



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	S1612165-R1	Description	34W White 4000K SSL	Type Commercial
Test Date	16 December 2016	Serial Number	SRIS-2647	Description 34SSL-CY825
Report Date	21 December 2016	Photometric Method	Absolute	Manufacturer MEAN WELL USA inc.
Ambient	24.6 °C	Lamp Lumens	-1	Catalog No. LPF-40-24
Humidity	26.8 %	Test Position	Axial	Voltage Tap 120.00 V
Lamp Type	SSL	Comments	1 Row of 24 CREE XPE2 LED's	Power Factor 0.9900

Floodlight Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	None	X 0.1667
Name	LUMENFACADE	Housing	Extruded Aluminum	Y 4.0000
Catalog No.	LOGi RO-120-48-40K-WW-SI-NO	Lens	Acrylic Half-Frosted Flat Lens with Polycarbonate Diffuser	Z 0.0000

Lamp Stabilization Time: 45 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-3000	973972	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	2016/10/05	2017/10/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	051202970	2016/10/20	2017/10/20



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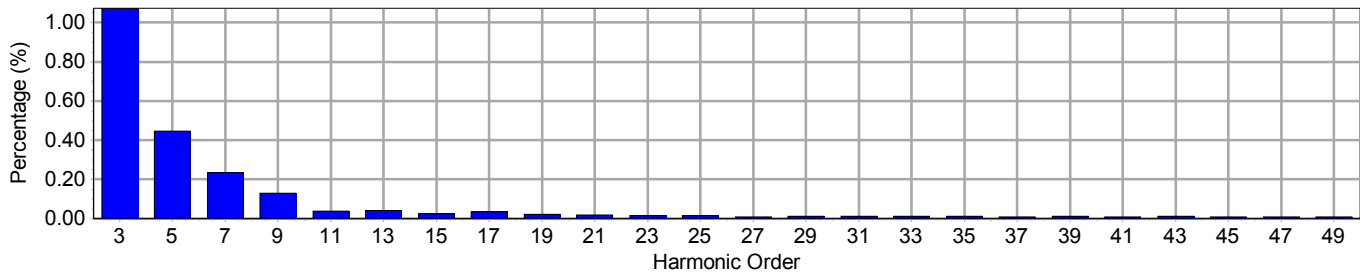
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Electrical Measurements

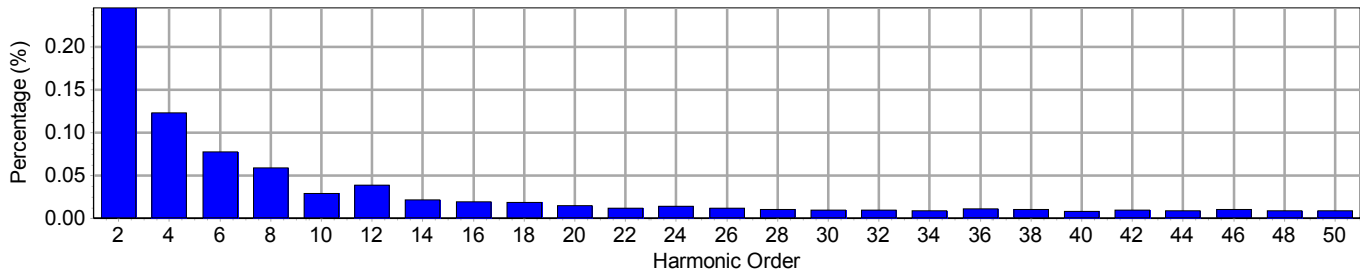
Input

Frequency	60 Hz	Active Power	31.22 W	THDV [ANSI]	1.23 %
Voltage	120.0 V(rms)	Apparent Power	31.57 VA	THDA [ANSI]	6.47 %
Current	0.2630 A(rms)	Power Factor	0.989	Max. Harmonic At	5th order

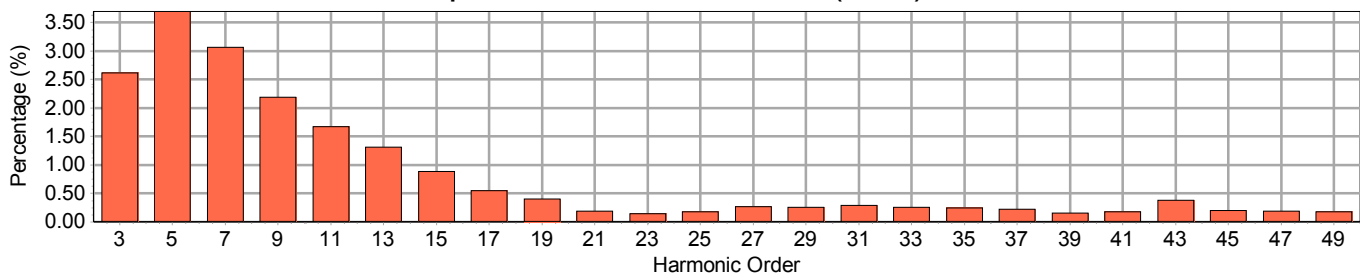
Input Voltage Harmonics (Odd)



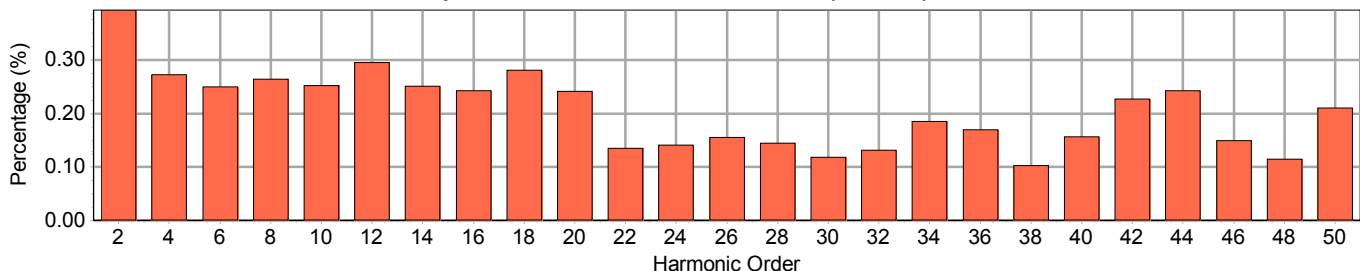
Input Voltage Harmonics (Even)



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	0.246	0.395
3	180	1.075	2.617	4	240	0.123	0.273
5	300	0.446	3.697	6	360	0.077	0.251
7	420	0.234	3.063	8	480	0.059	0.265
9	540	0.130	2.184	10	600	0.029	0.252
11	660	0.038	1.665	12	720	0.038	0.296
13	780	0.042	1.304	14	840	0.021	0.252
15	900	0.023	0.877	16	960	0.019	0.244
17	1020	0.034	0.549	18	1080	0.018	0.281
19	1140	0.020	0.399	20	1200	0.015	0.241
21	1260	0.018	0.184	22	1320	0.012	0.135
23	1380	0.015	0.145	24	1440	0.014	0.141
25	1500	0.014	0.174	26	1560	0.011	0.156
27	1620	0.010	0.266	28	1680	0.010	0.144
29	1740	0.012	0.250	30	1800	0.009	0.119
31	1860	0.010	0.282	32	1920	0.010	0.131
33	1980	0.011	0.248	34	2040	0.008	0.185
35	2100	0.011	0.238	36	2160	0.011	0.170
37	2220	0.009	0.219	38	2280	0.010	0.103
39	2340	0.013	0.150	40	2400	0.008	0.156
41	2460	0.010	0.175	42	2520	0.010	0.227
43	2580	0.010	0.379	44	2640	0.009	0.243
45	2700	0.008	0.195	46	2760	0.010	0.149
47	2820	0.008	0.184	48	2880	0.009	0.115
49	2940	0.009	0.179	50	3000	0.009	0.210



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Photometric Report: S1612165-R1

Prepared for: Lumenpulse · Test Date: 16 December 2016

Floodlight: LUMENFACADE · Lumcat: LOGi RO-120-48-40K-WW-SI-NO

Photometric Floodlight Characteristics

Nominal SSL Power	34.00 W	
Measured Input Voltage	120.05 V	Notes
Test SSL Current	0.3000 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	1968	
Measured Input Power	31.22 W	
Floodlight Luminous Efficacy	63.0 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	3025	
Maximum Candela Location	0.0 H, -1.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	80.0 °	
Vertical Beam Angle (50%)	18.0 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	127.0 °	
Vertical Field Angle (10%)	64.5 °	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	6Hx4V	
Beam Lumens (50%)	711	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	1559	
Field Efficiency (10%)	N/A	
Spill Lumens	409	
Total Floodlight Lumens	1968	
Total Floodlight Efficiency	N/A	



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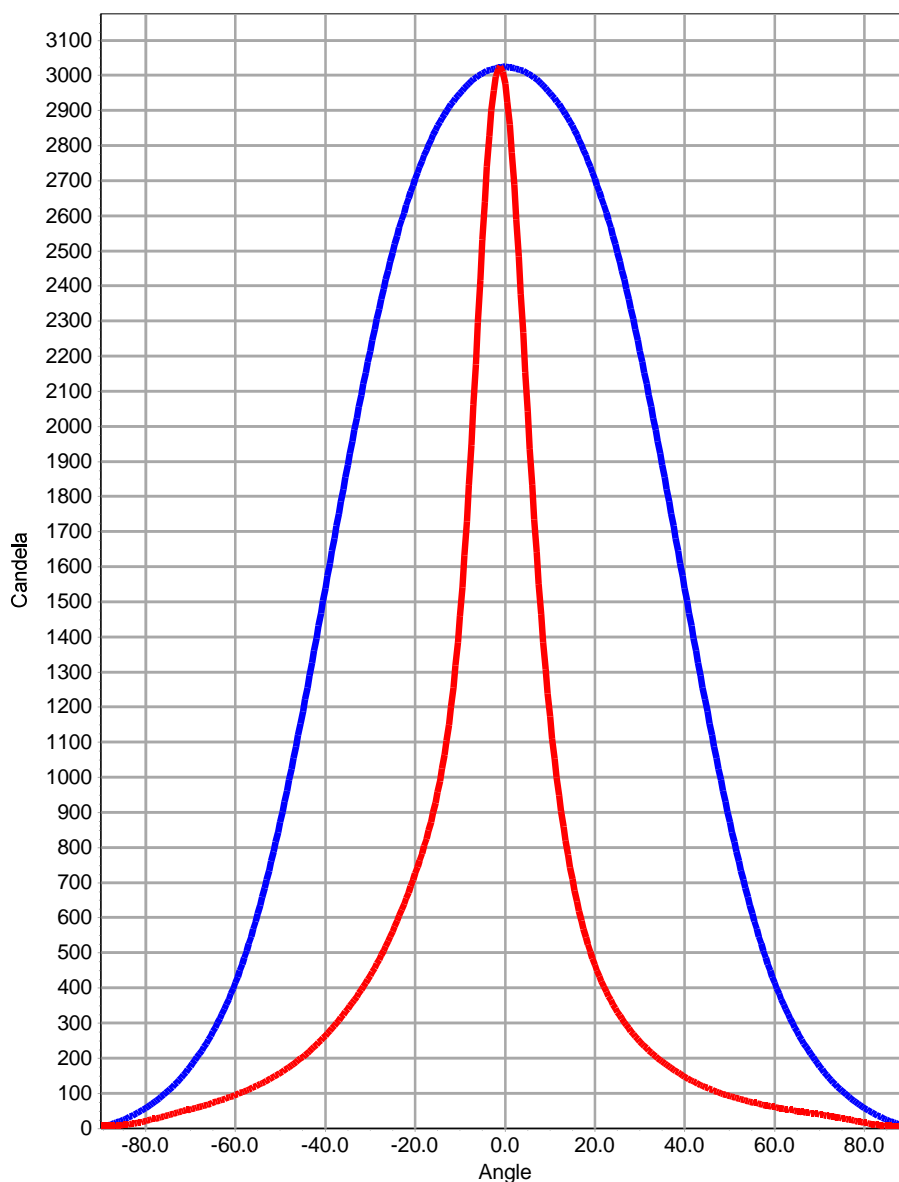
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Prepared for: Lumenpulse · Test Date: 16 December 2016

Floodlight: LUMENFACADE · Lumcat: LOGi RO-120-48-40K-WW-SI-NO

Maximum Candela Trace (Max. Location: 0.0 H, -1.0 V)

Horizontal Angles	Candela
-90.0	3
-85.0	24
-80.0	58
-75.0	106
-70.0	176
-65.0	276
-60.0	415
-55.0	613
-50.0	872
-45.0	1188
-40.0	1539
-35.0	1890
-30.0	2215
-25.0	2496
-20.0	2706
-15.0	2856
-10.0	2950
-5.0	3007
0.0	3025
5.0	3007
10.0	2950
15.0	2856
20.0	2706
25.0	2496
30.0	2215
35.0	1890
40.0	1539
45.0	1188
50.0	872
55.0	613
60.0	415
65.0	276
70.0	176
75.0	106
80.0	58
85.0	24
90.0	3



Vertical Angles	Candela
-90.0	6
-85.0	9
-80.0	21
-75.0	38
-70.0	55
-65.0	73
-60.0	95
-55.0	123
-50.0	158
-45.0	204
-40.0	264
-35.0	340
-30.0	435
-25.0	561
-20.0	726
-15.0	958
-10.0	1460
-5.0	2532
0.0	2976
5.0	2042
10.0	1173
15.0	709
20.0	466
25.0	332
30.0	247
35.0	190
40.0	147
45.0	115
50.0	92
55.0	74
60.0	60
65.0	49
70.0	39
75.0	29
80.0	16
85.0	7
90.0	4

— Horizontal — Vertical



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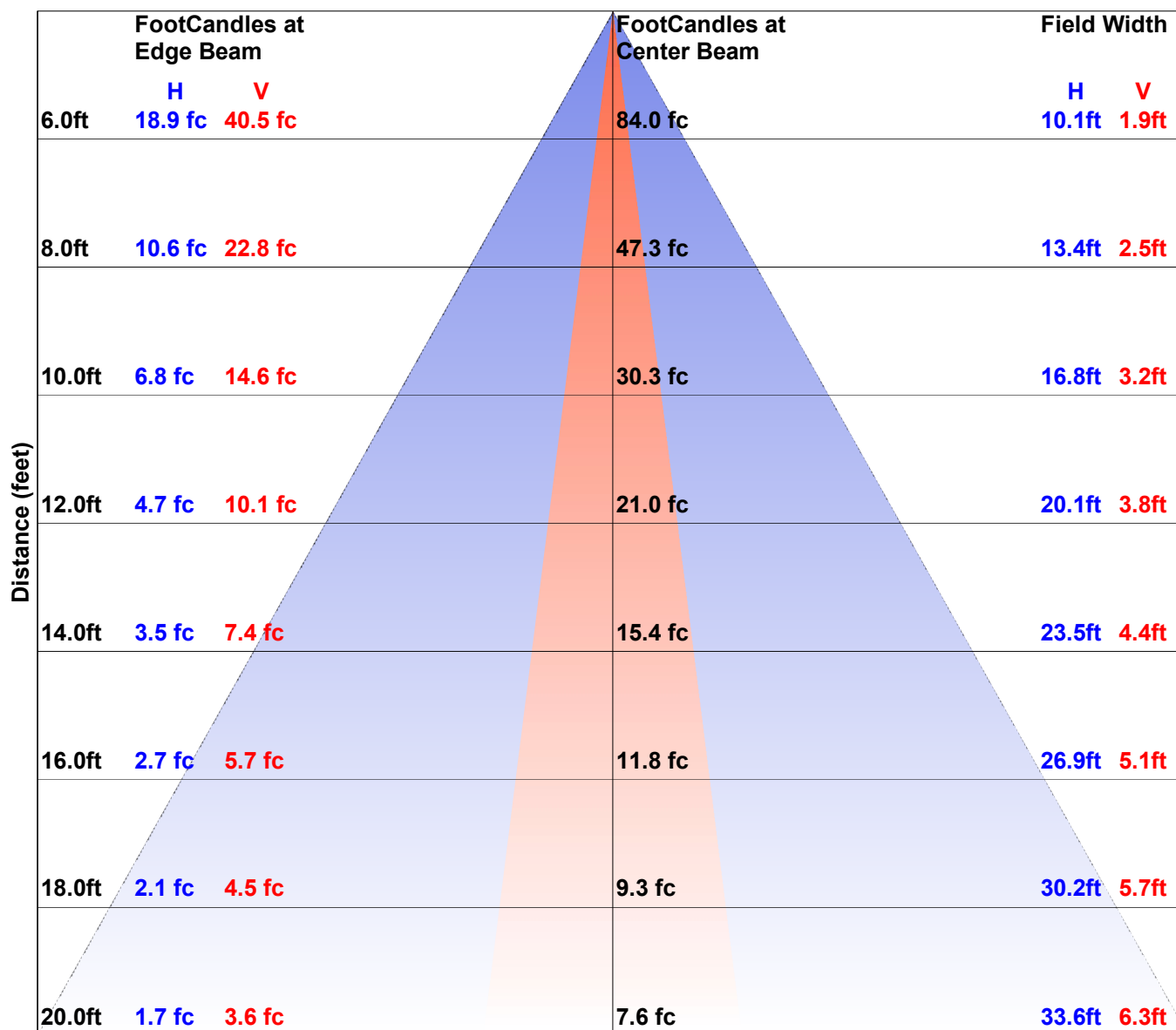
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Photometric Report: S1612165-R1

Prepared for: Lumenpulse · Test Date: 16 December 2016

Floodlight: LUMENFACADE · Lumcat: LOGi RO-120-48-40K-WW-SI-NO

Downlight Beam



— Horizontal (80.0 °) — Vertical (18.0 °)



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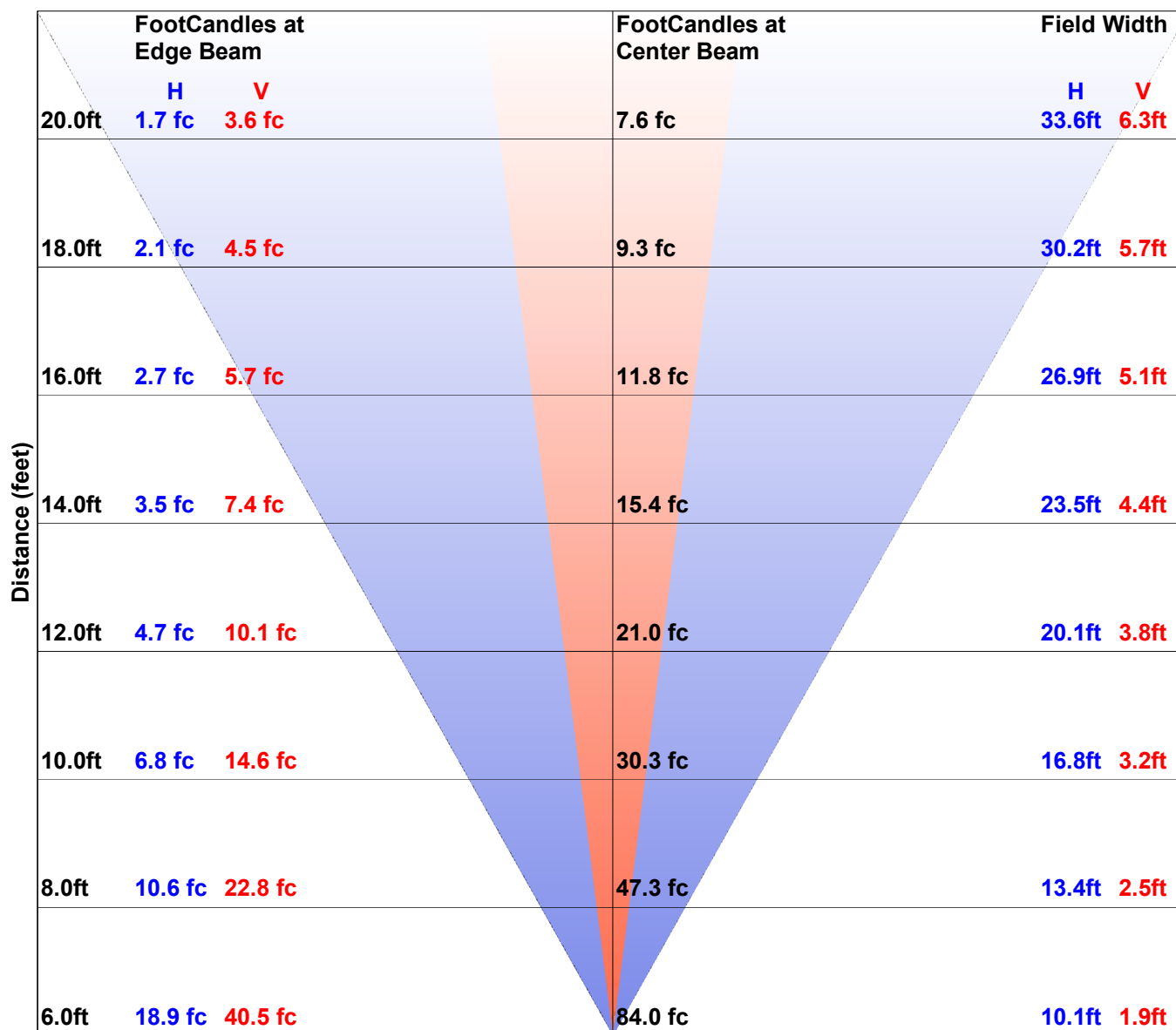
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Prepared for: Lumenpulse · Test Date: 16 December 2016

Floodlight: LUMENFACADE · Lumcat: LOGi RO-120-48-40K-WW-SI-NO

Uplight Beam



— Horizontal (80.0 °) — Vertical (18.0 °)



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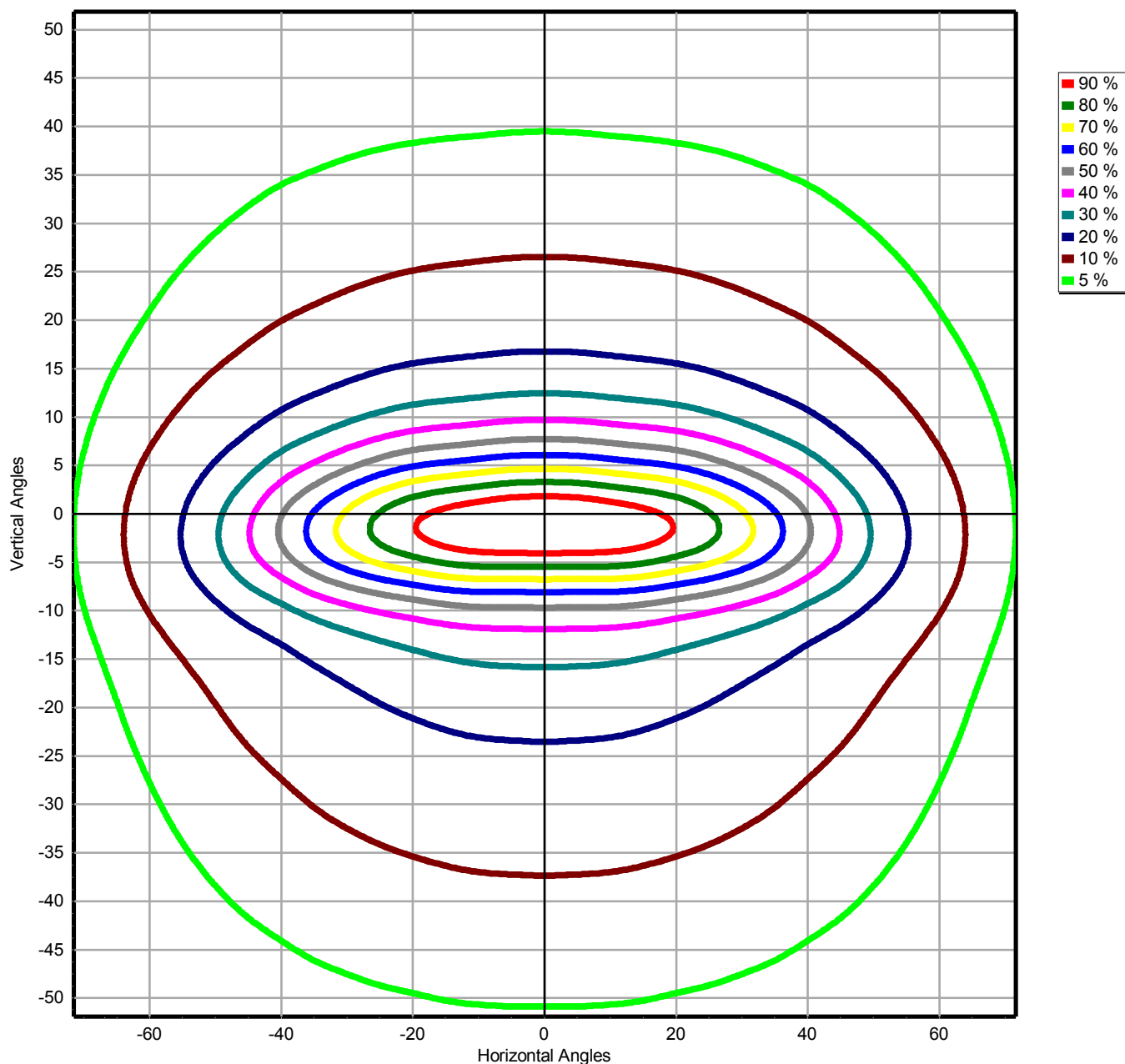
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Photometric Report: S1612165-R1

Prepared for: Lumenpulse · Test Date: 16 December 2016

Floodlight: LUMENFACADE · Lumcat: LOGi RO-120-48-40K-WW-SI-NO

ISO Candela Diagram





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IES File Headers

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IESNA:LM-63-2002
[ISSUEDATE]      16 December 2016
[TESTLAB]        Spectra Lux Industries Inc.
[TEST]           S1612165-R1
[MANUFAC]        Lumenpulse
[LUMCAT]          LOGi RO-120-48-40K-WW-SI-NO
[LUMINAIRE]       LUMENFACADE
[LAMP]           (1 Row of 24 CREE XPE2 LED's) White 34W SSL c/w MEAN WELL USA inc. Driver LPF-40-24 @ 120.00V
[_BURNING]        Axial (1,968 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Acrylic Half-Frosted Flat Lens with Polycarbonate Diffuser
[_HOUSING]        Extruded Aluminum
[DISTRIBUTION]    NEMA 6Hx4V (Max. CP at 0.0H,-1.0V)
[MORE]           (Based on IES LM-35-1989)
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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	6	6	6	6	6	6	6	6
	-85.0	9	10	10	10	9	10	9	9
	-75.0	38	37	38	37	36	35	34	31
	-65.0	73	73	73	71	70	67	64	57
	-55.0	123	123	122	120	116	112	107	93
	-45.0	204	203	201	196	188	181	170	145
	-35.0	340	338	334	323	308	291	270	222
	-25.0	561	557	548	528	498	464	425	334
	-20.0	726	720	709	681	640	593	538	416
	-15.0	958	951	938	902	847	785	712	542
	-12.5	1150	1144	1132	1093	1028	956	870	658
	-12.0	1200	1195	1183	1144	1076	1001	912	688
	-11.5	1256	1250	1240	1200	1128	1051	958	721
	-11.0	1318	1312	1303	1262	1187	1106	1008	895
	-10.5	1385	1380	1372	1329	1251	1167	1064	943
	-10.0	1460	1455	1447	1404	1321	1233	1126	997
	-9.5	1542	1537	1531	1486	1399	1306	1192	1055
	-9.0	1632	1627	1622	1576	1483	1386	1264	1117
A n g l e s	-8.5	1730	1726	1721	1673	1575	1473	1342	1184
	-8.0	1834	1829	1825	1775	1672	1564	1425	1254
	-7.5	1946	1941	1937	1884	1775	1660	1510	1326
	-7.0	2061	2055	2051	1996	1882	1759	1598	1400
	-6.5	2177	2171	2166	2109	1989	1859	1687	1475
	-6.0	2297	2291	2284	2224	2098	1958	1774	1547
	-5.5	2417	2410	2401	2337	2205	2057	1860	1618
	-5.0	2532	2523	2511	2443	2307	2151	1940	1684
	-4.5	2640	2632	2614	2543	2402	2237	2013	1743
	-4.0	2741	2730	2707	2632	2488	2313	2078	1793
	-3.5	2827	2816	2789	2709	2562	2379	2133	1836
	-3.0	2900	2888	2855	2771	2622	2432	2174	1868
	-2.5	2957	2944	2905	2818	2667	2470	2204	1890
	-2.0	2997	2982	2936	2847	2696	2493	2221	1901
	-1.5	3019	3003	2952	2860	2709	2502	2224	1900
	-1.0	3025	3007	2950	2856	2706	2496	2215	1890
	-0.5	3010	2990	2928	2833	2686	2474	2191	1868



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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	2976	2955	2888	2791	2648	2437	2155	1835	1498
	0.5	2925	2903	2833	2737	2597	2388	2109	1795	1467
	1.0	2860	2837	2764	2669	2534	2327	2053	1748	1430
	1.5	2780	2757	2682	2588	2459	2257	1989	1693	1388
	2.0	2690	2666	2589	2497	2374	2177	1919	1634	1342
	2.5	2591	2567	2491	2401	2284	2093	1845	1572	1294
	3.0	2485	2462	2385	2299	2188	2005	1766	1507	1244
	3.5	2377	2354	2279	2196	2091	1917	1690	1443	1194
	4.0	2267	2244	2171	2091	1993	1826	1610	1377	1143
	4.5	2155	2133	2061	1985	1893	1735	1531	1312	1092
A n g l e s	5.0	2042	2022	1954	1882	1796	1647	1455	1248	1043
	5.5	1937	1916	1852	1784	1703	1562	1381	1188	995
	6.0	1834	1815	1753	1689	1613	1481	1311	1130	950
	6.5	1736	1717	1659	1599	1528	1403	1244	1074	905
	7.0	1642	1624	1569	1512	1446	1329	1179	1020	862
	7.5	1551	1535	1483	1429	1367	1258	1117	969	821
	8.0	1466	1450	1401	1351	1292	1190	1058	919	781
	8.5	1385	1370	1323	1276	1221	1125	1003	874	744
	9.0	1308	1295	1252	1208	1156	1067	952	831	710
	9.5	1238	1226	1185	1144	1095	1011	903	790	677
	10.0	1173	1161	1123	1083	1038	959	858	752	646
	10.5	1110	1099	1063	1026	984	910	815	717	618
	11.0	1053	1042	1009	975	934	865	777	684	591
	11.5	1000	990	958	926	887	823	740	653	565
	12.0	949	941	911	880	844	783	705	623	542
	12.5	903	894	866	837	803	746	672	595	519
	15.0	709	704	683	661	635	593	539	482	425
	20.0	466	462	450	438	422	398	368	335	301
	25.0	332	330	323	315	305	290	271	250	229
	35.0	190	189	186	183	178	172	164	154	145
45.0	115	114	113	111	109	107	103	99	94	
55.0	74	74	73	72	72	70	68	66	64	
65.0	49	49	48	47	45	44	41	39	35	
75.0	29	28	27	25	23	21	20	19	19	
85.0	7	6	6	6	6	6	7	7	7	
90.0	4	4	4	4	4	4	4	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 A n g l e s	-90.0	6	6	6	6	6	6	6	6
	-85.0	9	8	8	7	7	6	5	5
	-75.0	29	26	24	22	19	16	10	7
	-65.0	54	49	44	38	33	27	15	9
	-55.0	87	78	69	59	50	40	21	12
	-45.0	132	117	102	86	71	56	41	27
	-35.0	198	172	146	121	97	74	53	33
	-25.0	292	247	204	165	129	96	67	41
	-20.0	358	298	243	193	148	109	74	45
	-15.0	462	379	303	234	176	126	83	49
	-12.5	557	451	353	267	196	137	88	51
	-12.0	582	469	366	275	200	139	90	52
	-11.5	609	488	379	284	205	142	91	52
	-11.0	637	509	393	292	210	144	92	52
	-10.5	668	531	408	301	215	147	93	53
	-10.0	702	555	423	310	220	150	94	54
	-9.5	738	580	439	320	226	152	95	54
	-9.0	775	606	456	329	231	155	96	54
	-8.5	815	634	473	339	236	157	98	55
	-8.0	856	661	490	349	241	160	99	55
	-7.5	898	690	508	358	246	162	100	55
	-7.0	940	718	525	368	251	164	101	56
	-6.5	982	745	541	377	256	166	101	56
	-6.0	1022	771	557	385	260	168	102	56
	-5.5	1060	796	571	393	264	170	103	57
	-5.0	1095	818	584	400	268	172	104	57
	-4.5	1126	838	595	406	270	173	104	57
	-4.0	1152	854	604	411	273	174	105	57
	-3.5	1173	866	611	415	275	175	105	57
	-3.0	1187	875	616	417	276	176	105	57
	-2.5	1196	880	619	418	277	176	106	58
	-2.0	1199	881	619	419	277	176	106	57
	-1.5	1196	879	617	417	276	176	106	58
	-1.0	1188	872	613	415	276	176	106	58
	-0.5	1173	862	606	412	274	175	106	57
	0.0	1153	848	598	407	272	175	106	57
	0.5	1129	832	588	402	270	174	106	58
	1.0	1101	814	577	397	267	173	105	57
	1.5	1069	793	565	389	263	171	105	57
	2.0	1036	771	551	382	260	170	104	57
	2.5	1000	747	538	375	256	168	104	57
	3.0	964	723	523	367	252	166	103	57
	3.5	928	699	508	358	248	164	102	57
	4.0	891	675	493	350	244	162	102	56
	4.5	854	650	478	341	239	160	101	56
	5.0	818	626	463	333	234	158	100	56
	5.5	784	603	449	324	230	156	99	55
	6.0	750	580	434	315	225	153	98	55
	6.5	718	558	420	307	220	151	97	55
	7.0	687	536	406	299	215	149	96	54
	7.5	656	515	392	290	210	146	95	54
	8.0	627	495	379	282	206	144	94	54
	8.5	600	476	366	275	202	142	93	53
	9.0	574	458	354	267	197	139	92	53



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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	550	440	343	260	193	137	91	53	23
	10.0	528	424	332	253	189	135	90	52	23
	10.5	506	409	322	246	185	133	89	52	23
	11.0	486	394	312	240	181	130	88	52	22
	11.5	467	380	302	234	177	128	87	50	22
	12.0	448	367	293	228	173	126	85	50	22
	12.5	432	355	285	222	170	124	85	50	22
	15.0	359	301	246	196	153	114	79	47	21
	20.0	262	226	191	157	127	97	69	43	19
	25.0	203	179	155	131	107	84	61	38	18
	35.0	133	121	107	93	79	63	47	30	15
	45.0	88	82	75	67	56	47	35	23	12
	55.0	61	55	47	41	36	28	22	15	8
65.0	33	30	27	24	20	17	14	10	6	
75.0	17	16	15	14	12	11	9	7	5	
85.0	7	7	7	7	6	5	5	4	3	
90.0	4	4	4	4	4	4	4	4	4	



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Horizontal Angles

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



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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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