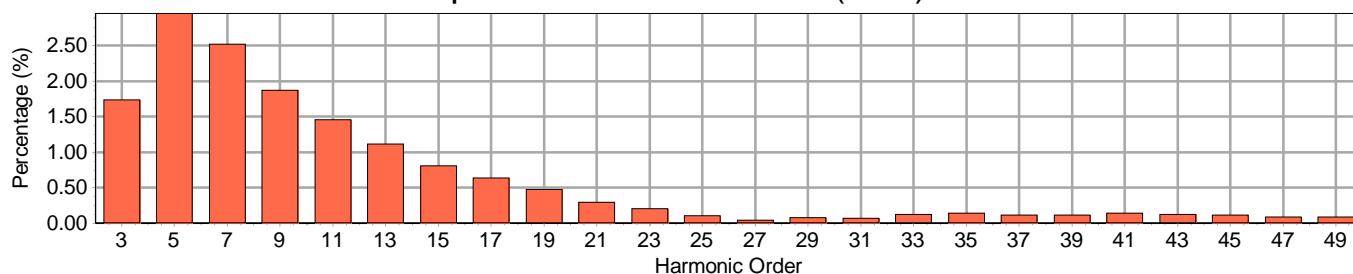
Input Voltage Harmonics (Odd)



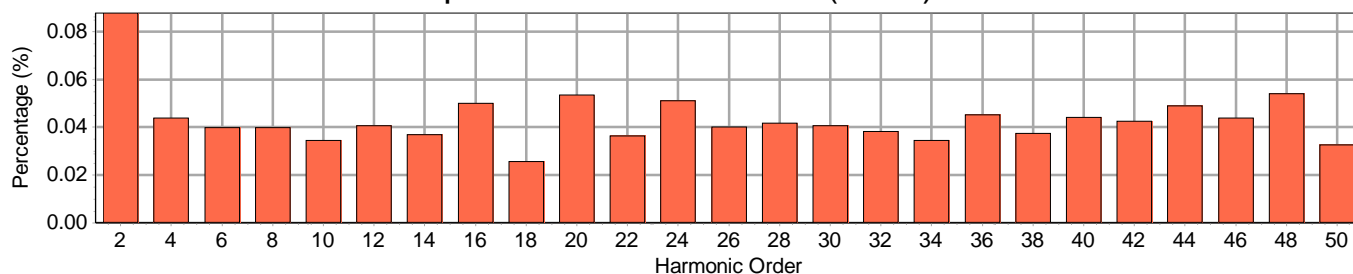
Input Voltage Harmonics (Even)



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	0.089	0.088
3	180	0.414	1.739	4	240	0.020	0.044
5	300	0.104	2.957	6	360	0.020	0.040
7	420	0.109	2.518	8	480	0.013	0.040
9	540	0.052	1.871	10	600	0.018	0.034
11	660	0.077	1.456	12	720	0.009	0.041
13	780	0.070	1.114	14	840	0.008	0.037
15	900	0.057	0.804	16	960	0.010	0.050
17	1020	0.055	0.632	18	1080	0.010	0.026
19	1140	0.058	0.470	20	1200	0.010	0.054
21	1260	0.020	0.297	22	1320	0.009	0.036
23	1380	0.025	0.200	24	1440	0.010	0.051
25	1500	0.016	0.099	26	1560	0.008	0.040
27	1620	0.008	0.043	28	1680	0.008	0.042
29	1740	0.009	0.073	30	1800	0.007	0.041
31	1860	0.015	0.067	32	1920	0.007	0.038
33	1980	0.012	0.121	34	2040	0.008	0.034
35	2100	0.007	0.142	36	2160	0.008	0.045
37	2220	0.024	0.109	38	2280	0.009	0.037
39	2340	0.021	0.112	40	2400	0.007	0.044
41	2460	0.010	0.137	42	2520	0.009	0.043
43	2580	0.012	0.118	44	2640	0.007	0.049
45	2700	0.013	0.111	46	2760	0.009	0.044
47	2820	0.010	0.086	48	2880	0.007	0.054
49	2940	0.009	0.087	50	3000	0.008	0.033



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Photometric Report: S1512083-R1

Prepared for: Lumenpulse · Test Date: 08 December 2015

Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-40K-30x60-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	61.00 W	
Measured Input Voltage	120.04 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	3525	
Measured Input Power	61.29 W	
Floodlight Luminous Efficacy	57.5 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	4625	
Maximum Candela Location	0.0 H, 1.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	71.0 °	
Vertical Beam Angle (50%)	36.5 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	102.0 °	
Vertical Field Angle (10%)	65.0 °	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	6Hx4V	
Beam Lumens (50%)	2145	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	3131	
Field Efficiency (10%)	N/A	
Spill Lumens	394	
Total Floodlight Lumens	3525	
Total Floodlight Efficiency	N/A	



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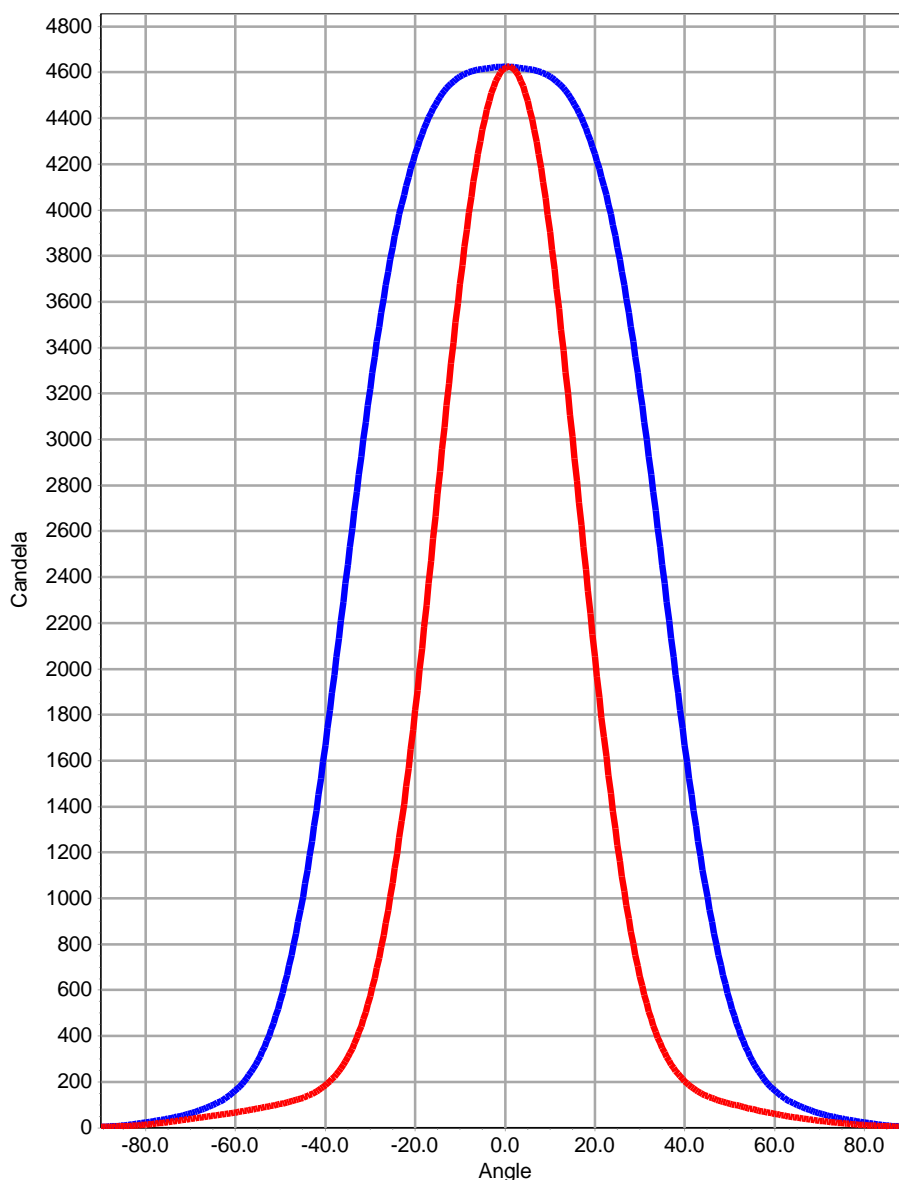
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Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-40K-30x60-SI-NO

Maximum Candela Trace (Max. Location: 0.0 H, 1.0 V)

Horizontal Angles	Candela
-90.0	5
-85.0	9
-80.0	23
-75.0	40
-70.0	63
-65.0	99
-60.0	162
-55.0	293
-50.0	551
-45.0	1005
-40.0	1668
-35.0	2452
-30.0	3221
-25.0	3837
-20.0	4245
-15.0	4477
-10.0	4581
-5.0	4615
0.0	4625
5.0	4615
10.0	4581
15.0	4477
20.0	4245
25.0	3837
30.0	3221
35.0	2452
40.0	1668
45.0	1005
50.0	551
55.0	293
60.0	162
65.0	99
70.0	63
75.0	40
80.0	23
85.0	9
90.0	5



Vertical Angles	Candela
-90.0	3
-85.0	7
-80.0	13
-75.0	25
-70.0	39
-65.0	52
-60.0	67
-55.0	84
-50.0	104
-45.0	130
-40.0	185
-35.0	307
-30.0	574
-25.0	1067
-20.0	1820
-15.0	2763
-10.0	3679
-5.0	4350
0.0	4618
5.0	4476
10.0	3905
15.0	3011
20.0	2056
25.0	1232
30.0	660
35.0	347
40.0	203
45.0	138
50.0	105
55.0	81
60.0	61
65.0	44
70.0	30
75.0	20
80.0	12
85.0	7
90.0	3

— Horizontal — Vertical



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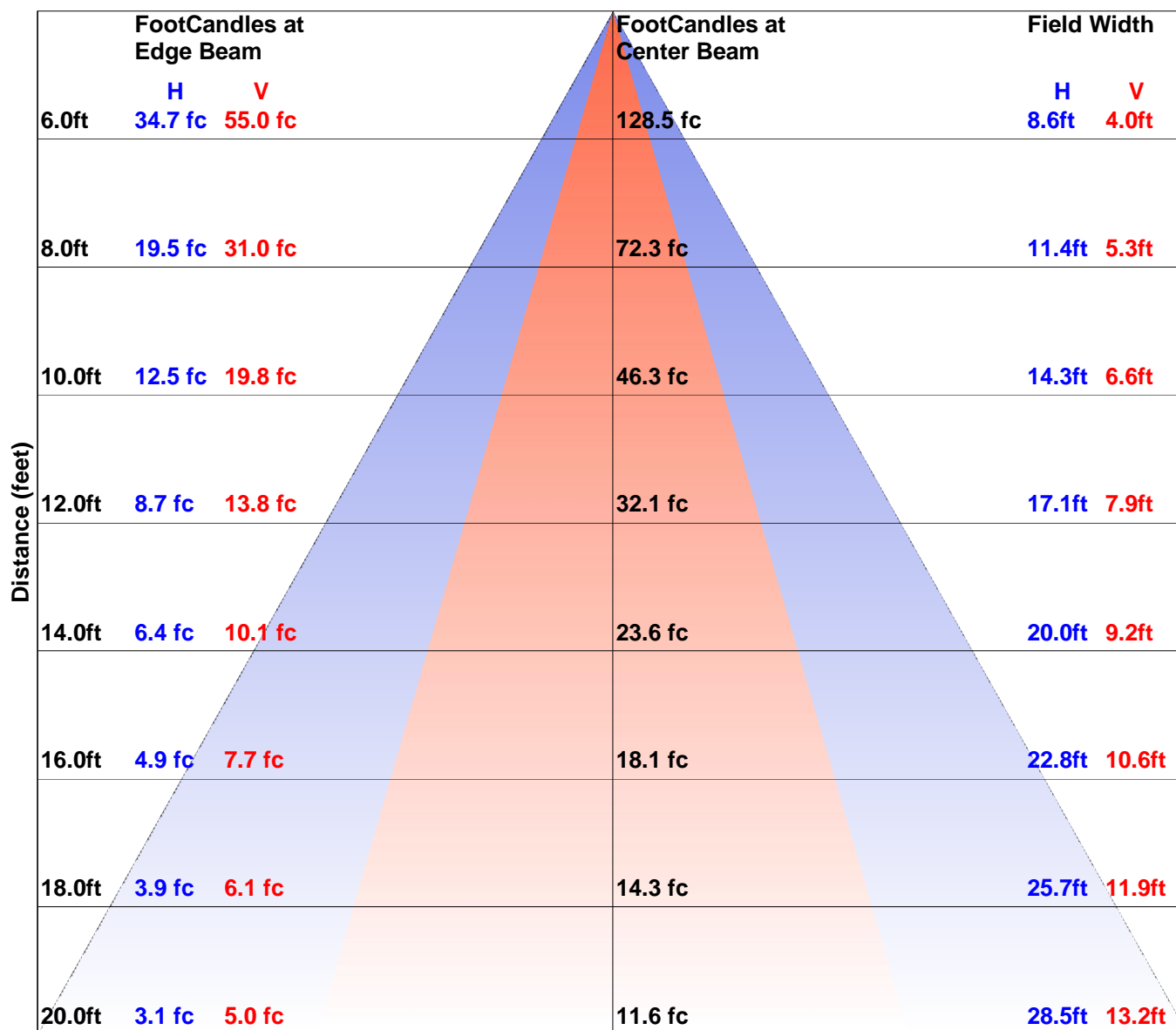
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Downlight Beam



— Horizontal (71.0 °) — Vertical (36.5 °)



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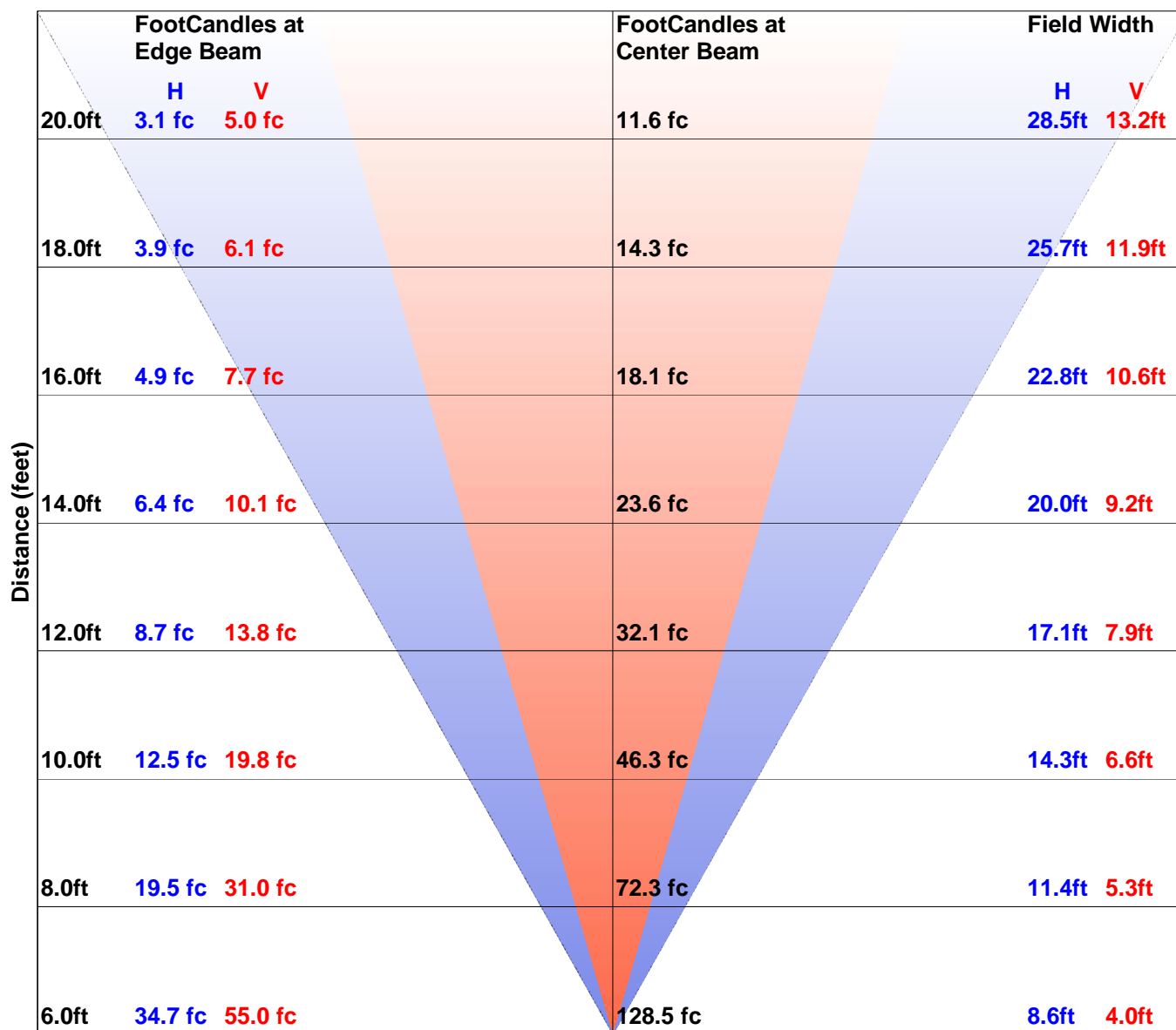
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Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-40K-30x60-SI-NO

Uplight Beam



— Horizontal (71.0 °) — Vertical (36.5 °)



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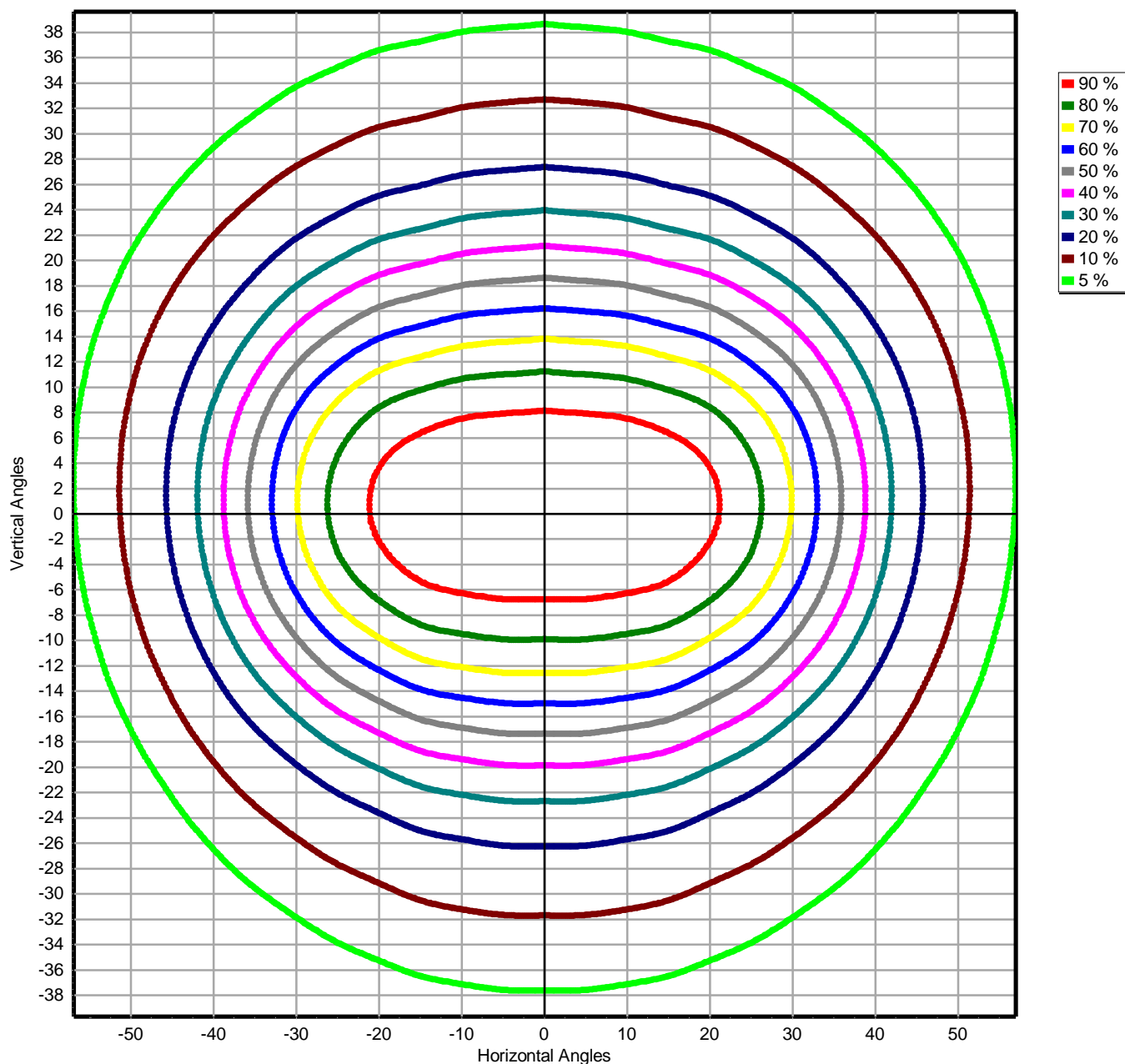
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ISO Candela Diagram





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 08 December 2015
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1512083-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOGI-HO-120/277-48-40K-30x60-SI-NO
[LUMINAIRE] LUMENFACADE
[LAMP] (Clusters of 48 Cree XPE2 LED's) 61W SSL c/w Driver LPF-60-24 @ 120.00V
[_BURNING] Axial (3,525 Luminaire Lumens)
[_REFLECTOR] 48 Collimators
[_LENS] Polycarbonate
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 6Hx4V (Max. CP at 0.0H,1.0V)
[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 A n g l e s	-90.0	3	2	3	3	4	3	5	4
	-80.0	13	13	14	14	14	13	14	12
	-70.0	39	38	37	36	34	32	30	27
	-60.0	67	68	66	66	63	61	58	50
	-50.0	104	105	102	100	97	93	88	76
	-40.0	185	184	177	169	155	144	131	105
	-35.0	307	305	291	269	237	208	177	129
	-30.0	574	571	538	492	415	348	278	175
	-25.0	1067	1063	1002	925	778	643	494	265
	-22.5	1411	1406	1336	1241	1056	874	668	340
	-20.0	1820	1814	1736	1625	1405	1172	900	441
	-17.5	2277	2275	2190	2070	1812	1534	1191	575
	-15.0	2763	2761	2677	2548	2268	1948	1531	738
	-12.5	3241	3240	3162	3035	2743	2385	1901	925
	-10.0	3679	3681	3610	3489	3196	2814	2277	1124
	-7.5	4058	4059	3999	3886	3603	3208	2626	1317
	-5.0	4350	4349	4300	4195	3927	3522	2915	1480
	-4.5	4396	4395	4348	4243	3979	3574	2963	1510
	-4.0	4437	4437	4391	4288	4026	3619	3007	1533
	-3.5	4477	4473	4431	4329	4071	3663	3045	1556
	-3.0	4509	4507	4466	4363	4109	3702	3083	1581
	-2.5	4538	4536	4495	4395	4142	3734	3116	1600
	-2.0	4563	4560	4522	4421	4173	3764	3143	1617
	-1.5	4582	4579	4542	4441	4196	3788	3167	1632
	-1.0	4600	4594	4557	4458	4214	3806	3187	1643
	-0.5	4613	4606	4571	4470	4230	3821	3201	1653
	0.0	4618	4614	4578	4474	4239	3832	3212	1662
	0.5	4623	4616	4580	4479	4243	3836	3219	1666
	1.0	4625	4615	4581	4477	4245	3837	3221	1668
	1.5	4620	4611	4575	4469	4240	3834	3219	1669
	2.0	4612	4602	4565	4459	4229	3824	3214	1666
	2.5	4601	4589	4553	4444	4218	3811	3203	1660
	3.0	4584	4570	4533	4422	4199	3794	3187	1654
	3.5	4563	4548	4509	4398	4172	3770	3169	1641
	4.0	4539	4522	4484	4367	4146	3742	3144	1627



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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	4.5	4510	4491	4451	4332	4112	3710	3117	2368	1615
	5.0	4476	4457	4414	4294	4073	3673	3086	2341	1595
	7.5	4243	4215	4166	4032	3819	3426	2867	2167	1476
	10.0	3905	3865	3810	3664	3461	3079	2562	1922	1305
	12.5	3478	3434	3370	3218	3023	2662	2200	1636	1110
	15.0	3011	2965	2897	2743	2560	2229	1822	1345	913
	17.5	2530	2481	2414	2261	2093	1795	1455	1066	726
	20.0	2056	2010	1944	1801	1652	1399	1126	821	566
	22.5	1619	1576	1515	1387	1264	1058	845	621	438
	25.0	1232	1193	1143	1036	937	781	625	465	336
	30.0	660	637	606	544	494	416	341	268	211
	35.0	347	336	322	295	272	237	206	173	147
	40.0	203	198	193	180	173	157	143	127	113
	50.0	105	106	103	100	97	92	87	79	73
	60.0	61	61	58	55	55	52	50	46	40
	70.0	30	31	30	29	27	24	22	21	18
	80.0	12	12	10	10	8	9	9	8	8
	90.0	3	3	3	2	3	5	4	5	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	4	5	6	5	5	7	6
	-80.0	11	12	10	9	9	8	7	5
	-70.0	26	25	20	19	14	12	10	7
	-60.0	44	40	35	30	24	19	14	6
	-50.0	69	60	52	42	34	25	18	8
	-40.0	94	82	71	58	45	33	23	8
	-35.0	110	95	80	66	51	38	26	9
	-30.0	137	112	92	74	57	43	29	9
	-25.0	190	141	107	83	63	47	32	8
	-22.5	230	160	118	89	66	51	32	10
	-20.0	285	189	131	94	70	51	33	10
	-17.5	359	224	147	102	73	53	35	9
	-15.0	449	268	168	111	78	55	35	10
	-12.5	554	320	189	120	82	57	36	10
	-10.0	669	377	212	130	85	57	38	9
	-7.5	782	432	238	141	90	60	38	10
	-5.0	882	485	261	148	93	62	38	9
	-4.5	899	492	264	152	94	61	39	9
	-4.0	917	502	268	153	94	62	38	10
	-3.5	930	510	271	153	95	62	39	10
A n g l e s	-3.0	945	516	276	155	94	62	38	9
	-2.5	958	525	278	155	95	62	39	9
	-2.0	969	528	281	157	97	63	39	9
	-1.5	978	534	284	159	98	63	39	10
	-1.0	988	540	286	159	96	63	39	10
	-0.5	993	543	288	161	98	63	39	10
	0.0	1000	546	290	161	97	62	39	9
	0.5	1003	550	290	162	98	63	39	9
	1.0	1005	551	293	162	99	63	40	9
	1.5	1007	552	293	163	99	63	40	9
	2.0	1007	554	293	162	98	63	40	9
	2.5	1003	551	293	163	100	63	40	10
	3.0	999	550	293	163	98	63	40	9
	3.5	995	549	291	163	98	62	40	10
	4.0	987	544	291	162	99	63	40	10
	4.5	978	540	290	163	98	62	39	10
	5.0	970	537	287	162	97	63	39	10
	7.5	900	503	275	157	96	62	39	11
	10.0	802	456	254	149	95	62	39	10
	12.5	690	400	231	139	90	60	37	10
	15.0	574	342	206	131	87	58	37	9
	17.5	467	288	181	120	84	55	36	9
	20.0	376	243	160	111	78	53	35	9
	22.5	299	202	141	101	73	51	33	9
	25.0	240	171	125	93	70	48	32	9
	30.0	165	129	103	80	60	43	29	7
	35.0	126	104	85	68	51	38	25	8
	40.0	99	84	72	58	45	33	22	8
	50.0	66	58	48	39	30	22	17	6
	60.0	35	31	25	23	19	14	11	5
	70.0	17	15	15	12	12	9	8	5
	80.0	9	9	7	7	7	6	5	3
	90.0	4	5	4	6	6	4	4	5



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Horizontal Angles

	90.0
V e r t i c a l	-90.0 3
	-80.0 5
	-70.0 4
	-60.0 5
	-50.0 5
	-40.0 3
	-35.0 5
	-30.0 5
	-25.0 4
	-22.5 5
	-20.0 5
	-17.5 4
	-15.0 5
	-12.5 5
	-10.0 5
	-7.5 5
	-5.0 4
	-4.5 5
	-4.0 4
	-3.5 4
A n g l e s	-3.0 5
	-2.5 4
	-2.0 5
	-1.5 5
	-1.0 5
	-0.5 5
	0.0 6
	0.5 5
	1.0 5
	1.5 6
	2.0 4
	2.5 4
	3.0 6
	3.5 5
	4.0 4
	4.5 6
	5.0 4
	7.5 6
	10.0 4
	12.5 4
	15.0 6
	17.5 4
	20.0 6
	22.5 6
	25.0 4
	30.0 6
	35.0 4
	40.0 5
	50.0 4
	60.0 6
	70.0 5
	80.0 4
	90.0 6