



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-15-03, 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	S1507143-R1	Description	69W White SSL	Type Commercial
Test Date	14 July 2015	Serial Number	SRIS 2052	Description 69SSL-CY941
Report Date	22 July 2015	Photometric Method	Absolute	Manufacturer Mean Well
Ambient	24.6 °C	Lamp Lumens	-1	Catalog No. LPF-60-12
Humidity	36.2 %	Test Position	Vertical Base Down	Voltage 120.00 V
Lamp Type	SSL	Comments	CREE XPE2 LED's	Power Factor 0.9900

Luminaire Data

General Information		Optics	Aperture (feet)	
Manufacturer	Lumenpulse	Reflector	None	X 0.2500
Name	LUMENFACADE INGROUND	Housing	Extruded Aluminum	Y 4.0000
Catalog No.	LOI-12V-48-RGBW-10x60 -TS2.5-DMX	Lens	Half Etched Flat Glass Lens	Z 0.0000

SKT Position: Fixed

Lamp Stabilization Time: 59 minutes, 5 seconds

Tested By: Jean-Paul Ojeil

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	974997	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2014/10/30	2015/10/30
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	Gigahertz-Optik	X11	4502	2014/05/06	2015/09/17
Photodetector	INPHORA	IPR-PDET 19	110802	2015/05/16	2016/05/16

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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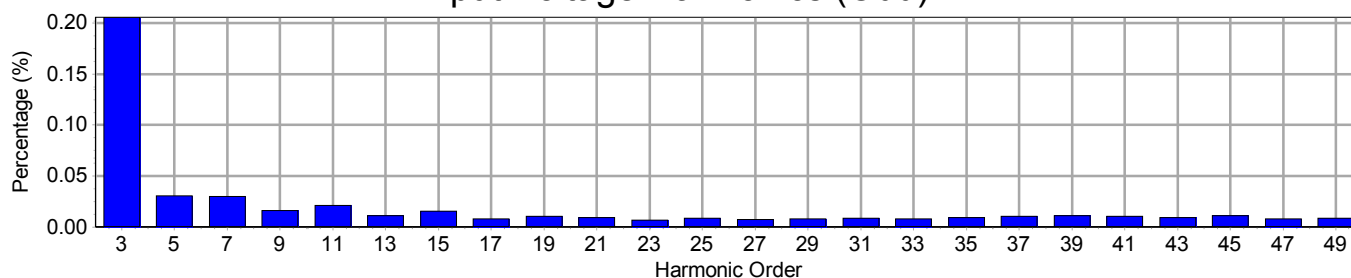
NVLAP LAB CODE: 200899-0

Electrical Measurements

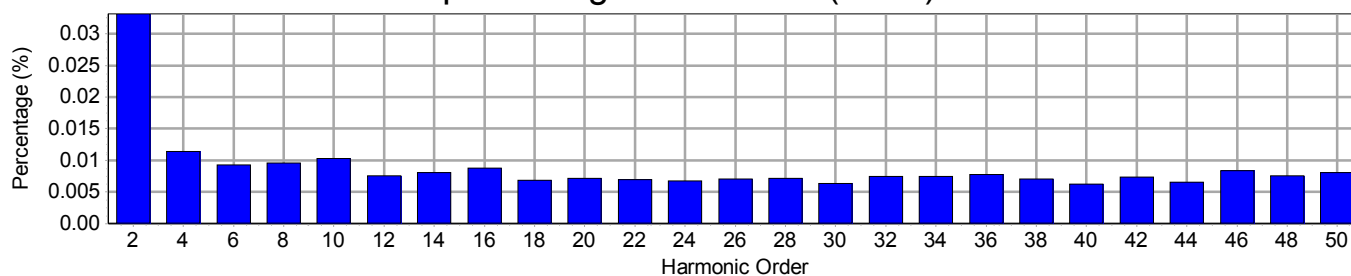
Input

Frequency	60 Hz	Active Power	61.28 W	THDV [ANSI]	0.22 %
Voltage	120.7 V(rms)	Apparent Power	61.59 VA	THDA [ANSI]	5.17 %
Current	0.5103 A(rms)	Power Factor	0.995	Max. Harmonic At	5th order

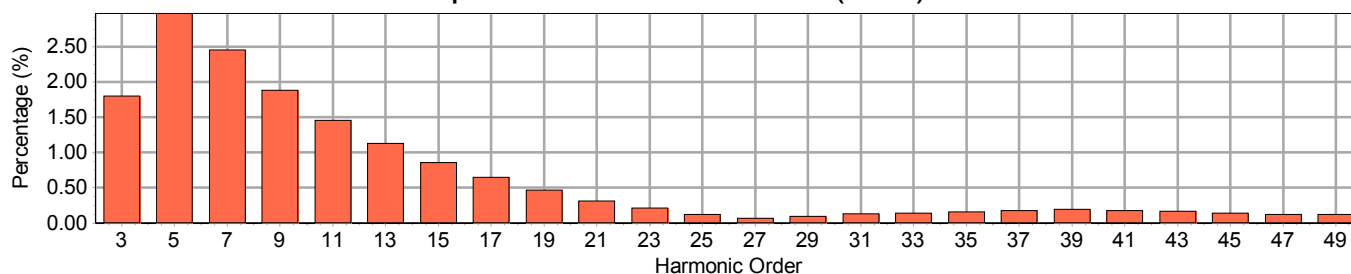
Input Voltage Harmonics (Odd)



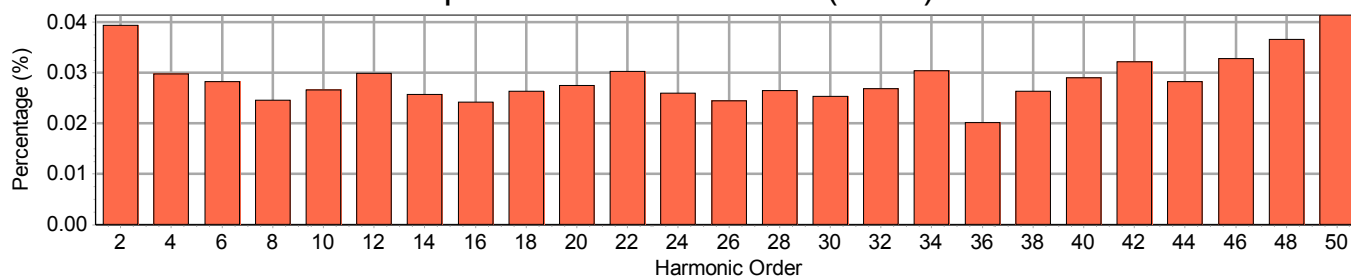
Input Voltage Harmonics (Even)



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	0.033	0.039
3	180	0.206	1.799	4	240	0.011	0.030
5	300	0.030	2.974	6	360	0.009	0.028
7	420	0.030	2.456	8	480	0.010	0.025
9	540	0.016	1.885	10	600	0.010	0.027
11	660	0.021	1.456	12	720	0.008	0.030
13	780	0.011	1.128	14	840	0.008	0.026
15	900	0.015	0.853	16	960	0.009	0.024
17	1020	0.008	0.650	18	1080	0.007	0.026
19	1140	0.011	0.465	20	1200	0.007	0.028
21	1260	0.009	0.316	22	1320	0.007	0.030
23	1380	0.007	0.214	24	1440	0.007	0.026
25	1500	0.008	0.118	26	1560	0.007	0.025
27	1620	0.008	0.066	28	1680	0.007	0.026
29	1740	0.008	0.098	30	1800	0.006	0.025
31	1860	0.009	0.128	32	1920	0.007	0.027
33	1980	0.008	0.140	34	2040	0.007	0.030
35	2100	0.009	0.158	36	2160	0.008	0.020
37	2220	0.011	0.177	38	2280	0.007	0.026
39	2340	0.011	0.198	40	2400	0.006	0.029
41	2460	0.011	0.176	42	2520	0.007	0.032
43	2580	0.009	0.170	44	2640	0.007	0.028
45	2700	0.011	0.142	46	2760	0.008	0.033
47	2820	0.008	0.119	48	2880	0.008	0.037
49	2940	0.009	0.120	50	3000	0.008	0.041



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NVLAP LAB CODE: 200899-0

Photometric Report: S1507143-R1

Prepared for: Lumenpulse · Test Date: 14 July 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-12V-48-RGBW-10x60-TS2.5-DMX

Coefficients of Utilization - Zonal Cavity Method

RCR	RC RW	0.9				0.8				0.7				0.5			0.1			0
		0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	
0		110	110	110	110	95	95	95	95	82	82	82	82	56	56	56	11	11	11	1
1		100	95	91	87	87	83	79	76	74	71	68	65	49	47	45	9	9	9	1
2		91	83	76	70	79	72	66	62	67	62	57	53	43	40	37	8	8	7	0
3		83	73	64	58	72	63	57	51	61	54	49	44	37	34	31	7	7	6	0
4		76	64	55	49	65	56	48	43	56	48	42	37	33	29	26	6	6	5	0
5		69	56	48	41	60	49	42	36	51	42	36	32	29	25	22	6	5	5	0
6		64	50	41	35	55	44	36	31	47	38	32	27	26	22	19	5	4	4	0
7		58	45	36	30	50	39	32	27	43	34	28	23	23	20	17	5	4	3	0
8		54	40	32	26	47	35	28	23	40	30	25	20	21	17	15	4	4	3	0
9		50	36	28	23	43	32	25	20	37	28	22	18	19	15	13	4	3	3	0
10		46	33	25	20	40	29	22	18	34	25	19	16	17	14	11	3	3	2	0

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 20	2	0.10	0.10
0 - 40	5	0.26	0.26
20 - 50	4	0.24	0.24
0 - 60	8	0.43	0.43
40 - 70	5	0.27	0.27
60 - 80	4	0.23	0.23
70 - 80	2	0.12	0.12
0 - 90	14	0.77	0.77
10 - 90	13	0.75	0.75
80 - 90	2	0.12	0.12
90 - 110	27	1.50	1.50
90 - 150	572	32.24	32.24
90 - 180	1761	99.23	99.23

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	39	35	42
55.0	49	47	43
65.0	71	66	64
75.0	122	105	101
85.0	360	325	297

Luminaire Luminous Flux: 1775

Measured Input Power: 61.28 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 29.0 lm/W

Luminaire Spacing Criterion (0 Degree): 1.0891

Luminaire Spacing Criterion (90 Degree): 1.1767

CIE Type: Indirect



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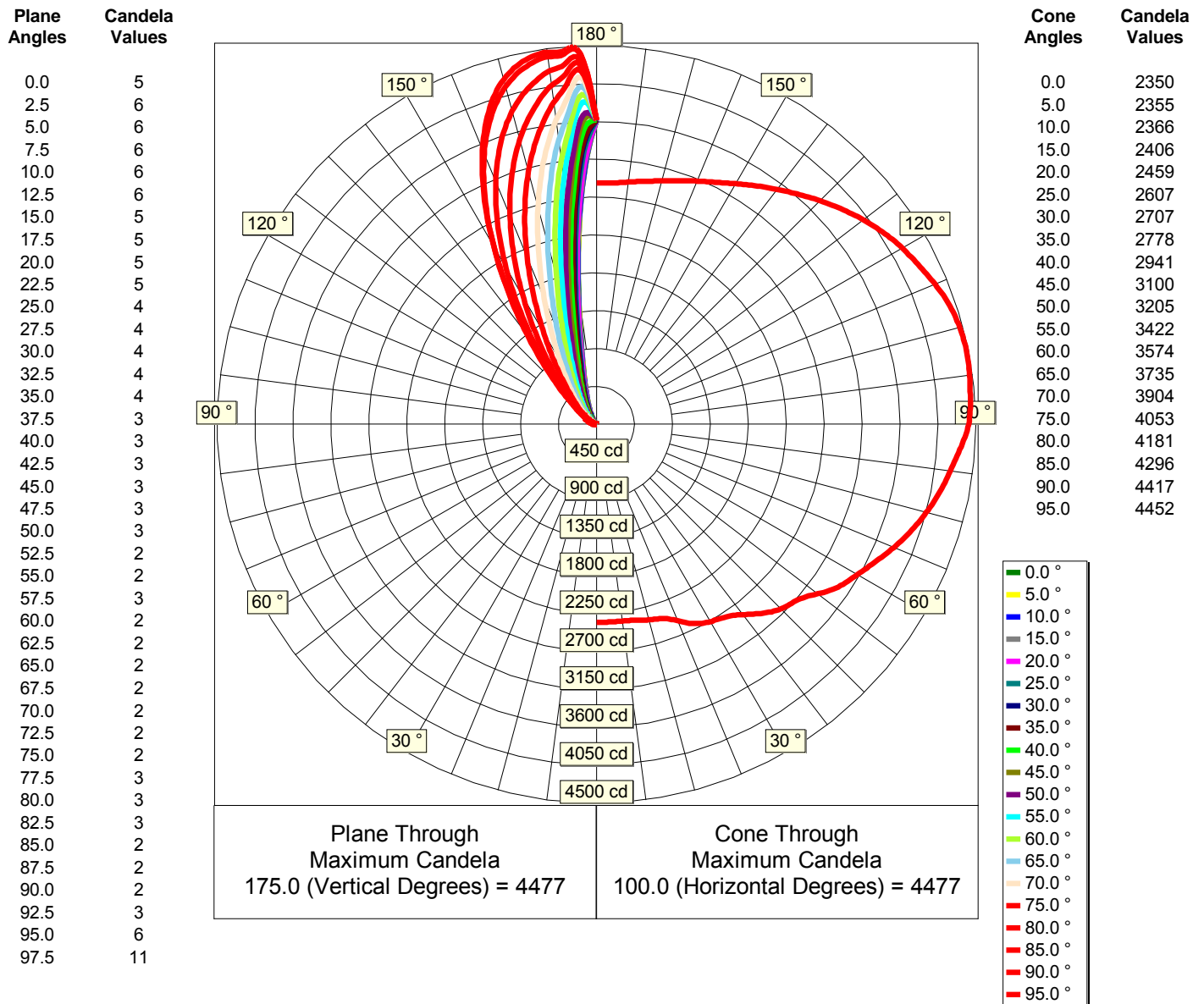
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Photometric Report: S1507143-R1

Prepared for: Lumenpulse · Test Date: 14 July 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-12V-48-RGBW-10x60-TS2.5-DMX

Luminous Intensity - Polar Curve for each Plane(1)



Plane Through
Maximum Candela
175.0 (Vertical Degrees) = 4477

Cone Through
Maximum Candela
100.0 (Horizontal Degrees) = 4477



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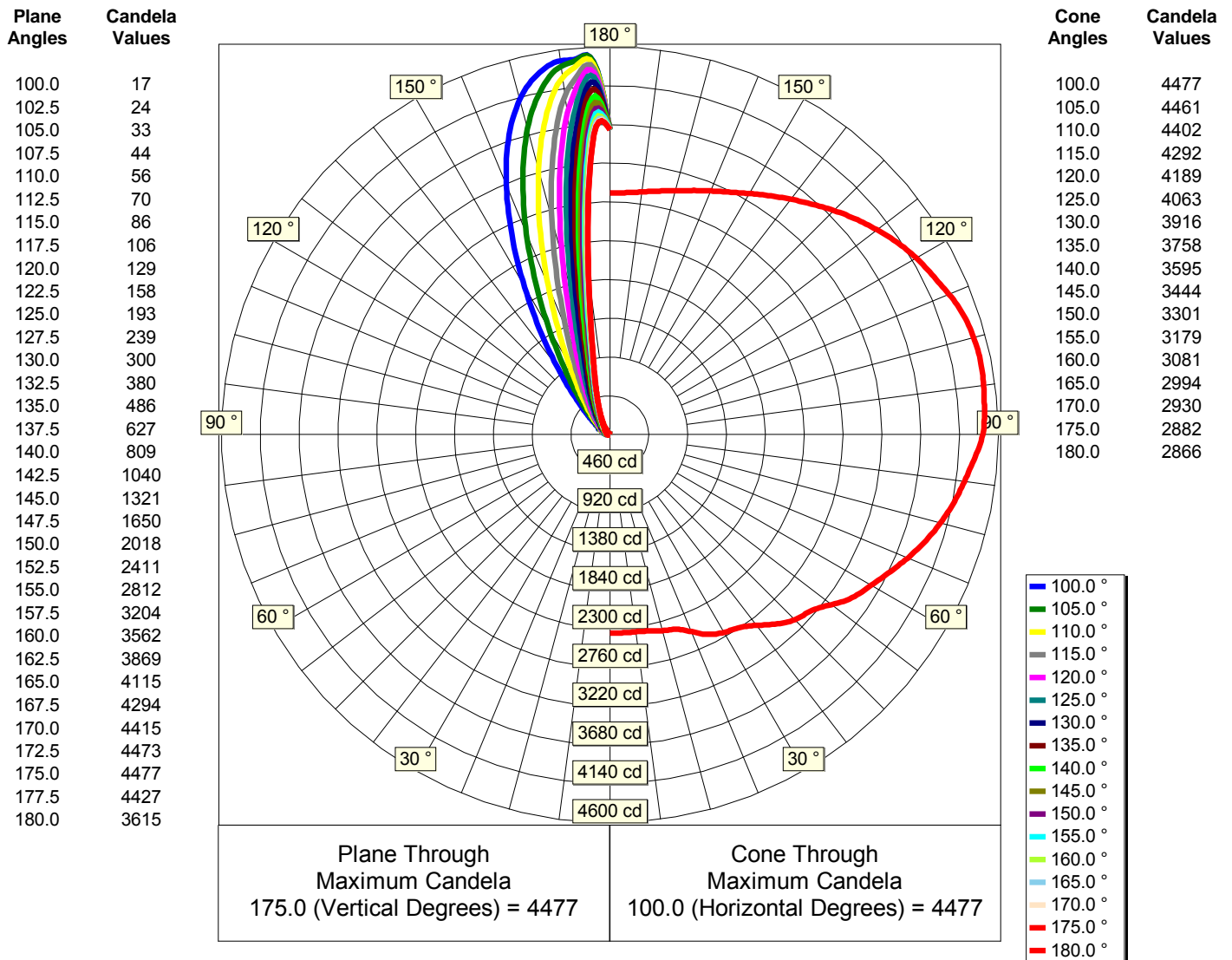
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Photometric Report: S1507143-R1

Prepared for: Lumenpulse · Test Date: 14 July 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-12V-48-RGBW-10x60-TS2.5-DMX

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

IESNA:LM-63-2002
[ISSUEDATE] 14 July 2015
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1507143-R1
[MANUFAC] Lumenpulse
[LUMCAT] LOI-12V-48-RGBW-10x60-TS2.5-DMX
[LUMINAIRE] LUMENFACADE INGROUND
[LAMP] (CREE XPE2 LED's) White 69W SSL c/w Mean Well Driver LPF-60-12 @ 120.00V
[_LAMPDETAILS] AC Voltage=12V, Current=5.75A, CCT=N/K, CRI=N/K, x=N/K, y=N/K
[_BURNING] Vertical Base Down (1,775 Luminaire Lumens)
[_REFLECTOR] None
[_LENS] Half Etched Flat Glass Lens
[_HOUSING] Extruded Aluminum
[_SKTPOSITION] Fixed
[DISTRIBUTION] Indirect Type - Uplight

Candela Table

Lateral Angles

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0
V e r t i c a l	0.0	5	5	5	5	5	5	5	5	5
	2.5	5	5	5	5	5	5	5	5	5
	5.0	5	5	5	5	5	5	5	5	5
	7.5	5	5	5	5	6	5	5	5	5
	10.0	5	5	5	6	6	6	5	6	6
	12.5	5	5	5	5	5	5	5	5	5
	15.0	5	5	5	5	5	5	5	5	5
	17.5	5	5	5	5	5	5	5	5	5
	20.0	5	5	5	5	4	4	5	5	4
	22.5	4	4	4	4	4	4	4	4	4
	25.0	4	4	4	4	4	4	4	4	4
	27.5	4	3	4	4	3	3	4	4	3
	30.0	3	3	3	3	3	3	3	3	3
	32.5	3	3	3	3	3	3	3	3	3
	35.0	3	3	3	3	3	3	3	3	3
	37.5	3	3	3	3	2	3	2	2	2
	40.0	3	3	3	3	3	3	2	2	3
	42.5	3	3	3	3	2	2	3	3	3
	45.0	3	2	3	2	3	2	2	2	2
A n g l e s	47.5	2	3	2	3	2	3	2	2	2
	50.0	2	2	3	3	2	2	3	3	2
	52.5	3	2	3	2	3	2	2	2	2
	55.0	3	3	3	3	2	3	2	2	2
	57.5	3	2	3	3	3	3	3	3	3
	60.0	3	3	3	3	2	3	3	3	2
	62.5	3	3	3	3	3	3	3	3	3
	65.0	3	3	3	3	3	3	3	3	3
	67.5	3	3	3	3	3	3	3	3	2
	70.0	3	3	3	3	3	3	3	3	3
	72.5	3	3	3	3	3	3	3	3	3
	75.0	3	3	3	3	3	3	3	3	3
	77.5	3	3	3	3	3	3	3	3	3
	80.0	3	3	3	3	3	3	3	3	3
	82.5	3	3	3	3	3	3	3	3	2
	85.0	3	3	3	3	3	3	3	2	3
	87.5	3	3	3	3	3	3	3	3	2
	90.0	3	3	3	3	3	3	3	2	2



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Lateral Angles

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0
V e r t i c a l	92.5	4	4	4	4	4	4	3	3	4
	95.0	5	5	5	5	5	5	5	5	5
	97.5	7	6	6	6	6	7	7	7	7
	100.0	8	8	8	8	8	9	9	9	10
	102.5	10	10	10	10	10	10	11	11	12
	105.0	12	11	12	12	12	13	13	14	15
	107.5	14	14	14	14	14	15	16	17	19
	110.0	16	16	16	16	17	17	18	19	22
	112.5	19	18	19	19	19	21	22	24	26
	115.0	21	21	21	22	23	25	27	28	32
	117.5	25	25	25	26	27	29	31	34	37
	120.0	29	29	29	30	31	34	36	39	43
	122.5	33	33	34	35	36	38	41	44	48
	125.0	38	38	38	39	41	43	46	49	54
	127.5	42	42	43	44	45	48	51	55	61
	130.0	46	47	47	48	50	53	57	62	69
	132.5	51	52	52	54	56	60	64	70	78
	135.0	57	57	58	60	63	67	72	79	88
A n g l e s	137.5	64	64	65	67	70	76	82	90	101
	140.0	72	72	74	77	80	87	94	103	116
	142.5	82	83	85	88	92	100	109	119	135
	145.0	95	96	98	102	108	117	127	139	158
	147.5	111	112	115	119	126	136	148	163	187
	150.0	131	132	135	140	148	161	176	194	224
	152.5	156	157	160	167	176	193	212	235	272
	155.0	189	190	194	203	215	237	262	291	336
	157.5	235	237	243	254	270	298	329	364	420
	160.0	300	303	311	325	345	381	419	462	533
	162.5	392	396	406	424	448	495	543	595	687
	165.0	524	529	541	564	594	656	719	788	909
	167.5	729	734	748	777	818	907	993	1079	1239
	170.0	1071	1076	1092	1130	1185	1308	1418	1518	1711
	172.5	1620	1626	1641	1685	1747	1898	2016	2114	2310
	175.0	2350	2355	2366	2406	2459	2607	2707	2778	2941
	177.5	3057	3059	3067	3096	3131	3255	3332	3377	3495
	180.0	3615	3615	3615	3615	3615	3615	3615	3615	3615



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Lateral Angles

	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0
V e r t i c a l	0.0	5	5	5	5	5	5	5	5	5
	2.5	5	5	5	5	6	6	6	6	6
	5.0	5	5	6	5	6	6	6	6	6
	7.5	5	5	5	5	5	6	6	6	6
	10.0	5	5	5	5	5	5	5	5	5
	12.5	5	5	5	5	5	5	5	5	6
	15.0	5	5	5	5	5	5	5	5	5
	17.5	5	5	5	4	5	5	5	5	5
	20.0	4	4	5	4	5	5	5	5	5
	22.5	4	4	4	4	4	4	4	5	5
	25.0	4	4	4	4	4	4	4	4	4
	27.5	3	3	4	4	4	4	4	4	4
	30.0	3	3	3	3	3	4	4	4	4
	32.5	3	3	3	3	3	3	3	3	4
	35.0	3	3	3	3	3	3	3	3	4
	37.5	3	2	3	3	3	3	3	3	3
	40.0	2	3	2	3	3	3	3	3	3
	42.5	3	3	3	3	3	3	3	3	3
	45.0	2	2	2	3	2	3	3	3	3
	47.5	2	2	2	2	2	2	2	2	3
A n g l e s	50.0	2	3	2	2	2	2	2	3	3
	52.5	2	2	2	2	2	2	2	2	2
	55.0	2	2	2	2	2	2	2	2	2
	57.5	2	3	3	2	2	2	3	3	2
	60.0	3	2	2	2	2	2	2	2	2
	62.5	2	2	2	2	2	2	2	2	2
	65.0	3	3	3	2	2	2	3	2	2
	67.5	3	3	3	3	3	2	2	2	2
	70.0	2	3	2	2	2	2	2	2	2
	72.5	3	3	3	2	2	2	3	2	2
	75.0	3	3	3	3	3	2	2	2	2
	77.5	3	3	2	2	2	2	2	2	2
	80.0	3	3	3	3	2	2	3	3	3
	82.5	3	3	2	3	3	2	2	3	3
	85.0	2	2	2	2	2	3	3	2	2
	87.5	2	3	3	3	3	2	3	2	2
	90.0	3	3	2	3	3	2	3	2	2
	92.5	3	3	3	4	4	4	3	3	3
	95.0	5	6	6	6	6	7	7	6	6
	97.5	7	8	8	9	10	11	13	14	11
	100.0	10	11	12	13	15	18	20	22	18
	102.5	13	15	17	19	22	26	30	33	26
	105.0	17	19	22	26	30	35	40	44	36
	107.5	21	25	29	33	38	45	51	56	48
	110.0	27	31	36	41	48	55	63	70	62
	112.5	33	38	43	49	57	67	77	85	78
	115.0	39	44	51	59	68	80	93	103	96
	117.5	45	52	59	69	81	95	110	125	118
	120.0	52	60	68	80	95	112	132	150	145
	122.5	59	68	79	93	110	132	158	182	178
	125.0	67	78	91	108	129	157	190	224	222
	127.5	77	89	104	125	151	186	232	279	280
	130.0	87	101	120	146	178	224	286	353	359
	132.5	99	117	140	170	212	271	359	451	467



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Lateral Angles

	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0	
V e r t i c a l	135.0	113	135	164	201	253	332	454	581	639	612
	137.5	131	158	192	238	304	411	578	748	833	801
	140.0	153	187	227	283	369	514	735	956	1075	1040
	142.5	180	221	269	340	451	642	929	1203	1362	1330
	145.0	213	262	321	410	556	803	1160	1487	1694	1665
	147.5	254	313	387	499	689	1002	1427	1800	2055	2035
	150.0	305	377	468	614	857	1238	1723	2135	2430	2425
	152.5	370	460	576	764	1067	1512	2037	2474	2801	2818
	155.0	456	570	719	958	1323	1820	2363	2807	3155	3190
	157.5	570	715	906	1199	1618	2142	2677	3118	3477	3530
	160.0	721	911	1147	1493	1949	2476	2978	3399	3753	3824
	162.5	930	1172	1455	1837	2305	2802	3257	3649	3980	4065
	165.0	1221	1511	1828	2225	2673	3109	3504	3854	4154	4244
	167.5	1611	1940	2262	2635	3027	3390	3723	4018	4281	4364
	170.0	2109	2441	2729	3043	3357	3640	3910	4144	4363	4433
	172.5	2671	2954	3173	3408	3647	3862	4061	4237	4405	4459
	175.0	3205	3422	3574	3735	3904	4053	4181	4296	4417	4452
	177.5	3676	3831	3924	4018	4126	4208	4277	4330	4405	4412
	180.0	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615
A n g l e s											



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Lateral Angles

	100.0	105.0	110.0	115.0	120.0	125.0	130.0	135.0	140.0	145.0
V e r t i c a l	0.0	5	5	5	5	5	5	5	5	5
	2.5	6	6	3	4	4	4	4	4	4
	5.0	6	6	4	4	4	4	4	4	4
	7.5	6	6	4	4	3	4	4	4	4
	10.0	6	6	3	4	4	4	4	4	4
	12.5	6	6	4	4	4	4	4	4	4
	15.0	5	5	4	3	3	4	3	4	4
	17.5	5	5	3	4	4	3	4	4	4
	20.0	5	5	3	3	3	3	3	3	3
	22.5	5	5	3	3	3	3	3	3	3
	25.0	4	4	3	3	3	3	3	3	3
	27.5	4	4	3	2	2	2	2	2	2
	30.0	4	4	2	2	2	2	2	2	2
	32.5	4	4	2	2	2	2	2	2	2
	35.0	4	4	2	1	1	2	1	1	1
	37.5	3	3	1	1	1	1	1	1	1
	40.0	3	3	1	1	1	1	1	1	1
	42.5	3	3	1	1	1	1	1	1	1
	45.0	3	3	1	1	0	1	0	0	0
	47.5	3	2	1	1	0	0	1	1	1
A n g l e s	50.0	3	3	1	1	1	0	1	1	1
	52.5	2	2	1	0	0	1	0	0	0
	55.0	2	2	0	1	1	0	1	1	1
	57.5	3	2	1	1	1	1	1	1	1
	60.0	2	3	1	0	0	1	1	1	1
	62.5	2	2	0	1	1	1	1	1	1
	65.0	2	3	1	1	1	1	1	1	1
	67.5	2	2	1	0	1	1	1	1	1
	70.0	2	2	1	1	1	1	1	1	1
	72.5	2	3	0	1	1	1	1	1	2
	75.0	2	3	1	0	1	1	1	1	1
	77.5	3	2	0	1	1	1	1	1	1
	80.0	3	2	1	1	1	1	1	1	2
	82.5	3	2	1	0	1	1	1	1	1
	85.0	2	2	0	1	1	1	1	1	1
	87.5	2	2	1	1	1	1	1	1	2
	90.0	2	2	0	0	1	1	1	1	1
	92.5	3	3	1	1	1	1	1	1	1
	95.0	6	5	3	3	3	2	3	3	3
	97.5	11	10	8	6	6	5	4	4	4
	100.0	17	16	13	11	10	9	8	7	7
	102.5	24	23	19	17	15	13	12	11	10
	105.0	33	31	27	23	21	18	16	15	13
	107.5	44	40	35	30	27	24	21	19	16
	110.0	56	51	44	38	34	30	26	23	20
	112.5	70	63	54	47	41	36	32	28	24
	115.0	86	77	66	57	50	44	38	34	28
	117.5	106	93	80	68	59	52	45	40	33
	120.0	129	113	96	81	71	61	53	47	39
	122.5	158	135	115	97	84	72	62	55	44
	125.0	193	163	138	115	98	84	73	63	51
	127.5	239	197	165	136	116	98	84	73	58
	130.0	300	238	197	162	137	116	98	85	67
	132.5	380	291	236	193	162	136	115	99	77



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Lateral Angles

	100.0	105.0	110.0	115.0	120.0	125.0	130.0	135.0	140.0	145.0	
V e r t i c a l	135.0	486	357	282	229	191	160	135	116	101	89
	137.5	627	444	340	273	227	189	159	136	118	104
	140.0	809	558	411	325	269	225	189	161	139	123
	142.5	1040	706	500	387	320	267	225	191	165	145
	145.0	1321	895	615	465	382	318	269	229	197	173
	147.5	1650	1134	766	561	455	379	322	275	238	209
	150.0	2018	1426	960	683	547	454	385	332	289	255
	152.5	2411	1771	1210	845	662	545	463	401	351	312
	155.0	2812	2161	1526	1060	812	660	560	485	426	381
	157.5	3204	2577	1905	1344	1015	809	680	589	518	465
	160.0	3562	2997	2339	1709	1295	1016	840	722	635	571
	162.5	3869	3399	2799	2156	1677	1316	1073	909	794	714
	165.0	4115	3759	3255	2658	2171	1743	1426	1198	1035	922
	167.5	4294	4053	3673	3176	2745	2313	1950	1654	1429	1264
	170.0	4415	4271	4025	3666	3335	2970	2631	2318	2049	1831
	172.5	4473	4407	4275	4055	3847	3600	3344	3089	2848	2630
	175.0	4477	4461	4402	4292	4189	4063	3916	3758	3595	3444
	177.5	4427	4426	4397	4347	4300	4247	4180	4100	4019	3944
	180.0	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615
A n g l e s											



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Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
V e r t i c a l A n g l e s	0.0	5	5	5	5	5	5
	2.5	4	4	4	4	4	4
	5.0	4	4	4	3	4	3
	7.5	4	4	4	4	3	3
	10.0	4	4	4	4	4	4
	12.5	4	4	4	3	4	3
	15.0	4	4	3	3	3	3
	17.5	4	4	3	3	3	3
	20.0	3	3	3	3	2	3
	22.5	3	3	3	2	2	2
	25.0	3	2	2	2	2	2
	27.5	2	2	2	1	1	2
	30.0	2	1	1	1	1	1
	32.5	1	1	1	1	1	1
	35.0	1	1	1	1	1	1
	37.5	1	0	1	1	0	0
	40.0	1	1	1	1	1	1
	42.5	0	1	1	0	0	1
	45.0	1	0	1	1	0	0
	47.5	1	1	1	1	1	1
	50.0	0	1	1	0	0	1
	52.5	1	0	1	1	0	0
	55.0	1	1	1	1	1	1
	57.5	1	1	1	1	1	1
	60.0	1	1	1	1	1	1
	62.5	1	1	1	1	1	1
	65.0	1	1	1	1	1	1
	67.5	2	1	1	1	1	1
	70.0	1	2	2	1	1	1
	72.5	1	2	1	1	1	1
	75.0	2	1	1	1	1	1
	77.5	1	2	2	1	1	1
	80.0	2	2	1	1	1	1
	82.5	2	1	1	1	1	1
	85.0	1	2	2	1	1	1
	87.5	2	2	1	1	1	1
	90.0	2	1	1	1	1	1
	92.5	1	2	2	2	1	1
	95.0	3	2	2	2	2	2
	97.5	4	4	4	4	3	3
	100.0	6	7	6	6	5	5
	102.5	9	9	8	8	8	7
	105.0	12	11	11	11	10	10
	107.5	15	15	14	14	13	13
	110.0	19	18	17	16	16	16
	112.5	22	21	20	20	19	18
	115.0	26	25	24	23	23	22
	117.5	31	29	28	26	26	25
	120.0	36	33	32	31	29	29
	122.5	41	39	37	35	34	33
	125.0	47	44	42	39	38	37
	127.5	54	50	47	45	43	42
	130.0	61	57	54	51	50	48
	132.5	71	65	61	58	56	54



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Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
135.0	81	75	70	67	64	62	62
137.5	94	87	81	77	74	72	72
140.0	111	101	94	89	85	84	83
142.5	130	119	110	105	100	98	97
145.0	155	142	132	125	120	116	116
147.5	188	171	159	150	144	141	139
150.0	229	208	194	182	175	170	169
152.5	281	257	238	224	215	209	208
155.0	345	316	295	278	267	260	258
157.5	422	390	365	347	334	326	324
160.0	521	483	456	434	420	411	410
162.5	653	607	575	550	533	524	522
165.0	839	781	740	707	687	674	671
167.5	1139	1052	990	943	911	892	885
170.0	1658	1525	1430	1352	1299	1265	1251
172.5	2443	2287	2168	2063	1990	1940	1919
175.0	3301	3179	3081	2994	2930	2882	2866
177.5	3870	3808	3752	3715	3682	3662	3658
180.0	3615	3615	3615	3615	3615	3615	3615

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