



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	S1512117-R1	Description	34W White 4000K SSL	Type Commercial
Test Date	11 December 2015	Serial Number	SRIS 2229	Description 34SSL-CY1013
Report Date	18 December 2015	Photometric Method	Absolute	Manufacturer Meanwell
Ambient	25.4°C	Lamp Lumens	-1	Catalog No. LPF-40-24
Humidity	28.0 %	Test Position	Axial	Voltage Tap 120.00 V
Lamp Type	SSL	Comments	Clusters of 24 Cree XPE2 LED's	Power Factor 0.9900

Floodlight Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	24 Collimators	X 4.0000
Name	LUMENFACADE	Housing	Extruded Aluminum	Y 0.1667
Catalog No.	LOG-RO-120-48-40K-10x60-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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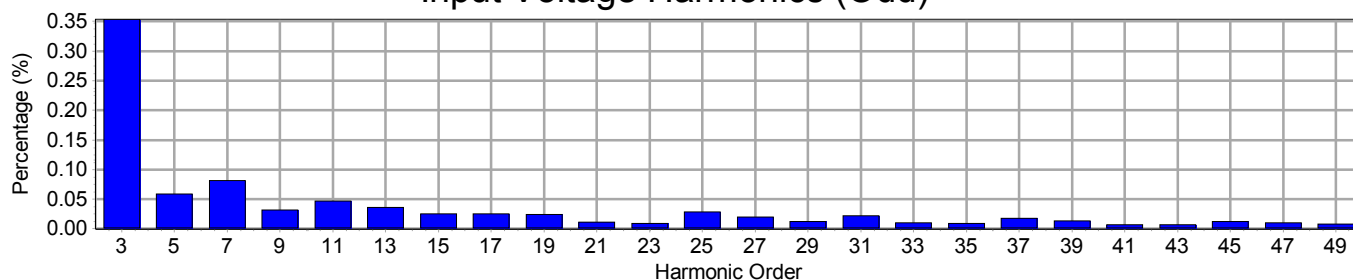
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Electrical Measurements

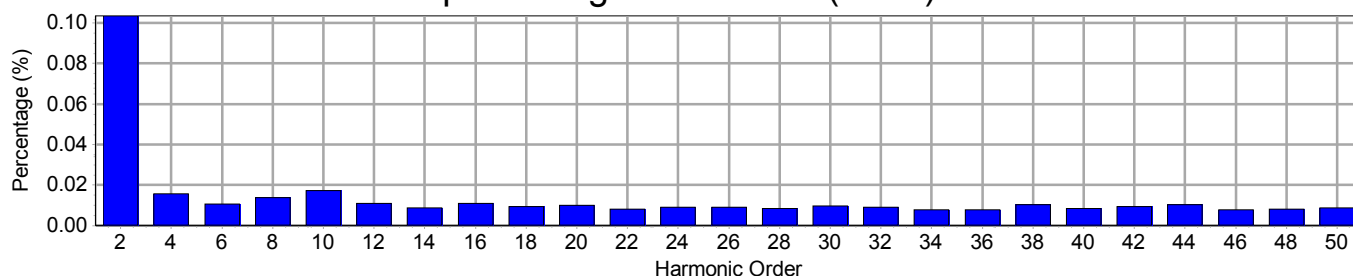
Input

Frequency	60 Hz	Active Power	31.31 W	THDV [ANSI]	0.40 %
Voltage	120.4 V(rms)	Apparent Power	31.61 VA	THDA [ANSI]	7.52 %
Current	0.2625 A(rms)	Power Factor	0.990	Max. Harmonic At	5th order

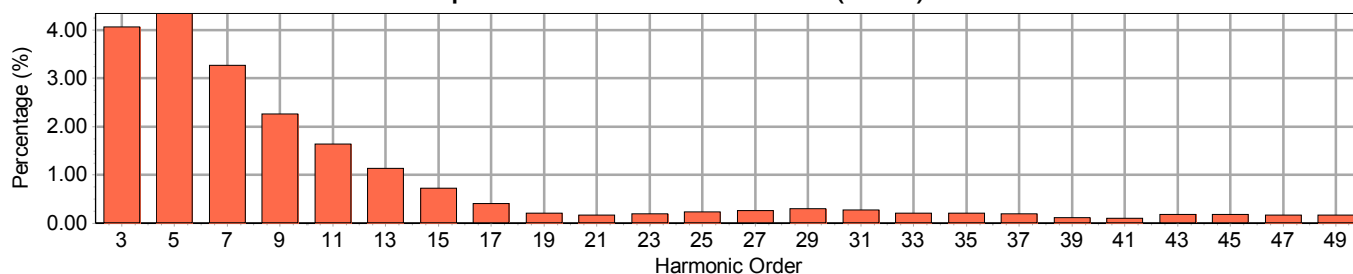
Input Voltage Harmonics (Odd)



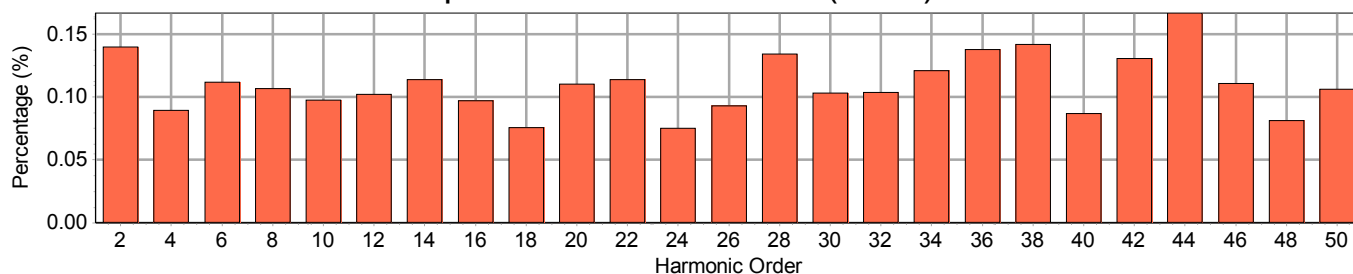
Input Voltage Harmonics (Even)



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	0.104	0.139
3	180	0.354	4.062	4	240	0.016	0.089
5	300	0.059	4.348	6	360	0.011	0.112
7	420	0.081	3.265	8	480	0.014	0.106
9	540	0.032	2.254	10	600	0.017	0.097
11	660	0.047	1.638	12	720	0.011	0.102
13	780	0.036	1.139	14	840	0.009	0.113
15	900	0.026	0.718	16	960	0.011	0.097
17	1020	0.025	0.409	18	1080	0.009	0.076
19	1140	0.024	0.203	20	1200	0.010	0.110
21	1260	0.011	0.163	22	1320	0.008	0.114
23	1380	0.009	0.199	24	1440	0.009	0.075
25	1500	0.029	0.237	26	1560	0.009	0.093
27	1620	0.020	0.263	28	1680	0.008	0.134
29	1740	0.012	0.294	30	1800	0.010	0.103
31	1860	0.022	0.275	32	1920	0.009	0.103
33	1980	0.010	0.205	34	2040	0.008	0.121
35	2100	0.009	0.208	36	2160	0.008	0.138
37	2220	0.018	0.193	38	2280	0.010	0.141
39	2340	0.014	0.116	40	2400	0.009	0.087
41	2460	0.008	0.096	42	2520	0.009	0.130
43	2580	0.007	0.174	44	2640	0.010	0.167
45	2700	0.012	0.181	46	2760	0.008	0.111
47	2820	0.010	0.165	48	2880	0.008	0.081
49	2940	0.008	0.160	50	3000	0.009	0.106



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Photometric Report: S1512117-R1

Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-RO-120-48-40K-10x60-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	34.00 W	
Measured Input Voltage	120.42 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	1722	
Measured Input Power	31.31 W	
Floodlight Luminous Efficacy	55.0 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	7535	
Maximum Candela Location	5.0 H, 0.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	65.0 °	
Vertical Beam Angle (50%)	9.5 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	94.0 °	
Vertical Field Angle (10%)	23.0 °	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	5Hx2V	
Beam Lumens (50%)	846	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	1432	
Field Efficiency (10%)	N/A	
Spill Lumens	290	
Total Floodlight Lumens	1722	
Total Floodlight Efficiency	N/A	



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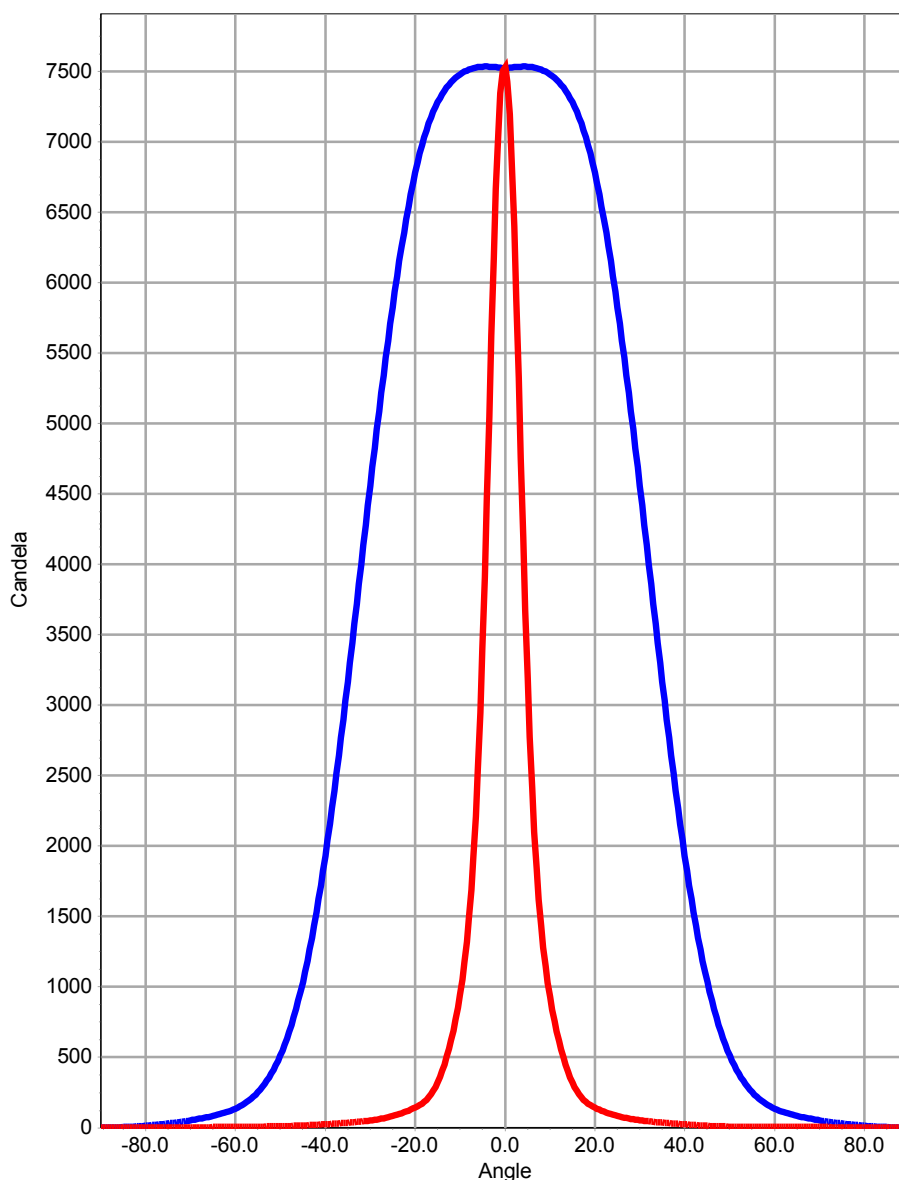
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Floodlight: LUMENFACADE · Lumcat: LOG-RO-120-48-40K-10x60-SI-NO

Maximum Candela Trace (Max. Location: 5.0 H, 0.0 V)

Horizontal Angles	Candela
-90.0	1
-85.0	5
-80.0	14
-75.0	30
-70.0	52
-65.0	84
-60.0	136
-55.0	252
-50.0	510
-45.0	1035
-40.0	1931
-35.0	3166
-30.0	4555
-25.0	5825
-20.0	6784
-15.0	7282
-10.0	7479
-5.0	7535
0.0	7522
5.0	7535
10.0	7479
15.0	7282
20.0	6784
25.0	5825
30.0	4555
35.0	3166
40.0	1931
45.0	1035
50.0	510
55.0	252
60.0	136
65.0	84
70.0	52
75.0	30
80.0	14
85.0	5
90.0	1



Vertical Angles	Candela
-90.0	2
-85.0	3
-80.0	3
-75.0	3
-70.0	3
-65.0	5
-60.0	6
-55.0	8
-50.0	11
-45.0	17
-40.0	25
-35.0	36
-30.0	52
-25.0	83
-20.0	144
-15.0	322
-10.0	944
-5.0	3401
0.0	7535
5.0	3194
10.0	928
15.0	321
20.0	143
25.0	84
30.0	53
35.0	37
40.0	24
45.0	14
50.0	8
55.0	6
60.0	6
65.0	6
70.0	5
75.0	4
80.0	2
85.0	1
90.0	3

— Horizontal — Vertical



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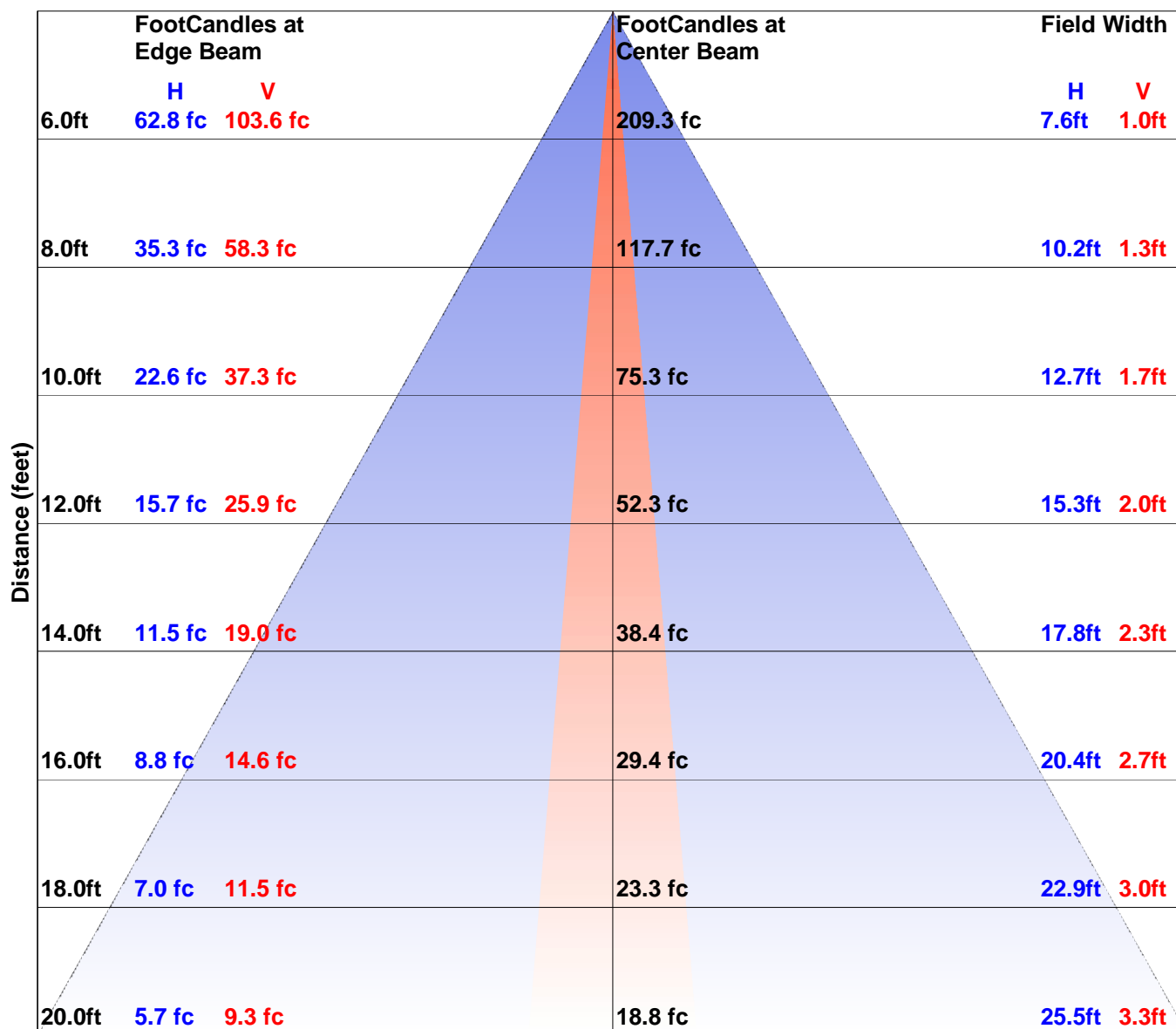
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Floodlight: LUMENFACADE · Lumcat: LOG-RO-120-48-40K-10x60-SI-NO

Downlight Beam



— Horizontal (65.0 °) — Vertical (9.5 °)



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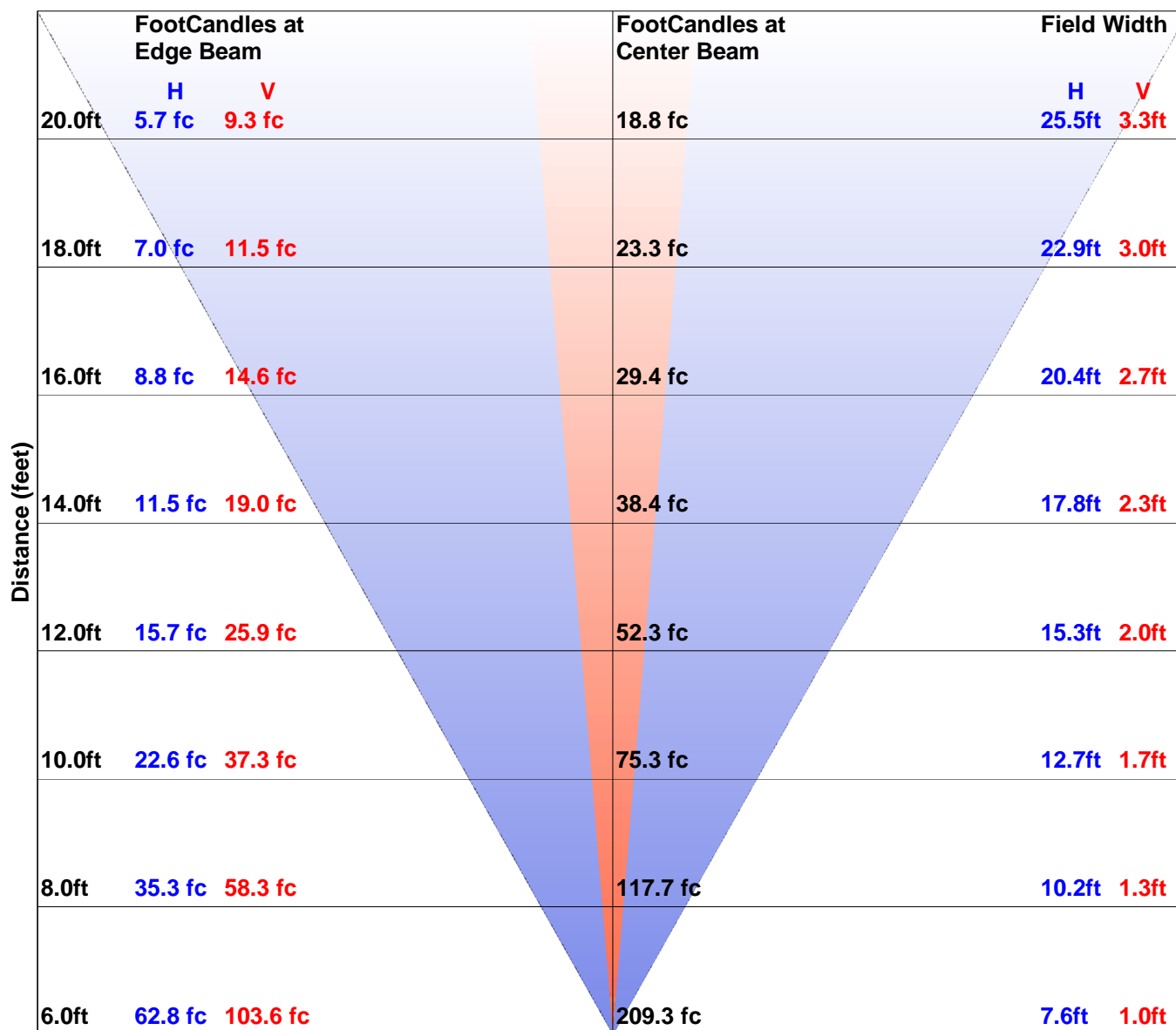
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Prepared for: Lumenpulse · Test Date: 11 December 2015

Floodlight: LUMENFACADE · Lumcat: LOG-RO-120-48-40K-10x60-SI-NO

Uplight Beam



— Horizontal (65.0 °) — Vertical (9.5 °)



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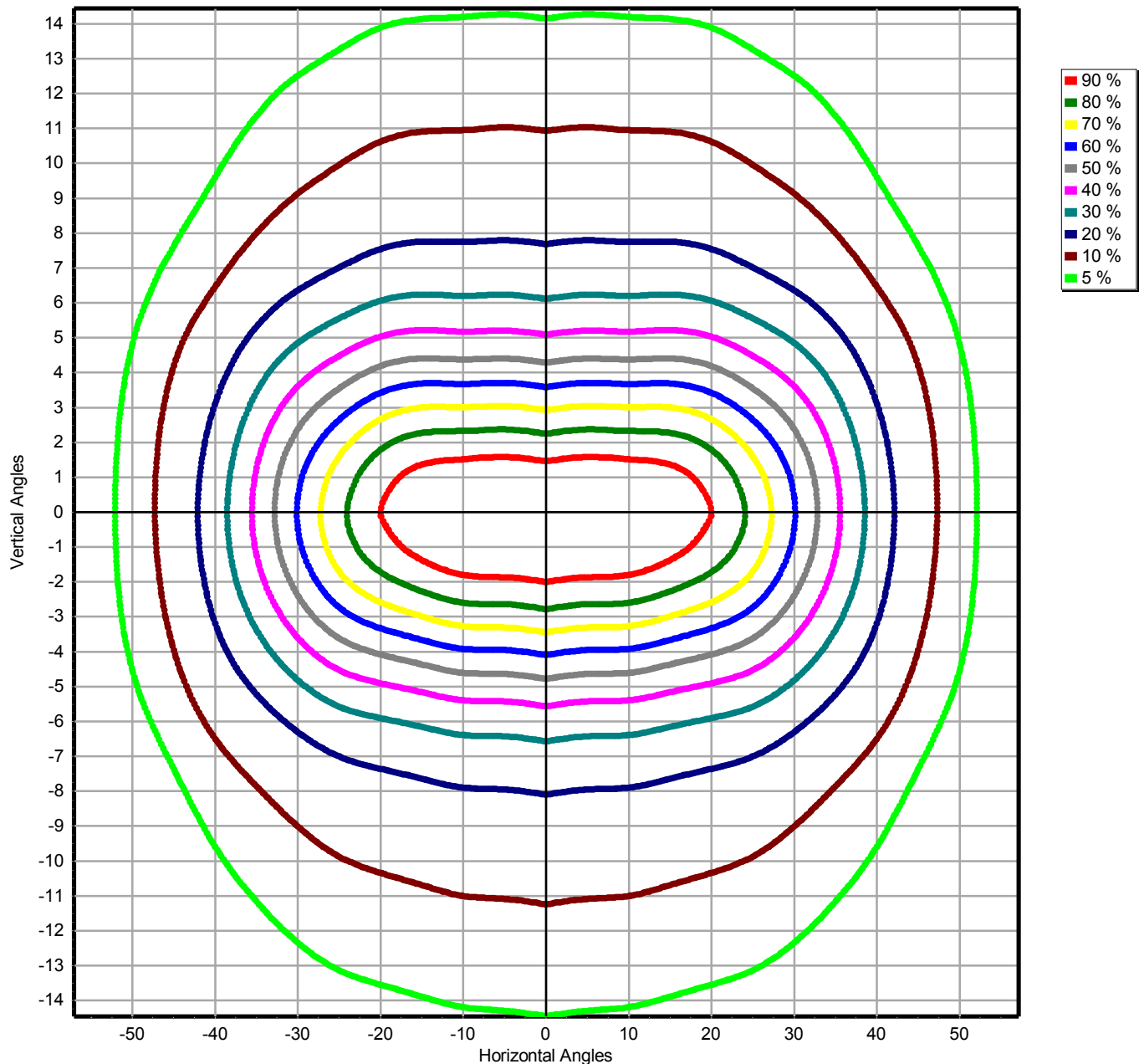
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ISO Candela Diagram





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 11 December 2015
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1512117-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOG-RO-120-48-40K-10x60-SI-NO
[LUMINAIRE] LUMENFACADE
[LAMP] (Clusters of 24 Cree XPE2 LED's) 34W SSL c/w Driver LPF-40-24 @ 120.00V
[_BURNING] Axial (1,722 Luminaire Lumens)
[_REFLECTOR] 24 Collimators
[_LENS] Polycarbonate
[_HOUSING] Extruded Aluminum
[DISTRIBUTION] NEMA 5Hx2V (Max. CP at 5.0H,0.0V)
[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	-90.0	5	2	2	1	4	4	3	3
	-85.0	4	3	3	3	3	3	2	3
	-75.0	3	3	3	4	3	3	4	3
	-65.0	7	5	5	5	5	5	5	5
	-55.0	10	8	8	8	7	8	7	8
	-45.0	16	17	15	16	15	14	13	11
	-35.0	38	36	37	34	34	33	30	27
	-25.0	86	83	82	79	76	74	68	56
	-20.0	148	144	142	136	131	125	114	87
	-15.0	333	322	315	294	274	251	216	145
	-12.5	579	559	549	513	476	433	364	221
	-12.0	644	621	611	572	531	483	405	243
	-11.5	715	689	678	635	590	535	448	265
	-11.0	793	767	754	706	656	595	496	291
	-10.5	880	850	836	784	729	661	550	319
	-10.0	979	944	930	872	810	734	610	349
	-9.5	1091	1054	1036	971	903	818	677	384
	-9.0	1220	1176	1158	1086	1009	914	755	423
	-8.5	1369	1319	1301	1219	1133	1027	847	468
	-8.0	1545	1488	1468	1375	1278	1161	955	522
A n g l e s	-7.5	1755	1688	1669	1562	1452	1320	1087	588
	-7.0	2008	1925	1905	1782	1659	1509	1241	664
	-6.5	2305	2213	2190	2049	1906	1737	1426	754
	-6.0	2658	2549	2527	2362	2198	2003	1640	854
	-5.5	3075	2947	2924	2732	2542	2309	1886	966
	-5.0	3542	3401	3373	3155	2933	2655	2156	1081
	-4.5	4066	3913	3880	3631	3370	3037	2451	1202
	-4.0	4631	4466	4429	4152	3845	3443	2760	1320
	-3.5	5213	5048	5008	4702	4347	3869	3080	1438
	-3.0	5785	5626	5582	5259	4858	4295	3398	1549
	-2.5	6323	6177	6128	5796	5351	4706	3705	1653
	-2.0	6784	6662	6613	6283	5803	5079	3984	1746
	-1.5	7152	7059	7007	6693	6185	5391	4223	1825
	-1.0	7407	7345	7293	7001	6478	5624	4405	1883
	-0.5	7529	7506	7452	7195	6664	5778	4516	1920



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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	0.0	7522	7535	7479	7282	6784	5825	4555	3166	1931
	0.5	7384	7429	7375	7189	6686	5743	4510	3142	1915
	1.0	7120	7197	7142	6995	6506	5582	4393	3068	1873
	1.5	6746	6851	6797	6690	6232	5335	4212	2955	1810
	2.0	6284	6403	6352	6282	5862	5012	3972	2804	1728
	2.5	5756	5890	5842	5803	5427	4639	3696	2631	1636
	3.0	5185	5325	5281	5274	4946	4229	3396	2439	1532
	3.5	4617	4754	4715	4725	4444	3809	3083	2238	1422
	4.0	4062	4193	4159	4187	3948	3396	2768	2032	1305
	4.5	3552	3669	3641	3675	3477	3000	2466	1829	1189
	5.0	3089	3194	3169	3206	3041	2629	2175	1629	1069
	5.5	2683	2773	2751	2782	2645	2294	1904	1439	955
	6.0	2332	2409	2389	2416	2299	1994	1664	1266	845
	6.5	2036	2098	2079	2098	1995	1732	1449	1107	746
	7.0	1783	1837	1818	1832	1739	1511	1264	970	659
	7.5	1574	1618	1599	1605	1524	1323	1109	852	584
	8.0	1400	1435	1417	1419	1344	1166	977	754	521
	8.5	1247	1278	1261	1259	1190	1036	867	671	466
	9.0	1117	1145	1129	1126	1063	924	776	603	422
A n g l e s	9.5	1006	1029	1013	1008	952	827	696	542	383
	10.0	907	928	914	907	857	747	627	491	350
	10.5	817	837	824	819	773	672	567	446	320
	11.0	742	758	745	739	696	607	513	405	292
	11.5	668	684	673	665	628	547	463	366	266
	12.0	604	617	607	601	566	493	420	334	244
	12.5	542	555	548	541	510	444	378	301	223
	15.0	313	321	314	312	294	257	223	186	144
	20.0	141	143	141	140	133	124	115	100	86
	25.0	84	84	82	81	79	75	69	62	55
	35.0	35	37	36	36	33	33	31	28	25
45.0	15	14	15	15	14	13	13	13	10	
55.0	7	6	8	7	8	7	6	7	6	
65.0	3	6	4	4	4	5	6	5	6	
75.0	1	4	3	4	4	3	2	5	3	
85.0	3	1	2	2	2	2	4	3	2	
90.0	2	3	2	3	3	3	1	4	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	3	3	4	4	3	6	4	2	4
	-85.0	4	4	5	3	3	3	5	3	5
	-75.0	3	4	4	6	4	4	3	4	2
	-65.0	6	6	5	5	5	5	4	5	4
	-55.0	6	6	7	5	6	4	5	4	3
	-45.0	10	9	8	7	7	6	3	4	3
	-35.0	23	20	16	13	10	7	6	5	5
	-25.0	47	41	35	27	20	12	9	6	3
	-20.0	72	59	47	36	26	19	12	7	4
	-15.0	111	87	65	48	36	25	15	7	3
	-12.5	157	113	80	59	42	29	19	10	5
	-12.0	169	119	85	59	43	30	19	8	4
	-11.5	182	128	89	64	45	31	18	9	4
	-11.0	197	137	92	66	47	31	20	11	5
	-10.5	213	145	99	67	49	33	20	9	5
	-10.0	232	155	103	72	50	33	20	10	4
	-9.5	252	166	109	75	52	35	22	12	4
	-9.0	274	178	117	77	54	36	22	11	5
	-8.5	301	192	123	81	56	37	22	11	6
	A n g l e s	-8.0	330	208	130	85	59	39	24	12
-7.5		366	226	140	88	61	41	24	12	5
-7.0		408	249	150	95	63	40	24	12	5
-6.5		457	272	160	99	66	43	26	13	5
-6.0		510	297	173	104	69	44	26	13	4
-5.5		569	325	183	109	71	45	26	14	6
-5.0		630	353	195	113	73	47	27	14	5
-4.5		690	379	206	117	75	49	28	13	5
-4.0		749	404	215	122	77	48	27	14	6
-3.5		806	429	223	125	79	50	29	14	6
-3.0		857	448	232	129	80	51	29	14	5
-2.5		905	466	237	132	82	50	28	14	6
-2.0		946	482	242	133	81	52	30	15	5
-1.5		982	493	247	134	83	54	31	14	4
-1.0		1010	501	248	136	83	52	30	14	6
-0.5		1028	509	250	135	84	54	31	15	5
0.0		1035	510	252	136	84	52	30	14	5
0.5		1032	509	251	136	83	52	30	14	7
1.0		1018	507	249	135	83	53	31	15	4
1.5		994	498	248	136	82	53	30	14	4
2.0	962	486	244	134	82	51	29	14	6	
2.5	923	475	240	132	81	52	30	14	5	
3.0	878	456	236	131	80	51	30	13	4	
3.5	829	438	228	130	79	50	29	13	6	
4.0	776	417	220	126	78	49	29	14	4	
4.5	718	392	212	122	76	49	29	13	5	
5.0	660	367	202	119	75	48	27	14	5	
5.5	599	341	189	114	72	46	28	13	5	
6.0	538	312	181	110	70	45	26	11	4	
6.5	484	286	168	106	67	44	24	13	5	
7.0	433	262	156	98	65	43	25	12	5	
7.5	387	237	147	95	62	42	25	12	5	
8.0	350	218	136	91	60	39	23	13	5	
8.5	317	200	128	84	57	39	23	11	3	
9.0	288	185	120	81	56	38	22	11	3	



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ISO/IEC 17025



NVLAP LAB CODE: 200899-0

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	9.5	264	172	113	79	53	36	22	11	5
	10.0	244	161	106	74	51	34	21	11	3
	10.5	224	149	101	70	49	33	21	12	4
	11.0	207	140	96	69	47	32	19	11	4
	11.5	192	132	89	64	45	31	19	10	4
	12.0	176	123	86	62	44	31	19	10	3
	12.5	163	115	82	60	41	29	18	9	4
	15.0	113	86	65	49	35	25	17	8	3
	20.0	72	59	47	37	26	18	11	7	4
	25.0	49	41	34	26	20	13	8	5	5
	35.0	22	19	16	13	10	8	6	5	3
	45.0	10	9	7	6	5	5	4	3	4
	55.0	6	6	6	7	5	5	5	4	4
	65.0	5	5	4	5	4	4	4	3	2
	75.0	4	3	4	4	3	4	4	5	6
	85.0	4	4	4	4	3	4	5	4	3
	90.0	3	3	4	3	4	3	3	4	3

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Horizontal Angles

	90.0
V e r t i c a l	-90.0 2
	-85.0 3
	-75.0 6
	-65.0 4
	-55.0 4
	-45.0 3
	-35.0 4
	-25.0 4
	-20.0 2
	-15.0 2
	-12.5 3
	-12.0 3
	-11.5 3
	-11.0 3
	-10.5 3
	-10.0 5
	-9.5 3
	-9.0 3
	-8.5 4
	-8.0 3
A n g l e s	-7.5 2
	-7.0 4
	-6.5 3
	-6.0 1
	-5.5 4
	-5.0 3
	-4.5 2
	-4.0 4
	-3.5 2
	-3.0 2
	-2.5 3
	-2.0 3
	-1.5 1
	-1.0 3
	-0.5 2
	0.0 1
	0.5 2
	1.0 2
	1.5 2
	2.0 4
	2.5 3
	3.0 2
	3.5 3
	4.0 4
	4.5 2
	5.0 3
	5.5 3
	6.0 3
	6.5 3
	7.0 4
	7.5 3
	8.0 4
	8.5 4
	9.0 2



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Horizontal Angles

	90.0
	9.5
	10.0
	10.5
	11.0
	11.5
	12.0
	12.5
	15.0
	20.0
	25.0
	35.0
	45.0
	55.0
	65.0
	75.0
	85.0
	90.0
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