

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: P192448

Luminaire Tested: **4WSL-LD2-35-UPL8-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192448
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28106)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WSL-LD2-35-UPL8-UNV-L850-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L850
Light Source: (238) 5000K CCT, 80 CRI LEDS
EL236N0119D850
Ballast/Driver: OSRAM
OT30W

Summary

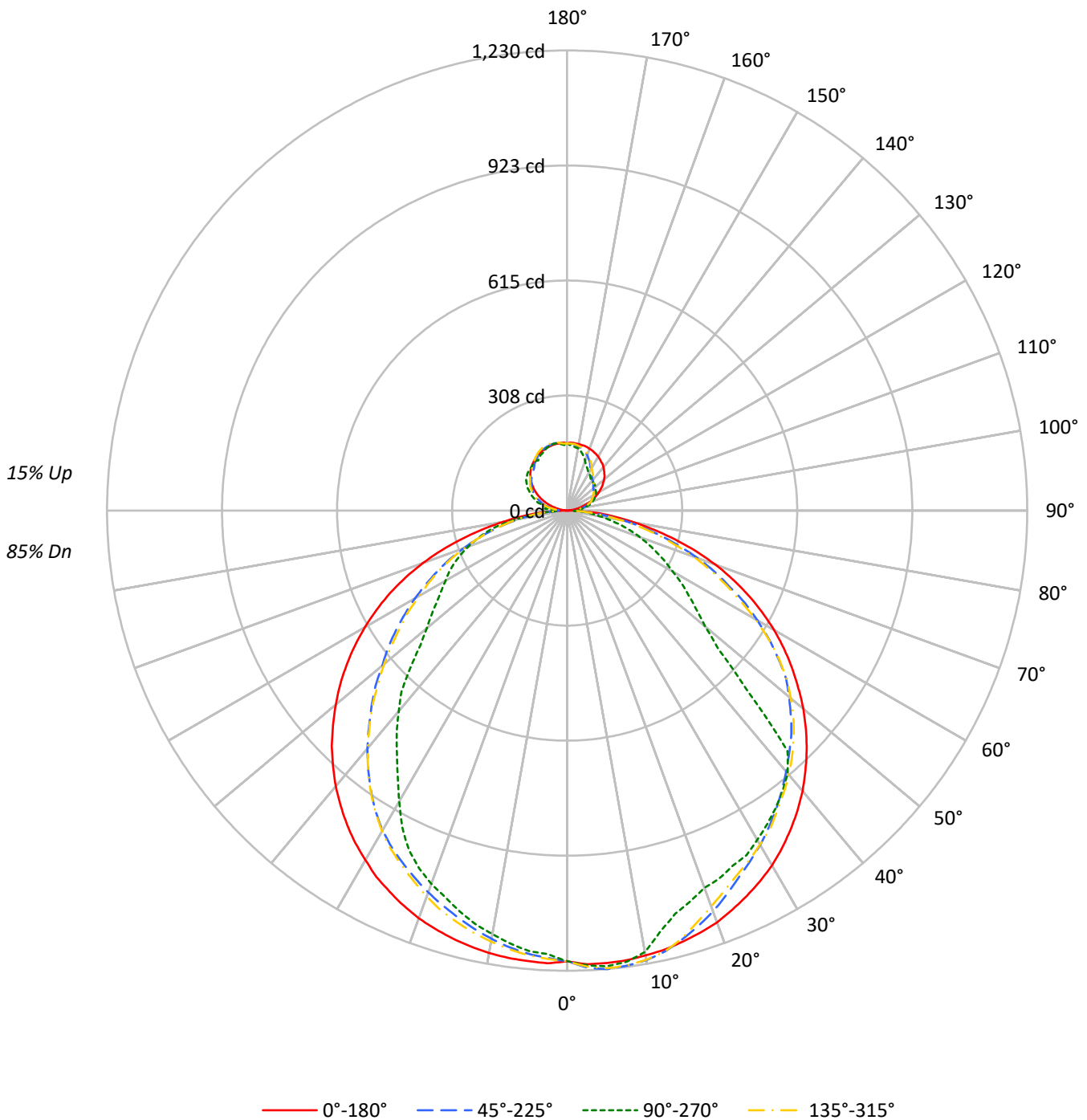
Lumens per Lamp: N/A
Luminaire Lumens: 3996.0 lumens
Efficiency: N/A
Efficacy: 130.6 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 30.6
Input Voltage (V): NR
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	115	115	115	115	111	111	111	111	103	103	103	95	95	95	88	88	88	85
1	105	101	96	92	101	97	93	90	90	87	84	83	81	79	78	76	74	71
2	96	88	81	75	92	84	78	73	78	73	69	73	69	65	68	65	62	59
3	87	77	69	62	83	74	67	61	69	63	58	64	59	55	60	56	52	50
4	80	68	59	53	76	66	58	52	61	55	49	57	52	47	53	49	45	42
5	73	61	52	45	70	59	51	44	55	48	43	51	45	41	48	43	39	37
6	68	55	46	40	65	53	45	39	50	43	37	47	40	36	44	38	34	32
7	63	49	41	35	60	48	40	34	45	38	33	42	36	32	40	35	31	28
8	58	45	37	31	56	44	36	30	41	34	29	39	33	28	37	31	27	25
9	54	41	33	28	52	40	33	27	38	31	26	36	30	26	34	29	25	23
10	51	38	30	25	49	37	30	25	35	28	24	33	27	23	31	26	22	21

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	6825	6825	6825	6825
5°	6903	6954	6873	6719
10°	6945	6893	6908	6611
15°	6998	6544	6945	6506
20°	7061	6470	6991	6400
25°	7103	6547	7023	6257
30°	7164	6649	7054	5873
35°	7199	6717	7092	5486
40°	7240	6782	7116	5180
45°	7255	5457	7131	4733
50°	7264	4240	7117	4320
55°	7249	3924	7108	4192
60°	7234	3697	7074	4253
65°	7158	3544	7003	4461
70°	6965	3419	6795	4658
75°	6523	3218	6324	4912
80°	5934	2946	5680	4672
85°	5785	3185	5200	4193



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	114.5	2.9
10°-20°	325.2	8.1
20°-30°	492.3	12.3
30°-40°	594.5	14.9
40°-50°	606.9	15.2
50°-60°	530.6	13.3
60°-70°	411.3	10.3
70°-80°	247.3	6.2
80°-90°	76.3	1.9
90°-100°	32.2	0.8
100°-110°	61.5	1.5
110°-120°	83.6	2.1
120°-130°	95.0	2.4
130°-140°	96.4	2.4
140°-150°	88.7	2.2
150°-160°	73.2	1.8
160°-170°	49.2	1.2
170°-180°	17.1	0.4
0°-30°	932.1	23.3
0°-40°	1526.5	38.2
0°-60°	2664.1	66.7
0°-90°	3399.0	85.1
90°-120°	177.3	4.4
90°-150°	457.5	11.4
90°-180°	597.0	14.9
0°-180°	3996.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1205	1205	1205	1205	1205	
5°	1214	1223	1209	1182	1214	116
15°	1193	1116	1184	1109	1193	337
25°	1136	1047	1124	1001	1136	524
35°	1041	971	1025	793	1041	652
45°	906	681	890	591	906	698
55°	734	397	720	424	734	656
65°	534	264	522	333	534	527
75°	298	147	289	224	298	316
85°	89	49	80	64	89	90
90°	1	27	1	31	1	6
95°	8	37	8	59	8	10
105°	41	63	40	80	41	44
115°	80	81	79	108	80	79
125°	115	93	112	133	115	102
135°	141	102	139	147	141	109
145°	159	108	157	156	159	100
155°	172	126	170	165	172	79
165°	179	157	178	179	179	51
175°	182	173	182	178	182	17
180°	179	179	179	179	179	



TEST NUMBER: P192448

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7
2.5°	1213.8	1207.3	1222.8	1225.4	1216.3	1218.9	1220.2	1206.0	1211.2	1191.8	1197.0
5°	1213.8	1212.5	1230.5	1228.0	1222.8	1224.1	1228.0	1211.2	1208.6	1185.4	1189.3
7.5°	1212.5	1215.1	1226.7	1224.1	1216.3	1220.2	1226.7	1213.8	1206.0	1178.9	1177.7
10°	1207.3	1211.2	1220.2	1212.5	1198.3	1204.7	1218.9	1211.2	1200.9	1168.6	1162.2
12.5°	1202.2	1204.7	1207.3	1175.1	1151.9	1167.3	1207.3	1204.7	1193.1	1157.0	1145.4
15°	1193.1	1197.0	1186.7	1140.2	1115.7	1131.2	1184.1	1194.4	1184.1	1140.2	1126.1
17.5°	1182.8	1186.7	1164.8	1113.2	1095.1	1102.8	1154.4	1181.5	1172.5	1124.8	1106.7
20°	1171.2	1175.1	1140.2	1084.8	1073.2	1079.6	1126.1	1167.3	1159.6	1106.7	1086.1
22.5°	1154.4	1160.9	1111.9	1065.4	1064.1	1064.1	1099.0	1150.6	1142.8	1084.8	1062.9
25°	1136.4	1142.8	1083.5	1047.4	1047.4	1047.4	1074.5	1128.6	1123.5	1061.6	1039.6
27.5°	1117.0	1123.5	1057.7	1034.5	1038.3	1031.9	1053.8	1104.1	1104.1	1038.3	1015.1
30°	1095.1	1101.5	1031.9	1013.8	1016.4	1013.8	1030.6	1078.3	1078.3	1011.3	986.8
32.5°	1069.3	1075.8	1003.5	989.3	994.5	991.9	1008.7	1052.5	1053.8	982.9	953.2
35°	1040.9	1048.7	973.9	966.1	971.3	967.4	979.0	1025.4	1025.4	951.9	914.5
37.5°	1011.3	1019.0	942.9	940.3	945.5	941.6	950.6	997.1	994.5	919.7	873.2
40°	979.0	988.0	910.6	910.6	917.1	914.5	922.3	967.4	962.2	887.4	830.7
42.5°	942.9	954.5	878.4	879.7	872.0	882.3	890.0	936.4	926.1	851.3	784.2
45°	905.5	919.7	847.4	824.2	681.1	815.2	856.5	905.5	890.0	815.2	739.1
47.5°	865.5	883.6	811.3	726.2	548.2	714.6	820.4	866.8	848.7	776.5	695.2
50°	824.2	844.9	773.9	642.4	481.1	629.5	780.4	828.1	807.5	736.5	644.9
52.5°	779.1	802.3	737.8	568.8	436.0	557.2	739.1	790.7	764.9	694.0	603.7
55°	733.9	758.4	688.8	505.6	397.3	495.3	691.4	743.0	719.7	650.1	558.5
57.5°	687.5	712.0	639.8	450.2	363.7	439.8	637.2	699.1	673.3	604.9	513.4
60°	638.5	663.0	586.9	399.9	326.3	392.1	581.7	650.1	624.3	558.5	469.5
62.5°	586.9	611.4	536.6	353.4	295.4	347.0	521.1	602.4	574.0	509.5	424.4
65°	534.0	552.1	477.3	309.6	264.4	304.4	466.9	543.0	522.4	457.9	381.8
67.5°	478.5	496.6	425.7	270.9	234.8	265.7	414.0	490.2	466.9	407.6	339.2
70°	420.5	436.0	371.5	233.5	206.4	229.6	358.6	430.8	410.2	354.7	294.1
72.5°	361.2	375.4	313.4	198.6	176.7	196.1	300.5	371.5	350.8	299.3	252.8
75°	298.0	312.1	259.3	163.8	147.0	161.2	247.7	308.3	288.9	246.4	210.2
77.5°	238.6	255.4	205.1	129.0	117.4	126.4	194.8	248.9	229.6	197.4	169.0
80°	181.9	196.1	152.2	98.0	90.3	96.7	141.9	189.6	174.1	152.2	131.6
82.5°	131.6	139.3	104.5	72.2	68.4	70.9	96.7	134.1	126.4	109.6	96.7
85°	89.0	87.7	64.5	50.3	49.0	50.3	58.0	81.3	80.0	73.5	61.9
87.5°	37.4	34.8	29.7	20.6	18.1	19.3	23.2	31.0	29.7	31.0	29.7
90°	1.3	12.9	20.6	25.8	27.1	25.8	20.6	12.9	1.3	14.2	23.2
92.5°	2.6	16.8	24.5	28.4	31.0	28.4	23.2	16.8	2.6	21.9	23.2
95°	7.7	23.2	28.4	34.8	37.4	34.8	28.4	21.9	7.7	19.3	34.8
97.5°	15.5	29.7	33.5	38.7	40.0	37.4	32.2	29.7	14.2	34.8	36.1
100°	23.2	37.4	43.9	43.9	45.1	43.9	42.6	36.1	21.9	38.7	43.9
102.5°	32.2	42.6	50.3	54.2	54.2	54.2	50.3	42.6	29.7	47.7	60.6
105°	41.3	46.4	55.5	60.6	63.2	60.6	55.5	47.7	40.0	55.5	64.5
107.5°	51.6	50.3	60.6	65.8	68.4	65.8	60.6	51.6	49.0	61.9	72.2
110°	61.9	55.5	65.8	70.9	72.2	70.9	65.8	55.5	59.3	69.7	80.0



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CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	70.9	59.3	70.9	76.1	77.4	76.1	70.9	60.6	68.4	74.8	87.7
115°	80.0	63.2	73.5	80.0	81.3	80.0	73.5	64.5	78.7	81.3	94.2
117.5°	89.0	68.4	76.1	83.8	85.1	83.8	77.4	69.7	87.7	89.0	100.6
120°	98.0	74.8	80.0	86.4	89.0	87.7	80.0	76.1	95.5	95.5	105.8
122.5°	105.8	80.0	83.8	89.0	91.6	89.0	83.8	82.6	104.5	101.9	112.2
125°	114.8	85.1	86.4	91.6	92.9	91.6	87.7	86.4	112.2	107.1	116.1
127.5°	121.2	91.6	89.0	94.2	95.5	94.2	90.3	92.9	120.0	117.4	120.0
130°	129.0	98.0	91.6	96.7	98.0	98.0	91.6	100.6	126.4	125.1	125.1
132.5°	135.4	104.5	94.2	99.3	100.6	100.6	95.5	105.8	132.9	131.6	129.0
135°	140.6	113.5	99.3	99.3	101.9	101.9	100.6	114.8	139.3	138.0	135.4
137.5°	145.8	121.2	103.2	100.6	101.9	101.9	105.8	122.5	144.5	144.5	139.3
140°	150.9	129.0	105.8	103.2	103.2	105.8	109.6	130.3	149.6	149.6	140.6
142.5°	156.1	135.4	109.6	107.1	104.5	109.6	113.5	138.0	153.5	154.8	144.5
145°	158.7	141.9	114.8	110.9	108.3	114.8	120.0	144.5	157.4	159.9	152.2
147.5°	162.5	148.3	121.2	113.5	113.5	117.4	125.1	149.6	161.2	163.8	156.1
150°	166.4	153.5	126.4	117.4	114.8	121.2	130.3	154.8	165.1	167.7	161.2
152.5°	169.0	158.7	134.1	122.5	120.0	127.7	139.3	158.7	167.7	170.3	166.4
155°	171.6	162.5	143.2	127.7	126.4	132.9	147.0	162.5	170.3	172.8	170.3
157.5°	174.1	166.4	149.6	135.4	130.3	140.6	153.5	167.7	172.8	175.4	174.1
160°	175.4	169.0	157.4	143.2	140.6	149.6	159.9	169.0	174.1	178.0	176.7
162.5°	178.0	171.6	162.5	152.2	149.6	157.4	165.1	172.8	176.7	179.3	179.3
165°	179.3	174.1	167.7	159.9	157.4	165.1	169.0	175.4	178.0	179.3	180.6
167.5°	179.3	176.7	171.6	165.1	163.8	170.3	174.1	178.0	179.3	179.3	181.9
170°	180.6	178.0	174.1	170.3	169.0	174.1	175.4	179.3	180.6	179.3	183.2
172.5°	180.6	179.3	176.7	172.8	170.3	176.7	178.0	179.3	180.6	179.3	181.9
175°	181.9	179.3	179.3	176.7	172.8	179.3	179.3	179.3	181.9	179.3	180.6
177.5°	181.9	179.3	179.3	178.0	175.4	179.3	179.3	179.3	181.9	179.3	180.6
180°	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3



TEST NUMBER: P192448

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1204.7	1204.7	1204.7	1204.7	1204.7	1204.7
2.5°	1195.7	1186.7	1189.3	1199.6	1195.7	1213.8
5°	1186.7	1181.5	1181.5	1193.1	1191.8	1213.8
7.5°	1172.5	1167.3	1169.9	1182.8	1185.4	1212.5
10°	1155.7	1149.3	1151.9	1169.9	1176.4	1207.3
12.5°	1137.7	1132.5	1135.1	1155.7	1164.8	1202.2
15°	1117.0	1109.3	1117.0	1139.0	1150.6	1193.1
17.5°	1093.8	1083.5	1092.5	1120.9	1135.1	1182.8
20°	1070.6	1061.6	1066.7	1097.7	1118.3	1171.2
22.5°	1047.4	1034.5	1039.6	1071.9	1097.7	1154.4
25°	1020.3	1000.9	1011.3	1046.1	1075.8	1136.4
27.5°	984.2	954.5	976.4	1020.3	1050.0	1117.0
30°	936.4	897.8	930.0	989.3	1022.9	1095.1
32.5°	883.6	842.3	878.4	954.5	994.5	1069.3
35°	830.7	793.3	825.5	915.8	964.8	1040.9
37.5°	780.4	748.1	777.8	874.5	933.9	1011.3
40°	732.6	700.4	731.4	829.4	900.3	979.0
42.5°	684.9	655.3	684.9	781.7	865.5	942.9
45°	637.2	590.8	634.6	735.2	828.1	905.5
47.5°	585.6	531.4	581.7	684.9	788.1	865.5
50°	536.6	490.2	534.0	638.5	746.8	824.2
52.5°	494.0	456.6	491.4	590.8	704.3	779.1
55°	454.0	424.4	454.0	544.3	659.1	733.9
57.5°	417.9	398.6	419.2	504.3	612.7	687.5
60°	387.0	375.4	388.3	455.3	566.3	638.5
62.5°	357.3	356.0	358.6	416.6	517.2	586.9
65°	326.3	332.8	326.3	375.4	468.2	534.0
67.5°	295.4	308.3	298.0	334.1	415.3	478.5
70°	267.0	281.2	267.0	291.5	362.5	420.5
72.5°	234.8	252.8	234.8	251.5	307.0	361.2
75°	203.8	224.4	205.1	210.2	254.1	298.0
77.5°	170.3	189.6	174.1	170.3	205.1	238.6
80°	135.4	143.2	135.4	134.1	158.7	181.9
82.5°	94.2	100.6	94.2	98.0	116.1	131.6
85°	61.9	64.5	61.9	63.2	77.4	89.0
87.5°	25.8	25.8	25.8	32.2	34.8	37.4
90°	28.4	31.0	28.4	23.2	14.2	1.3
92.5°	29.7	32.2	29.7	25.8	16.8	2.6
95°	52.9	59.3	50.3	32.2	27.1	7.7
97.5°	42.6	46.4	43.9	37.4	33.5	15.5
100°	50.3	54.2	50.3	52.9	41.3	23.2
102.5°	59.3	61.9	60.6	61.9	50.3	32.2
105°	77.4	80.0	77.4	67.1	58.0	41.3
107.5°	82.6	89.0	83.8	74.8	65.8	51.6
110°	89.0	94.2	90.3	82.6	72.2	61.9



TEST NUMBER: P192448

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	95.5	101.9	98.0	91.6	77.4	70.9
115°	103.2	108.3	105.8	98.0	85.1	80.0
117.5°	110.9	114.8	112.2	103.2	92.9	89.0
120°	117.4	122.5	120.0	109.6	99.3	98.0
122.5°	122.5	127.7	125.1	116.1	105.8	105.8
125°	127.7	132.9	130.3	121.2	110.9	114.8
127.5°	131.6	138.0	135.4	125.1	122.5	121.2
130°	136.7	140.6	139.3	129.0	129.0	129.0
132.5°	139.3	144.5	141.9	134.1	136.7	135.4
135°	140.6	147.0	144.5	140.6	143.2	140.6
137.5°	143.2	148.3	147.0	144.5	149.6	145.8
140°	147.0	149.6	150.9	147.0	154.8	150.9
142.5°	150.9	152.2	154.8	150.9	159.9	156.1
145°	153.5	156.1	158.7	158.7	163.8	158.7
147.5°	153.5	157.4	157.4	161.2	169.0	162.5
150°	157.4	154.8	162.5	166.4	171.6	166.4
152.5°	162.5	161.2	167.7	171.6	174.1	169.0
155°	163.8	165.1	169.0	175.4	176.7	171.6
157.5°	169.0	167.7	174.1	179.3	179.3	174.1
160°	172.8	172.8	179.3	181.9	180.6	175.4
162.5°	176.7	176.7	183.2	183.2	181.9	178.0
165°	179.3	179.3	185.7	184.5	181.9	179.3
167.5°	180.6	181.9	187.0	185.7	181.9	179.3
170°	181.9	181.9	187.0	184.5	181.9	180.6
172.5°	181.9	180.6	185.7	183.2	180.6	180.6
175°	180.6	178.0	183.2	180.6	180.6	181.9
177.5°	179.3	175.4	179.3	179.3	180.6	181.9
180°	179.3	179.3	179.3	179.3	179.3	179.3

(END OF REPORT)