

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: P192496

Luminaire Tested: **4WSL-LD2-40-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192496
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L850
Light Source: (238) 5000K CCT, 80 CRI LEDS
EL236N0119D850
Ballast/Driver: OSRAM
OT50W

Summary

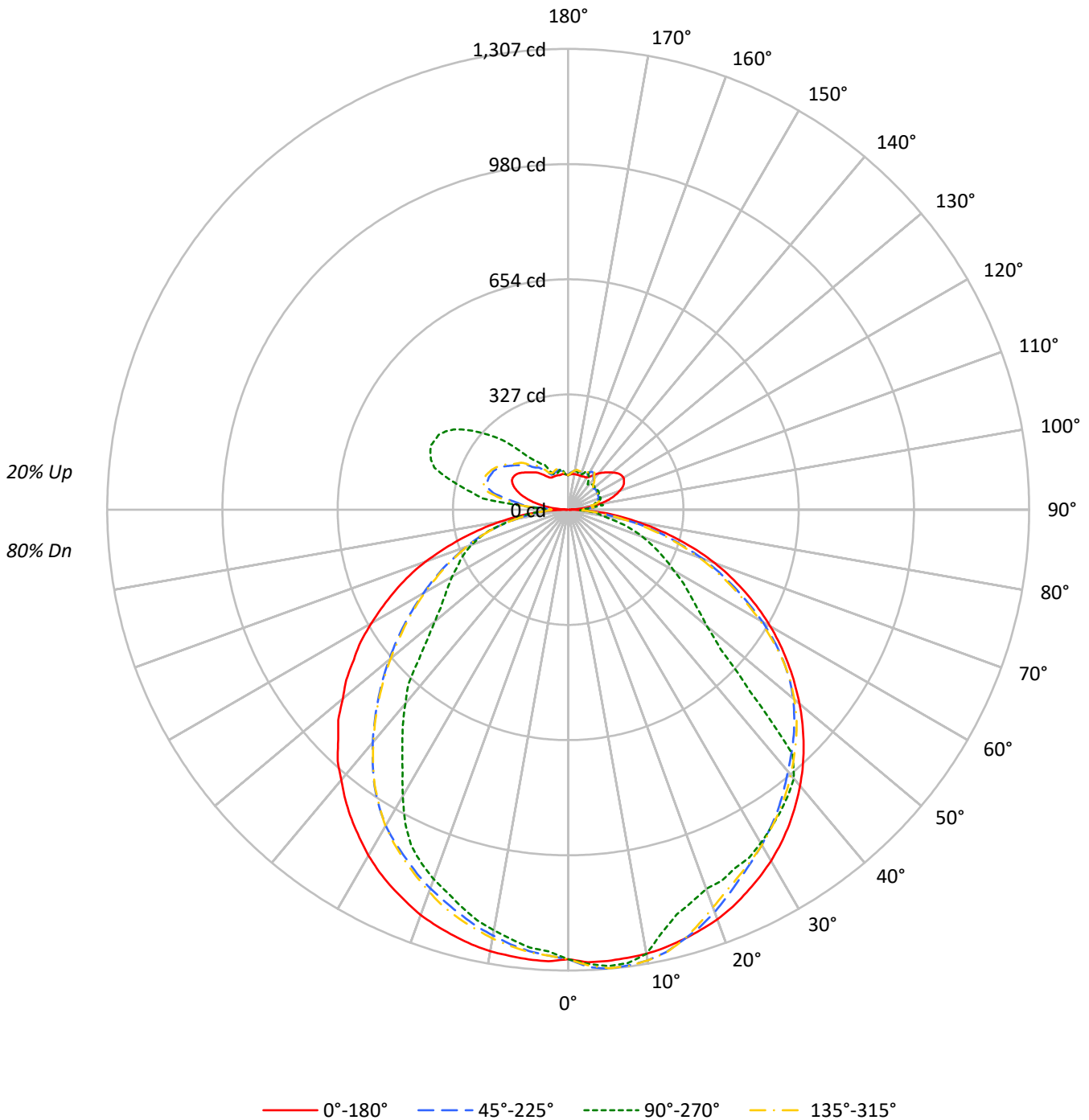
Lumens per Lamp: N/A
Luminaire Lumens: 4511.0 lumens
Efficiency: N/A
Efficacy: 128.5 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 35.1
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

TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	114	114	114	114	109	109	109	109	100	100	100	91	91	91	83	83	83	80
1	104	99	95	91	99	95	91	88	87	84	81	80	77	75	73	71	70	66
2	94	86	80	74	90	83	77	72	76	71	67	70	66	62	64	61	58	55
3	86	76	68	62	82	73	66	60	67	61	56	61	57	53	56	53	49	46
4	79	67	59	52	75	64	57	51	59	53	48	55	49	45	50	46	42	40
5	72	60	51	45	69	58	50	44	53	46	41	49	43	39	45	41	37	34
6	67	54	45	39	64	52	44	38	48	41	36	44	39	34	41	36	32	30
7	62	49	40	34	59	47	39	33	44	37	32	40	35	30	38	33	29	26
8	58	44	36	30	55	43	35	30	40	33	28	37	31	27	34	29	26	24
9	54	41	33	27	51	39	32	27	37	30	26	34	28	24	32	27	23	21
10	50	37	30	25	48	36	29	24	34	27	23	32	26	22	30	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7221	7221	7221	7221
5°	7307	7390	7282	7090
10°	7358	7358	7316	6970
15°	7399	6969	7338	6840
20°	7455	6899	7376	6723
25°	7483	7007	7391	6577
30°	7524	7141	7410	6137
35°	7550	7247	7408	5668
40°	7565	7359	7403	5314
45°	7562	5850	7387	4784
50°	7545	4514	7351	4347
55°	7516	4163	7329	4220
60°	7495	3929	7296	4311
65°	7434	3806	7239	4512
70°	7321	3709	7126	4823
75°	6983	3524	6759	5124
80°	6541	3197	6349	5109
85°	6565	4186	6091	6091



TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.3	2.7
10°-20°	344.2	7.6
20°-30°	520.2	11.5
30°-40°	626.1	13.9
40°-50°	636.7	14.1
50°-60°	554.2	12.3
60°-70°	432.3	9.6
70°-80°	267.2	5.9
80°-90°	94.0	2.1
90°-100°	88.5	2.0
100°-110°	171.4	3.8
110°-120°	187.5	4.2
120°-130°	164.4	3.6
130°-140°	123.2	2.7
140°-150°	84.3	1.9
150°-160°	53.7	1.2
160°-170°	31.4	0.7
170°-180°	10.1	0.2
0°-30°	985.7	21.9
0°-40°	1611.8	35.7
0°-60°	2802.7	62.1
0°-90°	3596.3	79.7
90°-120°	447.5	9.9
90°-150°	819.4	18.2
90°-180°	915.0	20.3
0°-180°	4511.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1275	1275	1275	1275	1275	
5°	1285	1300	1280	1247	1285	122
15°	1262	1188	1251	1166	1262	357
25°	1197	1121	1182	1052	1197	552
35°	1092	1048	1071	820	1092	683
45°	944	730	922	597	944	728
55°	761	422	742	427	761	681
65°	555	284	540	337	555	548
75°	319	161	309	234	319	338
85°	101	64	94	94	101	101
90°	2	41	2	64	2	8
95°	40	67	31	135	40	41
105°	126	83	122	358	126	131
115°	174	95	174	430	174	170
125°	177	100	177	397	177	157
135°	149	100	149	290	149	116
145°	117	100	120	173	117	75
155°	104	120	102	118	104	48
165°	102	108	101	110	102	29
175°	101	105	101	102	101	10
180°	98	98	98	98	98	



TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6
2.5°	1284.9	1279.0	1298.1	1299.5	1289.3	1293.7	1293.7	1277.6	1282.0	1262.9	1265.9
5°	1284.9	1286.3	1306.8	1305.4	1299.5	1301.0	1305.4	1284.9	1280.5	1254.1	1257.1
7.5°	1282.0	1289.3	1303.9	1302.4	1296.6	1298.1	1305.4	1287.8	1276.1	1245.4	1243.9
10°	1279.0	1286.3	1298.1	1290.7	1279.0	1283.4	1298.1	1286.3	1271.7	1235.1	1226.3
12.5°	1271.7	1279.0	1284.9	1248.3	1227.8	1245.4	1286.3	1279.0	1262.9	1220.5	1208.8
15°	1261.5	1270.2	1262.9	1211.7	1188.3	1204.4	1262.9	1268.8	1251.2	1201.5	1186.8
17.5°	1249.8	1260.0	1241.0	1183.9	1166.3	1173.7	1232.2	1255.6	1238.1	1182.4	1164.9
20°	1236.6	1248.3	1214.6	1154.6	1144.4	1150.2	1200.0	1241.0	1223.4	1162.0	1142.9
22.5°	1219.0	1232.2	1183.9	1134.1	1138.5	1134.1	1170.7	1222.0	1202.9	1140.0	1118.1
25°	1197.1	1211.7	1153.2	1116.6	1121.0	1119.5	1145.9	1197.1	1182.4	1113.7	1090.2
27.5°	1175.1	1189.8	1125.4	1104.9	1112.2	1103.4	1122.4	1170.7	1159.0	1085.9	1063.9
30°	1150.2	1166.3	1097.6	1084.4	1091.7	1085.9	1099.0	1144.4	1132.7	1056.6	1034.6
32.5°	1122.4	1138.5	1068.3	1059.5	1069.8	1062.4	1071.2	1115.1	1102.0	1024.4	998.1
35°	1091.7	1107.8	1037.6	1037.6	1047.8	1039.0	1043.4	1085.9	1071.2	992.2	957.1
37.5°	1058.1	1075.6	1003.9	1011.2	1022.9	1014.1	1014.1	1055.1	1037.6	957.1	910.2
40°	1022.9	1042.0	968.8	984.9	995.1	984.9	982.0	1022.9	1001.0	922.0	862.0
42.5°	984.9	1005.4	936.6	955.6	942.4	955.6	948.3	989.3	967.3	883.9	812.2
45°	943.9	970.2	904.4	892.7	730.2	883.9	914.6	954.1	922.0	847.3	762.4
47.5°	901.5	929.3	869.3	784.4	586.8	775.6	878.1	916.1	883.9	807.8	712.7
50°	856.1	888.3	832.7	690.7	512.2	682.0	837.1	876.6	834.1	765.4	662.9
52.5°	809.3	844.4	791.7	610.2	462.4	601.5	793.2	834.1	793.2	720.0	614.6
55°	761.0	797.6	743.4	535.6	421.5	534.1	742.0	788.8	742.0	674.6	566.3
57.5°	712.7	753.7	692.2	481.5	386.3	474.1	684.9	742.0	698.0	627.8	519.5
60°	661.5	699.5	636.6	422.9	346.8	421.5	627.8	693.7	643.9	579.5	474.1
62.5°	608.8	651.2	576.6	371.7	314.6	370.2	566.3	639.5	591.2	529.8	430.2
65°	554.6	595.6	519.5	330.7	283.9	327.8	509.3	583.9	540.0	480.0	389.3
67.5°	499.0	537.1	462.4	291.2	253.2	288.3	450.7	525.4	487.3	428.8	345.4
70°	442.0	477.1	403.9	253.2	223.9	251.7	393.7	465.4	430.2	376.1	305.9
72.5°	382.0	414.1	342.4	216.6	193.2	215.1	333.7	403.9	367.3	320.5	270.7
75°	319.0	349.8	285.4	180.0	161.0	178.5	276.6	338.0	308.8	269.3	229.8
77.5°	259.0	289.8	226.8	139.0	122.9	136.1	216.6	276.6	251.7	218.0	187.3
80°	200.5	225.4	166.8	103.9	98.0	103.9	162.4	212.2	194.6	171.2	146.3
82.5°	147.8	162.4	112.7	84.9	84.9	84.9	109.8	150.7	143.4	127.3	111.2
85°	101.0	101.0	76.1	64.4	64.4	64.4	74.6	89.3	93.7	84.9	84.9
87.5°	42.4	43.9	39.5	35.1	33.7	35.1	38.0	36.6	36.6	41.0	51.2
90°	1.5	19.0	32.2	39.5	41.0	38.0	29.3	17.6	1.5	24.9	45.4
92.5°	10.2	41.0	38.0	49.8	51.2	46.8	39.5	32.2	5.9	45.4	48.3
95°	39.5	48.3	74.6	76.1	67.3	64.4	73.2	45.4	30.7	61.5	122.9
97.5°	62.9	73.2	67.3	87.8	99.5	87.8	70.2	70.2	58.5	95.1	143.4
100°	86.3	77.6	68.8	76.1	87.8	77.6	65.9	77.6	82.0	111.2	175.6
102.5°	108.3	86.3	86.3	74.6	76.1	73.2	83.4	84.9	102.4	125.9	216.6
105°	125.9	89.3	90.7	84.9	83.4	84.9	90.7	90.7	121.5	139.0	235.6
107.5°	142.0	92.2	89.3	93.7	95.1	93.7	89.3	92.2	139.0	147.8	240.0
110°	155.1	93.7	90.7	93.7	98.0	93.7	90.7	95.1	153.7	156.6	242.9



TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-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°	166.8	95.1	93.7	92.2	96.6	92.2	93.7	98.0	165.4	161.0	242.9
115°	174.1	96.6	93.7	93.7	95.1	93.7	95.1	99.5	174.1	162.4	240.0
117.5°	178.5	99.5	95.1	96.6	98.0	96.6	95.1	102.4	180.0	168.3	238.5
120°	181.5	109.8	95.1	98.0	99.5	98.0	95.1	111.2	181.5	171.2	232.7
122.5°	180.0	114.1	96.6	98.0	101.0	98.0	96.6	115.6	180.0	169.8	225.4
125°	177.1	118.5	96.6	96.6	99.5	98.0	98.0	118.5	177.1	166.8	215.1
127.5°	171.2	128.8	96.6	98.0	98.0	98.0	98.0	127.3	171.2	168.3	204.9
130°	163.9	136.1	93.7	99.5	98.0	101.0	96.6	136.1	163.9	163.9	196.1
132.5°	156.6	139.0	93.7	99.5	99.5	101.0	95.1	139.0	156.6	158.0	187.3
135°	149.3	142.0	99.5	98.0	99.5	99.5	101.0	142.0	149.3	152.2	181.5
137.5°	142.0	143.4	106.8	93.7	98.0	95.1	109.8	143.4	143.4	143.4	172.7
140°	134.6	142.0	112.7	90.7	92.2	93.7	115.6	143.4	137.6	139.0	158.0
142.5°	125.9	137.6	117.1	98.0	90.7	101.0	120.0	142.0	128.8	134.6	150.7
145°	117.1	133.2	125.9	108.3	99.5	112.7	130.2	137.6	120.0	131.7	146.3
147.5°	109.8	125.9	127.3	114.1	109.8	118.5	131.7	131.7	111.2	125.9	136.1
150°	105.4	118.5	122.9	118.5	114.1	124.4	128.8	121.5	105.4	121.5	127.3
152.5°	103.9	112.7	112.7	124.4	122.9	130.2	118.5	115.6	102.4	117.1	115.6
155°	103.9	111.2	108.3	114.1	120.0	120.0	112.7	112.7	102.4	117.1	109.8
157.5°	102.4	112.7	108.3	106.8	109.8	112.7	112.7	114.1	102.4	114.1	109.8
160°	102.4	114.1	109.8	105.4	106.8	111.2	114.1	114.1	102.4	114.1	111.2
162.5°	102.4	111.2	111.2	106.8	106.8	112.7	114.1	112.7	102.4	111.2	114.1
165°	102.4	111.2	112.7	109.8	108.3	115.6	114.1	109.8	101.0	109.8	115.6
167.5°	102.4	108.3	114.1	111.2	111.2	115.6	115.6	108.3	101.0	105.4	115.6
170°	102.4	106.8	112.7	111.2	112.7	117.1	112.7	106.8	102.4	103.9	111.2
172.5°	102.4	103.9	109.8	111.2	111.2	114.1	109.8	103.9	102.4	101.0	106.8
175°	101.0	103.9	106.8	106.8	105.4	109.8	105.4	102.4	101.0	99.5	102.4
177.5°	99.5	101.0	103.9	103.9	101.0	103.9	101.0	99.5	99.5	98.0	101.0
180°	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0



TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1274.6	1274.6	1274.6	1274.6	1274.6	1274.6
2.5°	1264.4	1254.1	1257.1	1265.9	1264.4	1284.9
5°	1251.2	1246.8	1246.8	1260.0	1258.5	1284.9
7.5°	1236.6	1229.3	1233.7	1248.3	1252.7	1282.0
10°	1217.6	1211.7	1213.2	1235.1	1242.4	1279.0
12.5°	1198.5	1192.7	1197.1	1217.6	1227.8	1271.7
15°	1176.6	1166.3	1178.1	1200.0	1213.2	1261.5
17.5°	1150.2	1138.5	1150.2	1179.5	1195.6	1249.8
20°	1126.8	1115.1	1122.4	1153.2	1175.1	1236.6
22.5°	1100.5	1085.9	1091.7	1125.4	1153.2	1219.0
25°	1071.2	1052.2	1061.0	1097.6	1128.3	1197.1
27.5°	1033.2	1001.0	1022.9	1068.3	1097.6	1175.1
30°	980.5	938.1	973.2	1036.1	1069.8	1150.2
32.5°	919.0	873.7	911.7	996.6	1037.6	1122.4
35°	859.0	819.5	854.6	955.6	1005.4	1091.7
37.5°	806.3	769.8	802.0	908.8	970.2	1058.1
40°	752.2	718.5	750.7	859.0	935.1	1022.9
42.5°	702.4	670.2	701.0	809.3	897.1	984.9
45°	649.8	597.1	646.8	758.0	856.1	943.9
47.5°	594.1	538.5	589.8	708.3	815.1	901.5
50°	542.9	493.2	540.0	657.1	771.2	856.1
52.5°	497.6	455.1	496.1	605.9	725.9	809.3
55°	455.1	427.3	456.6	559.0	683.4	761.0
57.5°	421.5	402.4	422.9	513.7	636.6	712.7
60°	392.2	380.5	393.7	468.3	586.8	661.5
62.5°	360.0	355.6	360.0	424.4	538.5	608.8
65°	332.2	336.6	332.2	384.9	487.3	554.6
67.5°	305.9	316.1	307.3	342.4	436.1	499.0
70°	276.6	291.2	278.0	304.4	383.4	442.0
72.5°	245.9	263.4	245.9	267.8	327.8	382.0
75°	213.7	234.1	215.1	228.3	275.1	319.0
77.5°	178.5	191.7	181.5	185.9	223.9	259.0
80°	142.0	156.6	143.4	146.3	177.1	200.5
82.5°	118.5	128.8	120.0	111.2	131.7	147.8
85°	87.8	93.7	90.7	86.3	90.7	101.0
87.5°	54.1	57.1	54.1	54.1	46.8	42.4
90°	60.0	64.4	60.0	46.8	26.3	1.5
92.5°	61.5	67.3	61.5	51.2	49.8	10.2
95°	137.6	134.6	146.3	133.2	76.1	39.5
97.5°	213.7	244.4	221.0	159.5	102.4	62.9
100°	245.9	275.1	256.1	199.0	117.1	86.3
102.5°	283.9	316.1	295.6	232.7	131.7	108.3
105°	330.7	358.5	341.0	245.9	144.9	125.9
107.5°	355.6	398.0	362.9	251.7	153.7	142.0
110°	368.8	414.1	380.5	253.2	161.0	155.1



TEST NUMBER: P192496

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	379.0	422.9	387.8	253.2	163.9	166.8
115°	379.0	430.2	387.8	248.8	168.3	174.1
117.5°	379.0	425.9	387.8	244.4	174.1	178.5
120°	365.9	424.4	377.6	238.5	175.6	181.5
122.5°	355.6	412.7	362.9	231.2	175.6	180.0
125°	336.6	396.6	345.4	222.4	172.7	177.1
127.5°	316.1	373.2	323.4	212.2	174.1	171.2
130°	297.1	346.8	301.5	202.0	168.3	163.9
132.5°	272.2	317.6	276.6	194.6	162.4	156.6
135°	248.8	289.8	254.6	188.8	155.1	149.3
137.5°	223.9	260.5	229.8	177.1	147.8	142.0
140°	194.6	223.9	200.5	163.9	143.4	134.6
142.5°	175.6	191.7	181.5	158.0	137.6	125.9
145°	163.9	172.7	168.3	152.2	134.6	117.1
147.5°	152.2	161.0	156.6	140.5	127.3	109.8
150°	147.8	147.8	153.7	130.2	122.9	105.4
152.5°	131.7	143.4	137.6	118.5	120.0	103.9
155°	112.7	118.5	118.5	114.1	120.0	103.9
157.5°	105.4	109.8	111.2	114.1	117.1	102.4
160°	105.4	106.8	111.2	115.6	115.6	102.4
162.5°	108.3	106.8	114.1	118.5	112.7	102.4
165°	111.2	109.8	117.1	120.0	109.8	102.4
167.5°	114.1	114.1	120.0	118.5	106.8	102.4
170°	114.1	117.1	120.0	114.1	105.4	102.4
172.5°	109.8	111.2	114.1	106.8	101.0	102.4
175°	103.9	102.4	106.8	102.4	101.0	101.0
177.5°	101.0	96.6	101.0	99.5	98.0	99.5
180°	98.0	98.0	98.0	98.0	98.0	98.0

(END OF REPORT)