

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P236209

Luminaire Tested: **2SWLED-28HL-LC-UNV-L840-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P236209
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1709-316-8)
Test Lab: INNOVATION CENTER(G2)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 2SWLED-28HL-LC-UNV-L840-CD1-U
Description: METALUX SWLED LINEAR LUMINAIRE
2FT FIXTURE WITH 2 ROW LED, CLEAR LENS
Light Source: (112) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

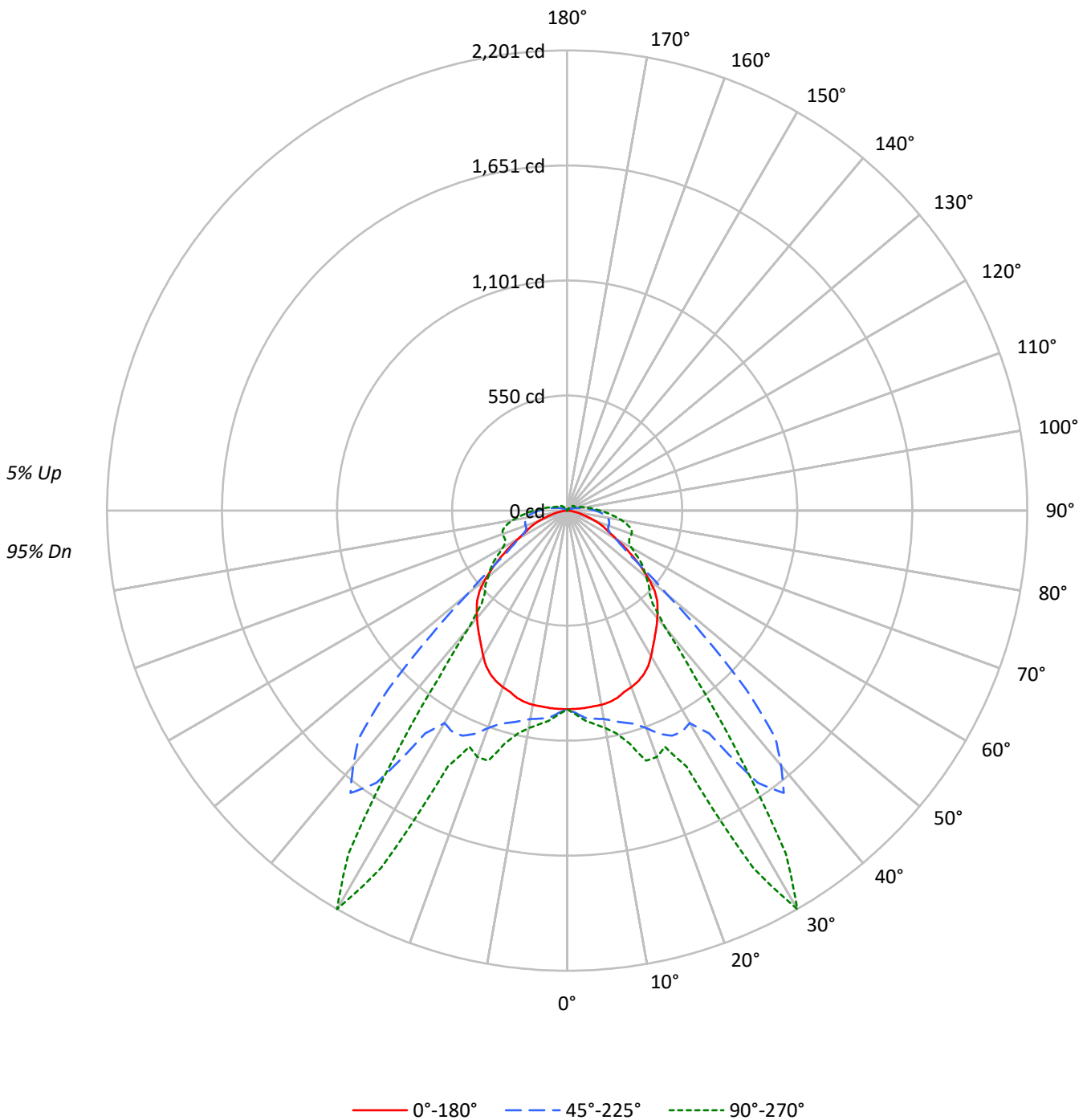
Lumens per Lamp: N/A
Luminaire Lumens: 3649.9 lumens
Efficiency: N/A
Efficacy: 130.8 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.55 / 1.55
Luminous Opening: Rectangular w/ Sides (W: 0.38' x L: 2' x H: 0.15')
CIE Type: Direct

Input Watts (W): 27.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	118	118	118	118	115	115	115	115	108	108	108	103	103	103	98	98	98	95
1	107	102	98	94	104	100	96	92	94	91	88	90	87	85	85	83	81	79
2	98	90	83	77	95	87	81	76	83	78	74	79	75	71	75	72	69	66
3	90	79	71	65	87	77	70	64	74	67	62	70	65	61	67	63	59	57
4	82	71	62	55	80	69	61	55	66	59	54	63	57	52	60	55	51	49
5	76	63	54	48	73	62	54	48	59	52	47	57	51	46	54	49	45	42
6	70	57	48	42	68	56	48	42	54	46	41	51	45	40	49	44	39	37
7	65	52	43	37	63	51	43	37	49	41	36	47	40	36	45	39	35	33
8	60	47	39	33	59	46	38	33	45	37	32	43	36	32	41	36	31	29
9	56	43	35	30	55	42	35	29	41	34	29	39	33	29	38	32	28	26
10	53	40	32	27	51	39	32	27	38	31	26	36	30	26	35	30	25	24

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13636	13636	13636
5°	13572	13938	14059
10°	13570	13947	14403
15°	13511	14334	15516
20°	13362	15113	16779
25°	13249	16328	18099
30°	12771	16357	29790
35°	12204	22662	19943
40°	11848	23414	10271
45°	11522	18546	8127
50°	10499	10047	7508
55°	8747	6109	6950
60°	6881	4859	6089
65°	5873	4334	6055
70°	4859	4667	6654
75°	3531	5199	7035
80°	2339	5680	6807
85°	1168	5950	6290



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	94.8	2.6
10°-20°	298.5	8.2
20°-30°	544.6	14.9
30°-40°	807.3	22.1
40°-50°	635.0	17.4
50°-60°	437.3	12.0
60°-70°	284.7	7.8
70°-80°	219.3	6.0
80°-90°	149.3	4.1
90°-100°	84.9	2.3
100°-110°	43.6	1.2
110°-120°	23.1	0.6
120°-130°	15.0	0.4
130°-140°	8.8	0.2
140°-150°	3.0	0.1
150°-160°	0.7	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	937.9	25.7
0°-40°	1745.2	47.8
0°-60°	2817.6	77.2
0°-90°	3470.8	95.1
90°-120°	151.6	4.2
90°-150°	178.3	4.9
90°-180°	179.0	4.9
0°-180°	3649.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	950	950	950	950	950	
5°	948	969	995	1004	1009	90
15°	927	961	1049	1113	1153	261
25°	865	933	1188	1219	1350	397
35°	732	948	1589	1767	1448	459
45°	609	1004	1212	553	556	464
55°	386	690	358	396	432	345
65°	200	391	217	297	327	199
75°	81	163	208	290	311	89
85°	13	63	171	197	208	17
90°	0	48	135	150	158	1
95°	0	37	99	110	118	0
105°	0	18	48	62	66	0
115°	0	8	25	37	43	0
125°	0	3	15	30	38	0
135°	0	1	10	21	25	0
145°	1	1	4	8	9	1
155°	1	1	1	2	2	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1
2.5°	949.1	951.1	953.1	954.1	956.1	957.1	958.1	962.1	966.1	968.1	969.1
5°	948.1	950.1	955.1	960.1	966.1	969.1	974.1	981.1	988.1	992.1	995.1
7.5°	945.1	949.1	958.1	967.1	976.1	981.1	986.1	993.1	999.1	1002.1	1004.1
10°	943.1	947.1	959.1	970.1	980.1	983.1	987.1	993.1	999.1	1005.1	1012.1
12.5°	938.1	944.1	956.1	967.1	974.1	976.1	980.1	989.1	1003.1	1017.1	1031.1
15°	927.1	931.1	944.1	951.1	957.1	961.1	968.1	989.1	1014.1	1032.1	1049.1
17.5°	909.1	911.1	919.1	923.1	932.1	943.1	958.1	992.1	1021.1	1045.1	1069.1
20°	898.1	896.1	895.1	898.1	917.1	935.1	954.1	991.1	1026.1	1063.1	1107.1
22.5°	885.1	877.1	871.1	877.1	911.1	933.1	955.1	998.1	1049.1	1103.1	1156.1
25°	865.1	853.1	844.1	859.1	907.1	933.1	961.1	1023.1	1090.1	1141.1	1188.1
27.5°	839.1	826.1	817.1	844.1	904.1	941.1	981.1	1057.1	1118.1	1165.1	1192.1
30°	803.1	790.1	788.1	828.1	908.1	955.1	999.1	1073.1	1128.1	1168.1	1173.1
32.5°	765.1	757.1	760.1	816.1	913.1	959.1	1001.1	1068.1	1125.1	1163.1	1263.1
35°	732.1	731.1	743.1	811.1	907.1	948.1	986.1	1060.1	1138.1	1290.1	1589.2
37.5°	701.1	706.1	731.1	800.1	887.1	928.1	972.1	1082.1	1269.1	1560.2	1702.2
40°	671.1	682.1	712.1	774.1	858.1	910.1	980.1	1206.1	1473.2	1554.2	1592.2
42.5°	640.1	651.1	679.1	733.1	834.1	922.1	1054.1	1367.2	1424.2	1430.2	1473.2
45°	609.1	617.1	636.1	689.1	851.1	1004.1	1178.1	1316.1	1258.1	1337.1	1212.1
47.5°	567.1	575.1	590.1	664.1	911.1	1075.1	1179.1	1131.1	1169.1	1149.1	884.1
50°	511.1	522.1	544.1	667.1	925.1	1009.1	1030.1	992.1	1056.1	889.1	625.1
52.5°	448.0	462.1	509.1	663.1	826.1	853.1	850.1	890.1	897.1	643.1	460.1
55°	386.0	402.0	480.1	600.1	669.1	690.1	723.1	802.1	705.1	461.1	358.0
57.5°	325.0	349.0	431.0	484.1	528.1	579.1	642.1	702.1	531.1	350.0	303.0
60°	270.0	303.0	357.0	368.0	436.0	509.1	578.1	591.1	401.0	284.0	265.0
62.5°	228.0	255.0	279.0	283.0	375.0	452.1	517.1	476.1	307.0	237.0	232.0
65°	200.0	208.0	210.0	222.0	321.0	391.0	443.0	373.0	246.0	212.0	217.0
67.5°	171.0	165.0	162.0	181.0	269.0	329.0	366.0	295.0	212.0	199.0	212.0
70°	139.0	131.0	127.0	148.0	221.0	268.0	292.0	236.0	190.0	192.0	211.0
72.5°	109.0	103.0	102.0	122.0	177.0	210.0	226.0	194.0	175.0	187.0	211.0
75°	81.0	79.0	82.0	99.0	140.0	163.0	174.0	162.0	163.0	183.0	208.0
77.5°	58.0	60.0	64.0	79.0	108.0	124.0	135.0	141.0	154.0	179.0	204.0
80°	40.0	42.0	49.0	62.0	84.0	96.0	107.0	124.0	146.0	173.0	196.0
82.5°	25.0	28.0	35.0	48.0	66.0	77.0	87.0	112.0	139.0	165.0	185.0
85°	13.0	17.0	25.0	37.0	53.0	63.0	75.0	103.0	132.0	155.0	171.0
87.5°	6.0	9.0	17.0	28.0	44.0	55.0	68.0	96.0	122.0	142.0	153.0
90°	0.0	4.0	11.0	22.0	37.0	48.0	61.0	88.0	110.0	126.0	135.0
92.5°	0.0	2.0	8.0	17.0	32.0	42.0	54.0	78.0	96.0	109.0	116.0
95°	0.0	1.0	6.0	14.0	28.0	37.0	47.0	67.0	82.0	93.0	99.0
97.5°	0.0	1.0	4.0	11.0	24.0	32.0	40.0	57.0	69.0	78.0	83.0
100°	0.0	0.0	3.0	9.0	20.0	26.0	33.0	47.0	57.0	65.0	69.0
102.5°	0.0	0.0	2.0	8.0	17.0	22.0	27.0	38.0	47.0	53.0	58.0
105°	0.0	0.0	2.0	6.0	14.0	18.0	22.0	31.0	38.0	44.0	48.0
107.5°	0.0	0.0	1.0	5.0	11.0	14.0	18.0	25.0	31.0	36.0	41.0
110°	0.0	0.0	1.0	4.0	9.0	12.0	14.0	20.0	25.0	30.0	34.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	0.0	0.0	1.0	3.0	7.0	9.0	12.0	17.0	21.0	25.0	29.0
115°	0.0	0.0	0.0	2.0	6.0	8.0	10.0	14.0	18.0	21.0	25.0
117.5°	0.0	0.0	0.0	2.0	5.0	6.0	8.0	11.0	15.0	18.0	21.0
120°	0.0	0.0	0.0	1.0	4.0	5.0	6.0	9.0	13.0	16.0	19.0
122.5°	0.0	0.0	0.0	1.0	3.0	4.0	5.0	8.0	11.0	14.0	17.0
125°	0.0	0.0	0.0	1.0	2.0	3.0	4.0	7.0	9.0	12.0	15.0
127.5°	0.0	0.0	0.0	1.0	2.0	2.0	3.0	6.0	8.0	11.0	14.0
130°	0.0	0.0	0.0	0.0	1.0	2.0	3.0	5.0	7.0	10.0	13.0
132.5°	0.0	0.0	0.0	0.0	1.0	1.0	2.0	4.0	6.0	9.0	12.0
135°	0.0	1.0	0.0	0.0	1.0	1.0	2.0	3.0	5.0	8.0	10.0
137.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	3.0	4.0	6.0	9.0
140°	0.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	5.0	7.0
142.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3.0	4.0	5.0
145°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	4.0
147.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0
150°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
152.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
155°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
157.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
160°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1	950.1
2.5°	972.1	975.1	977.1	976.1	976.1	976.1	977.1	977.1	975.1	977.1
5°	998.1	1002.1	1003.1	1004.1	1004.1	1005.1	1007.1	1008.1	1006.1	1009.1
7.5°	1009.1	1013.1	1017.1	1019.1	1020.1	1021.1	1025.1	1028.1	1028.1	1031.1
10°	1022.1	1031.1	1037.1	1041.1	1043.1	1044.1	1049.1	1052.1	1053.1	1056.1
12.5°	1043.1	1055.1	1064.1	1072.1	1075.1	1077.1	1082.1	1086.1	1089.1	1092.1
15°	1066.1	1083.1	1097.1	1108.1	1113.1	1121.1	1130.1	1139.1	1148.1	1153.1
17.5°	1097.1	1128.1	1157.1	1181.1	1194.1	1205.1	1224.1	1237.1	1248.1	1254.1
20°	1153.1	1198.1	1234.1	1252.1	1257.1	1260.1	1259.1	1256.1	1256.1	1254.1
22.5°	1206.1	1238.1	1245.1	1236.1	1233.1	1230.1	1224.1	1219.1	1219.1	1223.1
25°	1217.1	1217.1	1209.1	1210.1	1219.1	1224.1	1251.1	1293.1	1323.1	1350.2
27.5°	1190.1	1195.1	1248.1	1361.2	1449.2	1515.2	1674.2	1793.2	1867.2	1927.2
30°	1218.1	1391.2	1646.2	1881.2	1980.2	2051.2	2146.2	2184.2	2192.2	2201.2
32.5°	1518.2	1823.2	1993.2	2057.2	2057.2	2060.2	2026.2	1982.2	1934.2	1947.2
35°	1814.2	1902.2	1902.2	1837.2	1767.2	1717.2	1593.2	1500.2	1439.2	1448.2
37.5°	1752.2	1735.2	1610.2	1419.2	1317.1	1248.1	1116.1	1040.1	999.1	1004.1
40°	1592.2	1412.2	1186.1	987.1	907.1	862.1	783.1	744.1	725.1	727.1
42.5°	1286.1	1007.1	815.1	698.1	665.1	640.1	617.1	608.1	604.1	606.1
45°	914.1	699.1	598.1	557.1	553.1	549.1	547.1	550.1	553.1	556.1
47.5°	646.1	533.1	505.1	502.1	505.1	510.1	517.1	523.1	526.1	530.1
50°	490.1	451.1	450.1	459.1	464.1	471.1	479.1	485.1	488.1	492.1
52.5°	397.0	392.0	403.0	418.0	426.0	434.0	446.0	455.1	459.1	462.1
55°	341.0	352.0	371.0	387.0	396.0	404.0	416.0	425.0	429.0	432.0
57.5°	305.0	321.0	336.0	351.0	357.0	364.0	375.0	383.0	386.0	389.0
60°	270.0	286.0	303.0	318.0	326.0	333.0	343.0	350.0	353.0	355.0
62.5°	244.0	264.0	284.0	299.0	306.0	312.0	321.0	328.0	331.0	334.0
65°	234.0	256.0	277.0	291.0	297.0	303.0	314.0	321.0	325.0	327.0
67.5°	234.0	256.0	276.0	291.0	298.0	304.0	316.0	323.0	326.0	328.0
70°	235.0	257.0	279.0	294.0	299.0	306.0	317.0	324.0	327.0	328.0
72.5°	235.0	258.0	277.0	293.0	298.0	304.0	314.0	320.0	323.0	324.0
75°	232.0	254.0	271.0	286.0	290.0	294.0	304.0	309.0	311.0	311.0
77.5°	226.0	244.0	260.0	270.0	274.0	276.0	283.0	288.0	290.0	290.0
80°	216.0	229.0	242.0	249.0	250.0	252.0	258.0	261.0	262.0	264.0
82.5°	201.0	211.0	217.0	222.0	222.0	224.0	231.0	233.0	235.0	236.0
85°	182.0	189.0	192.0	195.0	197.0	198.0	203.0	205.0	207.0	208.0
87.5°	161.0	166.0	168.0	172.0	172.0	174.0	178.0	180.0	181.0	182.0
90°	140.0	144.0	146.0	149.0	150.0	151.0	155.0	156.0	157.0	158.0
92.5°	120.0	123.0	125.0	128.0	129.0	129.0	133.0	134.0	135.0	136.0
95°	103.0	105.0	107.0	109.0	110.0	111.0	114.0	116.0	117.0	118.0
97.5°	87.0	89.0	92.0	94.0	95.0	97.0	99.0	101.0	101.0	102.0
100°	73.0	76.0	79.0	81.0	83.0	83.0	86.0	87.0	88.0	88.0
102.5°	62.0	65.0	68.0	70.0	71.0	72.0	74.0	75.0	76.0	76.0
105°	52.0	55.0	58.0	61.0	62.0	62.0	64.0	65.0	66.0	66.0
107.5°	44.0	47.0	50.0	53.0	54.0	55.0	56.0	58.0	59.0	59.0
110°	38.0	41.0	44.0	46.0	48.0	48.0	50.0	52.0	52.0	53.0



TEST NUMBER: P236209

CATALOG NUMBER: 2SWLED-28HL-LC-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	32.0	35.0	38.0	41.0	42.0	43.0	45.0	46.0	47.0	47.0
115°	28.0	31.0	34.0	36.0	37.0	38.0	40.0	42.0	43.0	43.0
117.5°	24.0	27.0	30.0	32.0	34.0	35.0	37.0	39.0	40.0	40.0
120°	21.0	24.0	27.0	30.0	31.0	32.0	35.0	37.0	38.0	38.0
122.5°	19.0	22.0	25.0	28.0	30.0	31.0	34.0	36.0	37.0	38.0
125°	18.0	21.0	25.0	28.0	30.0	31.0	34.0	36.0	37.0	38.0
127.5°	17.0	21.0	24.0	28.0	29.0	31.0	34.0	36.0	37.0	37.0
130°	16.0	20.0	23.0	26.0	28.0	29.0	32.0	33.0	34.0	35.0
132.5°	15.0	18.0	21.0	24.0	25.0	26.0	28.0	29.0	30.0	30.0
135°	13.0	16.0	18.0	20.0	21.0	22.0	23.0	24.0	25.0	25.0
137.5°	11.0	13.0	15.0	16.0	17.0	18.0	19.0	19.0	20.0	20.0
140°	9.0	10.0	12.0	13.0	13.0	14.0	15.0	15.0	15.0	15.0
142.5°	7.0	8.0	9.0	10.0	10.0	11.0	11.0	12.0	12.0	12.0
145°	5.0	6.0	7.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0
147.5°	4.0	4.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0
150°	2.0	3.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
152.5°	2.0	2.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
155°	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
157.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
160°	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)