



# 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 LAB CODE: 200899-0

## Moving Mirror Goniophotometer Test Report

**Standard(s):** IESNA LM-15-03, IES LM-79-08, ANSI C82.77-2002

**Customer** Artemide Manufacturing N-A LTD, 11105 Renaude-Lapointe, Montreal, Québec, Canada, H1J2T4

General Information		SSL Details		Driver Details	
<b>Test Report</b>	S1509083-R1	<b>Description</b>	40W White 3500K SSL	<b>Type</b>	Commercial
<b>Test Date</b>	8 September 2015	<b>Serial Number</b>	SRIS 2163	<b>Description</b>	40SSL-CY977
<b>Report Date</b>	10 September 2015	<b>Photometric Method</b>	Absolute	<b>Manufacturer</b>	Universal
<b>Ambient</b>	23.3 °C	<b>Lamp Lumens</b>	-1	<b>Catalog No.</b>	D15CC55UNVT-C
<b>Humidity</b>	38.8 %	<b>Test Position</b>	Vertical Base Up	<b>Voltage</b>	120.00 V
<b>Lamp Type</b>	SSL	<b>Comments</b>	CRI 80 Linear LED	<b>Power Factor</b>	0.9900

### Luminaire Data

General Information		Optics		Aperture (feet)	
<b>Manufacturer</b>	Rezek	<b>Reflector</b>	None	<b>X</b>	0.2500
<b>Name</b>	2.5 Square LED	<b>Housing</b>	Extruded Aluminum	<b>Y</b>	4.0000
<b>Catalog No.</b>	USC-RA904DL83508C1A	<b>Lens</b>	Frosted Flat Acrylic	<b>Z</b>	0.0000

SKT Position: Fixed

Lamp Stabilization Time: 45 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	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	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.
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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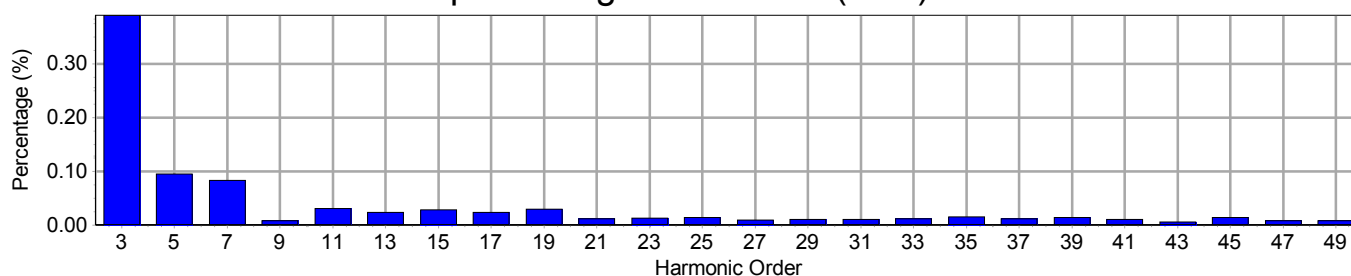
NVLAP LAB CODE: 200899-0

## Electrical Measurements

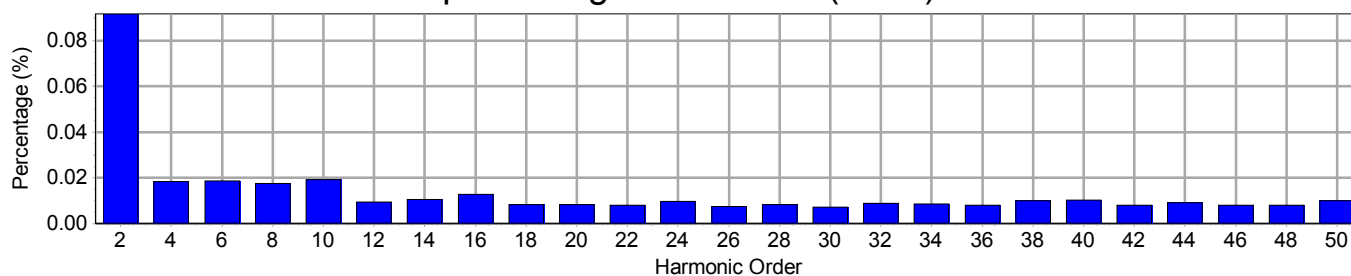
### Input

Frequency	60 Hz	Active Power	39.13 W	THDV [ANSI]	0.43 %
Voltage	120.3 V(rms)	Apparent Power	39.24 VA	THDA [ANSI]	6.55 %
Current	0.3262 A(rms)	Power Factor	0.997	Max. Harmonic At	3rd order

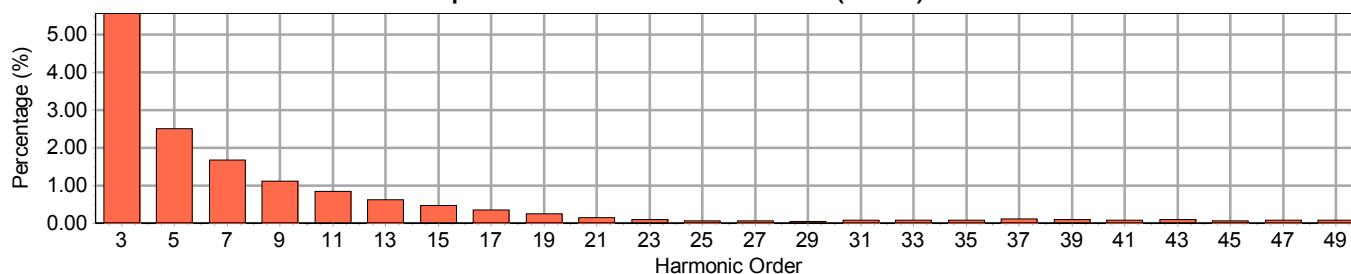
### Input Voltage Harmonics (Odd)



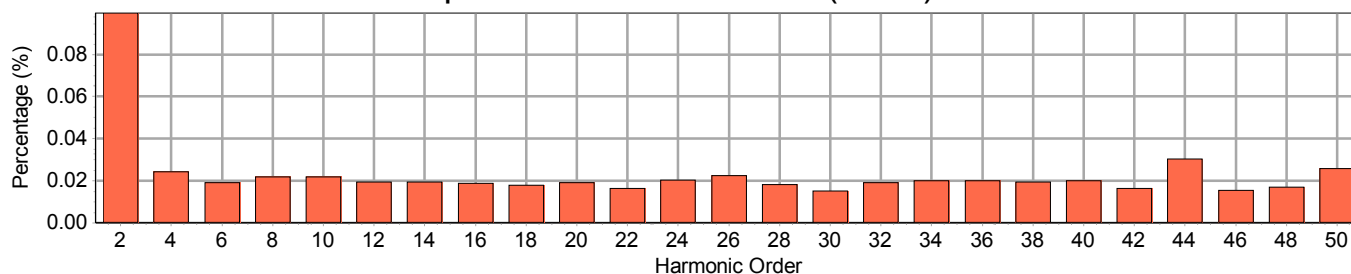
### Input Voltage Harmonics (Even)



### 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	0.092	0.100
3	180	0.392	5.574	4	240	0.018	0.024
5	300	0.095	2.502	6	360	0.019	0.019
7	420	0.083	1.670	8	480	0.018	0.022
9	540	0.007	1.119	10	600	0.019	0.022
11	660	0.031	0.841	12	720	0.009	0.019
13	780	0.023	0.627	14	840	0.011	0.019
15	900	0.028	0.462	16	960	0.013	0.019
17	1020	0.023	0.340	18	1080	0.008	0.018
19	1140	0.030	0.252	20	1200	0.008	0.019
21	1260	0.012	0.151	22	1320	0.008	0.016
23	1380	0.013	0.096	24	1440	0.010	0.020
25	1500	0.014	0.052	26	1560	0.007	0.022
27	1620	0.009	0.053	28	1680	0.008	0.018
29	1740	0.010	0.044	30	1800	0.007	0.015
31	1860	0.010	0.077	32	1920	0.009	0.019
33	1980	0.011	0.070	34	2040	0.009	0.020
35	2100	0.014	0.070	36	2160	0.008	0.020
37	2220	0.011	0.110	38	2280	0.010	0.019
39	2340	0.014	0.091	40	2400	0.010	0.020
41	2460	0.010	0.082	42	2520	0.008	0.016
43	2580	0.006	0.093	44	2640	0.009	0.030
45	2700	0.013	0.066	46	2760	0.008	0.016
47	2820	0.008	0.076	48	2880	0.008	0.017
49	2940	0.007	0.076	50	3000	0.010	0.026



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## Photometric Report: S1509083-R1

Prepared for: Artemide Manufacturing N-A LTD · Test Date: 08 September 2015

Luminaire: 2.5 Square LED · Lumcat: USC-RA904DL83508C1A

### 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
0		122	122	122	122	119	119	119	119	116	116	116	116	111	111	111	102	102	102	100
1		112	107	103	99	110	105	101	98	107	103	99	96	99	96	93	91	89	87	85
2		103	95	88	82	100	93	86	81	98	91	85	80	87	82	78	81	78	75	73
3		95	84	76	69	92	82	75	68	90	81	74	68	78	72	67	73	68	64	62
4		87	75	66	59	85	73	65	59	83	72	64	58	70	63	58	65	60	56	54
5		81	67	58	52	78	66	58	51	76	65	57	51	63	56	51	59	54	49	47
6		75	61	52	46	73	60	51	45	71	59	51	45	57	50	45	54	48	44	42
7		69	56	47	41	68	55	46	40	66	54	46	40	52	45	40	50	44	39	38
8		65	51	42	37	63	50	42	36	62	49	42	36	48	41	36	46	40	36	34
9		61	47	39	33	59	46	38	33	58	46	38	33	45	38	33	42	37	32	31
10		57	43	35	30	56	43	35	30	54	42	35	30	41	35	30	40	34	30	28

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 20	422	16.16	16.16
0 - 40	1353	51.85	51.85
20 - 50	1384	53.04	53.04
0 - 60	2174	83.31	83.31
40 - 70	1077	41.28	41.28
60 - 80	396	15.16	15.16
70 - 80	139	5.34	5.34
0 - 90	2609	100.00	100.00
10 - 90	2498	95.72	95.72
80 - 90	40	1.53	1.53
90 - 110	0	0.00	0.00
90 - 150	0	0.00	0.00
90 - 180	0	0.00	0.00

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

Angle	0 Degree	45 Degree	90 Degree
45.0	11019	9099	7643
55.0	9683	7843	6551
65.0	8273	6680	5554
75.0	6637	5585	4824
85.0	3999	4659	4801

Luminaire Luminous Flux: 2609

Measured Input Power: 39.13 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 66.7 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2329

Luminaire Spacing Criterion (90 Degree): 0.9885

CIE Type: Direct



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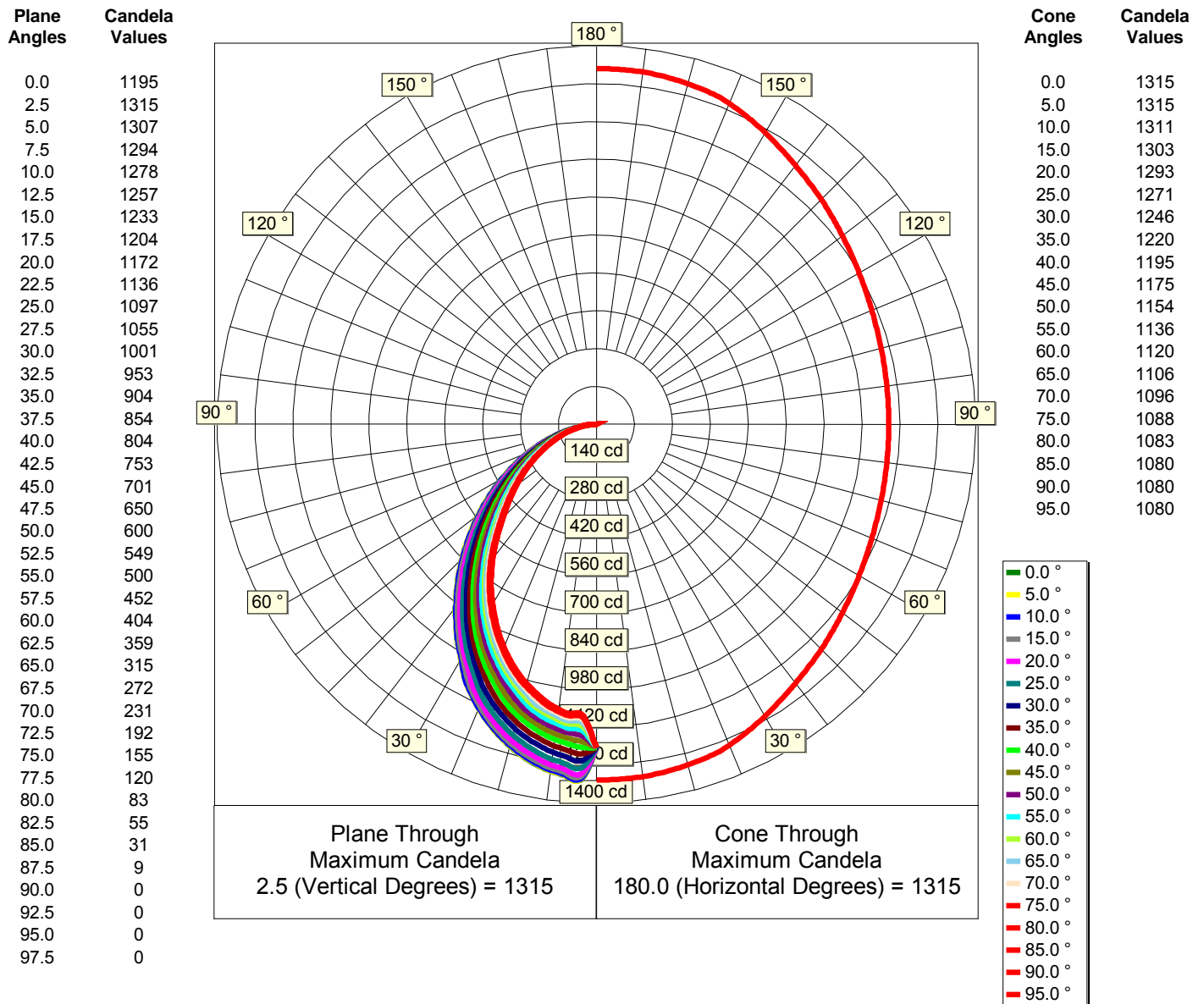
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## Photometric Report: S1509083-R1

Prepared for: Artemide Manufacturing N-A LTD · Test Date: 08 September 2015

Luminaire: 2.5 Square LED · Lumcat: USC-RA904DL83508C1A

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





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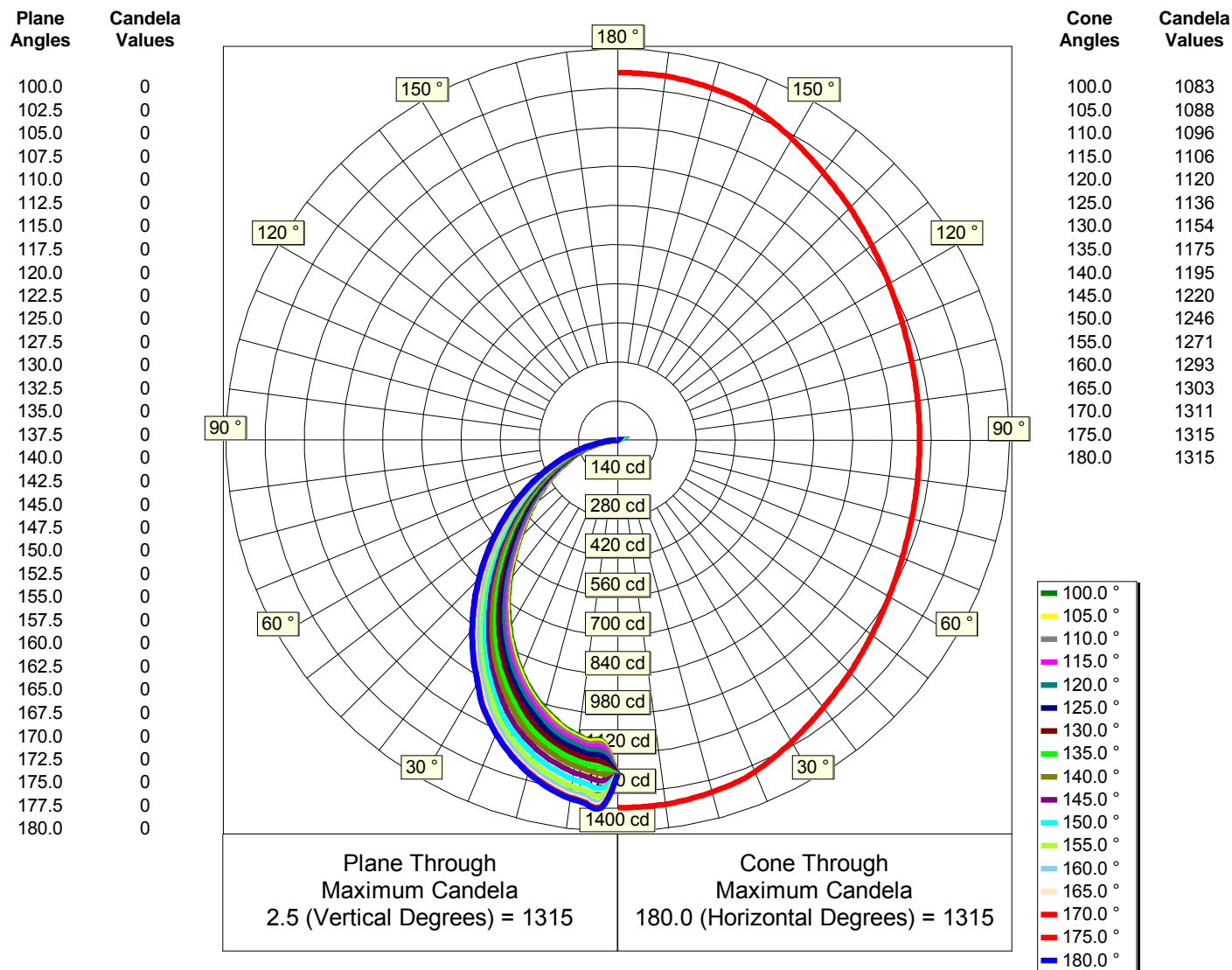
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## Photometric Report: S1509083-R1

Prepared for: Artemide Manufacturing N-A LTD · Test Date: 08 September 2015

Luminaire: 2.5 Square LED · Lumcat: USC-RA904DL83508C1A

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







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## IES File Headers

```
IESNA:LM-63-2002
[ISSUEDATE]      08 September 2015
[TESTLAB]        Spectra Lux Industries Inc.
[TEST]           S1509083-R1
[MANUFAC]        Rezek
[LUMCAT]          USC-RA904DL83508C1A
[LUMINAIRE]       2.5 Square LED
[LAMP]           (Linear LED) White 40W SSL c/w Universal Driver D15CC55UNVT-C @ 120.00V
[_LAMPDETAILS]   DC Voltage=28.57V, Current=1.4A, CCT=3500K, CRI=80, x=N/K, y=N/K
[_BURNING]        Vertical Base Up (2,609 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Frosted Flat Acrylic
[_HOUSING]        Extruded Aluminum
[_SKTPOSITION]    Fixed
[DISTRIBUTION]    Direct Type - Downlight
```

## 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	1195	1195	1195	1195	1195	1195	1195	1195	1195
	2.5	1315	1315	1311	1303	1293	1271	1246	1220	1195
	5.0	1307	1306	1302	1295	1284	1262	1236	1211	1187
	7.5	1294	1293	1290	1281	1271	1249	1224	1198	1175
	10.0	1278	1277	1273	1265	1254	1233	1207	1183	1159
	12.5	1257	1256	1253	1246	1234	1213	1188	1163	1140
	15.0	1233	1232	1229	1222	1210	1189	1164	1139	1116
	17.5	1204	1204	1202	1194	1181	1160	1136	1111	1088
	20.0	1172	1172	1170	1162	1149	1129	1104	1080	1053
	22.5	1136	1136	1135	1127	1114	1094	1070	1041	1015
	25.0	1097	1097	1096	1088	1075	1049	1027	999	976
	27.5	1055	1055	1054	1040	1023	1003	980	957	935
	30.0	1001	1001	999	990	977	957	935	912	891
	32.5	953	953	951	942	928	909	887	865	844
	35.0	904	904	902	892	878	858	836	815	795
	37.5	854	854	851	841	827	808	786	765	745
	40.0	804	803	800	791	776	758	737	716	696
A n g l e s	42.5	753	752	749	740	725	707	687	667	647
	45.0	701	701	697	688	675	658	638	618	599
	47.5	650	649	646	637	624	608	589	570	552
	50.0	600	598	595	586	574	558	540	523	506
	52.5	549	548	544	535	524	510	493	478	462
	55.0	500	498	495	487	477	463	448	434	419
	57.5	452	450	447	440	430	417	404	391	378
	60.0	404	403	400	393	385	373	361	350	338
	62.5	359	357	355	349	341	330	321	311	300
	65.0	315	314	311	306	298	290	281	272	263
	67.5	272	271	269	264	258	251	244	236	228
	70.0	231	230	228	225	220	214	208	202	195
	72.5	192	191	190	187	183	178	174	169	164
	75.0	155	154	154	152	148	145	142	138	134
	77.5	120	120	120	119	117	114	112	109	106
	80.0	83	83	84	84	82	80	79	78	77
	82.5	55	56	57	57	56	56	56	55	55
	85.0	31	32	33	34	33	34	35	35	36
	87.5	9	10	12	13	13	15	17	19	19
	90.0	0	0	0	0	0	0	0	0	0



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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  A n g l e s	92.5	0	0	0	0	0	0	0	0	0
	95.0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100.0	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105.0	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110.0	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115.0	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120.0	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125.0	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130.0	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0
	135.0	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0
	140.0	0	0	0	0	0	0	0	0	0
	142.5	0	0	0	0	0	0	0	0	0
	145.0	0	0	0	0	0	0	0	0	0
	147.5	0	0	0	0	0	0	0	0	0
	150.0	0	0	0	0	0	0	0	0	0
	152.5	0	0	0	0	0	0	0	0	0
	155.0	0	0	0	0	0	0	0	0	0
	157.5	0	0	0	0	0	0	0	0	0
	160.0	0	0	0	0	0	0	0	0	0
	162.5	0	0	0	0	0	0	0	0	0
	165.0	0	0	0	0	0	0	0	0	0
	167.5	0	0	0	0	0	0	0	0	0
	170.0	0	0	0	0	0	0	0	0	0
	172.5	0	0	0	0	0	0	0	0	0
	175.0	0	0	0	0	0	0	0	0	0
	177.5	0	0	0	0	0	0	0	0	0
	180.0	0	0	0	0	0	0	0	0	0



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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	1195	1195	1195	1195	1195	1195	1195	1195	1195
	2.5	1154	1136	1120	1106	1096	1088	1083	1080	1080
	5.0	1146	1128	1113	1101	1090	1082	1078	1075	1075
	7.5	1135	1117	1101	1089	1079	1071	1066	1063	1063
	10.0	1120	1102	1086	1073	1062	1055	1049	1044	1044
	12.5	1100	1081	1066	1054	1040	1029	1023	1020	1020
	15.0	1076	1054	1038	1024	1012	1003	997	994	994
	17.5	1044	1021	1006	994	982	974	966	963	963
	20.0	1009	990	973	961	948	940	933	929	929
	22.5	973	954	937	924	912	903	896	892	892
	25.0	934	915	898	885	872	864	856	852	852
	27.5	893	874	857	844	831	822	814	810	810
	30.0	849	830	814	801	788	779	770	767	767
	32.5	803	785	768	756	743	735	726	722	722
	35.0	755	737	721	709	697	689	680	676	676
	37.5	705	688	672	661	649	641	633	629	629
	40.0	656	639	623	612	600	592	584	581	581
	42.5	608	591	575	563	552	544	536	532	532
	45.0	561	544	529	517	507	499	491	488	488
	47.5	515	499	485	475	464	457	450	447	447
A n g l e s	50.0	472	457	444	434	425	419	412	408	408
	52.5	431	418	406	397	389	382	376	373	373
	55.0	391	379	368	361	353	347	341	339	339
	57.5	353	342	332	325	318	313	307	305	305
	60.0	316	306	297	291	284	279	275	272	272
	62.5	280	271	263	258	252	248	243	241	241
	65.0	246	238	231	226	221	218	214	212	212
	67.5	213	207	201	197	193	189	186	184	184
	70.0	182	177	172	170	166	163	160	159	159
	72.5	154	149	146	143	141	139	136	135	135
	75.0	127	124	121	119	117	115	113	113	113
	77.5	96	95	93	92	91	90	88	88	88
	80.0	74	73	72	72	71	71	69	69	69
	82.5	55	54	54	54	54	54	53	53	53
	85.0	37	37	38	38	39	38	38	38	38
	87.5	22	23	23	24	25	25	25	25	25
	90.0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0
	95.0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100.0	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105.0	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110.0	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115.0	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120.0	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125.0	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130.0	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0



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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
135.0	0	0	0	0	0	0	0	0	0	0
137.5	0	0	0	0	0	0	0	0	0	0
140.0	0	0	0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0	0
147.5	0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0	0
152.5	0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0	0
162.5	0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0	0
167.5	0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0	0
177.5	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0

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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	1195	1195	1195	1195	1195	1195	1195	1195	1195
	2.5	1083	1088	1096	1106	1120	1136	1154	1175	1220
	5.0	1078	1082	1090	1101	1113	1128	1146	1166	1211
	7.5	1066	1071	1079	1089	1101	1117	1135	1154	1198
	10.0	1049	1055	1062	1073	1086	1102	1120	1139	1183
	12.5	1023	1029	1040	1054	1066	1081	1100	1119	1163
	15.0	997	1003	1012	1024	1038	1054	1076	1096	1139
	17.5	966	974	982	994	1006	1021	1044	1068	1111
	20.0	933	940	948	961	973	990	1009	1032	1080
	22.5	896	903	912	924	937	954	973	993	1041
	25.0	856	864	872	885	898	915	934	955	999
	27.5	814	822	831	844	857	874	893	914	957
	30.0	770	779	788	801	814	830	849	870	912
	32.5	726	735	743	756	768	785	803	823	865
	35.0	680	689	697	709	721	737	755	775	815
	37.5	633	641	649	661	672	688	705	725	765
	40.0	584	592	600	612	623	639	656	676	716
	42.5	536	544	552	563	575	591	608	627	667
	45.0	491	499	507	517	529	544	561	579	618
	47.5	450	457	464	475	485	499	515	533	570
A n g l e s	50.0	412	419	425	434	444	457	472	488	523
	52.5	376	382	389	397	406	418	431	445	478
	55.0	341	347	353	361	368	379	391	405	434
	57.5	307	313	318	325	332	342	353	365	391
	60.0	275	279	284	291	297	306	316	327	350
	62.5	243	248	252	258	263	271	280	290	311
	65.0	214	218	221	226	231	238	246	254	272
	67.5	186	189	193	197	201	207	213	220	236
	70.0	160	163	166	170	172	177	182	189	202
	72.5	136	139	141	143	146	149	154	158	169
	75.0	113	115	117	119	121	124	127	130	138
	77.5	88	90	91	92	93	95	96	101	109
	80.0	69	71	71	72	72	73	74	76	78
	82.5	53	54	54	54	54	54	55	55	55
	85.0	38	38	39	38	38	37	37	36	35
	87.5	25	25	25	24	23	23	22	21	19
	90.0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0
	95.0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100.0	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105.0	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110.0	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115.0	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120.0	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125.0	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130.0	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0



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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	0	0	0	0	0	0	0	0	0	0
137.5	0	0	0	0	0	0	0	0	0	0
140.0	0	0	0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0	0
147.5	0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0	0
152.5	0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0	0
162.5	0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0	0
167.5	0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0	0
177.5	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0

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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	0.0	1195	1195	1195	1195	1195	1195
	2.5	1246	1271	1293	1303	1311	1315
	5.0	1236	1262	1284	1295	1302	1306
	7.5	1224	1249	1271	1281	1290	1293
	10.0	1207	1233	1254	1265	1273	1277
	12.5	1188	1213	1234	1246	1253	1256
	15.0	1164	1189	1210	1222	1229	1232
	17.5	1136	1160	1181	1194	1202	1204
	20.0	1104	1129	1149	1162	1170	1172
	22.5	1070	1094	1114	1127	1135	1136
	25.0	1027	1049	1075	1088	1096	1097
	27.5	980	1003	1023	1040	1054	1055
	30.0	935	957	977	990	999	1001
	32.5	887	909	928	942	951	953
	35.0	836	858	878	892	902	904
	37.5	786	808	827	841	851	854
	40.0	737	758	776	791	800	803
	42.5	687	707	725	740	749	752
	45.0	638	658	675	688	697	701
	47.5	589	608	624	637	646	649
A n g l e s	50.0	540	558	574	586	595	598
	52.5	493	510	524	535	544	548
	55.0	448	463	477	487	495	498
	57.5	404	417	430	440	447	450
	60.0	361	373	385	393	400	403
	62.5	321	330	341	349	355	357
	65.0	281	290	298	306	311	314
	67.5	244	251	258	264	269	271
	70.0	208	214	220	225	228	230
	72.5	174	178	183	187	190	191
	75.0	142	145	148	152	154	154
	77.5	112	114	117	119	120	120
	80.0	79	80	82	84	84	83
	82.5	56	56	56	57	57	56
	85.0	35	34	33	34	33	32
	87.5	17	15	13	13	12	10
	90.0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0
	95.0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0
	100.0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0
	105.0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0
	110.0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0
	115.0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0
	120.0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0
	125.0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0
	130.0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0



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## Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
135.0	0	0	0	0	0	0	0
137.5	0	0	0	0	0	0	0
140.0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0
147.5	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0
152.5	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0
162.5	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0
167.5	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0
177.5	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0

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