



# 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](http://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	
<b>Test Report</b>	S1512082-R1	<b>Description</b>	61W White 3000K SSL	<b>Type</b> Commercial
<b>Test Date</b>	8 December 2015	<b>Serial Number</b>	SRIS 2218	<b>Description</b> 61SSL-CY963
<b>Report Date</b>	17 December 2015	<b>Photometric Method</b>	Absolute	<b>Manufacturer</b> Mean Well
<b>Ambient</b>	25.4°C	<b>Lamp Lumens</b>	-1	<b>Catalog No.</b> LPF-60-24
<b>Humidity</b>	21.5 %	<b>Test Position</b>	Axial	<b>Voltage Tap</b> 120.00 V
<b>Lamp Type</b>	SSL	<b>Comments</b>	Clusters of 48 Cree XPE2 LED's	<b>Power Factor</b> 0.9900

### Floodlight Data

General Information		Optics	Aperture (feet)	
<b>Manufacturer</b>	Lumenpulse	<b>Reflector</b>	48 Collimators	<b>X</b> 0.1667
<b>Name</b>	LUMENFACADE	<b>Housing</b>	Extruded Aluminum	<b>Y</b> 4.0000
<b>Catalog No.</b>	LOGI-HO-120/277-48-30K -10x60-SI-NO	<b>Lens</b>	Polycarbonate	<b>Z</b> 0.0000

Lamp Stabilization Time: 45 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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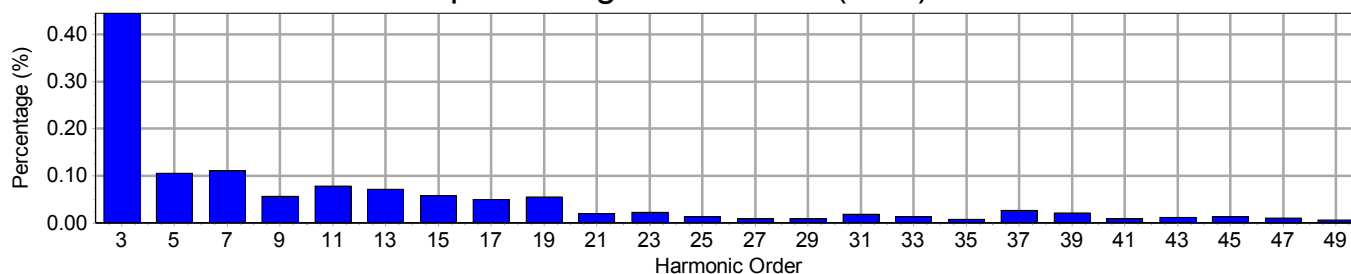
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## Electrical Measurements

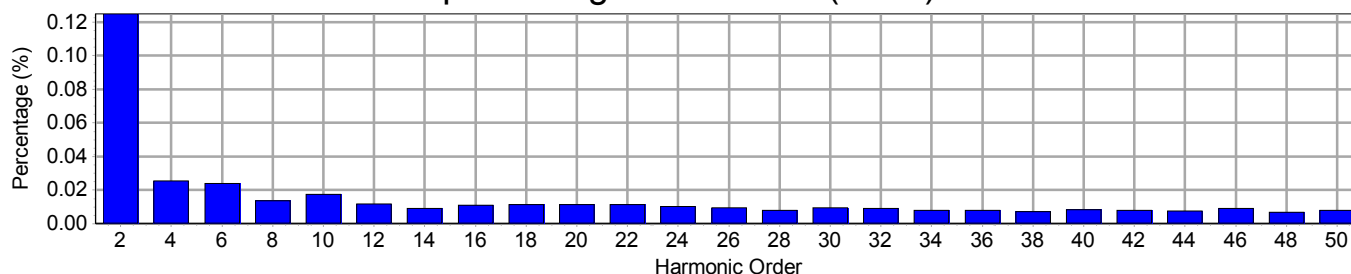
### Input

Frequency	60 Hz	Active Power	61.08 W	THDV [ANSI]	0.52 %
Voltage	120.0 V(rms)	Apparent Power	61.39 VA	THDA [ANSI]	5.42 %
Current	0.5114 A(rms)	Power Factor	0.995	Max. Harmonic At	5th order

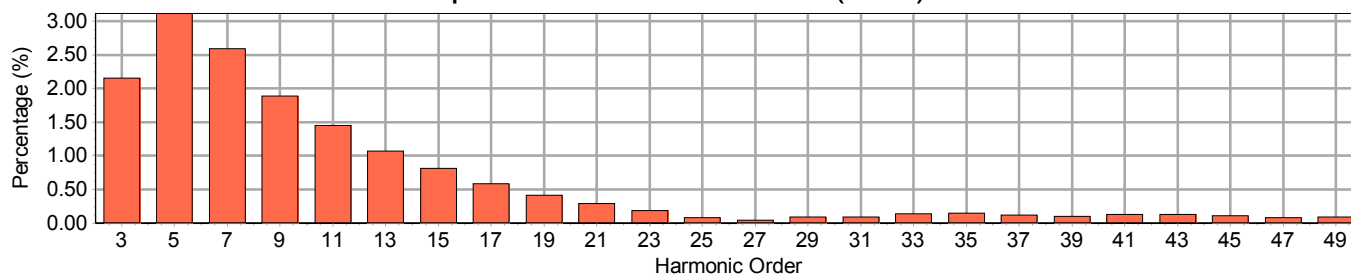
### Input Voltage Harmonics (Odd)



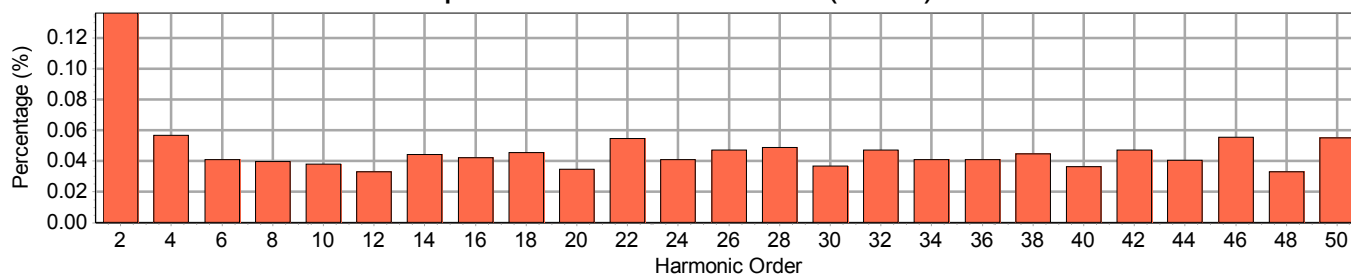
### Input Voltage Harmonics (Even)



### 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	0.125	0.137
3	180	0.446	2.153	4	240	0.026	0.057
5	300	0.105	3.123	6	360	0.024	0.041
7	420	0.111	2.596	8	480	0.014	0.040
9	540	0.056	1.886	10	600	0.017	0.038
11	660	0.078	1.455	12	720	0.012	0.033
13	780	0.072	1.069	14	840	0.009	0.044
15	900	0.058	0.811	16	960	0.011	0.042
17	1020	0.049	0.589	18	1080	0.011	0.046
19	1140	0.056	0.411	20	1200	0.011	0.035
21	1260	0.020	0.289	22	1320	0.011	0.055
23	1380	0.022	0.185	24	1440	0.010	0.041
25	1500	0.013	0.077	26	1560	0.009	0.047
27	1620	0.008	0.043	28	1680	0.008	0.049
29	1740	0.009	0.094	30	1800	0.009	0.037
31	1860	0.019	0.095	32	1920	0.009	0.047
33	1980	0.013	0.137	34	2040	0.008	0.041
35	2100	0.008	0.145	36	2160	0.008	0.041
37	2220	0.027	0.117	38	2280	0.007	0.045
39	2340	0.021	0.103	40	2400	0.008	0.036
41	2460	0.009	0.131	42	2520	0.008	0.047
43	2580	0.012	0.127	44	2640	0.008	0.040
45	2700	0.014	0.114	46	2760	0.009	0.055
47	2820	0.010	0.080	48	2880	0.007	0.033
49	2940	0.007	0.087	50	3000	0.008	0.055



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## Photometric Report: S1512082-R1

Prepared for: Lumenpulse · Test Date: 08 December 2015

Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-30K-10x60-SI-NO

### Photometric Floodlight Characteristics

Nominal SSL Power	61.00 W	
Measured Input Voltage	120.05 V	<b>Notes</b>
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	3182	
Measured Input Power	61.08 W	
Floodlight Luminous Efficacy	52.1 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	13233	
Maximum Candela Location	0.0 H, 0.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	63.0 °	
Vertical Beam Angle (50%)	10.0 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	92.0 °	
Vertical Field Angle (10%)	23.5 °	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	5Hx2V	
Beam Lumens (50%)	1507	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	2586	
Field Efficiency (10%)	N/A	
Spill Lumens	597	
Total Floodlight Lumens	3182	
Total Floodlight Efficiency	N/A	



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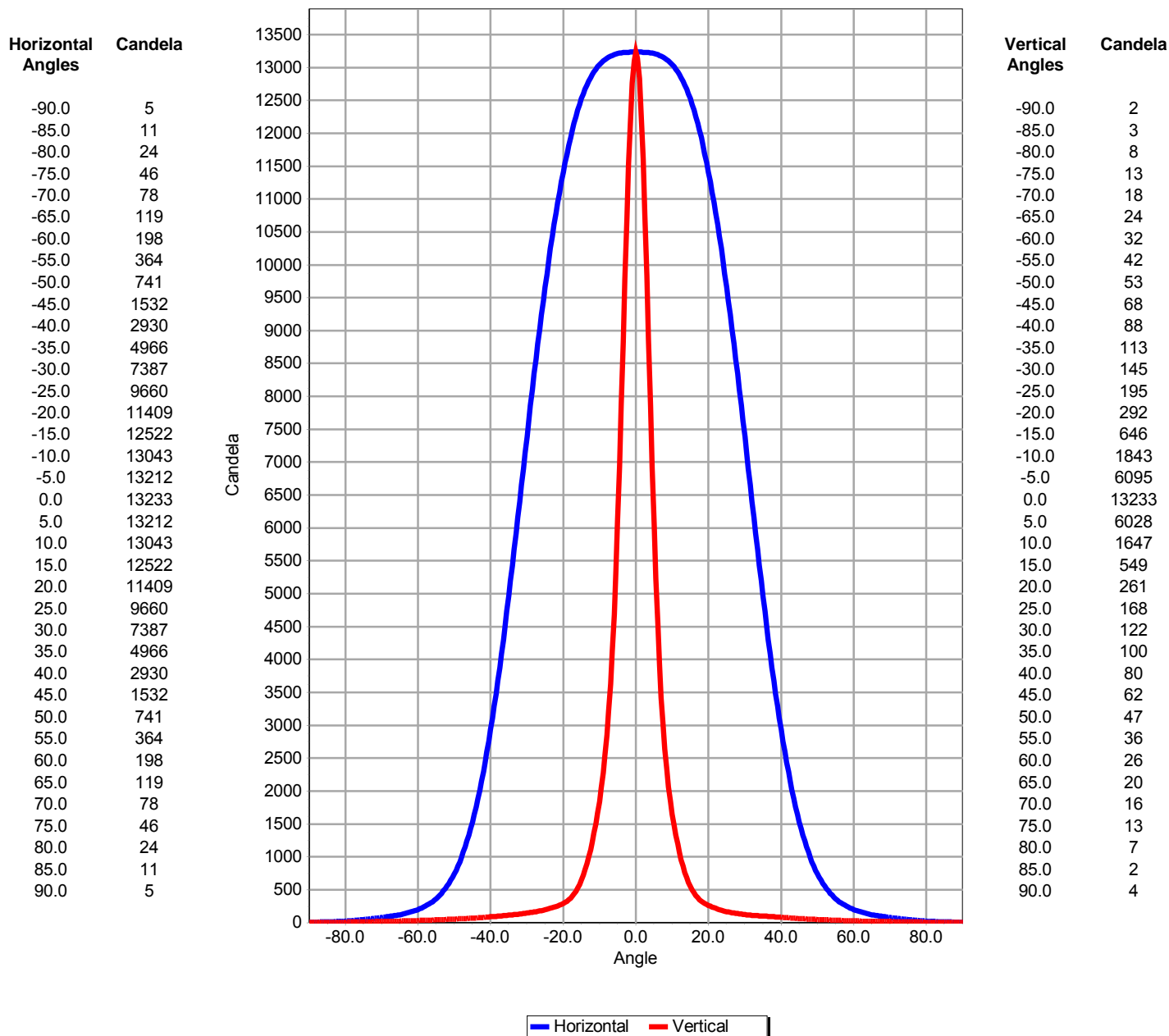
NVLAP LAB CODE: 200899-0

## Photometric Report: S1512082-R1

Prepared for: Lumenpulse · Test Date: 08 December 2015

Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-30K-10x60-SI-NO

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





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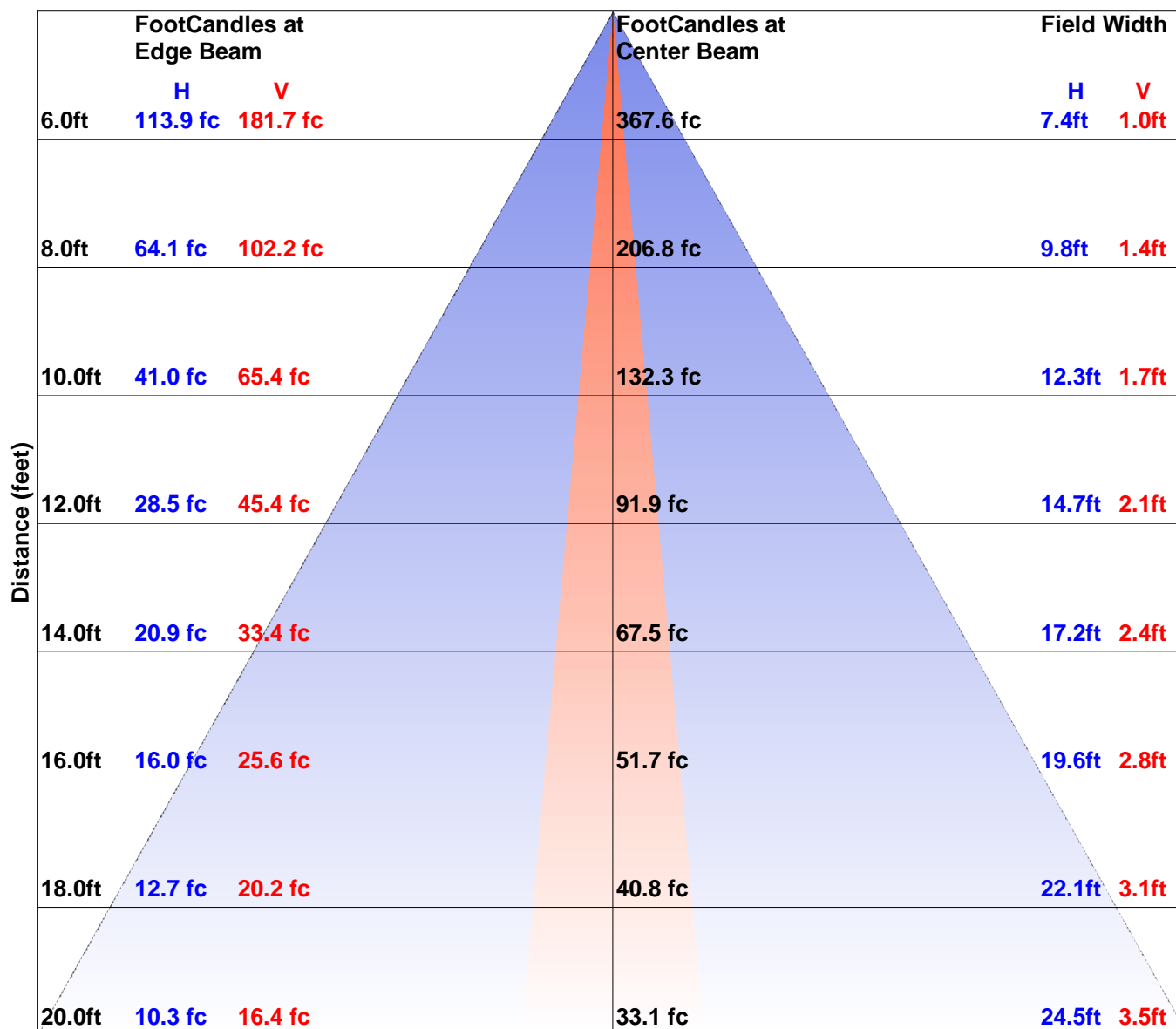
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## Photometric Report: S1512082-R1

Prepared for: Lumenpulse · Test Date: 08 December 2015

Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-30K-10x60-SI-NO

### Downlight Beam



— Horizontal (63.0 °) — Vertical (10.0 °)





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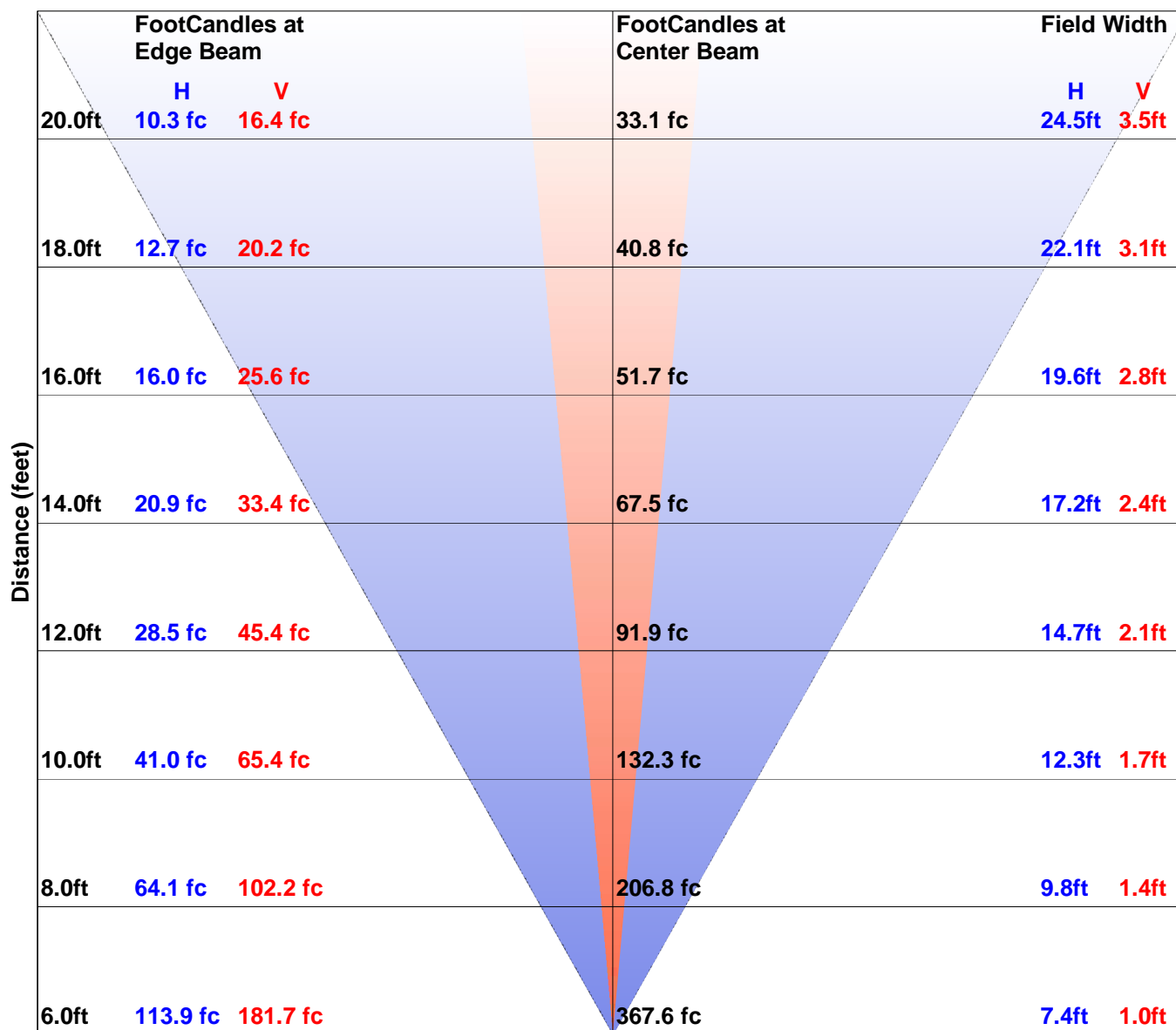
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## Photometric Report: S1512082-R1

Prepared for: Lumenpulse · Test Date: 08 December 2015

Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-30K-10x60-SI-NO

### Uplight Beam



— Horizontal (63.0 °) — Vertical (10.0 °)



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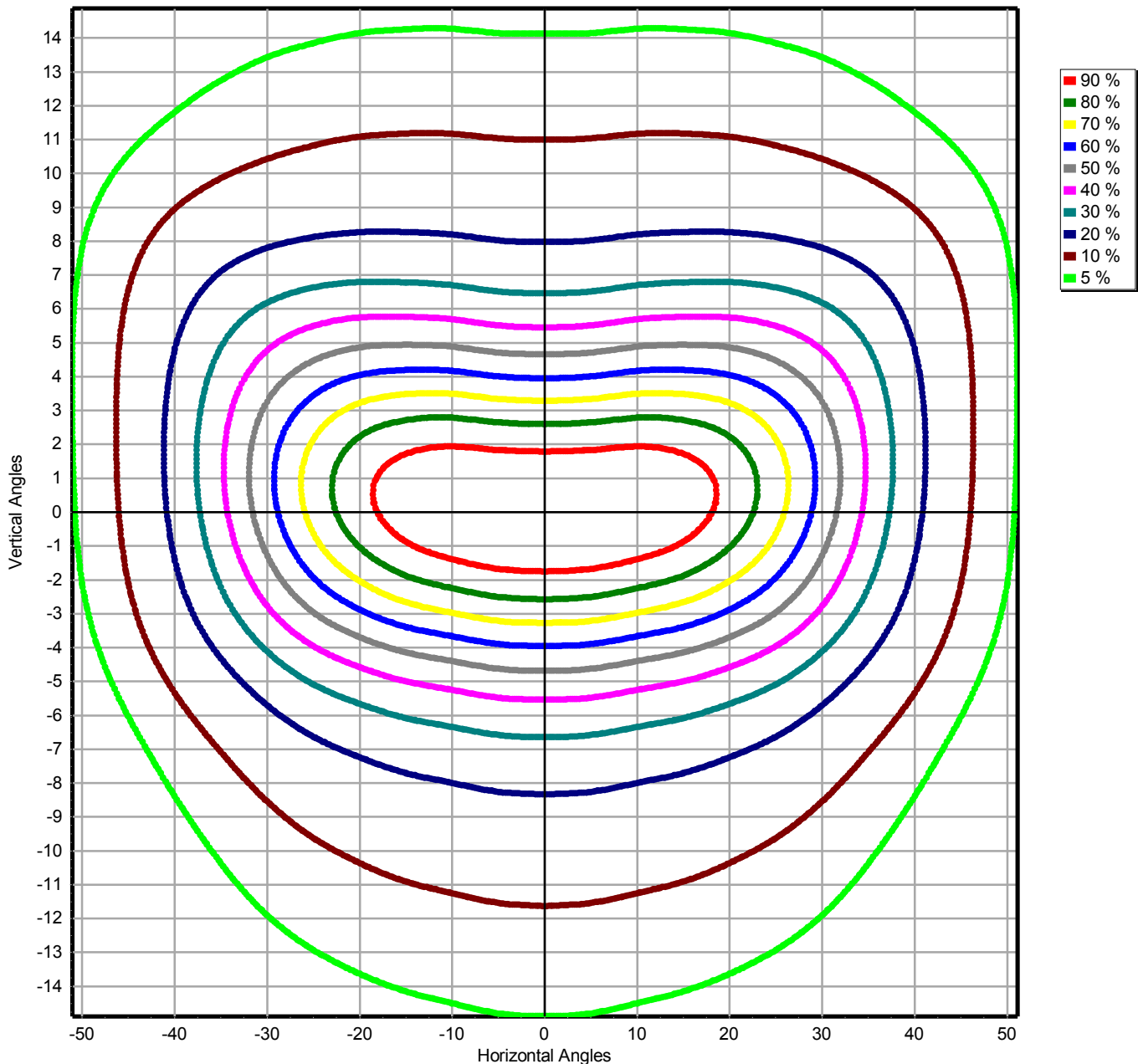
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## Photometric Report: S1512082-R1

Prepared for: Lumenpulse · Test Date: 08 December 2015

Floodlight: LUMENFACADE · Lumcat: LOGI-HO-120/277-48-30K-10x60-SI-NO

### ISO Candela Diagram





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## IES File Headers

IESNA:LM-63-2002  
[ISSUEDATE] 08 December 2015  
[TESTLAB] Spectra Lux Industries Inc.  
[TEST] S1512082-R1  
[MANUFAC] Lumenpulse  
[LUMCAT] LOGI-HO-120/277-48-30K-10x60-SI-NO  
[LUMINAIRE] LUMENFACADE  
[LAMP] (Clusters of 48 Cree XPE2 LED's) 61W SSL c/w Driver LPF-60-24 @ 120.00V  
[\_BURNING] Axial (3,182 Luminaire Lumens)  
[\_REFLECTOR] 48 Collimators  
[\_LENS] Polycarbonate  
[\_HOUSING] Extruded Aluminum  
[DISTRIBUTION] NEMA 5Hx2V (Max. CP at 0.0H,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	2	3	2	3	4	4	4	6	4
	-85.0	3	5	5	4	5	6	4	6	6
	-75.0	13	12	12	13	11	13	13	13	13
	-65.0	24	24	23	22	23	21	20	20	19
	-55.0	42	42	42	41	41	39	39	37	34
	-45.0	68	67	66	66	64	62	60	55	52
	-35.0	113	113	109	106	103	98	91	85	77
	-25.0	195	194	190	184	176	168	155	139	124
	-20.0	292	290	279	270	256	239	217	192	164
	-15.0	646	634	594	554	499	436	365	296	235
	-12.5	1106	1086	1022	950	847	727	584	440	320
	-12.0	1225	1205	1136	1059	944	810	648	484	347
	-11.5	1358	1334	1259	1172	1046	897	719	532	378
	-11.0	1502	1476	1392	1299	1161	996	794	588	412
	-10.5	1661	1635	1543	1440	1286	1103	878	646	449
	-10.0	1843	1812	1711	1596	1426	1223	971	710	490
	-9.5	2048	2015	1899	1773	1584	1359	1078	784	536
	-9.0	2281	2246	2119	1977	1766	1513	1197	867	587
A n g l e s	-8.5	2546	2506	2365	2208	1973	1690	1336	962	647
	-8.0	2852	2806	2644	2470	2208	1891	1494	1074	716
	-7.5	3209	3157	2972	2778	2484	2130	1676	1202	796
	-7.0	3630	3571	3361	3139	2808	2408	1893	1350	888
	-6.5	4119	4050	3814	3565	3190	2739	2152	1531	999
	-6.0	4682	4608	4336	4054	3630	3119	2449	1737	1127
	-5.5	5348	5262	4951	4627	4144	3559	2792	1974	1273
	-5.0	6095	6000	5653	5287	4735	4059	3179	2240	1431
	-4.5	6939	6832	6444	6031	5399	4624	3612	2535	1606
	-4.0	7854	7740	7315	6851	6131	5237	4078	2846	1790
	-3.5	8821	8703	8252	7737	6921	5893	4572	3173	1977
	-3.0	9782	9664	9206	8647	7739	6564	5067	3494	2157
-2.5	10706	10592	10141	9544	8549	7227	5556	3804	2327	
-2.0	11530	11427	11002	10388	9318	7859	6016	4095	2482	
-1.5	12232	12144	11760	11143	10022	8441	6443	4360	2621	
-1.0	12766	12697	12375	11772	10626	8952	6825	4597	2743	
-0.5	13103	13057	12805	12238	11092	9362	7140	4800	2845	



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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	13233	13212	13043	12522	11409	9660	7387	4966	2930
	0.5	13143	13146	13064	12603	11547	9814	7540	5079	2992
	1.0	12825	12851	12858	12468	11488	9816	7585	5138	3032
	1.5	12304	12352	12441	12128	11246	9668	7529	5141	3050
	2.0	11605	11671	11834	11598	10831	9381	7378	5089	3046
	2.5	10776	10856	11079	10924	10277	8976	7136	4988	3021
	3.0	9835	9929	10203	10119	9601	8464	6813	4837	2973
	3.5	8856	8953	9256	9236	8836	7876	6434	4645	2906
	4.0	7857	7957	8278	8311	8024	7237	6002	4417	2817
	4.5	6912	7006	7321	7395	7205	6583	5548	4165	2715
	5.0	6028	6116	6419	6519	6411	5928	5083	3896	2597
	5.5	5234	5314	5593	5703	5651	5292	4610	3609	2461
	6.0	4532	4602	4854	4964	4950	4680	4140	3312	2313
	6.5	3930	3988	4203	4304	4310	4112	3687	3009	2153
	7.0	3423	3471	3652	3742	3752	3601	3264	2712	1986
	7.5	2993	3034	3183	3255	3265	3141	2867	2419	1812
	8.0	2634	2664	2788	2843	2847	2738	2512	2145	1639
	8.5	2324	2350	2450	2493	2485	2387	2193	1888	1468
	9.0	2066	2087	2170	2199	2184	2089	1917	1658	1308
A n g l e s	9.5	1843	1859	1926	1945	1923	1832	1677	1453	1157
	10.0	1647	1660	1717	1730	1702	1615	1472	1276	1024
	10.5	1475	1485	1533	1539	1512	1428	1300	1124	905
	11.0	1326	1334	1374	1377	1350	1272	1154	995	802
	11.5	1190	1197	1232	1234	1206	1134	1025	880	711
	12.0	1067	1074	1107	1104	1078	1011	912	785	634
	12.5	955	959	988	986	962	901	815	700	567
	15.0	549	550	565	562	549	516	471	412	344
	20.0	261	262	265	261	257	246	231	210	186
	25.0	168	168	169	169	165	161	154	145	132
	35.0	100	100	98	99	98	94	92	88	81
	45.0	62	61	63	60	59	55	53	51	48
	55.0	36	36	36	35	35	34	33	32	29
	65.0	20	20	19	19	19	19	18	16	16
	75.0	13	12	12	11	10	10	10	10	10
	85.0	2	3	4	4	5	4	6	6	6
	90.0	4	2	2	2	3	3	4	4	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	5	6	5	7	6	6	5	6	7
	-85.0	6	5	6	7	6	6	6	5	6
	-75.0	12	11	10	9	8	8	8	7	6
	-65.0	17	18	15	15	13	11	10	8	6
	-55.0	31	28	24	22	19	15	13	9	5
	-45.0	49	43	38	33	26	20	17	11	7
	-35.0	72	64	56	48	39	29	20	13	9
	-25.0	108	92	78	66	53	40	28	18	9
	-20.0	137	112	93	75	60	44	31	18	9
	-15.0	184	145	114	88	67	49	35	19	9
A n g l e s	-12.5	233	169	128	96	73	52	36	21	9
	-12.0	246	176	133	99	73	54	36	19	9
	-11.5	262	185	134	102	75	54	36	22	11
	-11.0	280	194	140	103	76	54	36	21	10
	-10.5	301	203	145	106	77	56	37	21	10
	-10.0	323	215	150	109	79	57	36	21	10
	-9.5	349	228	156	111	81	57	37	22	10
	-9.0	377	241	164	115	82	59	38	21	10
	-8.5	410	259	171	119	85	59	38	22	10
	-8.0	447	276	178	122	87	60	39	22	10
	-7.5	491	298	191	127	87	61	40	22	10
	-7.0	541	322	199	132	90	62	40	23	10
	-6.5	600	350	211	136	92	64	40	23	11
	-6.0	668	380	226	142	94	66	41	22	11
	-5.5	744	416	239	148	98	66	41	23	10
	-5.0	826	452	253	153	100	67	41	23	10
	-4.5	915	490	270	160	101	68	42	23	11
	-4.0	1008	530	284	167	105	70	43	24	10
	-3.5	1098	569	299	170	108	72	43	23	11
	-3.0	1187	605	314	176	109	72	44	23	11
	-2.5	1267	638	325	182	113	73	44	24	10
	-2.0	1338	668	336	184	115	75	45	24	11
	-1.5	1401	692	346	190	116	76	46	24	11
	-1.0	1453	713	353	194	118	76	46	25	11
	-0.5	1496	729	358	195	119	76	46	24	10
	0.0	1532	741	364	198	119	78	46	24	11
	0.5	1559	751	367	201	121	78	46	25	11
	1.0	1577	760	371	202	122	78	46	25	11
	1.5	1590	765	374	203	123	78	46	24	11
	2.0	1596	770	376	204	124	79	46	25	11
2.5	1596	773	378	204	124	79	47	25	11	
3.0	1590	774	380	206	124	79	47	24	11	
3.5	1578	776	381	207	124	80	46	25	11	
4.0	1557	775	381	207	125	78	47	25	11	
4.5	1531	772	383	208	124	79	47	25	11	
5.0	1496	767	382	208	125	79	47	25	11	
5.5	1449	758	381	207	125	78	47	25	10	
6.0	1396	744	380	207	125	79	47	24	11	
6.5	1334	727	376	207	125	78	46	25	10	
7.0	1261	705	371	206	125	77	47	24	11	
7.5	1183	678	364	204	124	78	46	24	10	
8.0	1098	650	356	202	124	78	45	24	10	
8.5	1008	614	344	198	122	76	46	23	10	
9.0	920	576	333	194	121	76	46	24	10	



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Tel.: (514) 332-0082 Fax: (514) 332-3590 [www.spectralux.ca](http://www.spectralux.ca)

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	832	537	317	191	120	76	45	24	10
	10.0	748	496	301	185	117	74	44	23	10
	10.5	672	455	286	179	115	74	45	24	10
	11.0	602	418	268	172	113	72	44	24	10
	11.5	537	379	250	164	109	71	44	23	10
	12.0	483	346	235	156	106	71	43	22	10
	12.5	435	317	218	151	103	69	41	23	9
	15.0	275	212	159	118	87	61	38	21	10
	20.0	161	133	108	85	66	48	32	19	9
	25.0	117	101	85	70	54	40	27	16	8
	35.0	76	66	58	49	39	30	22	15	8
	45.0	44	42	37	32	27	21	17	12	9
	55.0	25	24	21	18	17	15	13	9	6
65.0	14	14	14	13	12	11	9	7	6	
75.0	10	10	9	10	9	8	8	5	5	
85.0	5	6	6	5	5	6	5	5	5	
90.0	5	5	5	4	6	5	7	6	5	



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## Horizontal Angles

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



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NVLAP LAB CODE: 200899-0

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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