



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 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	S1606301-R1	Description	72W White 4000K SSL	Type Commercial
Test Date	30 June 2016	Serial Number	SRIS 2440	Description 71SSL-CY1101
Report Date	8 July 2016	Photometric Method	Absolute	Manufacturer Mean Well
Ambient	24.6 °C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	51.1 %	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- 80x80-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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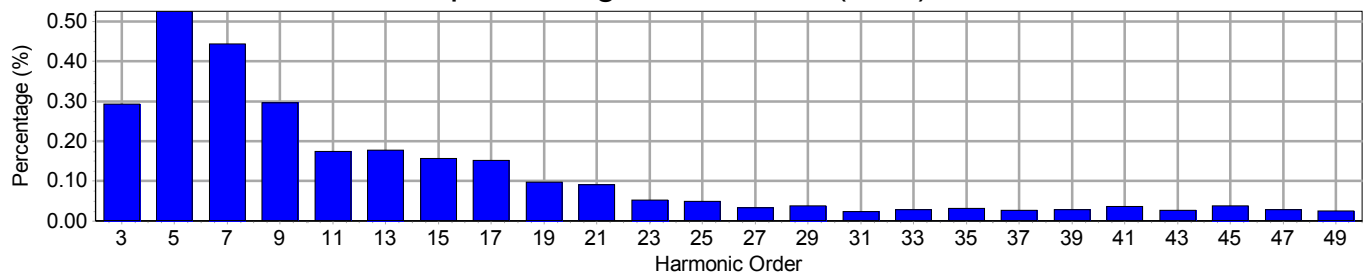
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Electrical Measurements

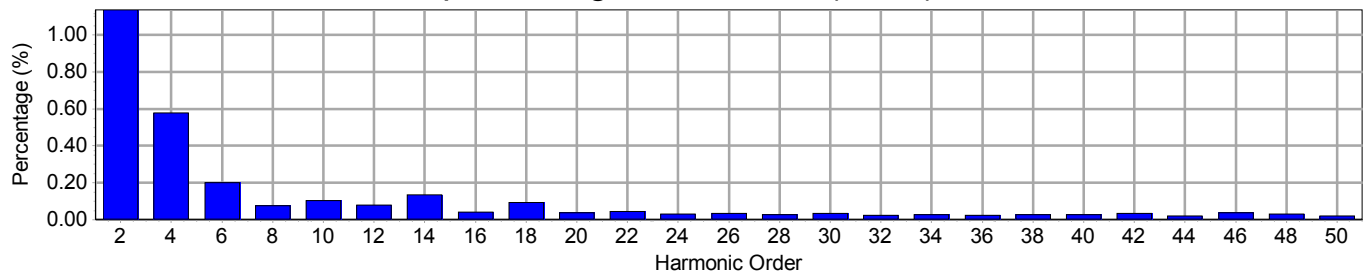
Input

Frequency	60 Hz	Active Power	61.83 W	THDV [ANSI]	1.59 %
Voltage	120.3 V(rms)	Apparent Power	62.39 VA	THDA [ANSI]	4.52 %
Current	0.5188 A(rms)	Power Factor	0.991	Max. Harmonic At	5th order

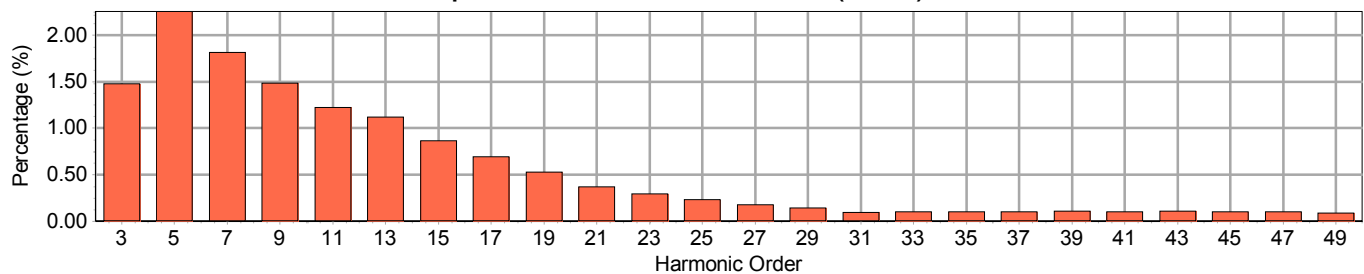
Input Voltage Harmonics (Odd)



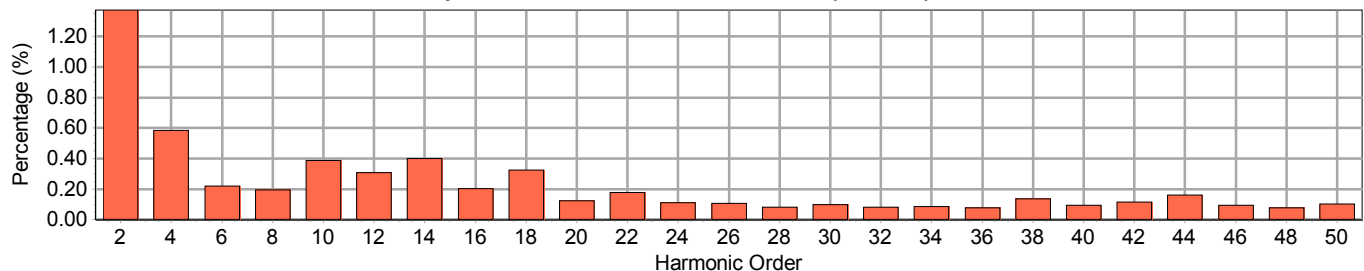
Input Voltage Harmonics (Even)



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	1.138	1.375
3	180	0.293	1.476	4	240	0.579	0.585
5	300	0.526	2.258	6	360	0.198	0.219
7	420	0.444	1.815	8	480	0.073	0.194
9	540	0.295	1.485	10	600	0.102	0.390
11	660	0.174	1.221	12	720	0.077	0.310
13	780	0.178	1.117	14	840	0.134	0.399
15	900	0.156	0.867	16	960	0.041	0.202
17	1020	0.151	0.693	18	1080	0.092	0.323
19	1140	0.097	0.525	20	1200	0.036	0.123
21	1260	0.090	0.367	22	1320	0.043	0.178
23	1380	0.051	0.293	24	1440	0.029	0.110
25	1500	0.049	0.228	26	1560	0.031	0.109
27	1620	0.033	0.174	28	1680	0.026	0.084
29	1740	0.037	0.140	30	1800	0.033	0.099
31	1860	0.024	0.091	32	1920	0.024	0.080
33	1980	0.028	0.100	34	2040	0.024	0.088
35	2100	0.031	0.100	36	2160	0.023	0.080
37	2220	0.027	0.097	38	2280	0.026	0.135
39	2340	0.028	0.109	40	2400	0.025	0.093
41	2460	0.036	0.100	42	2520	0.033	0.114
43	2580	0.027	0.108	44	2640	0.020	0.163
45	2700	0.038	0.100	46	2760	0.037	0.096
47	2820	0.029	0.101	48	2880	0.031	0.076
49	2940	0.025	0.089	50	3000	0.020	0.103



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Photometric Report: S1606301-R1

Prepared for: Lumenpulse · Test Date: 30 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-80x80-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	72.00 W	
Measured Input Voltage	120.27 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	3886	
Measured Input Power	61.83 W	
Floodlight Luminous Efficacy	62.8 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	2530	
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%)	77.0 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	116.0 °	
Vertical Field Angle (10%)	107.0 °	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	6Hx6V	
Beam Lumens (50%)	2842	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	3697	
Field Efficiency (10%)	N/A	
Spill Lumens	189	
Total Floodlight Lumens	3886	
Total Floodlight Efficiency	N/A	



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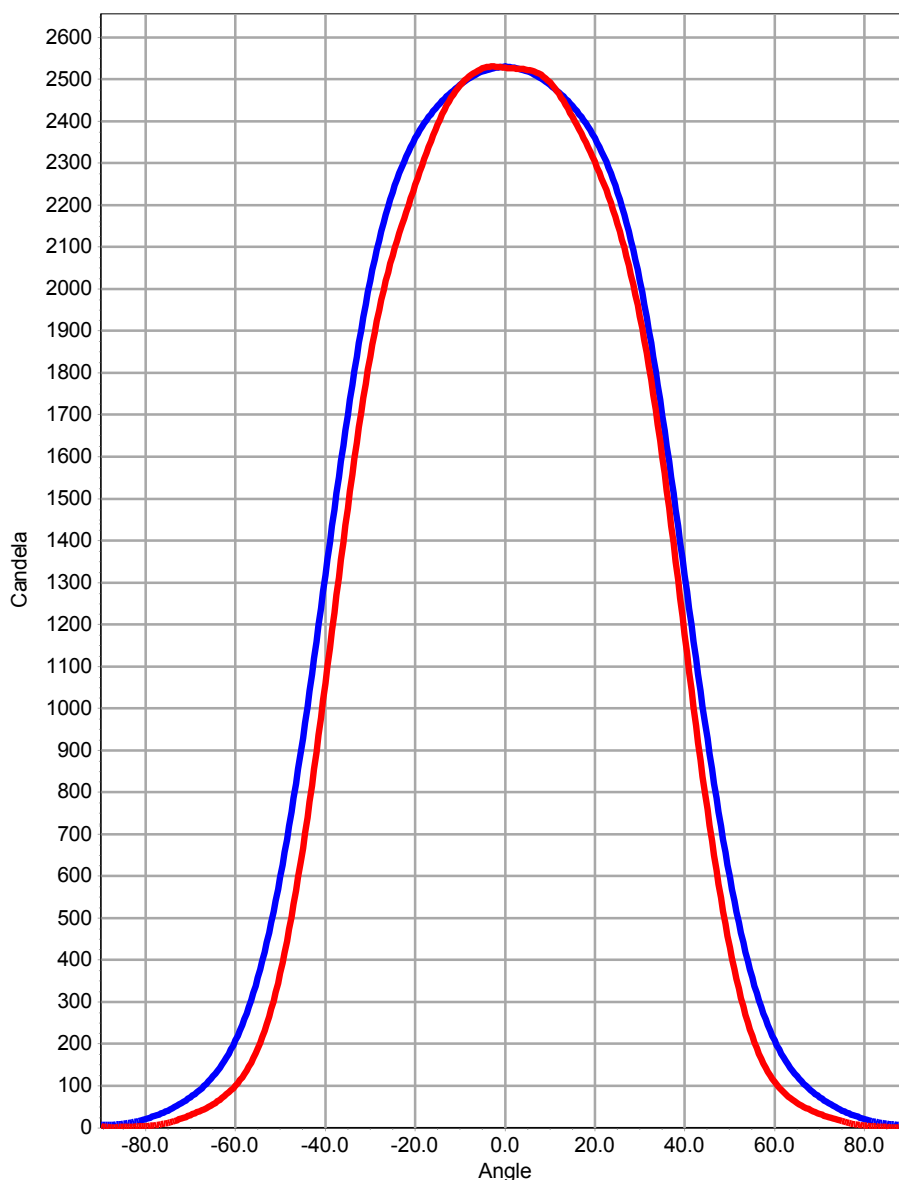
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Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-80x80-SI-NO

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

Horizontal Angles	Candela
-90.0	6
-85.0	9
-80.0	21
-75.0	41
-70.0	73
-65.0	122
-60.0	208
-55.0	357
-50.0	597
-45.0	929
-40.0	1317
-35.0	1700
-30.0	2019
-25.0	2231
-20.0	2359
-15.0	2436
-10.0	2487
-5.0	2519
0.0	2530
5.0	2519
10.0	2487
15.0	2436
20.0	2359
25.0	2231
30.0	2019
35.0	1700
40.0	1317
45.0	929
50.0	597
55.0	357
60.0	208
65.0	122
70.0	73
75.0	41
80.0	21
85.0	9
90.0	6



Vertical Angles	Candela
-90.0	3
-85.0	2
-80.0	4
-75.0	12
-70.0	30
-65.0	56
-60.0	100
-55.0	189
-50.0	368
-45.0	667
-40.0	1060
-35.0	1477
-30.0	1838
-25.0	2079
-20.0	2248
-15.0	2392
-10.0	2485
-5.0	2526
0.0	2528
5.0	2522
10.0	2492
15.0	2410
20.0	2303
25.0	2155
30.0	1935
35.0	1600
40.0	1175
45.0	759
50.0	430
55.0	218
60.0	109
65.0	59
70.0	33
75.0	15
80.0	5
85.0	2
90.0	3

— Horizontal — Vertical



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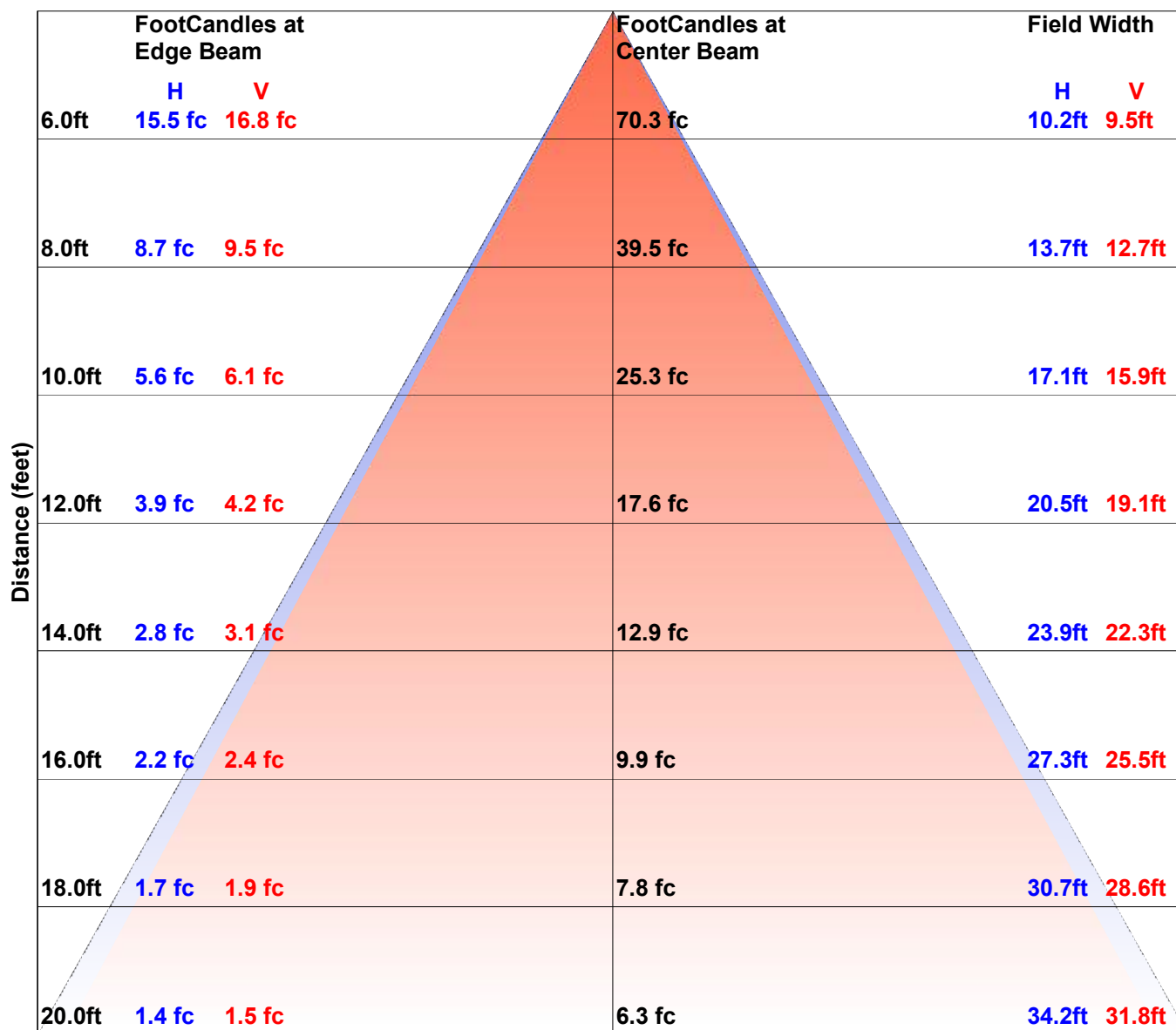
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Photometric Report: S1606301-R1

Prepared for: Lumenpulse · Test Date: 30 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-80x80-SI-NO

Downlight Beam



— Horizontal (81.0 °) — Vertical (77.0 °)



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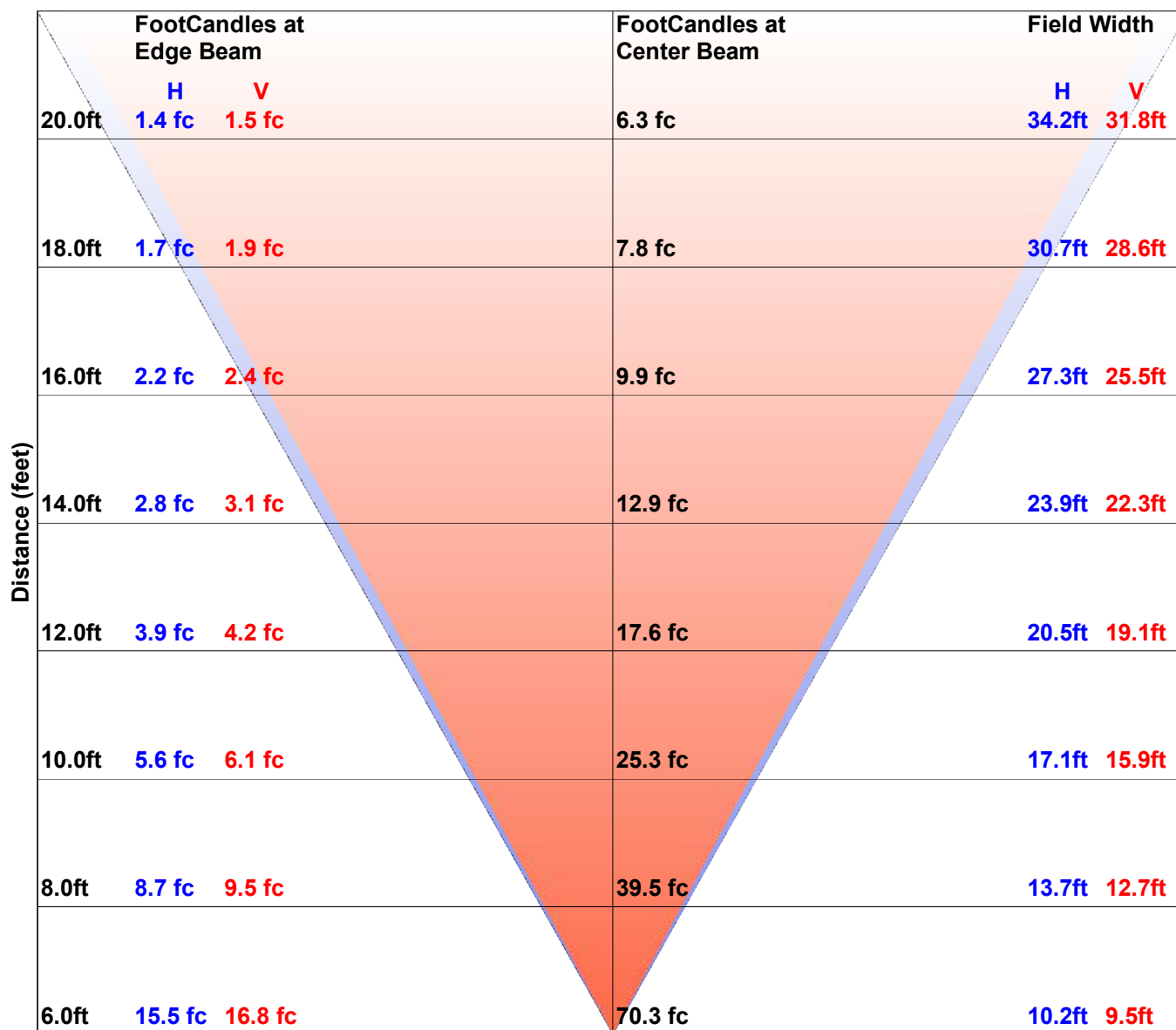
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Prepared for: Lumenpulse · Test Date: 30 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-80x80-SI-NO

Uplight Beam



— Horizontal (81.0°) — Vertical (77.0°)



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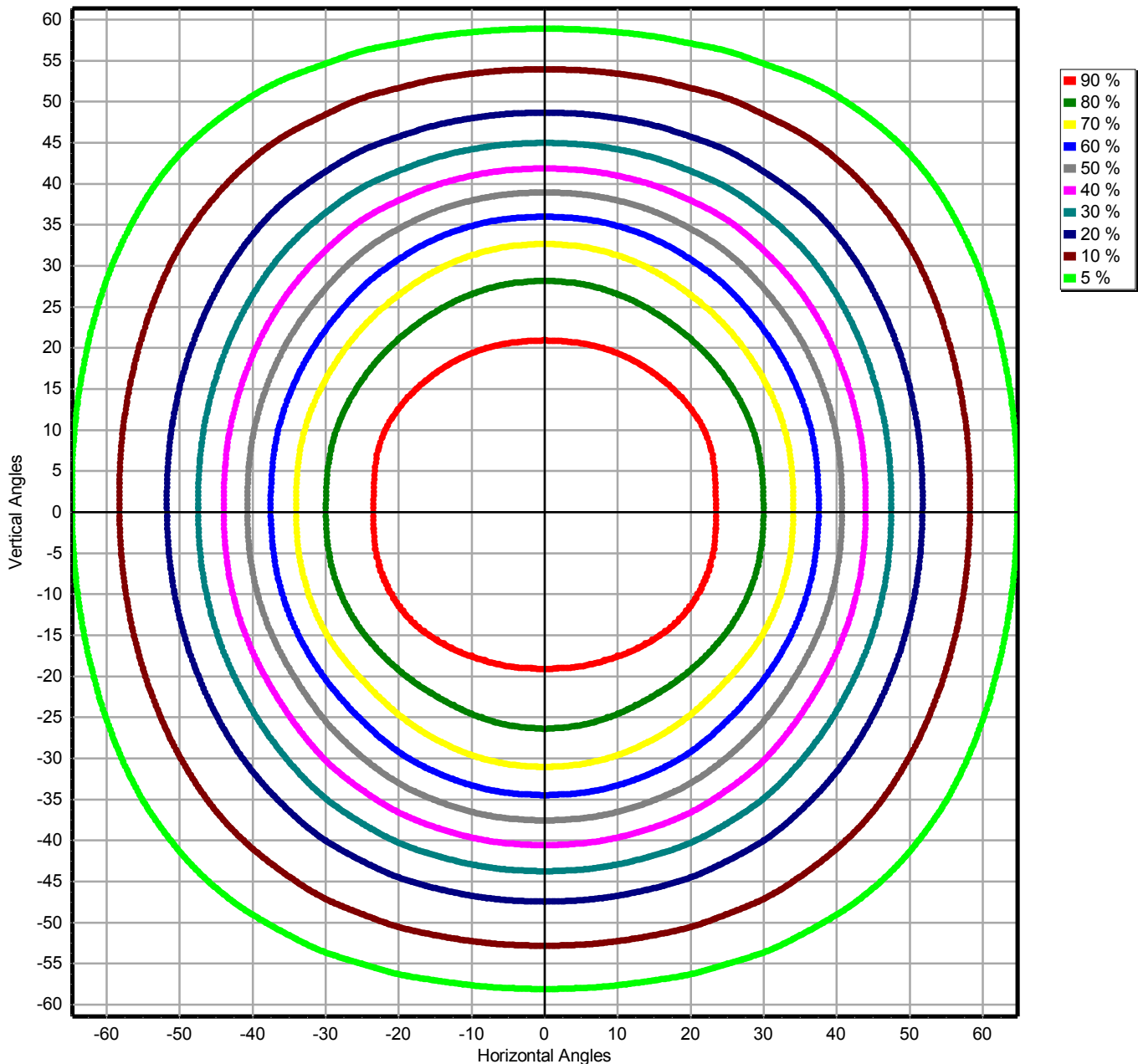
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ISO Candela Diagram





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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]           S1606301-R1
[MANUFAC]        Lumenpulse
[LUMCAT]          LOG-HO-120-48-40K-80x80-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 (3,886 Luminaire Lumens)
[_REFLECTOR]      48 Collimators Acrylic
[_LENS]           Glass/Polycarbonate
[_HOUSING]        Extruded Aluminum
[DISTRIBUTION]    NEMA 6Hx6V (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 i l	-90.0	3	3	3	3	3	3	3	3
	-87.5	1	1	1	1	2	2	3	3
	-85.0	2	2	2	2	3	3	3	3
	-82.5	3	3	3	3	3	4	4	4
	-80.0	4	4	4	4	5	5	5	5
	-77.5	7	6	6	7	6	6	6	6
	-75.0	12	12	12	11	11	10	9	8
	-72.5	20	20	19	18	18	16	15	12
	-70.0	30	29	29	28	26	24	21	18
	-67.5	41	41	40	38	36	33	30	26
A n g l e s	-65.0	56	55	54	51	49	44	40	35
	-62.5	75	74	71	68	64	57	52	45
	-60.0	100	99	95	90	83	74	67	57
	-57.5	137	134	129	120	110	96	85	72
	-55.0	189	186	177	163	147	127	110	91
	-52.5	264	259	245	224	199	168	143	116
	-50.0	368	361	339	307	270	224	186	147
	-47.5	502	492	462	416	364	299	243	188
	-45.0	667	654	614	552	480	393	315	239
	-42.5	856	839	790	712	619	506	403	302
	-40.0	1060	1041	983	890	777	638	507	377
	-37.5	1270	1250	1185	1079	947	784	625	464
	-35.0	1477	1455	1386	1271	1125	939	753	562
	-32.5	1670	1647	1576	1458	1301	1099	888	667
	-30.0	1838	1815	1747	1629	1468	1256	1025	778
	-27.5	1973	1953	1889	1778	1620	1404	1160	891
	-25.0	2079	2062	2006	1906	1755	1541	1290	1003
	-22.5	2167	2153	2106	2017	1877	1670	1415	1114
	-20.0	2248	2236	2196	2119	1991	1792	1537	1224
	-17.5	2325	2314	2279	2212	2095	1906	1653	1331
	-15.0	2392	2382	2351	2290	2184	2007	1758	1430
	-12.5	2447	2436	2406	2350	2253	2088	1846	1516
	-10.0	2485	2475	2444	2391	2302	2149	1915	1587
	-7.5	2510	2499	2469	2418	2334	2192	1967	1640
	-5.0	2526	2514	2483	2432	2353	2219	2001	1678



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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	2530	2519	2487	2436	2359	2231	2019	1700	1317
	0.0	2528	2516	2485	2435	2359	2233	2024	1707	1325
	2.5	2526	2513	2482	2433	2358	2231	2022	1705	1323
	5.0	2522	2511	2481	2432	2356	2226	2012	1694	1312
	7.5	2514	2503	2474	2426	2347	2211	1989	1669	1289
	10.0	2492	2483	2455	2406	2323	2179	1948	1627	1251
	12.5	2456	2448	2422	2371	2281	2128	1889	1568	1198
	15.0	2410	2402	2377	2322	2224	2060	1813	1493	1135
	17.5	2360	2352	2324	2263	2154	1978	1723	1407	1062
	20.0	2303	2294	2261	2191	2068	1881	1620	1311	983
	22.5	2236	2224	2184	2102	1965	1769	1505	1207	898
	25.0	2155	2141	2091	1997	1847	1644	1382	1098	810
	27.5	2056	2039	1981	1875	1714	1509	1252	985	722
	30.0	1935	1914	1849	1734	1568	1365	1118	870	634
	32.5	1783	1761	1691	1573	1406	1211	979	757	549
	35.0	1600	1578	1508	1391	1230	1051	840	645	467
	37.5	1393	1371	1304	1194	1047	888	704	539	392
	40.0	1175	1155	1094	996	867	731	576	442	324
	42.5	960	942	889	807	697	587	461	357	264
A n g l e s	45.0	759	744	701	634	546	460	363	283	213
	47.5	581	570	535	484	418	353	280	222	170
	50.0	430	422	397	360	311	266	213	172	135
	52.5	310	304	286	261	228	197	161	133	107
	55.0	218	215	203	187	166	145	121	103	85
	57.5	153	151	144	134	120	108	92	80	66
	60.0	109	108	103	97	89	81	71	61	51
	62.5	79	79	76	72	67	61	54	46	39
	65.0	59	59	57	55	51	47	39	34	29
	67.5	45	44	43	41	39	34	29	25	22
	70.0	33	33	32	31	27	24	21	18	16
	72.5	23	23	23	21	18	16	14	13	11
	75.0	15	15	15	12	11	10	9	9	8
	77.5	9	9	8	7	7	6	6	6	5
	80.0	5	5	5	5	4	5	4	4	5
	82.5	3	3	3	3	3	3	4	4	4
	85.0	2	2	2	2	3	3	3	3	3
	87.5	1	1	2	2	2	2	2	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 A n g l e s	-90.0	3	3	3	3	3	3	3	3
	-87.5	3	4	4	4	5	5	6	6
	-85.0	3	4	4	4	5	5	5	6
	-82.5	4	4	4	5	5	5	6	6
	-80.0	5	5	5	5	5	6	6	6
	-77.5	6	6	6	6	5	5	6	6
	-75.0	7	6	6	6	6	6	6	6
	-72.5	9	8	7	7	6	6	6	6
	-70.0	13	10	8	7	7	6	5	6
	-67.5	18	14	11	8	7	6	6	5
	-65.0	25	20	15	10	8	7	6	5
	-62.5	32	26	20	14	10	8	6	5
	-60.0	41	33	25	18	11	8	7	6
	-57.5	51	41	31	22	14	9	7	6
	-55.0	62	49	38	27	18	11	7	6
	-52.5	76	59	45	33	21	13	7	6
	-50.0	92	71	54	39	26	15	8	6
	-47.5	111	84	63	45	31	18	9	6
	-45.0	135	99	73	52	35	21	11	6
	-42.5	163	117	85	60	40	25	13	6
	-40.0	196	138	98	68	46	29	14	7
	-37.5	235	161	112	77	51	32	17	7
	-35.0	279	188	128	86	57	36	19	8
	-32.5	328	217	144	96	63	40	21	10
	-30.0	382	250	163	106	69	43	24	11
	-27.5	439	285	182	117	75	47	26	12
	-25.0	499	321	203	128	82	51	28	13
	-22.5	561	359	224	139	88	54	31	14
	-20.0	624	399	246	150	94	58	33	16
	-17.5	687	438	268	162	100	61	34	17
	-15.0	748	476	289	173	105	64	36	18
	-12.5	802	512	308	182	110	66	38	19
	-10.0	848	542	325	191	114	69	39	20
	-7.5	885	566	339	198	117	70	40	20
	-5.0	912	585	350	204	120	72	41	20
	-2.5	929	597	357	208	122	73	41	21
	0.0	935	602	361	210	123	73	41	21
	2.5	934	602	361	210	123	73	42	21
	5.0	924	596	357	208	123	73	41	21
	7.5	906	584	351	206	121	72	41	21
	10.0	876	565	340	200	119	71	40	20
	12.5	836	539	325	193	116	69	39	20
	15.0	789	509	308	184	111	67	38	19
	17.5	736	475	289	174	106	64	37	18
	20.0	678	438	268	164	101	62	35	17
	22.5	617	400	247	153	95	58	33	16
	25.0	555	361	226	142	89	55	31	15
	27.5	494	323	204	130	83	52	29	14
	30.0	434	286	184	119	77	48	27	13
	32.5	376	251	164	108	70	44	25	12
	35.0	322	218	145	97	64	40	23	11
	37.5	273	188	127	87	58	37	21	10
	40.0	229	161	111	77	52	33	18	9
	42.5	190	136	96	68	47	29	16	9



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ISO/IEC 17025



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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	156	115	83	60	41	26	14	8	6
47.5	128	97	71	51	35	22	12	7	6
50.0	104	80	60	44	30	19	11	7	6
52.5	84	66	49	36	25	15	9	7	6
55.0	68	53	40	29	20	12	8	7	6
57.5	53	42	32	24	16	10	8	7	6
60.0	41	33	25	19	13	9	7	6	6
62.5	32	26	20	14	10	7	6	6	6
65.0	24	20	15	11	9	7	7	6	6
67.5	18	15	11	9	7	7	6	6	6
70.0	13	11	9	7	6	6	6	6	6
72.5	9	8	7	6	6	6	6	6	6
75.0	7	6	6	6	5	6	6	5	6
77.5	6	6	6	5	5	5	5	5	6
80.0	5	5	5	5	5	5	5	6	6
82.5	4	4	4	5	4	5	5	5	6
85.0	4	4	4	4	4	4	5	5	6
87.5	3	3	4	4	4	4	5	5	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 6
	-85.0 6
	-82.5 6
	-80.0 6
	-77.5 6
	-75.0 6
	-72.5 6
	-70.0 6
	-67.5 5
	-65.0 5
	-62.5 5
	-60.0 4
	-57.5 4
	-55.0 4
	-52.5 4
	-50.0 4
	-47.5 4
	-45.0 4
	-42.5 4
A n g l e s	-40.0 4
	-37.5 4
	-35.0 5
	-32.5 5
	-30.0 5
	-27.5 6
	-25.0 6
	-22.5 6
	-20.0 6
	-17.5 6
	-15.0 6
	-12.5 6
	-10.0 6
	-7.5 6
	-5.0 6
	-2.5 6
	0.0 6
	2.5 6
	5.0 6
	7.5 6
	10.0 6
	12.5 6
	15.0 6
	17.5 6
	20.0 6
	22.5 6
	25.0 6
	27.5 6
	30.0 6
	32.5 6
	35.0 6
	37.5 6
	40.0 6
	42.5 6



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NVLAP LAB CODE: 200899-0

Horizontal Angles

	90.0
V e r t i c a l	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
	85.0
	87.5
	90.0
A n g l e s	

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