



# 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>	G1504212-R1	<b>Description</b>	15W White 3898K SSL	<b>Type</b> Commercial
<b>Test Date</b>	21 April 2015	<b>Serial Number</b>	SRIS 1898	<b>Description</b> 15SSL-CY827
<b>Report Date</b>	24 April 2015	<b>Photometric Method</b>	Absolute	<b>Manufacturer</b> LOG-HO-120-12-40K-WWLF-SI-NO
<b>Ambient</b>	24.4 °C	<b>Lamp Lumens</b>	-1	<b>Catalog No.</b> 20-3871
<b>Humidity</b>	29.5 %	<b>Test Position</b>	Axial	<b>Voltage Tap</b> 120.00 V
<b>Lamp Type</b>	SSL	<b>Comments</b>	CREE XPE2 LED's	<b>Power Factor</b> 0.9900

### Floodlight Data

General Information		Optics	Aperture (feet)	
<b>Manufacturer</b>	Lumenpulse	<b>Reflector</b>	12 Collimators	<b>X</b> 0.0000
<b>Name</b>	LUMENFACADE	<b>Housing</b>	Extruded Aluminum	<b>Y</b> 1.0000
<b>Catalog No.</b>	LOG-HO-120-12-40K-WWLF-SI-NO	<b>Lens</b>	Clear Flat Glass C/W Diffuse Film	<b>Z</b> 0.0167

SKT Position: None

Lamp Stabilization Time: 59 minutes, 42 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	91L239798	2015/04/15	2016/04/16
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	4500	2014/12/12	2015/12/12
Photodetector	INPHORA	IPR-PDET 19	110803	2014/05/16	2015/05/16

## Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	051202970	2014/10/24	2016/10/24



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## Photometric Report: G1504212-R1

Prepared for: Lumenpulse · Test Date: 21 April 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-12-40K-WWLF-SI-NO

### Photometric Floodlight Characteristics

Nominal SSL Power	15.00 W	
Measured Input Voltage	119.57 V	<b>Notes</b>
Test SSL Current	0.0000 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	908	
Measured Input Power	16.23 W	
Floodlight Luminous Efficacy	55.9 lm/W	2) Field performance may differ from laboratory measurements.
Maximum Candela Value	1421	
Maximum Candela Location	0.0 H, 1.0 V	3) Results are valid for the tested material only.
Horizontal Beam Angle (50%)	77.0 °	
Vertical Beam Angle (50%)	18.5 °	4) All data published in this report are based on absolute photometry.
Horizontal Field Angle (10%)	123.0 °	
Vertical Field Angle (10%)	55.5 °	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%)	352	
Beam Efficiency (50%)	N/A	
Field Lumens (10%)	739	
Field Efficiency (10%)	N/A	
Spill Lumens	169	
Total Floodlight Lumens	908	
Total Floodlight Efficiency	N/A	



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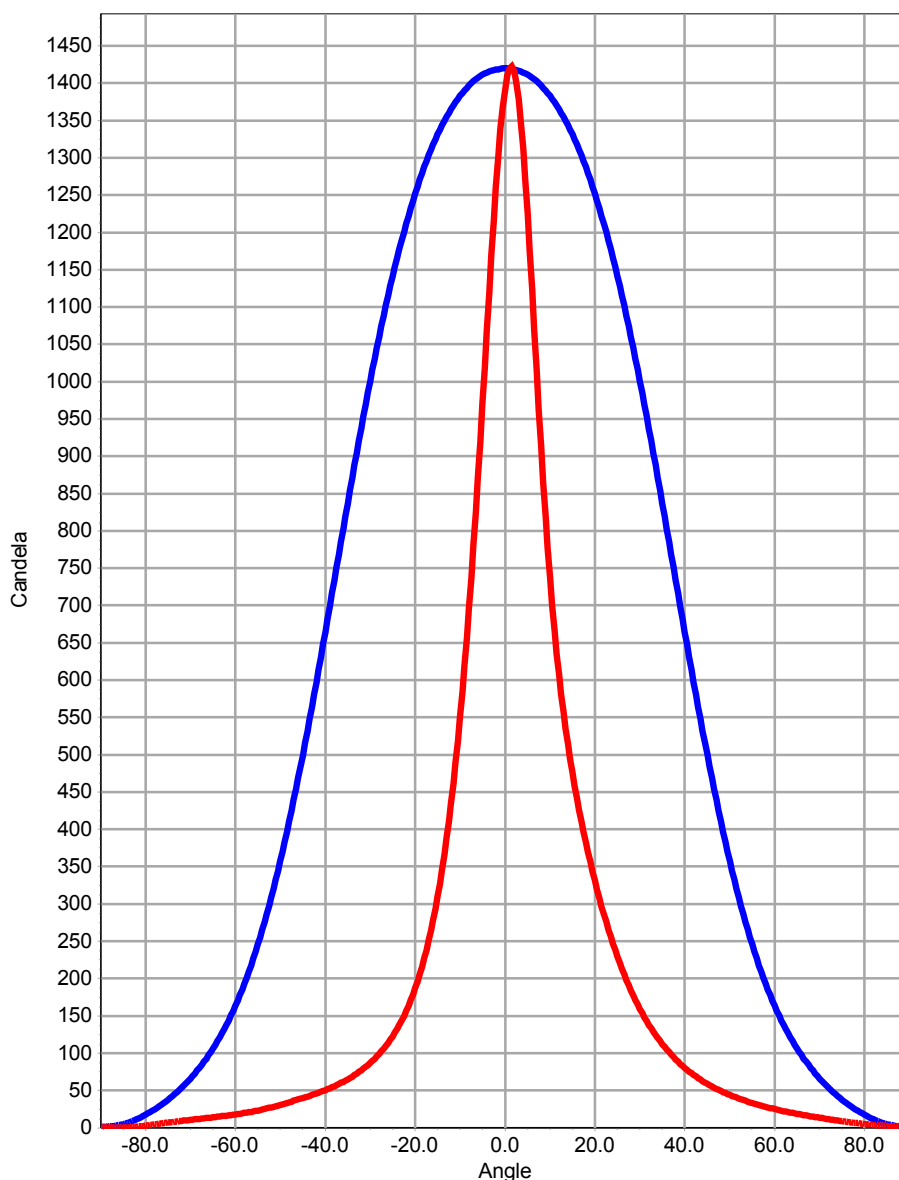
## Photometric Report: G1504212-R1

Prepared for: Lumenpulse · Test Date: 21 April 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-12-40K-WWLF-SI-NO

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

Horizontal Angles	Candela
-90.0	1
-85.0	5
-80.0	17
-75.0	37
-70.0	66
-65.0	106
-60.0	163
-55.0	245
-50.0	357
-45.0	500
-40.0	665
-35.0	837
-30.0	1001
-25.0	1141
-20.0	1252
-15.0	1332
-10.0	1383
-5.0	1411
0.0	1421
5.0	1411
10.0	1383
15.0	1332
20.0	1252
25.0	1141
30.0	1001
35.0	837
40.0	665
45.0	500
50.0	357
55.0	245
60.0	163
65.0	106
70.0	66
75.0	37
80.0	17
85.0	5
90.0	1



Vertical Angles	Candela
-90.0	0
-85.0	0
-80.0	3
-75.0	7
-70.0	11
-65.0	14
-60.0	18
-55.0	23
-50.0	31
-45.0	40
-40.0	51
-35.0	65
-30.0	87
-25.0	123
-20.0	187
-15.0	310
-10.0	550
-5.0	970
0.0	1393
5.0	1224
10.0	737
15.0	476
20.0	331
25.0	229
30.0	159
35.0	112
40.0	80
45.0	59
50.0	44
55.0	33
60.0	25
65.0	19
70.0	13
75.0	9
80.0	5
85.0	3
90.0	2

— Horizontal — Vertical



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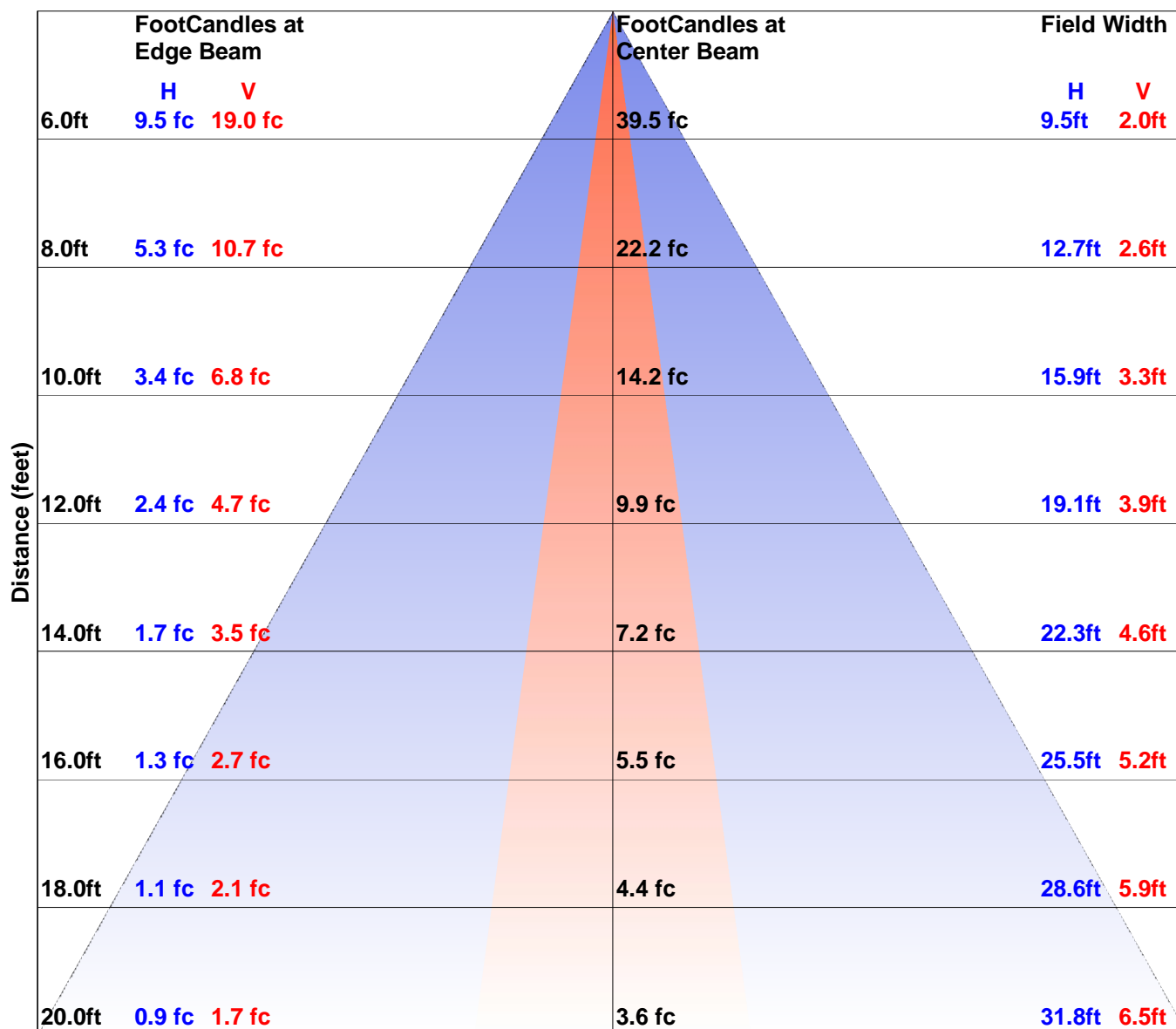
NVLAP LAB CODE: 200899-0

## Photometric Report: G1504212-R1

Prepared for: Lumenpulse · Test Date: 21 April 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-12-40K-WWLF-SI-NO

### Downlight Beam



— Horizontal (77.0 °) — Vertical (18.5 °)



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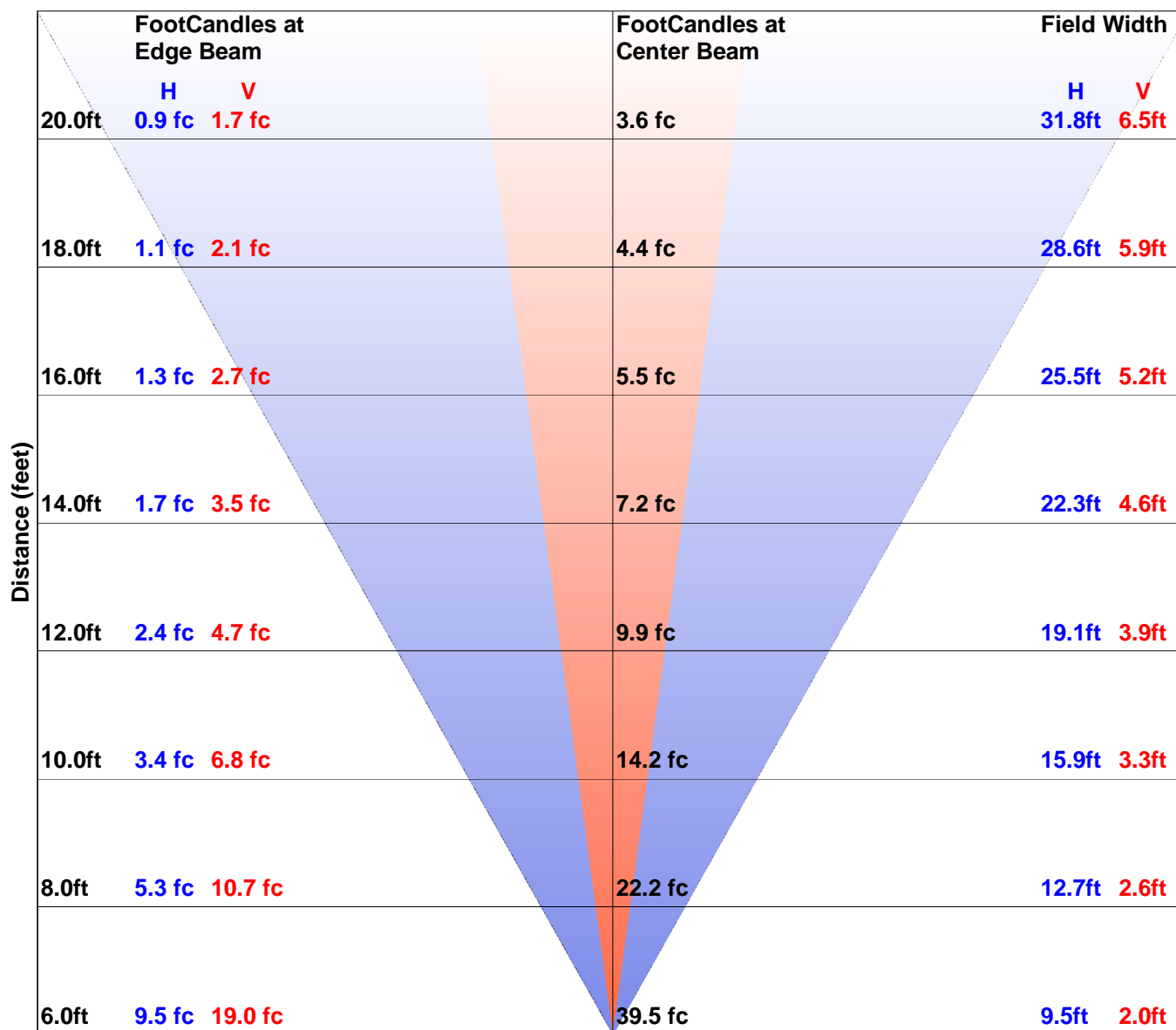
NVLAP LAB CODE: 200899-0

## Photometric Report: G1504212-R1

Prepared for: Lumenpulse · Test Date: 21 April 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-12-40K-WWLF-SI-NO

### Uplight Beam



— Horizontal (77.0 °) — Vertical (18.5 °)



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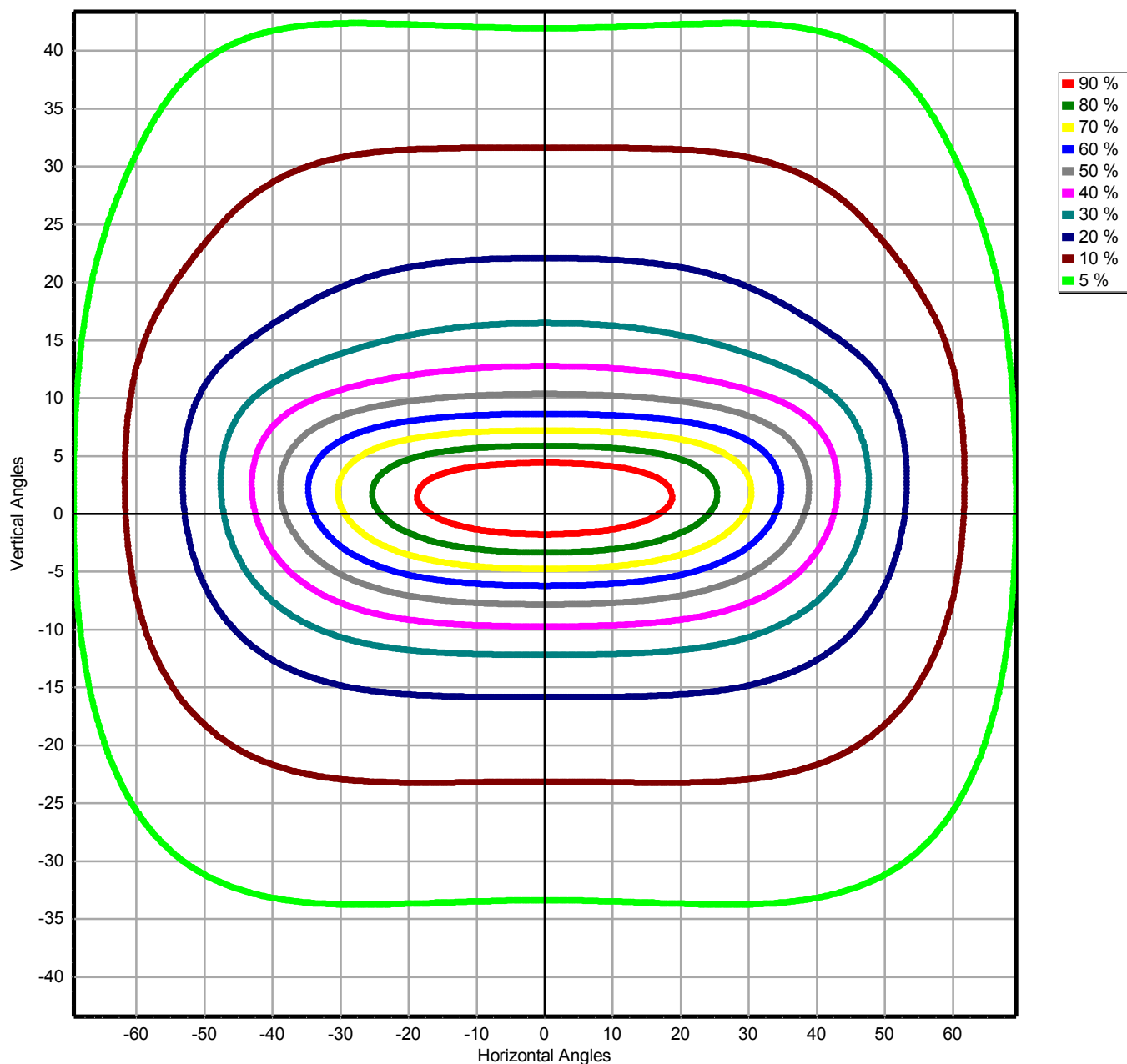
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## Photometric Report: G1504212-R1

Prepared for: Lumenpulse · Test Date: 21 April 2015

Floodlight: LUMENFACADE · Lumcat: LOG-HO-120-12-40K-WWLF-SI-NO

### ISO Candela Diagram







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## IES File Headers

```
IESNA:LM-63-2002
[ISSUEDATE]      21 April 2015
[TESTLAB]        Spectra Lux Industries Inc.
[TEST]           G1504212-R1
[MANUFAC]        Lumenpulse
[LUMCAT]          LOG-HO-120-12-40K-WWLF-SI-NO
[LUMINAIRE]       LUMENFACADE
[LAMP]            (CREE XPE2 LED's) White 15W SSL c/w LOG-HO-120-12-40K-WWLF-SI-NO Driver 20-3871 @ 120.00V
[_LAMPDETAILS]    DC Voltage=24V, Current=0.625A, CCT=3898K, CRI=83, x=0.3864, y=0.3842
[_BURNING]        Axial (908 Luminaire Lumens)
[_REFLECTOR]      12 Collimators
[_LENS]           Clear Flat Glass C/W Diffuse Film
[_HOUSING]        Extruded Aluminum
[_SKTPOSITION]    None
[DISTRIBUTION]    NEMA 6Hx4V (Max. CP at 0.0H,1.0V)
[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
<b>V e r t i c a l  A n g l e s</b>	-90.0	0	0	0	0	0	0	0	0
	-85.0	0	0	0	0	0	0	0	0
	-75.0	7	7	7	7	7	7	6	6
	-65.0	14	14	14	14	14	14	14	13
	-55.0	23	23	23	24	24	25	25	25
	-45.0	40	40	40	40	41	41	41	40
	-35.0	65	65	65	66	66	66	66	65
	-32.5	75	75	75	75	76	76	75	74
	-30.0	87	87	87	88	88	88	87	84
	-27.5	102	102	103	103	104	103	101	97
	-25.0	123	123	123	123	124	123	119	114
	-22.5	150	150	150	151	150	149	142	134
	-20.0	187	187	188	187	186	184	179	160
	-17.5	238	238	238	237	235	230	222	193
	-15.0	310	310	309	307	302	293	279	234
	-14.0	346	346	345	341	335	324	307	254
	-13.0	388	388	386	381	373	359	338	275
	-12.0	435	434	431	426	415	398	372	298
	-11.0	490	488	485	477	463	442	412	324
	-10.0	550	548	543	534	516	490	454	351
	-9.0	619	617	610	598	577	545	501	381
	-8.0	696	693	685	669	643	604	551	411
	-7.0	781	777	767	747	715	668	606	529
	-6.0	872	868	855	831	792	736	663	575
	-5.0	970	966	949	920	874	808	723	622
	-4.0	1070	1063	1044	1010	955	879	782	667
	-3.0	1170	1162	1139	1099	1037	950	841	712
	-2.0	1260	1252	1227	1182	1112	1016	894	753
	-1.0	1338	1329	1302	1253	1177	1073	942	790
	0.0	1393	1383	1355	1304	1224	1115	977	817
	1.0	1421	1411	1383	1332	1252	1141	1001	837
	2.0	1416	1407	1380	1331	1254	1146	1006	844
	3.0	1378	1371	1347	1302	1231	1129	997	839
	4.0	1313	1306	1285	1246	1183	1091	969	821
	5.0	1224	1219	1202	1169	1115	1035	927	793



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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	6.0	1124	1120	1105	1079	1034	966	872	753	618
	7.0	1015	1012	1001	979	943	887	808	707	587
	8.0	913	910	901	883	853	807	741	654	551
	9.0	819	817	809	793	768	729	674	602	513
	10.0	737	735	727	713	690	657	610	549	474
	11.0	666	664	657	643	623	593	552	500	436
	12.0	608	605	598	585	566	538	501	456	400
	13.0	557	555	548	536	517	491	458	417	368
	14.0	514	512	505	494	476	452	420	383	339
	15.0	476	474	468	456	440	417	388	354	314
	17.5	396	395	390	381	368	349	325	296	264
	20.0	331	330	327	320	310	296	277	254	227
	22.5	276	275	273	268	262	251	237	219	197
	25.0	229	229	228	225	220	213	203	189	172
	27.5	191	191	190	189	186	181	174	164	151
	30.0	159	159	159	158	157	154	149	142	132
	32.5	133	133	133	133	133	131	128	123	116
	35.0	112	112	112	113	113	112	110	107	102
A n g l e s	45.0	59	59	59	60	60	61	61	61	60
	55.0	33	33	33	34	34	35	35	35	35
	65.0	19	19	19	19	19	19	19	20	19
	75.0	9	9	9	9	9	9	9	9	9
	85.0	3	3	3	3	2	2	2	2	2
	90.0	2	2	2	2	2	2	2	2	1



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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	1	1	1	1	1	1	1	1
	-85.0	0	0	1	1	1	1	1	1
	-75.0	6	6	5	5	4	3	1	1
	-65.0	13	13	13	12	11	9	6	2
	-55.0	25	24	23	21	19	16	11	4
	-45.0	40	38	36	33	29	24	17	9
	-35.0	63	59	55	49	42	33	23	13
	-32.5	71	67	61	54	46	36	25	13
	-30.0	81	75	68	60	50	38	26	14
	-27.5	92	85	76	66	54	41	28	15
	-25.0	106	97	86	73	59	44	29	15
	-22.5	124	111	96	81	64	47	31	16
	-20.0	145	128	109	89	69	50	32	16
	-17.5	172	148	123	99	75	53	33	17
	-15.0	204	172	140	109	81	56	35	17
	-14.0	219	183	147	113	83	57	35	17
	-13.0	236	194	154	118	86	58	35	17
	-12.0	253	206	162	122	88	59	36	17
	-11.0	272	219	170	126	90	60	36	17
	-10.0	291	232	177	131	92	61	36	17
A n g l e s	-9.0	312	245	185	135	94	62	37	18
	-8.0	333	259	193	139	96	63	37	18
	-7.0	356	273	201	143	98	63	37	18
	-6.0	378	286	209	147	100	64	37	18
	-5.0	401	300	216	150	101	65	37	18
	-4.0	422	312	223	154	102	65	37	18
	-3.0	442	324	229	156	104	65	38	18
	-2.0	460	334	234	159	104	66	38	18
	-1.0	477	344	239	161	105	66	38	18
	0.0	490	351	242	162	106	66	37	17
	1.0	500	357	245	163	106	66	37	17
	2.0	504	360	247	164	106	66	37	17
	3.0	505	361	248	164	106	66	37	17
	4.0	500	359	247	164	106	66	37	17
	5.0	492	356	245	163	106	65	37	17
	6.0	477	348	242	162	105	65	37	17
	7.0	460	340	239	161	105	65	37	17
	8.0	438	328	233	158	103	64	36	17
	9.0	414	315	227	156	103	64	36	17
	10.0	388	300	219	153	101	63	36	16
	11.0	362	285	212	149	100	62	35	16
	12.0	337	269	203	145	98	62	35	16
	13.0	313	254	195	141	96	61	35	16
	14.0	290	238	185	136	94	60	34	16
	15.0	270	224	177	131	92	59	34	16
	17.5	229	192	156	119	86	56	33	15
	20.0	198	168	138	108	80	53	31	15
	22.5	173	148	123	98	74	50	30	14
	25.0	153	132	110	89	68	47	28	13
	27.5	135	118	100	81	62	44	27	13
	30.0	120	106	90	74	58	41	25	12
	32.5	106	95	82	68	53	38	24	11
	35.0	94	85	74	62	49	35	22	11
	45.0	58	54	49	43	34	25	16	8



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## Horizontal Angles

	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
55.0	35	33	31	27	23	17	11	6	2
65.0	19	18	17	16	13	10	7	4	2
75.0	8	8	7	6	5	4	3	2	2
85.0	2	2	2	2	2	2	2	2	1
90.0	1	1	1	1	1	1	1	1	1

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## Horizontal Angles

	90.0
V e r t i c a l	-90.0 1
	-85.0 1
	-75.0 1
	-65.0 1
	-55.0 1
	-45.0 1
	-35.0 1
	-32.5 1
	-30.0 1
	-27.5 1
	-25.0 1
	-22.5 1
	-20.0 1
	-17.5 1
	-15.0 1
	-14.0 1
	-13.0 1
	-12.0 1
	-11.0 1
	-10.0 1
A n g l e s	-9.0 1
	-8.0 1
	-7.0 1
	-6.0 1
	-5.0 1
	-4.0 1
	-3.0 1
	-2.0 1
	-1.0 1
	0.0 1
	1.0 1
	2.0 1
	3.0 1
	4.0 1
	5.0 1
	6.0 1
	7.0 1
	8.0 1
	9.0 1
	10.0 1
	11.0 1
	12.0 1
	13.0 1
	14.0 1
	15.0 1
	17.5 1
	20.0 1
	22.5 1
	25.0 1
	27.5 1
	30.0 1
	32.5 1
	35.0 1
	45.0 1



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Horizontal Angles

90.0

55.0	1
65.0	2
75.0	1
85.0	1
90.0	1

V  
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