



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	S1606302-R1	Description	72W White 4000K SSL	Type Commercial
Test Date	30 June 2016	Serial Number	SRIS 2439	Description 71SSL-CY1101
Report Date	8 July 2016	Photometric Method	Absolute	Manufacturer Mean Well
Ambient	24.8 °C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	51.3 %	Test Position	Axial	Voltage Tap 120.00 V
Lamp Type	SSL	Comments	Clusters of CREE XPE2 LED's	Power Factor 0.9900

Floodlight Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	48 Collimators Acrylic	X 4.0000
Name	LUMENFACADE	Housing	Extruded Aluminum	Y 0.1667
Catalog No.	LOG-HO-120-48-40K-50x80-SI-NO	Lens	Glass/Polycarbonate	Z 0.0000

Lamp Stabilization Time: 55 minutes

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	2015/10/05	2016/10/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	051202970	2014/10/24	2016/10/24



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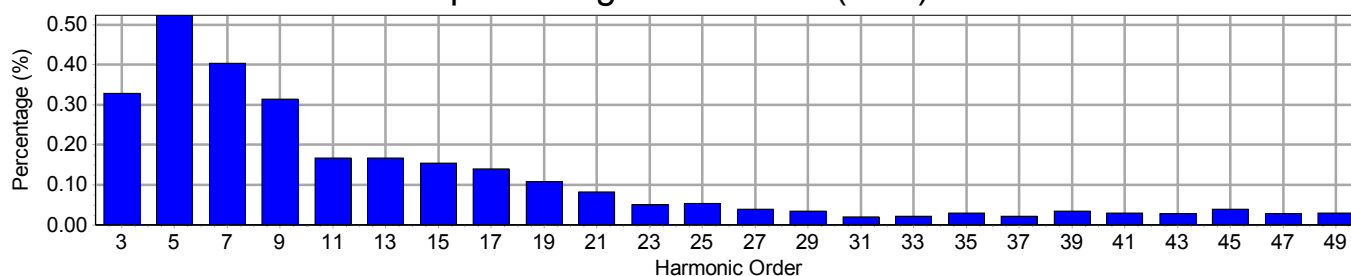
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Electrical Measurements

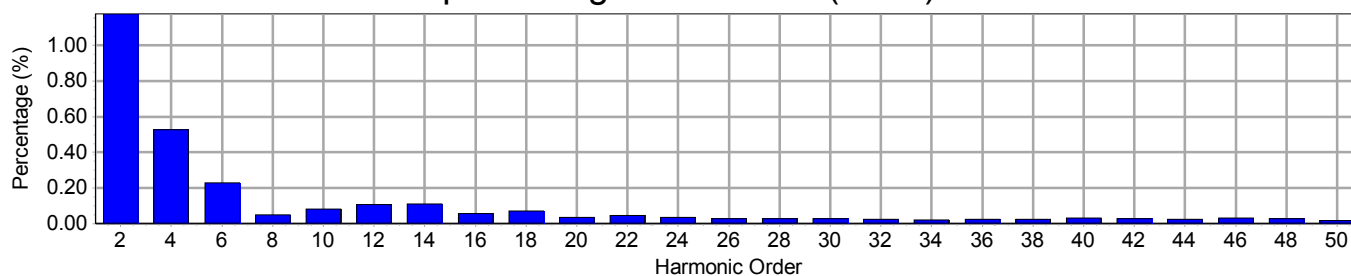
Input

Frequency	60 Hz	Active Power	62.25 W	THDV [ANSI]	1.60 %
Voltage	120.1 V(rms)	Apparent Power	62.82 VA	THDA [ANSI]	4.35 %
Current	0.5232 A(rms)	Power Factor	0.991	Max. Harmonic At	5th order

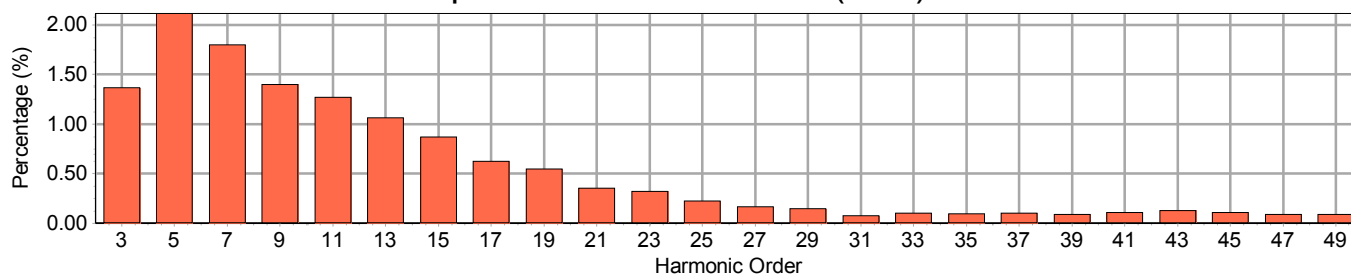
Input Voltage Harmonics (Odd)



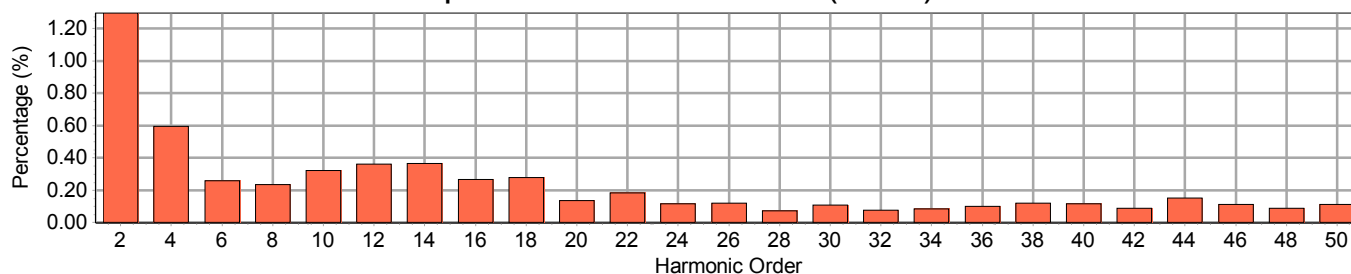
Input Voltage Harmonics (Even)



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	1.180	1.298
3	180	0.329	1.369	4	240	0.527	0.596
5	300	0.525	2.120	6	360	0.229	0.261
7	420	0.404	1.800	8	480	0.050	0.235
9	540	0.315	1.401	10	600	0.081	0.324
11	660	0.167	1.270	12	720	0.107	0.361
13	780	0.167	1.063	14	840	0.110	0.367
15	900	0.154	0.871	16	960	0.056	0.266
17	1020	0.140	0.625	18	1080	0.070	0.281
19	1140	0.107	0.544	20	1200	0.035	0.138
21	1260	0.082	0.351	22	1320	0.046	0.184
23	1380	0.051	0.322	24	1440	0.033	0.117
25	1500	0.054	0.226	26	1560	0.026	0.121
27	1620	0.039	0.168	28	1680	0.026	0.073
29	1740	0.034	0.143	30	1800	0.028	0.110
31	1860	0.019	0.077	32	1920	0.023	0.079
33	1980	0.022	0.102	34	2040	0.020	0.086
35	2100	0.030	0.092	36	2160	0.025	0.102
37	2220	0.022	0.099	38	2280	0.025	0.120
39	2340	0.034	0.085	40	2400	0.032	0.118
41	2460	0.030	0.106	42	2520	0.025	0.089
43	2580	0.028	0.124	44	2640	0.022	0.152
45	2700	0.039	0.107	46	2760	0.031	0.114
47	2820	0.027	0.088	48	2880	0.027	0.088
49	2940	0.029	0.090	50	3000	0.018	0.114



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Photometric Report: S1606302-R1

Prepared for: Lumenpulse · Test Date: 30 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-50x80-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	72.00 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	3767	
Measured Input Power	62.25 W	
Floodlight Luminous Efficacy	60.5 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	3449	
Maximum Candela Location	0.0 H, 2.5 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	82.0 °	
Vertical Beam Angle (50%)	51.0 °	
Horizontal Field Angle (10%)	118.0 °	4) All data published in this report are based on absolute photometry.
Vertical Field Angle (10%)	83.0 °	
IES/NEMA Type Classification	6Hx5V	
Beam Lumens (50%)	2513	5) The original electronic file or paper report cannot be edited in whole or in part without written consent of Spectralux Industries Inc.
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	3504	
Field Efficiency (10%)	N/A	
Spill Lumens	264	
Total Floodlight Lumens	3767	
Total Floodlight Efficiency	N/A	



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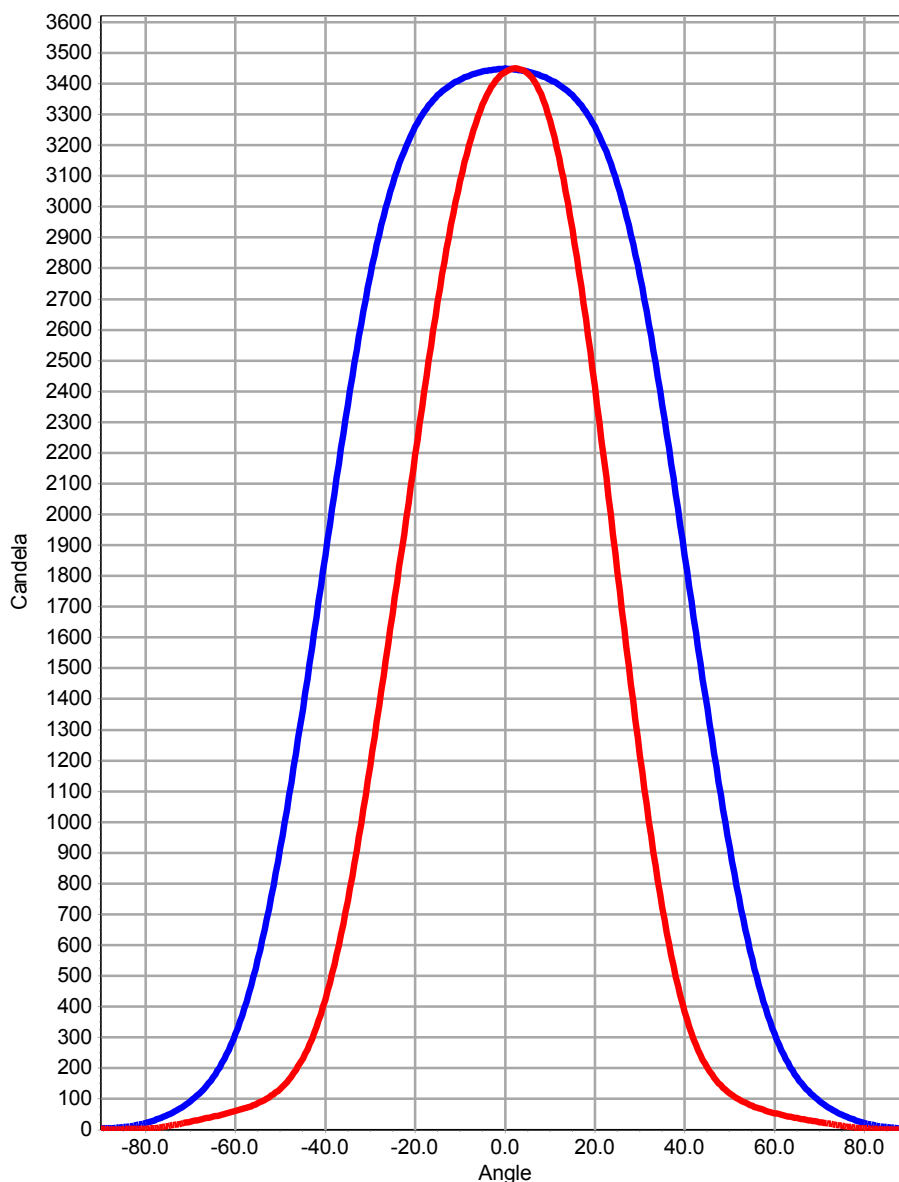
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Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-50x80-SI-NO

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

Horizontal Angles	Candela
-90.0	4
-85.0	8
-80.0	22
-75.0	48
-70.0	92
-65.0	170
-60.0	311
-55.0	554
-50.0	914
-45.0	1368
-40.0	1867
-35.0	2355
-30.0	2775
-25.0	3074
-20.0	3260
-15.0	3362
-10.0	3413
-5.0	3439
0.0	3449
5.0	3439
10.0	3413
15.0	3362
20.0	3260
25.0	3074
30.0	2775
35.0	2355
40.0	1867
45.0	1368
50.0	914
55.0	554
60.0	311
65.0	170
70.0	92
75.0	48
80.0	22
85.0	8
90.0	4



Vertical Angles	Candela
-90.0	3
-85.0	2
-80.0	4
-75.0	12
-70.0	26
-65.0	42
-60.0	61
-55.0	86
-50.0	133
-45.0	232
-40.0	424
-35.0	744
-30.0	1183
-25.0	1678
-20.0	2193
-15.0	2690
-10.0	3082
-5.0	3331
0.0	3438
5.0	3434
10.0	3280
15.0	2926
20.0	2416
25.0	1812
30.0	1219
35.0	722
40.0	383
45.0	202
50.0	118
55.0	78
60.0	54
65.0	38
70.0	25
75.0	13
80.0	5
85.0	1
90.0	3



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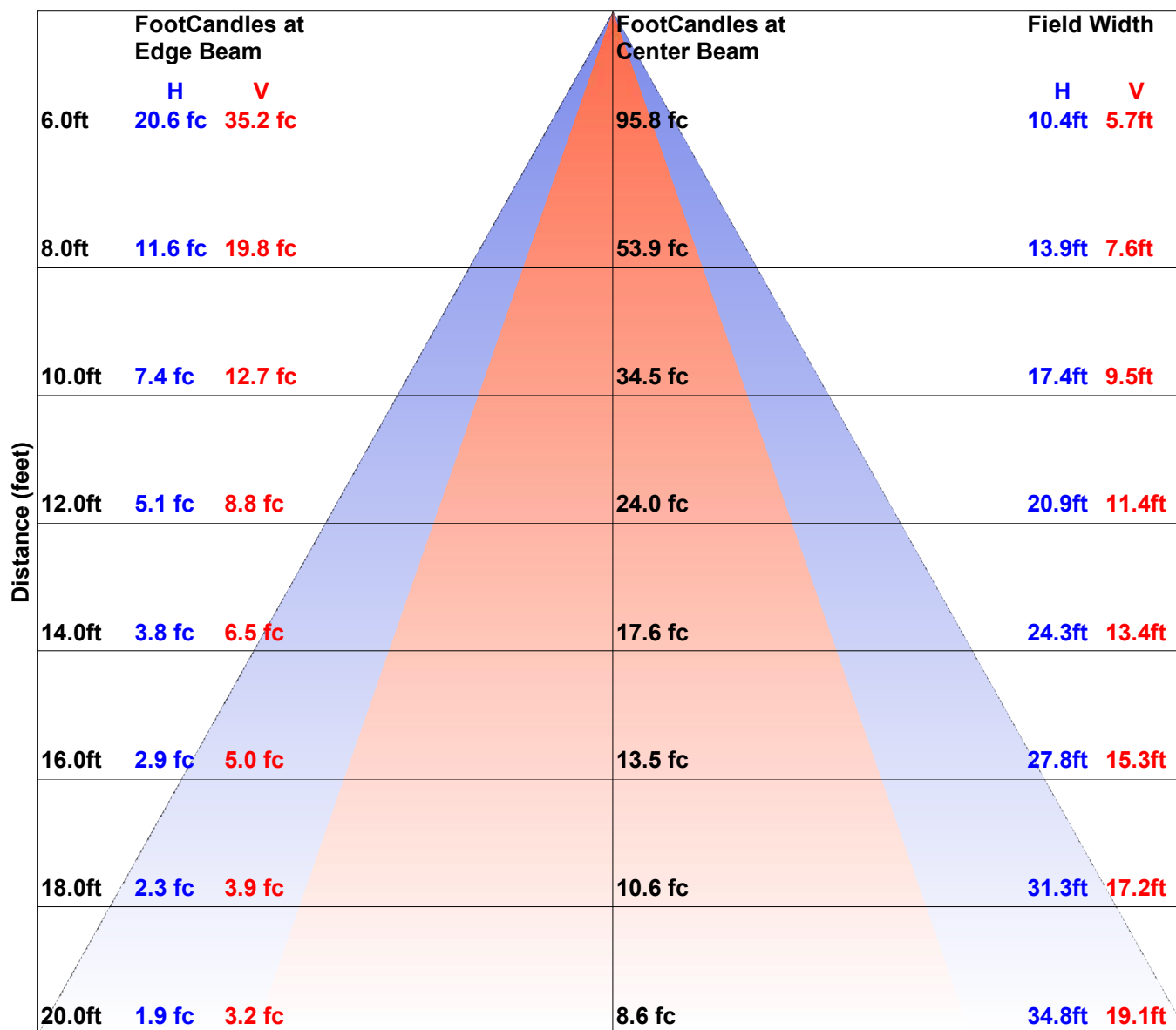
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Downlight Beam



— Horizontal (82.0 °) — Vertical (51.0 °)



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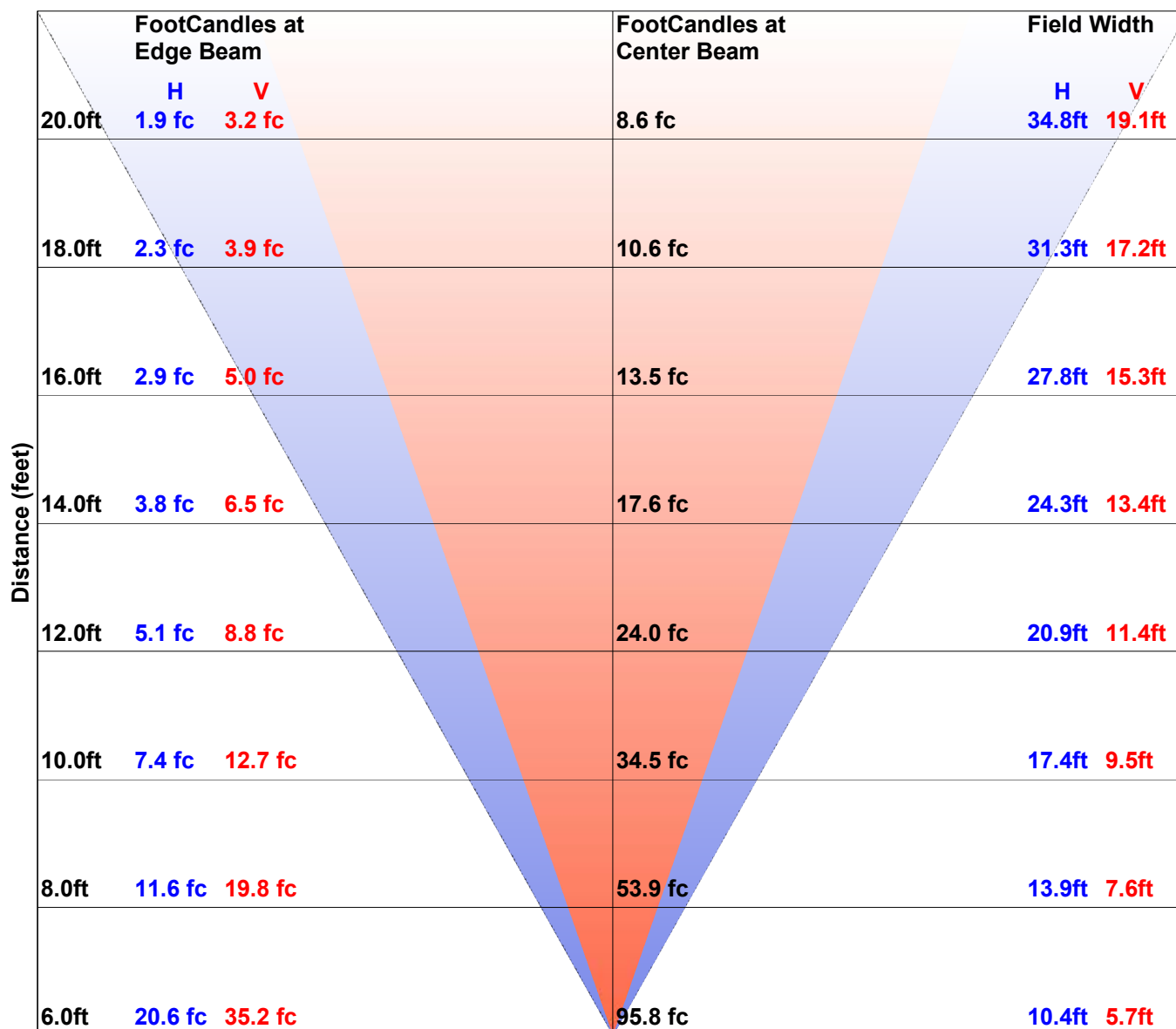
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Uplight Beam



— Horizontal (82.0 °) — Vertical (51.0 °)



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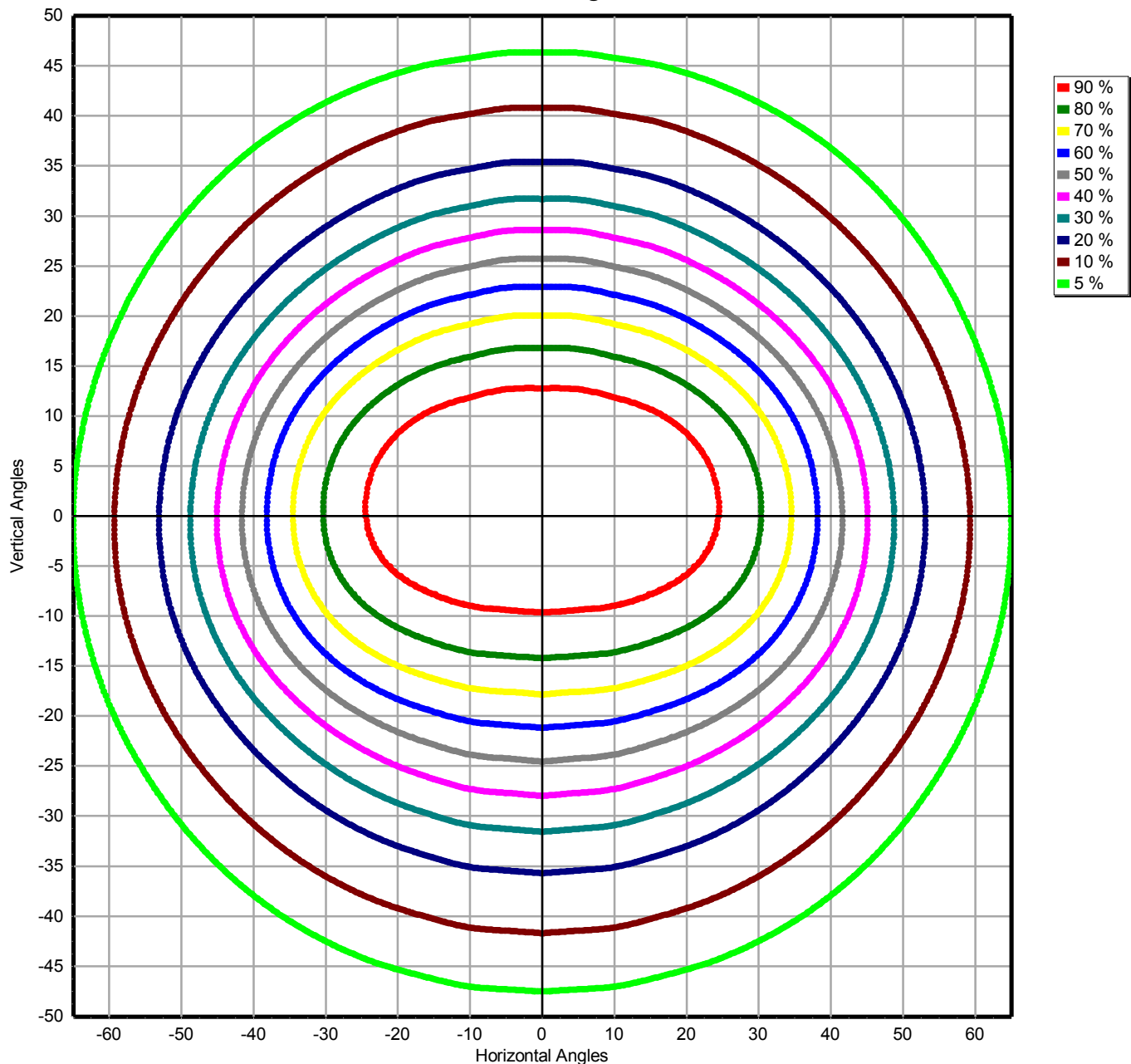
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Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-50x80-SI-NO

ISO Candela Diagram





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IES File Headers

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IESNA:LM-63-2002
[ISSUEDATE]      30 June 2016
[TESTLAB]        Spectra Lux Industries Inc.
[TEST]           S1606302-R1
[MANUFAC]        Lumenpulse
[LUMCAT]          LOG-HO-120-48-40K-50x80-SI-NO
[LUMINAIRE]       LUMENFACADE
[LAMP]           Clusters of CREE XPE2 LED's - 72W SSL c/w Mean Well Driver LPF-60-24 @ 120.00V
[_BURNING]        Axial (3,767 Luminaire Lumens)
[_REFLECTOR]      48 Collimators Acrylic
[_LENS]           Glass/Polycarbonate
[_HOUSING]        Extruded Aluminum
[DISTRIBUTION]    NEMA 6Hx5V (Max. CP at 0.0H,2.5V)
[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	3	3	3	3	3	3	3	3
	-87.5	2	2	2	2	3	3	3	3
	-85.0	2	2	2	2	3	3	3	3
	-82.5	3	3	3	3	3	3	4	4
	-80.0	4	4	4	4	4	5	5	5
	-77.5	6	6	6	6	6	6	5	5
	-75.0	12	11	11	11	10	8	8	7
	-72.5	19	18	18	17	16	15	14	11
	-70.0	26	26	26	24	23	22	20	18
	-67.5	34	34	33	32	31	29	26	24
A n g l e s	-65.0	42	42	41	40	38	36	33	30
	-62.5	51	50	50	48	46	44	40	37
	-60.0	61	60	59	57	55	52	48	44
	-57.5	72	71	70	67	64	61	56	51
	-55.0	86	85	83	80	76	71	66	60
	-52.5	106	103	102	96	91	84	77	70
	-50.0	133	130	127	119	111	102	92	81
	-47.5	173	169	164	152	139	125	110	97
	-45.0	232	225	218	199	179	158	136	116
	-42.5	313	304	293	265	236	205	173	143
	-40.0	424	411	396	357	315	270	223	181
	-37.5	568	550	530	478	421	359	293	232
	-35.0	744	722	697	632	558	475	386	301
	-32.5	951	926	895	817	726	621	505	392
	-30.0	1183	1154	1119	1030	924	795	652	506
	-27.5	1427	1397	1359	1263	1144	995	825	645
	-25.0	1678	1648	1608	1508	1381	1217	1021	807
	-22.5	1934	1903	1864	1763	1632	1455	1238	991
	-20.0	2193	2163	2126	2025	1893	1707	1472	1193
	-17.5	2449	2421	2385	2288	2156	1966	1715	1408
	-15.0	2690	2665	2632	2541	2412	2221	1958	1625
	-12.5	2904	2882	2853	2770	2647	2457	2186	1830
	-10.0	3082	3064	3038	2965	2849	2664	2386	2014
	-7.5	3225	3209	3186	3123	3016	2835	2553	2166
	-5.0	3331	3318	3296	3241	3141	2964	2680	2280



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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	3401	3389	3367	3316	3221	3045	2758	2350	1872
	0.0	3438	3428	3403	3355	3260	3080	2788	2374	1888
	2.5	3449	3439	3413	3362	3260	3074	2775	2355	1867
	5.0	3434	3425	3393	3336	3223	3025	2717	2294	1809
	7.5	3382	3373	3334	3269	3142	2927	2610	2189	1714
	10.0	3280	3272	3224	3148	3005	2775	2452	2038	1581
	12.5	3126	3118	3060	2972	2814	2573	2249	1850	1418
	15.0	2926	2917	2848	2751	2580	2333	2014	1637	1239
	17.5	2688	2679	2601	2496	2317	2069	1762	1412	1054
	20.0	2416	2407	2322	2213	2032	1791	1502	1186	874
	22.5	2120	2110	2023	1914	1738	1510	1247	971	708
	25.0	1812	1803	1717	1613	1446	1239	1009	776	561
	27.5	1508	1499	1418	1322	1172	990	796	607	438
	30.0	1219	1211	1138	1053	924	771	615	466	339
	32.5	954	948	885	814	708	586	466	355	262
	35.0	722	718	667	611	530	438	349	269	204
	37.5	532	529	490	449	389	324	262	207	162
	40.0	383	382	354	326	284	240	198	161	131
	42.5	276	275	256	237	211	181	154	130	109
	45.0	202	201	189	177	160	141	123	107	92
A n g l e s	47.5	151	151	144	137	125	113	101	90	79
	50.0	118	118	113	108	102	93	85	76	68
	52.5	95	95	92	89	84	78	72	66	59
	55.0	78	78	76	74	70	66	61	56	50
	57.5	65	65	63	61	59	56	52	48	43
	60.0	54	54	53	52	50	47	44	41	36
	62.5	45	46	44	44	42	39	37	32	28
	65.0	38	38	37	36	35	33	29	26	23
	67.5	31	31	31	30	29	26	23	20	18
	70.0	25	25	24	24	22	19	17	15	13
	72.5	19	19	18	18	16	14	12	11	10
	75.0	13	13	13	11	10	9	9	8	7
	77.5	8	8	7	7	6	6	5	5	5
	80.0	5	4	4	4	4	4	4	4	4
	82.5	2	3	3	3	3	3	3	4	4
	85.0	1	2	2	2	2	3	3	3	3
87.5	1	1	1	2	2	2	3	3	3	
90.0	3	3	3	3	3	3	3	3	3	



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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	3	3	3	3	3	3	3	3
	-87.5	3	4	4	4	5	4	5	5
	-85.0	3	4	4	4	5	5	5	5
	-82.5	4	4	4	5	5	5	5	5
	-80.0	5	5	5	5	5	5	5	5
	-77.5	5	5	5	5	5	5	5	5
	-75.0	7	6	6	6	5	5	5	5
	-72.5	9	7	7	6	6	5	5	5
	-70.0	12	10	8	7	6	5	5	5
	-67.5	17	14	11	8	7	6	5	5
	-65.0	23	18	14	10	7	6	5	5
	-62.5	28	23	18	13	9	7	5	5
	-60.0	34	28	23	17	11	6	5	4
	-57.5	40	34	27	20	14	9	5	5
	-55.0	46	39	32	24	17	10	5	5
	-52.5	54	45	37	28	20	12	5	4
	-50.0	62	52	42	32	23	15	5	4
	-47.5	71	59	48	37	26	17	6	5
	-45.0	82	68	54	42	30	19	6	4
	-42.5	96	78	62	47	34	22	6	5
A n g l e s	-40.0	114	90	70	53	38	25	13	5
	-37.5	138	106	81	60	43	28	15	4
	-35.0	169	126	93	68	48	31	18	5
	-32.5	211	151	109	78	54	35	19	5
	-30.0	266	185	128	89	60	39	22	5
	-27.5	334	227	152	103	68	44	25	5
	-25.0	419	280	182	119	77	48	27	6
	-22.5	522	344	219	139	87	54	30	5
	-20.0	639	420	262	161	99	60	33	6
	-17.5	769	505	311	187	111	66	36	6
	-15.0	904	596	364	214	124	72	39	7
	-12.5	1037	687	417	242	137	78	42	7
	-10.0	1158	770	468	268	149	83	44	7
	-7.5	1260	841	511	290	159	88	46	8
	-5.0	1335	894	543	307	167	91	48	8
	-2.5	1378	925	561	316	172	93	48	8
	0.0	1389	931	565	318	173	93	49	8
	2.5	1368	914	554	311	170	92	48	8
	5.0	1317	875	529	297	164	89	47	8
	7.5	1237	815	491	278	154	85	46	8
	10.0	1129	739	444	253	143	81	44	7
	12.5	1002	651	392	225	130	75	41	7
	15.0	866	559	338	198	117	69	38	7
	17.5	729	470	287	172	105	63	36	6
	20.0	600	387	240	148	93	58	32	6
	22.5	483	315	200	128	83	52	30	6
	25.0	384	255	167	111	74	47	27	6
	27.5	303	206	140	96	66	43	25	5
	30.0	239	168	119	85	59	39	22	5
	32.5	190	139	102	74	53	35	20	5
	35.0	154	117	89	66	48	32	18	5
	37.5	127	99	77	59	43	28	16	5
	40.0	106	86	69	53	39	26	15	5
	42.5	91	75	61	47	34	23	13	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
45.0	79	66	54	42	30	20	11	6	5
47.5	69	58	47	37	27	18	10	6	5
50.0	59	51	42	32	23	15	9	6	5
52.5	51	44	36	28	20	13	8	6	5
55.0	45	37	30	23	17	11	7	6	5
57.5	37	31	25	19	14	9	6	5	5
60.0	30	25	20	16	11	7	6	5	5
62.5	25	20	17	12	9	6	6	5	5
65.0	19	16	13	10	7	6	5	5	5
67.5	15	13	10	8	6	6	5	5	5
70.0	12	9	8	6	6	5	5	5	5
72.5	8	7	6	6	5	5	5	5	5
75.0	6	6	5	5	5	5	5	5	5
77.5	5	5	5	5	5	5	5	5	5
80.0	4	4	5	5	5	5	4	5	5
82.5	4	4	4	4	4	5	5	5	5
85.0	4	4	4	4	4	4	5	5	5
87.5	3	3	4	4	4	4	4	4	5
90.0	3	3	3	3	3	3	3	3	3

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Horizontal Angles

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



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NVLAP LAB CODE: 200899-0

Horizontal Angles

	90.0
	45.0
	47.5
	50.0
	52.5
	55.0
	57.5
	60.0
	62.5
	65.0
	67.5
	70.0
	72.5
	75.0
	77.5
	80.0
	82.5
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