



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 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	
Test Report	S1503193-R1	Description	34.5W White 4000K SSL	Type Commercial
Test Date	19 March 2015	Serial Number	SRIS 1839	Description 34.5SSL-CY796
Report Date	20 March 2015	Photometric Method	Absolute	Manufacturer MEAN WELL USA inc.
Ambient	25.2 °C	Lamp Lumens	-1	Catalog No. LPF-60-12
Humidity	7.4 %	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 2.0000
Catalog No.	LOI-12V-24-RGBW-WW-TS2.5-DMX	Lens	Half Etched Flat Glass Lens	Z 0.0000

SKT Position: Fixed

Lamp Stabilization Time: 29 minutes, 11 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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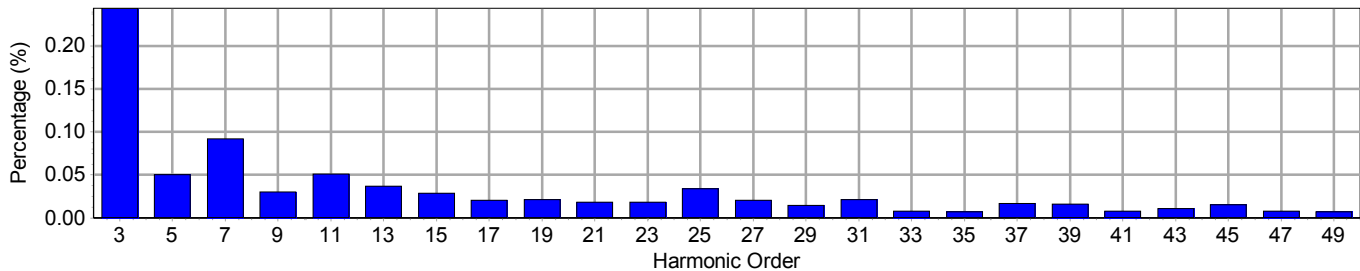
NVLAP LAB CODE: 200899-0

Electrical Measurements

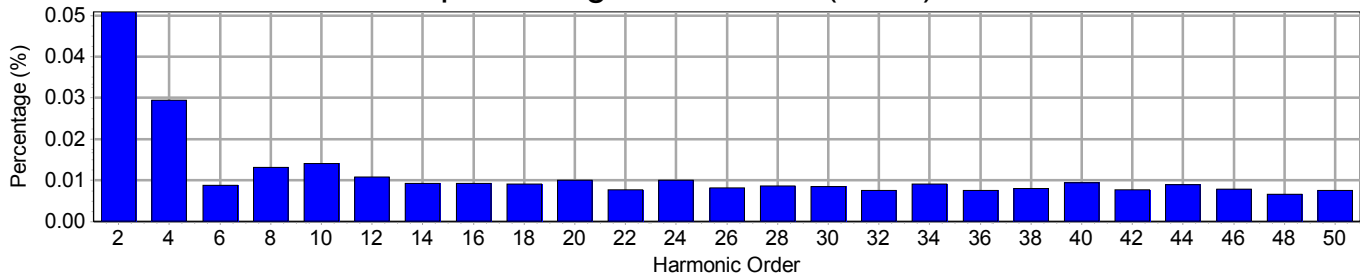
Input

Frequency	60 Hz	Active Power	36.35 W	THDV [ANSI]	0.29 %
Voltage	120.2 V(rms)	Apparent Power	36.82 VA	THDA [ANSI]	8.78 %
Current	0.3064 A(rms)	Power Factor	0.987	Max. Harmonic At	3rd order

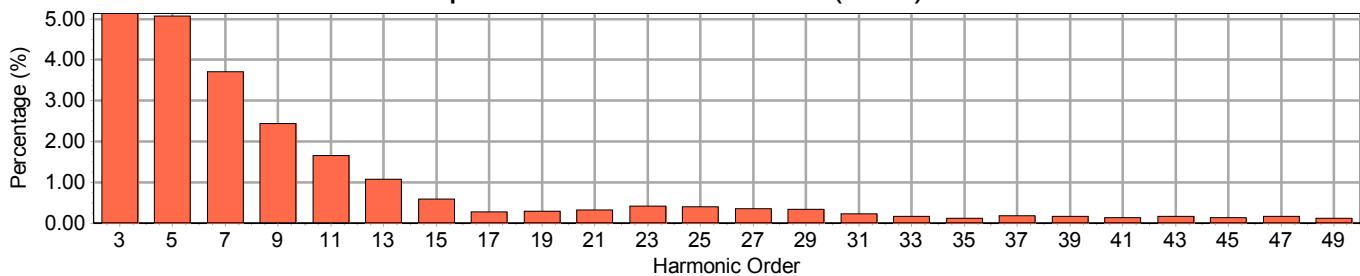
Input Voltage Harmonics (Odd)



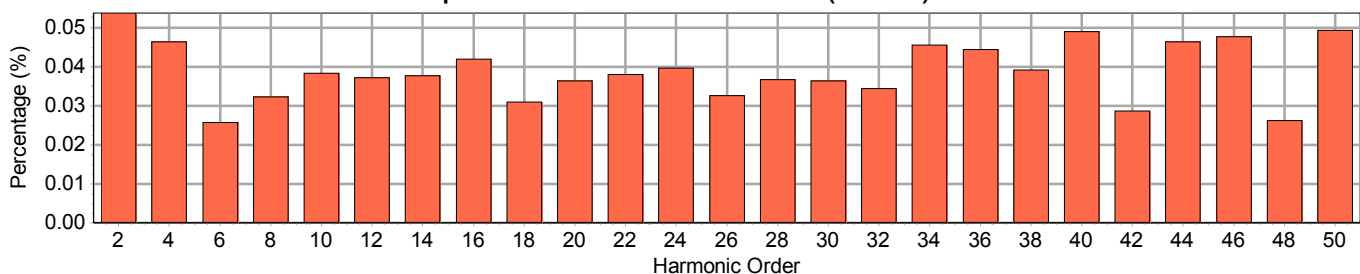
Input Voltage Harmonics (Even)



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	0.051	0.054
3	180	0.244	5.142	4	240	0.030	0.047
5	300	0.050	5.072	6	360	0.009	0.026
7	420	0.092	3.711	8	480	0.013	0.032
9	540	0.030	2.445	10	600	0.014	0.038
11	660	0.051	1.654	12	720	0.011	0.037
13	780	0.037	1.070	14	840	0.009	0.038
15	900	0.028	0.588	16	960	0.009	0.042
17	1020	0.021	0.275	18	1080	0.009	0.031
19	1140	0.022	0.287	20	1200	0.010	0.036
21	1260	0.018	0.314	22	1320	0.008	0.038
23	1380	0.018	0.410	24	1440	0.010	0.040
25	1500	0.034	0.406	26	1560	0.008	0.033
27	1620	0.020	0.351	28	1680	0.009	0.037
29	1740	0.014	0.336	30	1800	0.008	0.036
31	1860	0.022	0.233	32	1920	0.008	0.034
33	1980	0.008	0.161	34	2040	0.009	0.046
35	2100	0.007	0.119	36	2160	0.008	0.045
37	2220	0.016	0.176	38	2280	0.008	0.039
39	2340	0.016	0.168	40	2400	0.009	0.049
41	2460	0.008	0.139	42	2520	0.008	0.029
43	2580	0.010	0.161	44	2640	0.009	0.047
45	2700	0.015	0.130	46	2760	0.008	0.048
47	2820	0.008	0.157	48	2880	0.007	0.026
49	2940	0.007	0.111	50	3000	0.008	0.049



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NVLAP LAB CODE: 200899-0

Photometric Report: S1503193-R1

Prepared for: Lumenpulse · Test Date: 19 March 2015

Luminaire: LUMENFACADE INGROUN · Lumcat: LOI-12V-24-RGBW-WW-TS2.5-DMX

Coefficients of Utilization - Zonal Cavity Method

RCR	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	1	0.06	0.06
40 - 50	1	0.07	0.07
50 - 60	1	0.08	0.08
60 - 70	1	0.08	0.08
70 - 80	1	0.08	0.08
80 - 90	1	0.08	0.08
90 - 120	81	7.93	7.93
90 - 130	165	16.09	16.09
90 - 150	468	45.75	45.75
90 - 180	1018	99.45	99.45
0 - 180	1024	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
0.0	20	20	20
45.0	29	30	31
55.0	35	35	36
65.0	43	44	46
75.0	64	65	68
85.0	170	171	180

Luminaire Luminous Flux: 1024

Measured Input Power: 36.35 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 28.2 lm/W

Luminaire Spacing Criterion (0 Degree): 1.6393

Luminaire Spacing Criterion (90 Degree): 1.6824

CIE Type: Direct



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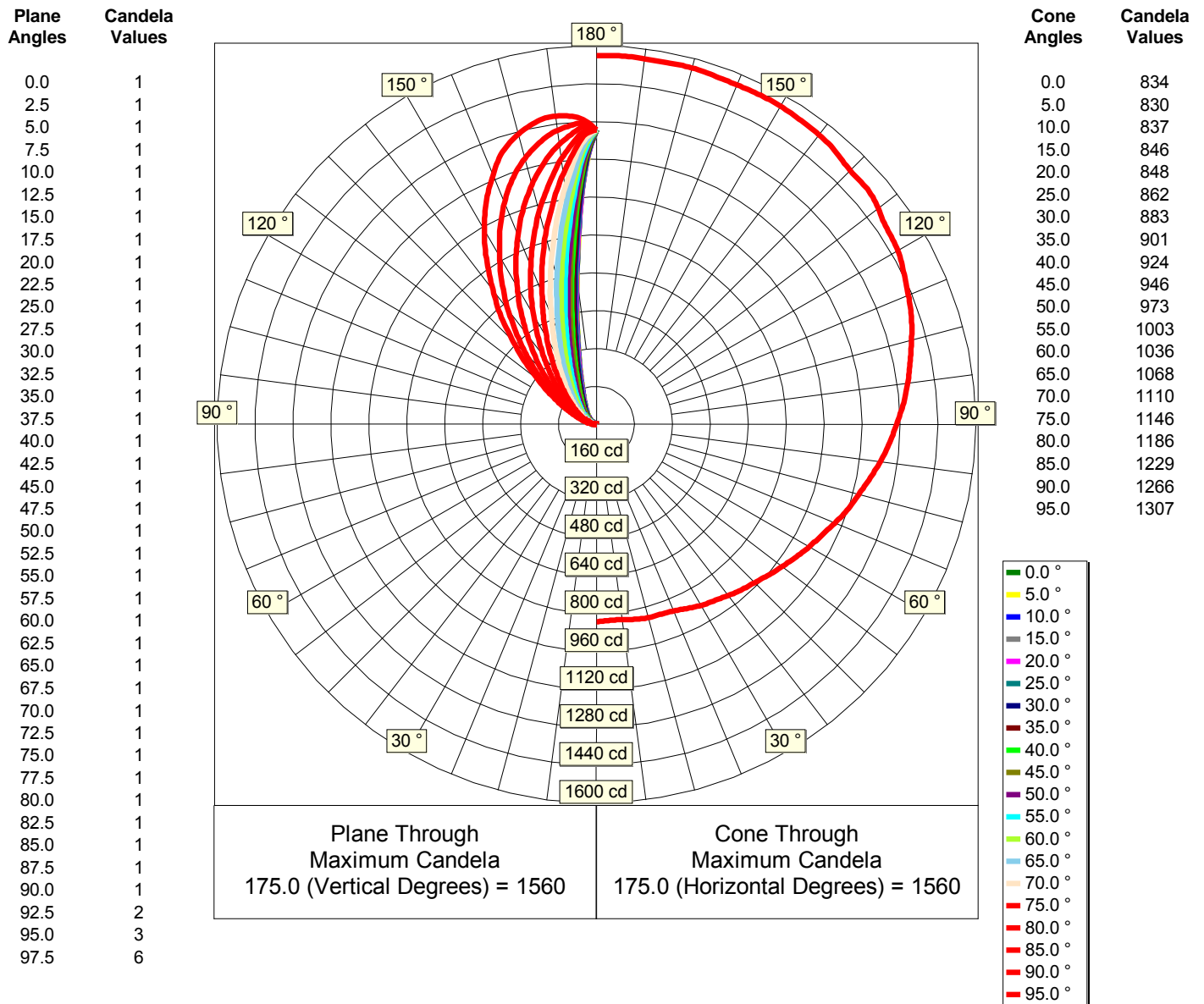
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Photometric Report: S1503193-R1

Prepared for: Lumenpulse · Test Date: 19 March 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-12V-24-RGBW-WW-TS2.5-DMX

Luminous Intensity - Polar Curve for each Plane(1)





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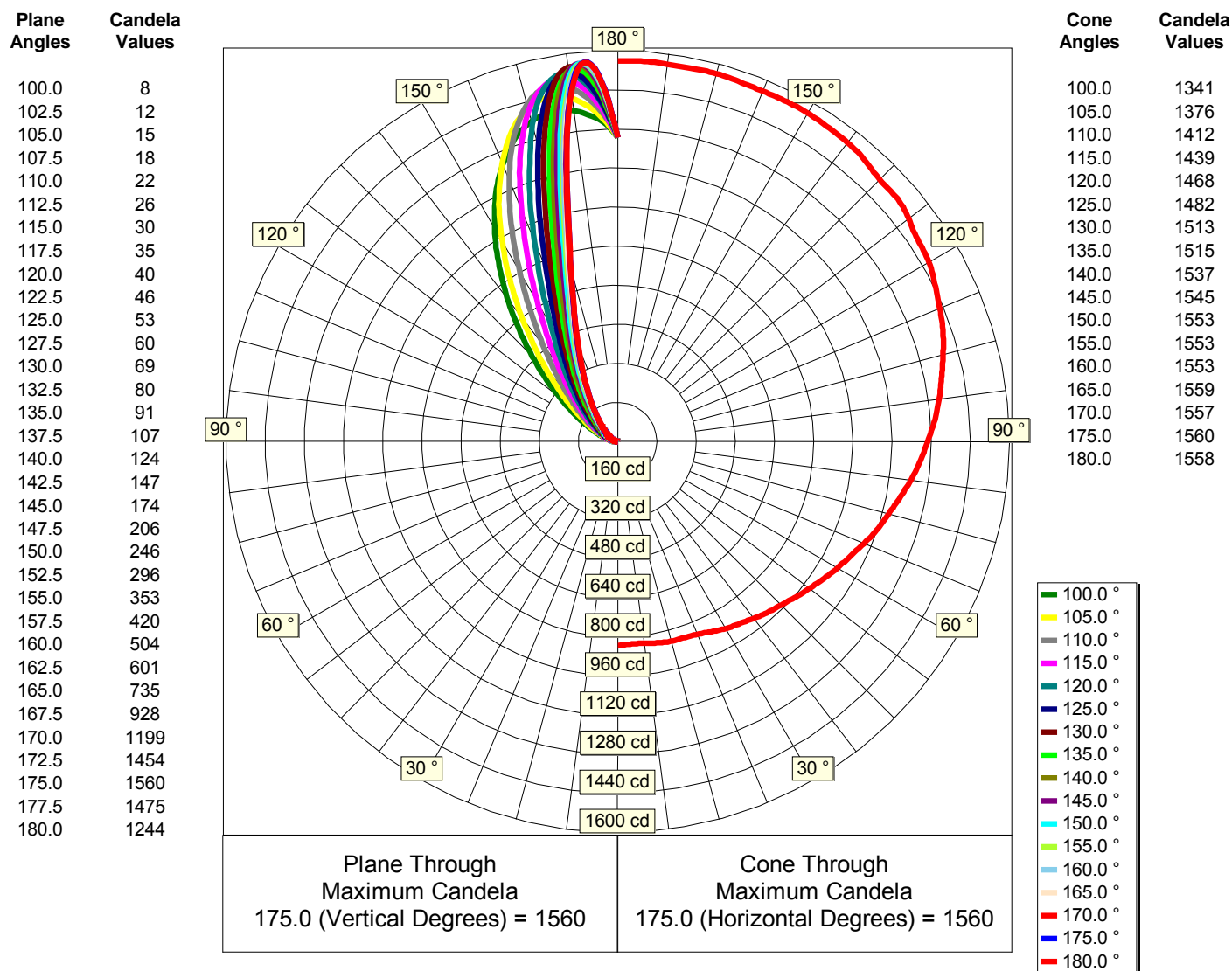
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Photometric Report: S1503193-R1

Prepared for: Lumenpulse · Test Date: 19 March 2015

Luminaire: LUMENFACADE INGROUND · Lumcat: LOI-12V-24-RGBW-WW-TS2.5-DMX

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

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IESNA:LM-63-2002
[ISSUEDATE]      19 March 2015
[TESTLAB]        Spectra Lux Industries Inc.
[TEST]           S1503193-R1
[MANUFAC]        Lumenpulse
[LUMCAT]          LOI-12V-24-RGBW-WW-TS2.5-DMX
[LUMINAIRE]       LUMENFACADE INGROUND
[LAMP]            (CREE XPE2 LED's) White 34.5W SSL c/w MEAN WELL USA inc. Driver LPF-60-12 @ 120.00V
[_LAMPDETAILS]    DC Voltage=15V, Current=2.3A, CCT=4000K, CRI=N/K, x=N/K, y=N/K
[_BURNING]        Vertical Base Down (1,024 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Half Etched Flat Glass Lens
[_HOUSING]        Extruded Aluminum
[_SKTPOSITION]    Fixed
[DISTRIBUTION]    Direct Type - Uplight
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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	1	1	1	1	1	1	1	1	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	2	2	2	2	2	2	2	2	2
	95.0	3	3	3	3	3	3	4	4	4
	97.5	5	5	5	5	5	6	6	6	7
	100.0	7	7	7	7	8	8	9	9	10
	102.5	10	10	10	10	10	11	12	12	13
	105.0	12	12	12	12	13	13	14	15	16
	107.5	15	15	15	15	16	16	17	19	20
	110.0	18	18	18	18	19	20	21	22	23
	112.5	21	21	21	21	22	23	24	26	27
	115.0	24	24	25	25	26	27	28	29	31
	117.5	27	27	28	28	29	30	31	33	35
	120.0	30	31	31	32	32	34	35	37	39
	122.5	34	34	34	35	36	37	39	41	42
	125.0	37	37	38	38	39	41	42	45	47
	127.5	40	41	41	42	43	44	46	49	51
	130.0	44	45	45	46	47	49	51	53	56
	132.5	48	48	49	50	51	53	55	58	61
	135.0	52	53	53	54	55	58	60	64	67
	137.5	57	58	58	60	61	63	66	70	74
	140.0	63	63	64	65	67	69	73	79	82
A n g l e s	142.5	69	69	70	72	73	77	81	86	91
	145.0	76	77	79	79	81	85	89	95	102
	147.5	85	86	86	89	91	95	100	107	115
	150.0	95	96	97	99	102	107	113	121	131
	152.5	108	109	110	113	116	122	129	139	151
	155.0	125	126	127	131	135	141	150	162	176
	157.5	146	147	149	154	158	166	177	192	208
	160.0	177	178	181	185	192	201	214	233	252
	162.5	217	219	222	228	235	246	262	283	307
	165.0	274	277	280	288	297	310	329	353	380
	167.5	355	357	361	370	382	395	417	443	474
	170.0	471	472	478	488	500	513	537	565	596
	172.5	626	624	631	642	648	665	691	715	743
	175.0	834	830	837	846	848	862	883	901	924
	177.5	1080	1073	1077	1081	1077	1084	1098	1104	1116
	180.0	1244	1244	1244	1244	1244	1244	1244	1244	1244



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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	3	3	3	4	4	3	3
	95.0	4	5	5	6	6	7	8	8	8
	97.5	7	8	9	10	11	12	13	14	15
	100.0	10	11	13	14	16	17	19	21	23
	102.5	14	16	17	19	21	23	26	30	34
	105.0	18	20	22	24	26	30	34	40	47
	107.5	23	24	26	29	32	37	43	51	62
	110.0	27	28	31	34	38	44	53	63	81
	112.5	31	33	36	39	45	52	63	76	99
	115.0	35	38	41	45	52	62	75	93	123
	117.5	39	42	46	52	59	71	88	111	150
	120.0	44	47	52	58	68	82	103	131	183
	122.5	48	53	58	66	79	94	119	154	220
	125.0	53	58	65	74	88	109	139	181	263
	127.5	59	65	73	84	100	124	160	211	311
	130.0	65	72	81	94	113	143	186	247	368
	132.5	72	80	91	106	129	163	214	285	433



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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	80	89	102	119	147	186	246	327	419	495
	137.5	89	100	115	136	167	215	283	376	480	573
	140.0	99	112	129	153	190	245	323	427	541	648
	142.5	111	126	146	175	218	281	369	483	614	717
	145.0	125	142	166	200	249	320	416	541	680	792
	147.5	142	162	191	230	286	367	472	605	751	872
	150.0	162	186	220	264	328	416	529	666	815	944
	152.5	189	217	255	306	378	473	591	735	885	1016
	155.0	221	253	298	355	434	534	656	799	951	1080
	157.5	260	298	349	412	494	598	722	864	1013	1139
	160.0	313	356	413	480	568	674	793	929	1071	1198
	162.5	376	424	485	555	643	748	861	989	1121	1239
	165.0	458	509	572	643	730	829	933	1049	1163	1270
	167.5	556	607	671	737	818	905	998	1101	1200	1293
	170.0	677	726	786	843	914	988	1066	1151	1231	1310
	172.5	813	857	904	953	1009	1068	1132	1193	1253	1313
	175.0	973	1003	1036	1068	1110	1146	1186	1229	1266	1307
	177.5	1136	1152	1168	1182	1200	1219	1237	1256	1273	1289
	180.0	1244	1244	1244	1244	1244	1244	1244	1244	1244	1244
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	3	3	3	3	3	2	2	2	2
	95.0	8	8	7	7	6	5	5	5	4
	97.5	14	14	13	12	11	9	8	8	7
	100.0	22	21	20	18	17	14	13	12	11
	102.5	33	30	28	25	23	19	17	16	15
	105.0	45	40	36	33	30	24	22	20	19
	107.5	59	51	46	42	37	30	27	25	23
	110.0	75	65	57	51	46	41	37	30	28
	112.5	94	80	69	62	55	44	40	36	33
	115.0	116	97	84	74	65	52	47	43	39
	117.5	141	118	99	88	77	61	55	50	45
	120.0	172	140	118	103	91	71	64	58	53
	122.5	208	168	139	120	105	93	73	66	61
	125.0	252	201	164	141	123	108	86	77	70
	127.5	299	240	192	164	142	110	98	88	80
	130.0	358	287	227	191	166	128	114	103	92
	132.5	422	341	261	222	191	167	148	118	107



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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
135.0	492	401	311	257	221	194	172	153	137	124
137.5	572	475	365	300	257	226	200	179	160	145
140.0	653	554	428	348	298	260	232	207	187	169
142.5	741	643	504	407	344	302	270	242	218	199
145.0	827	738	589	475	397	348	312	281	255	233
147.5	919	840	690	557	464	404	363	328	299	275
150.0	1003	941	798	652	541	468	420	379	349	322
152.5	1086	1047	918	762	638	548	489	441	408	379
155.0	1162	1142	1039	890	753	642	573	515	477	444
157.5	1226	1231	1156	1025	886	759	676	606	557	520
160.0	1284	1309	1269	1170	1043	911	813	725	666	621
162.5	1327	1370	1360	1297	1193	1078	977	875	803	747
165.0	1356	1412	1429	1404	1343	1252	1168	1069	991	925
167.5	1372	1434	1469	1472	1452	1395	1347	1273	1205	1143
170.0	1376	1433	1479	1504	1513	1496	1488	1442	1412	1372
172.5	1366	1415	1459	1491	1518	1526	1545	1530	1533	1525
175.0	1341	1376	1412	1439	1468	1482	1513	1515	1537	1545
177.5	1307	1320	1342	1354	1375	1383	1406	1410	1427	1430
180.0	1244	1244	1244	1244	1244	1244	1244	1244	1244	1244

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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	1	1	1
	90.0	1	1	1	1	1	1
	92.5	2	2	2	2	2	2
	95.0	4	4	4	3	3	3
	97.5	7	6	6	6	6	6
	100.0	10	10	9	9	8	8
	102.5	14	13	12	12	12	11
	105.0	18	17	16	15	15	15
	107.5	22	21	20	19	18	18
	110.0	26	25	24	23	22	22
	112.5	31	29	28	27	26	26
	115.0	37	35	33	32	31	30
	117.5	42	40	38	36	35	35
	120.0	49	46	44	42	41	40
	122.5	56	53	50	48	47	45
	125.0	64	60	58	55	53	52
	127.5	74	69	66	63	61	59
	130.0	86	80	76	72	70	68
	132.5	99	92	87	83	80	80



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Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
135.0	114	106	101	96	93	91	90
137.5	134	124	118	112	108	107	106
140.0	156	145	137	131	127	124	123
142.5	183	171	162	154	149	147	145
145.0	215	201	191	181	176	174	171
147.5	255	238	227	216	209	206	205
150.0	300	281	269	256	249	246	244
152.5	355	335	321	308	300	296	294
155.0	417	396	381	366	358	353	351
157.5	490	466	450	434	426	420	417
160.0	582	552	536	520	508	504	500
162.5	693	660	641	619	605	601	599
165.0	858	819	793	785	745	735	735
167.5	1080	1029	997	955	941	928	927
170.0	1327	1282	1260	1226	1209	1199	1193
172.5	1509	1489	1477	1458	1449	1454	1444
175.0	1553	1553	1553	1559	1557	1560	1558
177.5	1449	1453	1459	1469	1470	1475	1472
180.0	1244	1244	1244	1244	1244	1244	1244

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