



# 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 Detector 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	
<b>Test Report</b>	S1503191-R1	<b>Description</b>	34.5W White 4000K SSL	<b>Type</b> Commercial
<b>Test Date</b>	19 March 2015	<b>Serial Number</b>	SRIS 1841	<b>Description</b> 34.5SSL-CY795
<b>Report Date</b>	20 March 2015	<b>Photometric Method</b>	Absolute	<b>Manufacturer</b> MEAN WELL USA inc.
<b>Ambient</b>	24.2 °C	<b>Lamp Lumens</b>	-1	<b>Catalog No.</b> LPF-60-15
<b>Humidity</b>	7.0 %	<b>Test Position</b>	Vertical Base Down	<b>Voltage</b> 120.00 V
<b>Lamp Type</b>	SSL	<b>Comments</b>	CREE XPE2 LED's	<b>Power Factor</b> 0.9900

### Luminaire Data

General Information		Optics	Aperture (feet)	
<b>Manufacturer</b>	Lumenpulse	<b>Reflector</b>	None	<b>X</b> 0.2500
<b>Name</b>	LUMENFACADE INGROUND	<b>Housing</b>	Extruded Aluminum	<b>Y</b> 2.0000
<b>Catalog No.</b>	LOI-15V-24-RGB-WW-TS2.5-DMX	<b>Lens</b>	Half Etched Flat Glass Lens	<b>Z</b> 0.0000

SKT Position: Fixed

Lamp Stabilization Time: 30 minutes, 0 seconds

**Tested By:** Jean-Paul Ojeil

**Approved Signatory:** Chrisnel Blot

**Signature:**



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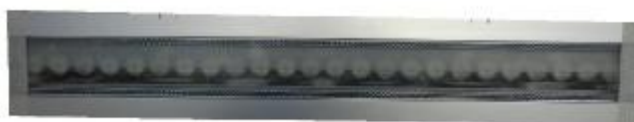
## Luminaire Test Method

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	Elgar	CW801	30527	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	2014/05/16	2015/05/16

## 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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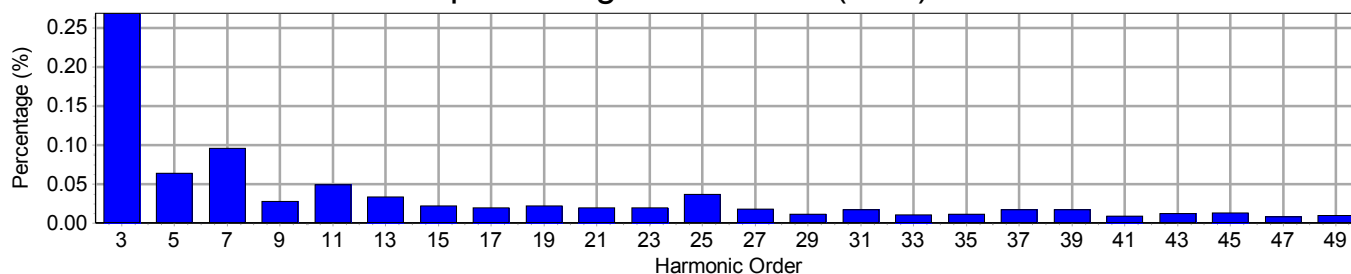
NVLAP LAB CODE: 200899-0

## Electrical Measurements

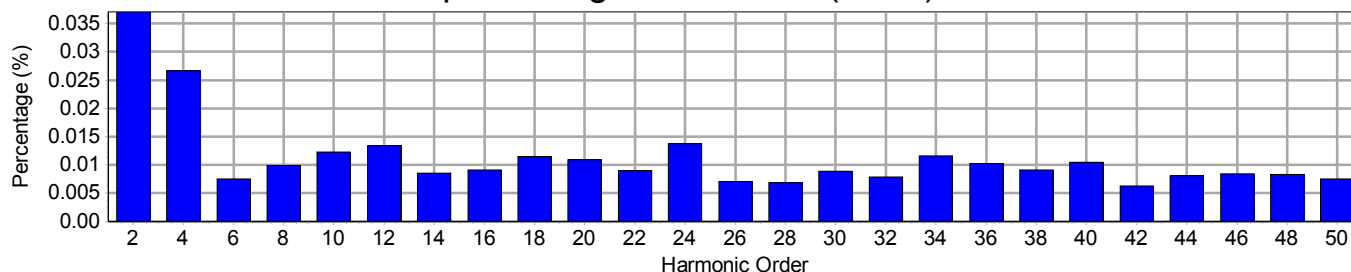
### Input

Frequency	60 Hz	Active Power	29.63 W	THDV [ANSI]	0.31 %
Voltage	120.6 V(rms)	Apparent Power	30.16 VA	THDA [ANSI]	9.90 %
Current	0.2500 A(rms)	Power Factor	0.983	Max. Harmonic At	3rd order

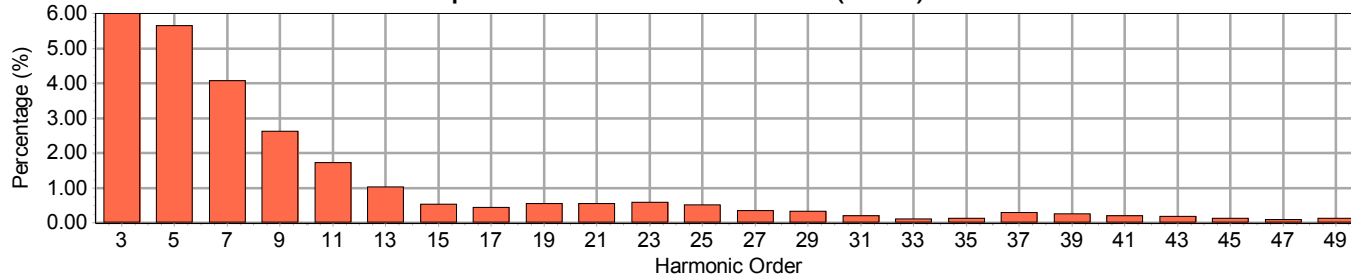
### Input Voltage Harmonics (Odd)



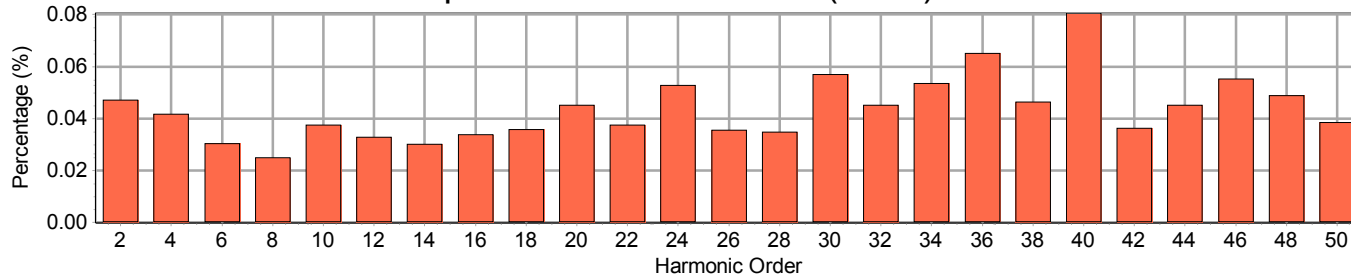
### Input Voltage Harmonics (Even)



### 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	0.037	0.047
3	180	0.269	6.014	4	240	0.027	0.042
5	300	0.063	5.650	6	360	0.008	0.030
7	420	0.095	4.073	8	480	0.010	0.025
9	540	0.028	2.630	10	600	0.012	0.038
11	660	0.049	1.738	12	720	0.013	0.033
13	780	0.033	1.038	14	840	0.009	0.030
15	900	0.021	0.540	16	960	0.009	0.034
17	1020	0.019	0.457	18	1080	0.011	0.036
19	1140	0.022	0.568	20	1200	0.011	0.045
21	1260	0.019	0.568	22	1320	0.009	0.037
23	1380	0.019	0.596	24	1440	0.014	0.053
25	1500	0.037	0.518	26	1560	0.007	0.036
27	1620	0.018	0.356	28	1680	0.007	0.035
29	1740	0.011	0.335	30	1800	0.009	0.057
31	1860	0.017	0.205	32	1920	0.008	0.045
33	1980	0.010	0.127	34	2040	0.012	0.054
35	2100	0.011	0.140	36	2160	0.010	0.065
37	2220	0.017	0.308	38	2280	0.009	0.047
39	2340	0.016	0.266	40	2400	0.010	0.081
41	2460	0.009	0.208	42	2520	0.006	0.036
43	2580	0.012	0.192	44	2640	0.008	0.045
45	2700	0.013	0.146	46	2760	0.008	0.055
47	2820	0.008	0.103	48	2880	0.008	0.049
49	2940	0.009	0.137	50	3000	0.008	0.039



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## Photometric Report: S1503191-R1

Prepared for: Lumenpulse · Test Date: 19 March 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-15V-24-RGB-WW-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	0
2		91	83	76	70	79	72	66	62	67	62	57	53	42	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	19	17	5	4	3	0
8		54	40	32	26	47	35	28	23	40	30	24	20	21	17	14	4	3	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 - 10	0	0.01	0.01
10 - 20	0	0.03	0.03
20 - 30	0	0.05	0.05
30 - 40	0	0.06	0.06
40 - 50	1	0.08	0.08
50 - 60	1	0.08	0.08
60 - 70	1	0.08	0.08
70 - 80	1	0.08	0.08
80 - 90	1	0.07	0.07
90 - 120	58	7.60	7.60
90 - 130	120	15.62	15.62
90 - 150	347	45.27	45.27
90 - 180	763	99.45	99.45
0 - 180	767	100.00	100.00

### Average Luminance (Cd/m<sup>2</sup>)

Angle	0 Degree	45 Degree	90 Degree
0.0	15	15	15
45.0	22	23	23
55.0	26	26	27
65.0	33	33	35
75.0	48	49	51
85.0	128	128	133

Luminaire Luminous Flux: 767

Measured Input Power: 29.63 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 25.9 lm/W

Luminaire Spacing Criterion (0 Degree): 1.6528

Luminaire Spacing Criterion (90 Degree): 1.6859

CIE Type: Direct



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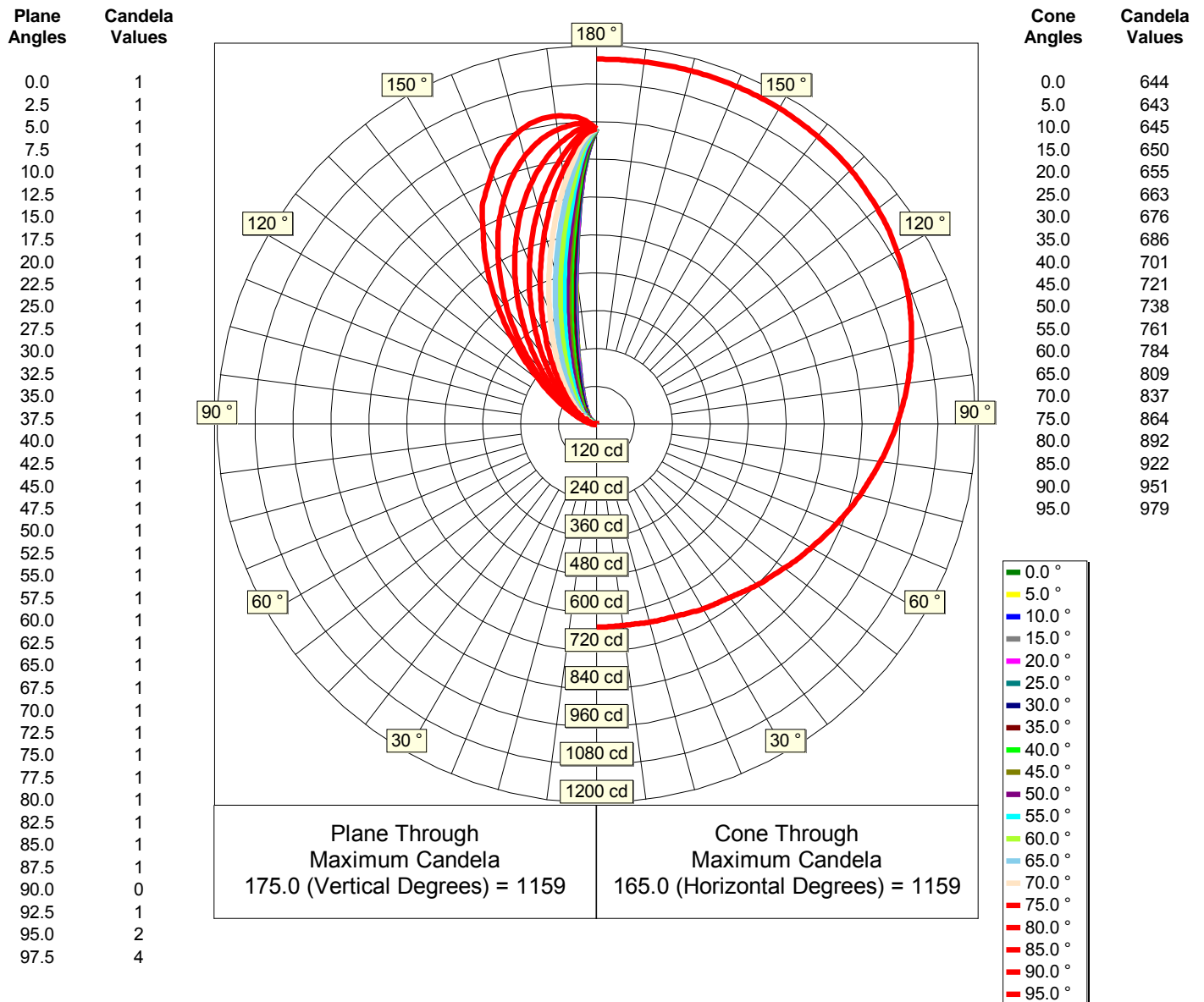
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## Photometric Report: S1503191-R1

Prepared for: Lumenpulse · Test Date: 19 March 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-15V-24-RGB-WW-TS2.5-DMX

### Luminous Intensity - Polar Curve for each Plane(1)





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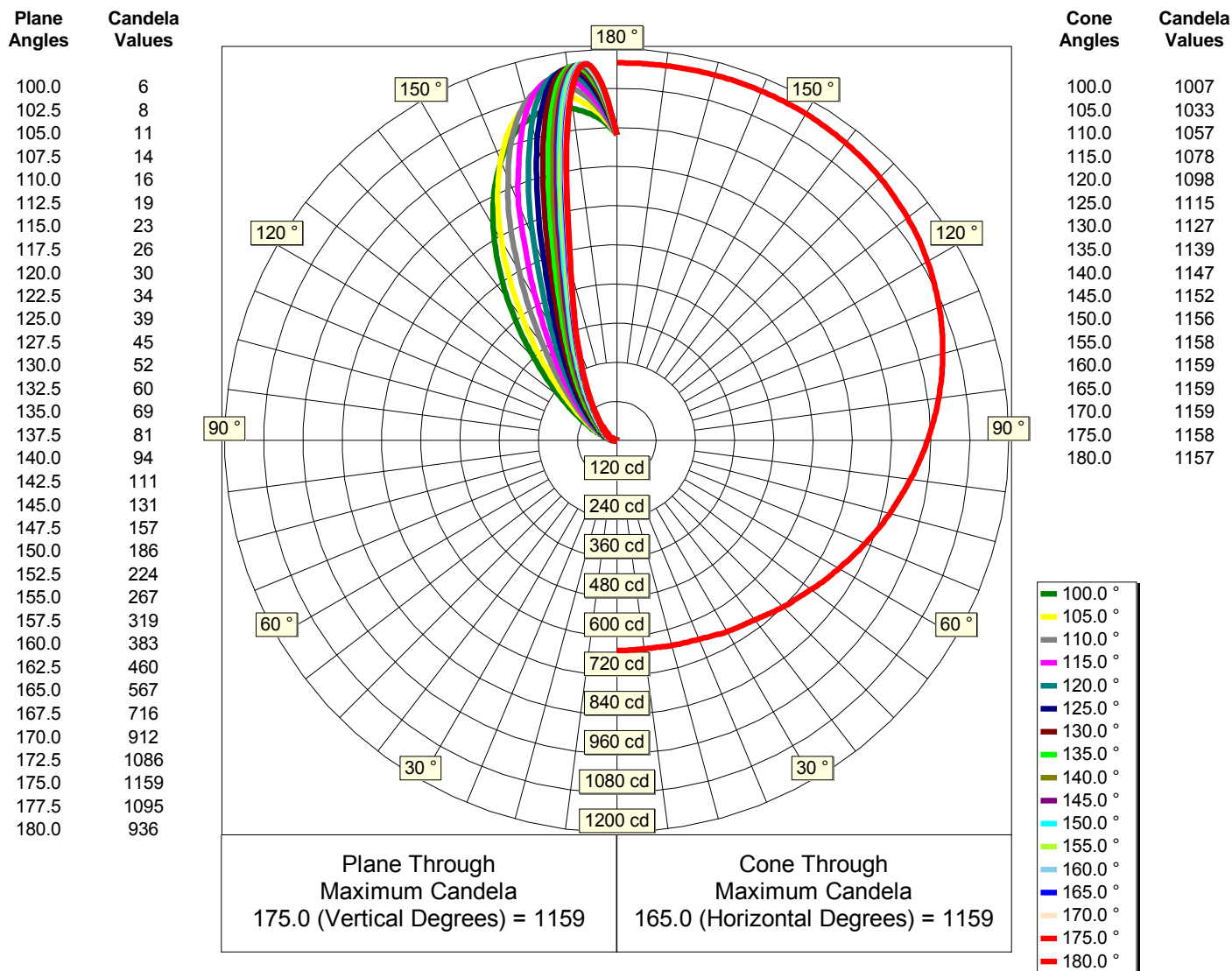
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## Photometric Report: S1503191-R1

Prepared for: Lumenpulse · Test Date: 19 March 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-15V-24-RGB-WW-TS2.5-DMX

### Luminous Intensity - Polar Curve for each Plane(2)







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## IES File Headers

IESNA:LM-63-2002  
[ISSUEDATE] 19 March 2015  
[TESTLAB] Spectra Lux Industries Inc.  
[TEST] S1503191-R1  
[MANUFAC] Lumenpulse  
[LUMCAT] LOI-15V-24-RGB-WW-TS2.5-DMX  
[LUMINAIRE] LUMENFACADE INGROUND  
[LAMP] (CREE XPE2 LED's) White 34.5W SSL c/w MEAN WELL USA inc. Driver LPF-60-15 @ 120.00V  
[\_LAMPDETAILS] DC Voltage=15V, Current=2.3A, CCT=4000K, CRI=N/K, x=N/K, y=N/K  
[\_BURNING] Vertical Base Down (767 Luminaire Lumens)  
[\_REFLECTOR] None  
[\_LENS] Half Etched Flat Glass Lens  
[\_HOUSING] Extruded Aluminum  
[\_SKTPOSITION] Fixed  
[DISTRIBUTION] Direct 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	1	1	1	1	1	1	1	1	1
	2.5	1	1	1	1	1	1	1	1	1
	5.0	1	1	1	1	1	1	1	1	1
	7.5	1	1	1	1	1	1	1	1	1
	10.0	1	1	1	1	1	1	1	1	1
	12.5	1	1	1	1	1	1	1	1	1
	15.0	1	1	1	1	1	1	1	1	1
	17.5	1	1	1	1	1	1	1	1	1
	20.0	1	1	1	1	1	1	1	1	1
	22.5	1	1	1	1	1	1	1	1	1
	25.0	1	1	1	1	1	1	1	1	1
	27.5	1	1	1	1	1	1	1	1	1
	30.0	1	1	1	1	1	1	1	1	1
	32.5	1	1	1	1	1	1	1	1	1
	35.0	1	1	1	1	1	1	1	1	1
	37.5	1	1	1	1	1	1	1	1	1
	40.0	1	1	1	1	1	1	1	1	1
	42.5	1	1	1	1	1	1	1	1	1
	45.0	1	1	1	1	1	1	1	1	1
	47.5	1	1	1	1	1	1	1	1	1
A n g l e s	50.0	1	1	1	1	1	1	1	1	1
	52.5	1	1	1	1	1	1	1	1	1
	55.0	1	1	1	1	1	1	1	1	1
	57.5	1	1	1	1	1	1	1	1	1
	60.0	1	1	1	1	1	1	1	1	1
	62.5	1	1	1	1	1	1	1	1	1
	65.0	1	1	1	1	1	1	1	1	1
	67.5	1	1	1	1	1	1	1	1	1
	70.0	1	1	1	1	1	1	1	1	1
	72.5	1	1	1	1	1	1	1	1	1
	75.0	1	1	1	1	1	1	1	1	1
	77.5	1	1	1	1	1	1	1	1	1
	80.0	1	1	1	1	1	1	1	1	1
	82.5	1	1	1	1	1	1	1	1	1
	85.0	1	1	1	1	1	1	1	1	1
	87.5	0	0	0	0	0	0	0	0	1
	90.0	1	1	1	1	1	1	1	1	1



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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	1	1	1	1	1	1	1	1	2
	95.0	2	2	2	2	2	2	3	3	3
	97.5	3	3	3	3	4	4	4	4	4
	100.0	5	5	5	5	5	5	5	6	6
	102.5	6	6	6	6	6	7	7	8	9
	105.0	8	8	8	8	8	9	10	11	12
	107.5	10	10	10	10	11	11	12	13	15
	110.0	12	12	12	13	13	14	15	16	18
	112.5	15	15	15	15	16	17	17	19	21
	115.0	17	17	18	18	19	19	20	21	24
	117.5	20	20	20	21	21	22	23	24	27
	120.0	22	22	23	23	24	25	26	27	31
	122.5	25	25	25	26	27	28	29	30	34
	125.0	28	28	28	29	29	30	32	33	38
	127.5	30	30	31	31	32	33	35	36	42
	130.0	33	33	34	34	35	37	38	40	46
	132.5	36	36	37	37	39	40	42	44	50
	135.0	39	40	40	41	42	44	46	48	56
	137.5	43	44	44	45	46	48	50	53	62
	140.0	48	48	48	49	51	53	55	58	69
A n g l e s	142.5	53	53	53	55	56	58	61	65	77
	145.0	58	59	59	60	62	65	68	73	87
	147.5	65	66	66	68	70	73	77	83	99
	150.0	73	74	75	77	80	83	88	94	113
	152.5	85	85	86	89	91	96	101	109	132
	155.0	98	99	100	103	106	112	118	127	154
	157.5	116	117	118	121	126	132	140	150	183
	160.0	141	142	143	147	153	160	170	182	220
	162.5	173	174	176	181	187	196	208	222	266
	165.0	219	220	223	228	236	246	260	277	326
	167.5	281	282	285	292	301	312	328	346	399
	170.0	370	372	375	382	391	403	420	438	490
	172.5	487	488	491	498	505	517	533	549	596
	175.0	644	643	645	650	655	663	676	686	721
	177.5	820	818	818	820	821	824	831	834	850
	180.0	936	936	936	936	936	936	936	936	936



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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	1	1	1	1	1	1	1	1	1
	2.5	1	1	1	1	1	1	1	1	1
	5.0	1	1	1	1	1	1	1	1	1
	7.5	1	1	1	1	1	1	1	1	1
	10.0	1	1	1	1	1	1	1	1	1
	12.5	1	1	1	1	1	1	1	1	1
	15.0	1	1	1	1	1	1	1	1	1
	17.5	1	1	1	1	1	1	1	1	1
	20.0	1	1	1	1	1	1	1	1	1
	22.5	1	1	1	1	1	1	1	1	1
	25.0	1	1	1	1	1	1	1	1	1
	27.5	1	1	1	1	1	1	1	1	1
	30.0	1	1	1	1	1	1	1	1	1
	32.5	1	1	1	1	1	1	1	1	1
	35.0	1	1	1	1	1	1	1	1	1
	37.5	1	1	1	1	1	1	1	1	1
	40.0	1	1	1	1	1	1	1	1	1
	42.5	1	1	1	1	1	1	1	1	1
	45.0	1	1	1	1	1	1	1	1	1
	47.5	1	1	1	1	1	1	1	1	1
	50.0	1	1	1	1	1	1	1	1	1
A n g l e s	52.5	1	1	1	1	1	1	1	1	1
	55.0	1	1	1	1	1	1	1	1	1
	57.5	1	1	1	1	1	1	1	1	1
	60.0	1	1	1	1	1	1	1	1	1
	62.5	1	1	1	1	1	1	1	1	1
	65.0	1	1	1	1	1	1	1	1	1
	67.5	1	1	1	1	1	1	1	1	1
	70.0	1	1	1	1	1	1	1	1	1
	72.5	1	1	1	1	1	1	1	1	1
	75.0	1	1	1	1	1	1	1	1	1
	77.5	1	1	1	1	1	1	1	1	1
	80.0	1	1	1	1	1	1	1	1	1
	82.5	1	1	1	1	1	1	1	1	1
	85.0	1	1	1	1	1	1	1	1	1
	87.5	1	1	1	1	1	1	1	1	1
	90.0	1	1	1	1	1	1	1	1	1
	92.5	2	2	2	2	2	2	3	2	2
	95.0	3	3	3	3	4	5	6	5	5
	97.5	4	5	5	6	7	8	10	10	10
	100.0	6	7	8	10	11	13	14	16	15
	102.5	9	11	12	13	15	18	20	22	23
	105.0	13	14	15	17	20	22	25	29	31
	107.5	16	17	19	21	24	28	32	37	41
	110.0	19	21	23	26	29	33	39	46	53
	112.5	23	24	27	30	34	39	47	56	67
	115.0	26	28	31	35	40	47	56	68	85
	117.5	29	32	35	40	46	54	66	81	105
	120.0	33	36	40	45	52	63	80	97	129
	122.5	37	40	45	51	60	72	91	115	157
	125.0	41	45	50	57	68	84	106	136	190
	127.5	45	50	56	65	77	96	123	159	227
	130.0	50	55	63	73	88	110	142	186	270
	132.5	55	61	70	82	100	126	164	216	317



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ISO/IEC 17025



NVLAP LAB CODE: 200899-0

## 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	61	68	79	93	114	144	189	248	317	367
	137.5	68	77	89	106	130	166	218	286	365	425
	140.0	76	86	100	120	149	190	248	325	414	482
	142.5	86	98	114	137	170	218	283	368	465	542
	145.0	97	111	130	157	195	249	321	413	517	601
	147.5	111	127	150	181	224	284	363	461	571	662
	150.0	127	146	173	208	257	322	406	509	622	718
	152.5	148	171	201	241	295	366	453	559	674	780
	155.0	173	199	234	278	337	412	502	608	722	820
	157.5	204	234	273	322	384	462	551	656	767	864
	160.0	245	279	322	374	439	517	605	705	809	903
	162.5	294	331	377	431	497	572	656	750	846	934
	165.0	356	396	442	497	561	631	708	792	878	958
	167.5	430	469	516	567	626	690	758	831	905	974
	170.0	520	558	600	645	697	750	806	866	927	984
	172.5	622	654	688	725	766	807	850	896	941	985
	175.0	738	761	784	809	837	864	892	922	951	979
	177.5	857	868	879	890	903	915	927	940	953	967
	180.0	936	936	936	936	936	936	936	936	936	936
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  A n g l e s	0.0	1	1	1	1	1	1	1	1	1
	2.5	1	1	1	1	1	1	1	1	1
	5.0	1	1	1	1	1	1	1	1	1
	7.5	1	1	1	1	1	1	1	1	1
	10.0	1	1	1	1	1	1	1	1	1
	12.5	1	1	1	1	1	1	1	1	1
	15.0	1	1	1	1	1	1	1	1	1
	17.5	1	1	1	1	1	1	1	1	1
	20.0	1	1	1	1	1	1	1	1	1
	22.5	1	1	1	1	1	1	1	1	1
	25.0	1	1	1	1	1	1	1	1	1
	27.5	1	1	1	1	1	1	1	1	1
	30.0	1	1	1	1	1	1	1	1	1
	32.5	1	1	1	1	1	1	1	1	1
	35.0	1	1	1	1	1	1	1	1	1
	37.5	1	1	1	1	1	1	1	1	1
	40.0	1	1	1	1	1	1	1	1	1
	42.5	1	1	1	1	1	1	1	1	1
	45.0	1	1	1	1	1	1	1	1	1
	47.5	1	1	1	1	1	1	1	1	1
	50.0	1	1	1	1	1	1	1	1	1
	52.5	1	1	1	1	1	1	1	1	1
	55.0	1	1	1	1	1	1	1	1	1
	57.5	1	1	1	1	1	1	1	1	1
	60.0	1	1	1	1	1	1	1	1	1
	62.5	1	1	1	1	1	1	1	1	1
	65.0	1	1	1	1	1	1	1	1	1
	67.5	1	1	1	1	1	1	1	1	1
	70.0	1	1	1	1	1	1	1	1	1
	72.5	1	1	1	1	1	1	1	1	1
	75.0	1	1	1	1	1	1	1	1	1
	77.5	1	1	1	1	1	1	1	1	1
	80.0	1	1	1	1	1	1	1	1	1
	82.5	1	1	1	1	1	1	1	1	1
	85.0	1	1	1	1	1	1	1	1	1
	87.5	1	1	1	1	1	1	1	1	1
	90.0	1	1	1	1	1	1	1	1	1
	92.5	2	2	2	2	2	2	2	1	1
	95.0	6	6	5	5	4	4	3	3	3
	97.5	10	10	9	9	8	7	6	6	5
	100.0	15	15	14	13	12	11	10	9	8
	102.5	21	21	20	18	17	15	14	12	11
	105.0	29	28	26	24	22	20	18	16	15
	107.5	38	36	34	31	28	25	22	20	18
	110.0	49	45	42	38	34	31	27	25	22
	112.5	62	55	51	46	41	37	33	29	27
	115.0	80	68	61	55	49	44	39	35	31
	117.5	97	82	72	65	58	51	45	40	37
	120.0	119	99	86	76	68	60	53	47	42
	122.5	145	118	101	90	80	69	61	54	49
	125.0	177	143	119	104	92	81	71	63	56
	127.5	212	170	140	121	106	93	82	72	65
	130.0	256	205	165	142	124	108	96	84	75
	132.5	304	244	194	164	143	125	111	97	87



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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	357	289	228	191	165	145	128	113	91
	137.5	418	344	270	223	192	169	149	132	107
	140.0	481	404	317	259	222	195	173	153	124
	142.5	549	473	373	302	257	226	201	179	146
	145.0	618	545	438	353	298	260	233	208	171
	147.5	688	625	514	415	347	303	271	243	202
	150.0	755	704	596	486	405	351	314	282	237
	152.5	818	784	688	573	478	411	367	330	281
	155.0	876	860	783	668	563	483	429	386	330
	157.5	926	927	868	784	664	573	506	453	387
	160.0	969	988	954	878	786	687	611	545	464
	162.5	1001	1032	1022	974	896	810	733	659	558
	165.0	1023	1063	1074	1054	1006	942	874	802	692
	167.5	1034	1079	1103	1106	1087	1051	1008	952	853
	170.0	1035	1078	1110	1128	1134	1126	1110	1083	1023
A n g l e s	172.5	1026	1063	1094	1118	1136	1148	1152	1150	1135
	175.0	1007	1033	1057	1078	1098	1115	1127	1139	1152
	177.5	980	993	1006	1017	1029	1040	1049	1060	1074
	180.0	936	936	936	936	936	936	936	936	936



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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	1	1	1	1	1	1
	2.5	1	1	1	1	1	1
	5.0	1	1	1	1	1	1
	7.5	1	1	1	1	1	1
	10.0	1	1	1	1	1	1
	12.5	1	1	1	1	1	1
	15.0	1	1	1	1	1	1
	17.5	1	1	1	1	1	1
	20.0	1	1	1	1	1	1
	22.5	1	1	1	1	1	1
	25.0	1	1	1	1	1	1
	27.5	1	1	1	1	1	1
	30.0	1	1	1	1	1	1
	32.5	1	1	1	1	1	1
	35.0	1	1	1	1	1	1
	37.5	1	1	1	1	1	1
	40.0	1	1	1	1	1	1
	42.5	1	1	1	1	1	1
	45.0	1	1	1	1	1	1
	47.5	1	1	1	1	1	1
	50.0	1	1	1	1	1	1
	52.5	1	1	1	1	1	1
	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	1	1	1	1	1	1
	70.0	1	1	1	1	1	1
	72.5	1	1	1	1	1	1
	75.0	1	1	1	1	1	1
	77.5	1	1	1	1	1	1
	80.0	1	1	1	1	1	1
	82.5	1	1	1	1	1	1
	85.0	1	1	1	1	1	1
	87.5	1	1	1	0	0	0
	90.0	1	1	0	0	0	0
	92.5	1	1	1	1	1	1
	95.0	3	3	2	2	2	2
	97.5	5	4	4	4	4	4
	100.0	7	7	6	6	6	6
	102.5	10	9	9	8	8	8
	105.0	13	12	11	11	10	10
	107.5	16	15	14	14	13	13
	110.0	19	18	17	16	16	15
	112.5	23	21	20	19	18	18
	115.0	27	25	24	23	22	21
	117.5	31	29	27	26	25	25
	120.0	35	33	32	30	29	29
	122.5	41	38	36	34	33	32
	125.0	47	44	41	39	38	37
	127.5	54	50	47	45	43	42
	130.0	62	58	54	52	49	49
	132.5	72	67	63	60	57	56



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## Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
<b>135.0</b>	83	77	72	69	67	65	64
<b>137.5</b>	97	91	85	81	80	76	75
<b>140.0</b>	114	105	99	94	91	90	88
<b>142.5</b>	134	124	117	111	107	105	104
<b>145.0</b>	157	146	138	131	127	125	123
<b>147.5</b>	186	174	164	157	152	149	147
<b>150.0</b>	220	206	195	186	181	178	175
<b>152.5</b>	261	246	234	224	218	214	212
<b>155.0</b>	309	292	279	267	261	257	254
<b>157.5</b>	364	346	332	319	312	308	304
<b>160.0</b>	435	414	398	383	376	371	367
<b>162.5</b>	523	498	478	460	451	445	442
<b>165.0</b>	649	617	590	567	556	548	543
<b>167.5</b>	809	792	744	716	703	693	688
<b>170.0</b>	991	965	938	912	900	890	884
<b>172.5</b>	1124	1113	1100	1086	1080	1074	1069
<b>175.0</b>	1156	1158	1159	1159	1159	1158	1157
<b>177.5</b>	1081	1085	1089	1095	1096	1098	1098
<b>180.0</b>	936	936	936	936	936	936	936

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