



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	S1606225-R1	Description	72W White 4000K SSL	Type Commercial
Test Date	22 June 2016	Serial Number	SRIS 2441	Description 71SSL-CY1101
Report Date	8 July 2016	Photometric Method	Absolute	Manufacturer Mean Well
Ambient	24.3 °C	Lamp Lumens	-1	Catalog No. LPF-60-24
Humidity	42.7 %	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-90x90-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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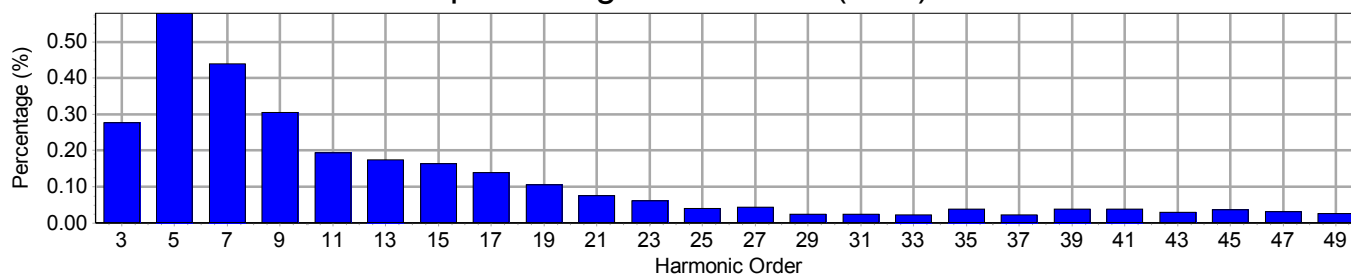
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Electrical Measurements

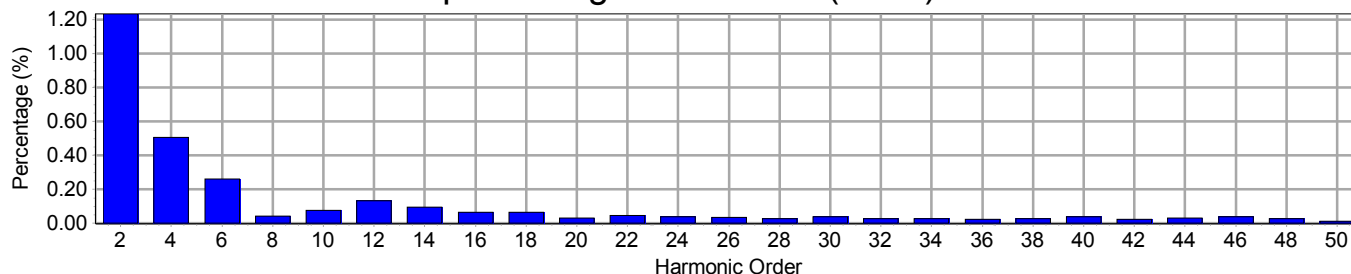
Input

Frequency	60 Hz	Active Power	61.82 W	THDV [ANSI]	1.66 %
Voltage	120.0 V(rms)	Apparent Power	62.45 VA	THDA [ANSI]	4.71 %
Current	0.5202 A(rms)	Power Factor	0.990	Max. Harmonic At	5th order

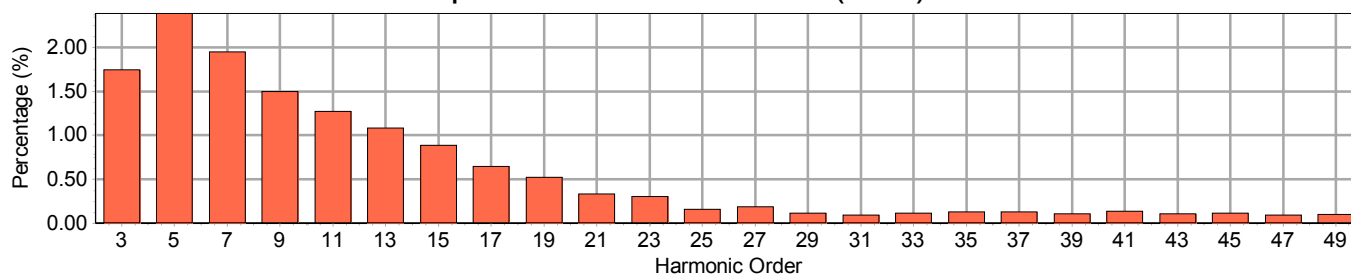
Input Voltage Harmonics (Odd)



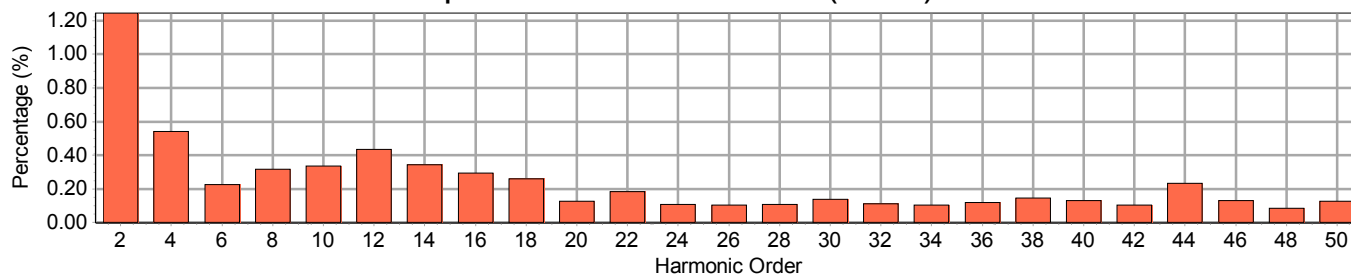
Input Voltage Harmonics (Even)



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	1.236	1.247
3	180	0.277	1.749	4	240	0.507	0.543
5	300	0.580	2.390	6	360	0.262	0.228
7	420	0.439	1.952	8	480	0.045	0.317
9	540	0.305	1.498	10	600	0.077	0.336
11	660	0.193	1.273	12	720	0.134	0.435
13	780	0.175	1.080	14	840	0.097	0.343
15	900	0.163	0.885	16	960	0.065	0.296
17	1020	0.138	0.642	18	1080	0.064	0.261
19	1140	0.106	0.523	20	1200	0.031	0.129
21	1260	0.075	0.335	22	1320	0.049	0.184
23	1380	0.062	0.305	24	1440	0.038	0.110
25	1500	0.039	0.157	26	1560	0.037	0.104
27	1620	0.043	0.185	28	1680	0.027	0.109
29	1740	0.023	0.114	30	1800	0.038	0.140
31	1860	0.023	0.093	32	1920	0.027	0.111
33	1980	0.023	0.112	34	2040	0.029	0.104
35	2100	0.038	0.126	36	2160	0.025	0.121
37	2220	0.023	0.124	38	2280	0.029	0.146
39	2340	0.037	0.108	40	2400	0.041	0.131
41	2460	0.037	0.131	42	2520	0.025	0.106
43	2580	0.029	0.106	44	2640	0.031	0.235
45	2700	0.036	0.116	46	2760	0.041	0.131
47	2820	0.030	0.093	48	2880	0.029	0.086
49	2940	0.026	0.102	50	3000	0.015	0.126



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Photometric Report: S1606225-R1

Prepared for: Lumenpulse · Test Date: 22 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-90x90-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	72.00 W	
Measured Input Voltage	120.05 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	3592	
Measured Input Power	61.82 W	
Floodlight Luminous Efficacy	58.1 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	1886	
Maximum Candela Location	0.0 H, 7.5 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	94.0 °	
Vertical Beam Angle (50%)	84.0 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	133.0 °	
Vertical Field Angle (10%)	120.5 °	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	7Hx6V	
Beam Lumens (50%)	2650	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	3469	
Field Efficiency (10%)	N/A	
Spill Lumens	123	
Total Floodlight Lumens	3592	
Total Floodlight Efficiency	N/A	



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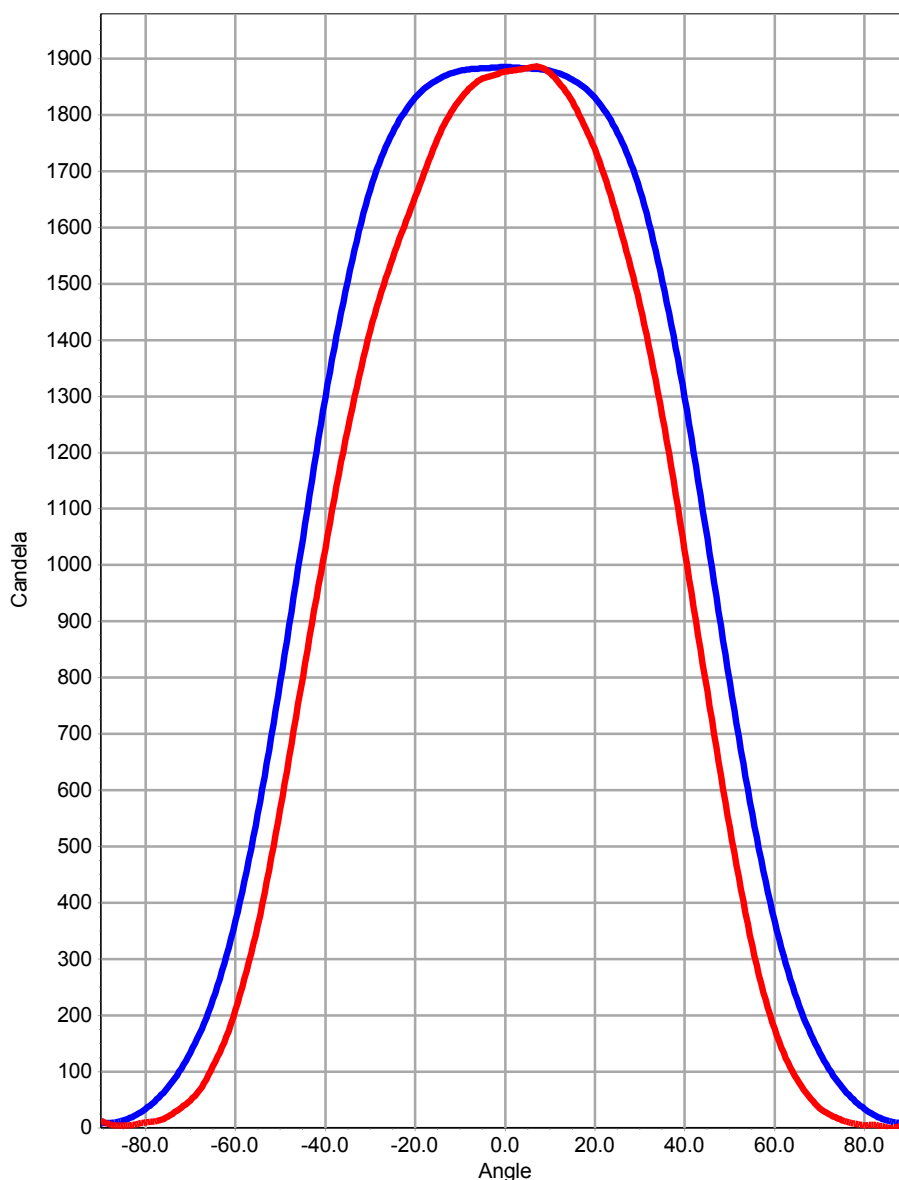
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Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-90x90-SI-NO

Maximum Candela Trace (Max. Location: 0.0 H, 7.5 V)

Horizontal Angles	Candela
-90.0	8
-85.0	13
-80.0	34
-75.0	72
-70.0	133
-65.0	228
-60.0	367
-55.0	558
-50.0	791
-45.0	1047
-40.0	1298
-35.0	1505
-30.0	1667
-25.0	1769
-20.0	1831
-15.0	1863
-10.0	1879
-5.0	1883
0.0	1886
5.0	1883
10.0	1879
15.0	1863
20.0	1831
25.0	1769
30.0	1667
35.0	1505
40.0	1298
45.0	1047
50.0	791
55.0	558
60.0	367
65.0	228
70.0	133
75.0	72
80.0	34
85.0	13
90.0	8



Vertical Angles	Candela
-90.0	13
-85.0	4
-80.0	10
-75.0	20
-70.0	49
-65.0	110
-60.0	209
-55.0	359
-50.0	566
-45.0	801
-40.0	1029
-35.0	1241
-30.0	1416
-25.0	1545
-20.0	1654
-15.0	1759
-10.0	1828
-5.0	1865
0.0	1877
5.0	1884
10.0	1875
15.0	1824
20.0	1740
25.0	1616
30.0	1463
35.0	1266
40.0	1025
45.0	775
50.0	533
55.0	323
60.0	175
65.0	86
70.0	35
75.0	14
80.0	4
85.0	1
90.0	13

— Horizontal — Vertical



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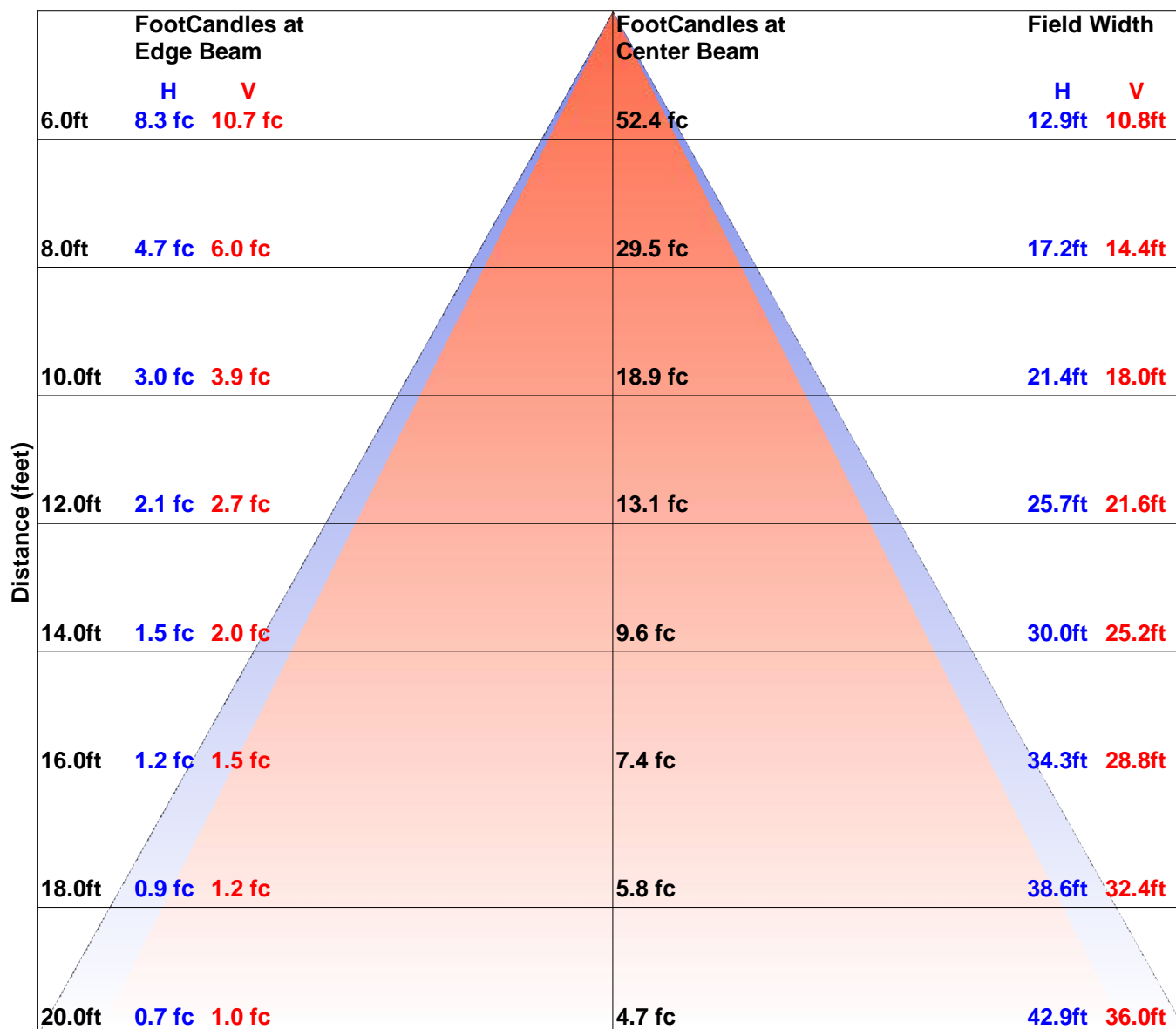
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Photometric Report: S1606225-R1

Prepared for: Lumenpulse · Test Date: 22 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-90x90-SI-NO

Downlight Beam



— Horizontal (94.0 °) — Vertical (84.0 °)



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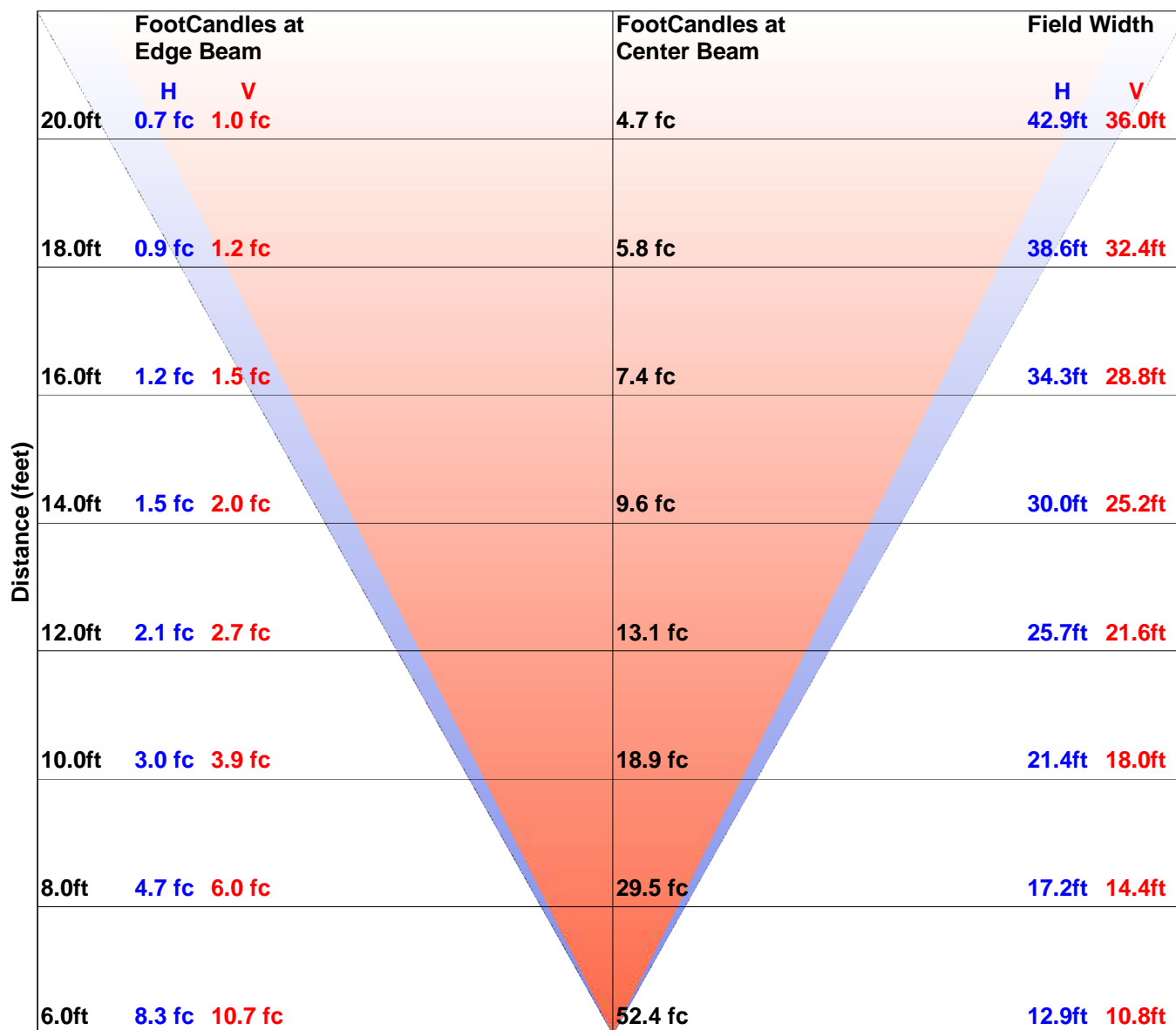
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Prepared for: Lumenpulse · Test Date: 22 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-90x90-SI-NO

Uplight Beam



— Horizontal (94.0 °) — Vertical (84.0 °)



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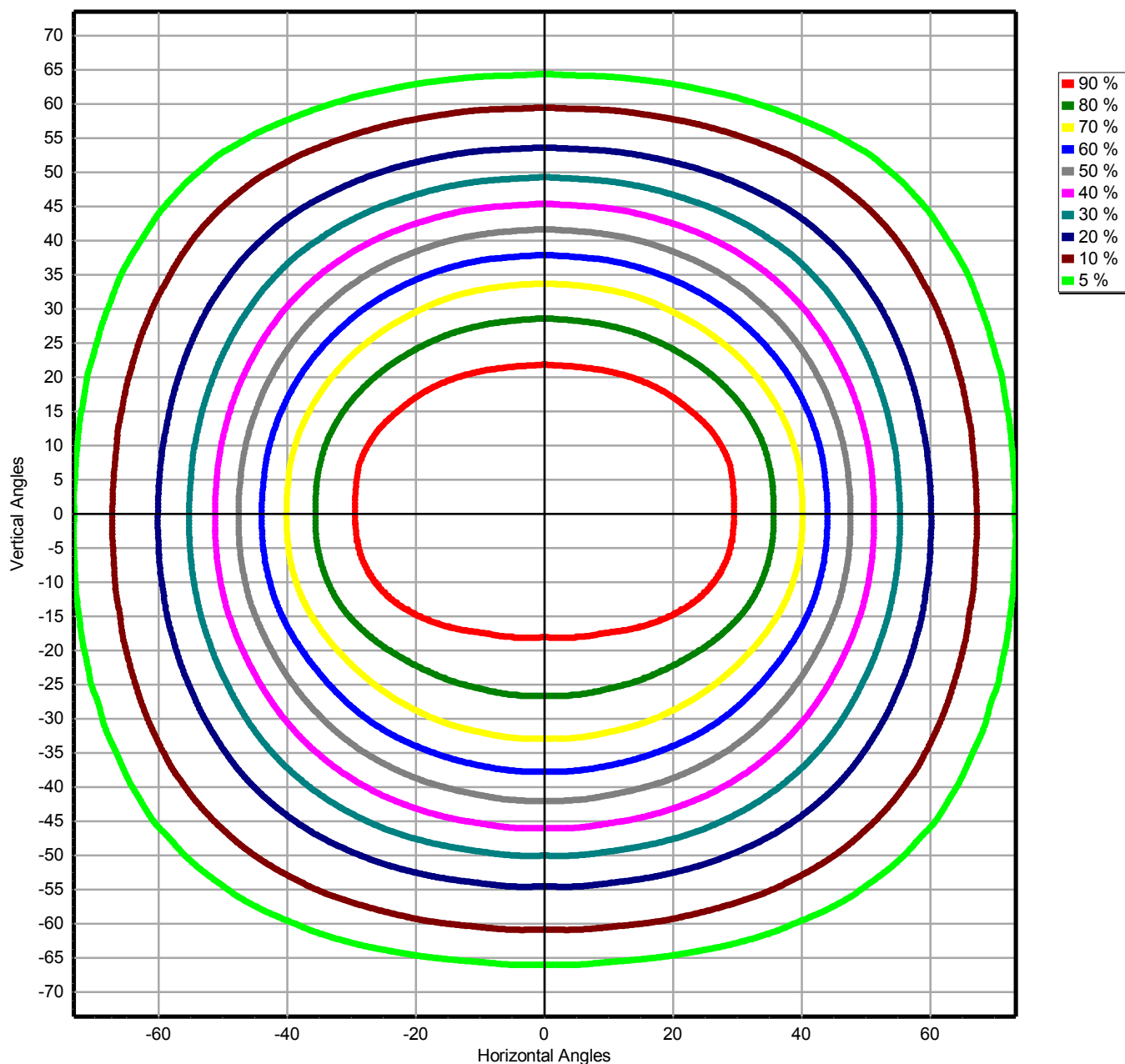
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Photometric Report: S1606225-R1

Prepared for: Lumenpulse · Test Date: 22 June 2016

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-48-40K-90x90-SI-NO

ISO Candela Diagram





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 22 June 2016
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1606225-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOG-HO-120-48-40K-90x90-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 (3,592 Luminaire Lumens)
[_REFLECTOR] 48 Collimators Acrylic
[_LENS] Glass/Polycarbonate
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 7Hx6V (Max. CP at 0.0H,7.5V)
[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
Vertical Angles	-90.0	13	13	13	13	13	13	13	13
	-87.5	5	4	3	4	4	4	4	5
	-85.0	4	3	4	3	4	5	5	5
	-82.5	5	7	5	6	6	5	6	7
	-80.0	10	9	9	8	8	7	6	8
	-77.5	12	13	13	11	11	11	10	9
	-75.0	20	20	20	18	18	16	15	13
	-72.5	33	30	29	29	27	25	22	18
	-70.0	49	48	47	43	40	38	34	23
	-67.5	73	74	70	66	61	54	48	34
	-65.0	110	109	103	97	89	79	70	48
	-62.5	152	153	146	136	126	113	98	66
	-60.0	209	209	200	188	173	153	133	89
	-57.5	279	278	265	249	229	203	176	119
	-55.0	359	360	343	323	297	265	229	153
Angles	-52.5	458	457	437	411	377	337	290	195
	-50.0	566	564	541	510	469	419	361	244
	-47.5	682	681	651	616	569	510	441	297
	-45.0	801	798	768	730	675	606	526	356
	-42.5	919	915	883	839	780	706	616	420
	-40.0	1029	1027	995	949	887	806	708	487
	-37.5	1141	1135	1104	1058	992	906	801	557
	-35.0	1241	1235	1206	1158	1091	1004	894	628
	-32.5	1333	1329	1300	1256	1188	1100	985	698
	-30.0	1416	1411	1384	1344	1278	1190	1073	770
	-27.5	1485	1482	1459	1420	1359	1273	1156	840
	-25.0	1545	1542	1522	1489	1431	1350	1233	909
	-22.5	1602	1598	1579	1551	1500	1422	1309	977
	-20.0	1654	1653	1639	1612	1566	1493	1382	1042
	-17.5	1708	1708	1693	1674	1631	1563	1452	1107
	-15.0	1759	1758	1748	1729	1691	1626	1519	1167
	-12.5	1798	1797	1790	1774	1740	1679	1575	1218
	-10.0	1828	1828	1821	1809	1777	1720	1618	1260
	-7.5	1850	1849	1845	1834	1807	1750	1652	1293
	-5.0	1865	1864	1861	1848	1824	1769	1673	1313



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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	1871	1871	1867	1858	1832	1779	1683	1532	1325
	0.0	1877	1875	1871	1861	1836	1781	1687	1533	1328
	2.5	1880	1879	1874	1863	1836	1781	1686	1532	1324
	5.0	1884	1882	1878	1866	1837	1779	1680	1525	1313
	7.5	1886	1883	1879	1863	1831	1769	1667	1505	1298
	10.0	1875	1872	1866	1850	1813	1746	1638	1477	1266
	12.5	1852	1850	1842	1822	1782	1710	1598	1435	1225
	15.0	1824	1818	1808	1785	1738	1661	1548	1382	1176
	17.5	1784	1779	1767	1740	1689	1606	1487	1322	1118
	20.0	1740	1732	1718	1686	1629	1540	1418	1254	1054
	22.5	1682	1674	1658	1621	1558	1467	1342	1178	987
	25.0	1616	1607	1588	1548	1480	1385	1258	1099	915
	27.5	1543	1534	1511	1467	1395	1299	1171	1016	840
	30.0	1463	1451	1428	1379	1303	1205	1081	929	766
	32.5	1369	1358	1331	1283	1206	1106	984	840	689
	35.0	1266	1253	1227	1176	1099	1002	884	753	612
	37.5	1151	1136	1112	1058	984	893	784	662	539
	40.0	1025	1013	986	939	868	784	685	575	465
	42.5	901	887	863	818	753	677	586	491	396
	45.0	775	761	740	698	639	571	494	413	332
A n g l e s	47.5	651	639	620	583	533	473	407	338	272
	50.0	533	521	506	475	433	383	327	273	218
	52.5	424	413	401	375	340	300	258	214	172
	55.0	323	317	307	287	260	231	197	163	132
	57.5	241	236	230	214	195	172	146	122	96
	60.0	175	172	167	156	140	123	106	87	66
	62.5	124	122	117	110	100	88	76	58	45
	65.0	86	82	81	76	68	60	48	38	29
	67.5	57	55	53	50	44	36	30	25	20
	70.0	35	36	34	32	29	23	19	16	14
	72.5	22	22	22	21	16	15	13	12	10
	75.0	14	16	15	11	9	9	9	9	8
	77.5	8	10	8	6	7	6	6	6	6
	80.0	4	6	6	5	5	4	5	6	6
	82.5	5	5	4	4	4	3	5	5	5
	85.0	1	4	3	3	3	2	5	3	3
	87.5	2	3	3	4	3	4	4	4	4
	90.0	13	13	13	13	13	13	13	13	13



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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	13	13	13	13	13	13	13	13
	-87.5	4	5	6	6	7	7	7	6
	-85.0	6	6	6	6	8	7	8	7
	-82.5	6	7	7	6	7	7	8	9
	-80.0	6	8	7	8	7	7	7	7
	-77.5	9	8	8	7	9	8	7	7
	-75.0	11	11	9	8	9	8	8	9
	-72.5	13	14	11	10	9	8	7	7
	-70.0	20	17	13	10	10	9	7	6
	-67.5	28	23	18	13	10	8	9	9
	-65.0	38	31	22	17	13	10	9	7
	-62.5	53	40	28	20	16	11	8	6
	-60.0	72	54	38	27	18	13	8	8
	-57.5	93	71	51	35	22	14	11	7
	-55.0	121	90	64	44	28	18	10	6
	-52.5	153	114	81	57	34	21	11	8
	-50.0	189	143	101	69	42	25	14	7
	-47.5	231	172	122	83	53	30	16	6
	-45.0	278	206	147	101	62	37	17	8
	-42.5	327	244	174	118	73	42	21	7
A n g l e s	-40.0	380	282	201	136	86	50	25	12
	-37.5	436	325	231	158	98	57	28	13
	-35.0	493	368	263	177	111	65	34	14
	-32.5	551	410	293	197	125	75	38	17
	-30.0	609	456	325	220	139	82	42	19
	-27.5	665	500	356	241	152	89	48	19
	-25.0	723	543	387	261	166	100	53	23
	-22.5	779	588	419	283	178	106	57	25
	-20.0	835	632	449	302	190	113	62	26
	-17.5	890	672	478	320	202	121	64	29
	-15.0	941	711	506	338	209	125	67	30
	-12.5	986	746	528	351	220	129	71	32
	-10.0	1020	773	547	363	227	134	73	33
	-7.5	1050	795	562	373	231	137	73	34
	-5.0	1069	810	572	378	236	137	75	33
	-2.5	1078	817	578	383	239	139	75	35
	0.0	1079	818	578	383	238	139	74	35
	2.5	1076	815	576	380	237	138	75	33
	5.0	1065	806	567	375	233	137	73	34
	7.5	1047	791	558	367	228	133	72	34
	10.0	1020	770	542	356	222	129	71	31
	12.5	984	741	519	342	215	126	67	30
	15.0	941	707	497	327	204	120	64	29
	17.5	893	669	470	311	195	113	62	26
	20.0	839	627	441	290	183	108	56	24
	22.5	781	583	410	270	170	99	52	22
	25.0	721	537	377	250	157	91	47	19
	27.5	661	491	344	227	144	83	43	17
	30.0	597	444	312	206	129	74	38	16
	32.5	537	396	279	184	116	66	35	14
	35.0	475	351	246	162	103	59	29	12
	37.5	417	308	216	143	89	51	25	12
	40.0	359	265	187	122	76	42	22	10
	42.5	306	226	158	104	64	36	18	10



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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	255	189	132	87	53	29	15	10	7
47.5	210	155	109	71	44	24	14	10	8
50.0	170	125	87	57	34	20	11	7	7
52.5	131	99	67	44	26	16	10	8	7
55.0	101	73	50	32	20	13	11	9	7
57.5	73	52	35	24	16	11	8	6	6
60.0	50	37	25	18	13	10	8	7	7
62.5	33	25	19	14	10	9	9	7	7
65.0	24	18	14	11	9	8	8	7	7
67.5	18	14	11	9	8	7	7	6	7
70.0	11	10	9	8	7	7	8	7	7
72.5	9	8	7	7	7	6	7	7	7
75.0	7	7	6	6	7	7	7	6	6
77.5	6	5	6	6	6	5	7	7	6
80.0	6	5	6	7	6	6	8	5	7
82.5	6	6	4	5	6	6	5	6	5
85.0	5	4	5	6	7	5	7	7	7
87.5	5	4	5	5	6	5	7	6	6
90.0	13	13	13	13	13	13	13	13	13

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Horizontal Angles

	90.0
V e r t i c a l	-90.0 13
	-87.5 9
	-85.0 7
	-82.5 6
	-80.0 8
	-77.5 7
	-75.0 6
	-72.5 8
	-70.0 8
	-67.5 6
	-65.0 7
	-62.5 6
	-60.0 5
	-57.5 6
	-55.0 6
	-52.5 5
	-50.0 6
	-47.5 6
	-45.0 5
	-42.5 6
A n g l e s	-40.0 5
	-37.5 6
	-35.0 6
	-32.5 7
	-30.0 7
	-27.5 7
	-25.0 7
	-22.5 7
	-20.0 7
	-17.5 7
	-15.0 7
	-12.5 7
	-10.0 7
	-7.5 7
	-5.0 8
	-2.5 7
	0.0 8
	2.5 8
	5.0 8
	7.5 8
	10.0 8
	12.5 7
	15.0 8
	17.5 8
	20.0 7
	22.5 7
	25.0 7
	27.5 7
	30.0 7
	32.5 7
	35.0 7
	37.5 7
	40.0 7
	42.5 6



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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
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	
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g	
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