

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: P192449

Luminaire Tested: **4WSL-LD2-40-UPL8-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192449
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-LD2-40-UPL8-UNV-L830-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L830
Light Source: (238) 3000K CCT, 80 CRI LEDS
EL236N0119D830
Ballast/Driver: OSRAM
OT50W

Summary

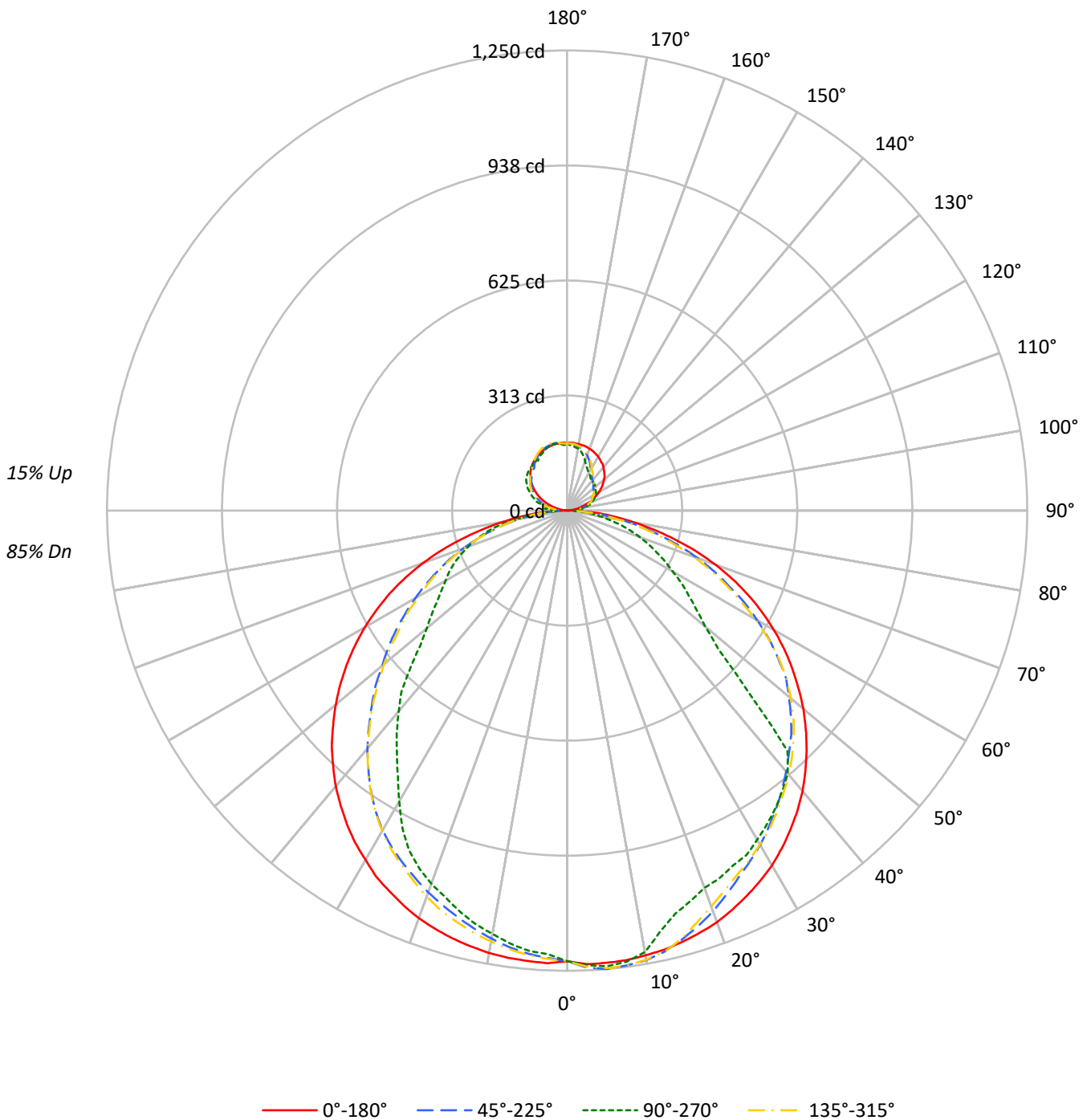
Lumens per Lamp: N/A
Luminaire Lumens: 4060.0 lumens
Efficiency: N/A
Efficacy: 115.7 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 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

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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	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°	6934	6934	6934	6934
5°	7013	7065	6983	6827
10°	7057	7004	7019	6717
15°	7110	6649	7056	6611
20°	7174	6574	7103	6503
25°	7217	6652	7135	6357
30°	7278	6756	7167	5967
35°	7314	6825	7206	5574
40°	7356	6891	7230	5263
45°	7371	5544	7245	4809
50°	7380	4308	7231	4389
55°	7365	3986	7223	4259
60°	7350	3757	7187	4321
65°	7274	3602	7115	4532
70°	7076	3473	6902	4732
75°	6626	3270	6427	4991
80°	6029	2992	5771	4747
85°	5876	3237	5285	4258



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.4	2.9
10°-20°	330.4	8.1
20°-30°	500.2	12.3
30°-40°	604.0	14.9
40°-50°	616.7	15.2
50°-60°	539.1	13.3
60°-70°	417.9	10.3
70°-80°	251.2	6.2
80°-90°	77.6	1.9
90°-100°	32.7	0.8
100°-110°	62.5	1.5
110°-120°	84.9	2.1
120°-130°	96.6	2.4
130°-140°	97.9	2.4
140°-150°	90.1	2.2
150°-160°	74.4	1.8
160°-170°	50.0	1.2
170°-180°	17.4	0.4
0°-30°	947.0	23.3
0°-40°	1551.0	38.2
0°-60°	2706.8	66.7
0°-90°	3453.5	85.1
90°-120°	180.1	4.4
90°-150°	464.8	11.4
90°-180°	607.0	15.0
0°-180°	4060.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1224	1224	1224	1224	1224	
5°	1233	1242	1228	1200	1233	118
15°	1212	1134	1203	1127	1212	343
25°	1155	1064	1142	1017	1155	533
35°	1058	987	1042	806	1058	662
45°	920	692	904	600	920	710
55°	746	404	731	431	746	667
65°	543	269	531	338	543	535
75°	303	149	294	228	303	321
85°	90	50	81	66	90	91
90°	1	28	1	32	1	6
95°	8	38	8	60	8	10
105°	42	64	41	81	42	45
115°	81	83	80	110	81	80
125°	117	94	114	135	117	103
135°	143	104	142	149	143	110
145°	161	110	160	159	161	101
155°	174	128	173	168	174	80
165°	182	160	181	182	182	51
175°	185	176	185	181	185	18
180°	182	182	182	182	182	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0
2.5°	1233.2	1226.7	1242.4	1245.0	1235.8	1238.5	1239.8	1225.3	1230.6	1210.9	1216.2
5°	1233.2	1231.9	1250.2	1247.6	1242.4	1243.7	1247.6	1230.6	1228.0	1204.4	1208.3
7.5°	1231.9	1234.5	1246.3	1243.7	1235.8	1239.8	1246.3	1233.2	1225.3	1197.8	1196.5
10°	1226.7	1230.6	1239.8	1231.9	1217.5	1224.0	1238.5	1230.6	1220.1	1187.3	1180.8
12.5°	1221.4	1224.0	1226.7	1193.9	1170.3	1186.0	1226.7	1224.0	1212.2	1175.5	1163.8
15°	1212.2	1216.2	1205.7	1158.5	1133.6	1149.3	1203.1	1213.6	1203.1	1158.5	1144.1
17.5°	1201.8	1205.7	1183.4	1131.0	1112.6	1120.5	1172.9	1200.4	1191.3	1142.8	1124.4
20°	1190.0	1193.9	1158.5	1102.2	1090.4	1096.9	1144.1	1186.0	1178.2	1124.4	1103.5
22.5°	1172.9	1179.5	1129.7	1082.5	1081.2	1081.2	1116.6	1169.0	1161.1	1102.2	1079.9
25°	1154.6	1161.1	1100.8	1064.1	1064.1	1064.1	1091.7	1146.7	1141.5	1078.6	1056.3
27.5°	1134.9	1141.5	1074.6	1051.0	1055.0	1048.4	1070.7	1121.8	1121.8	1055.0	1031.4
30°	1112.6	1119.2	1048.4	1030.1	1032.7	1030.1	1047.1	1095.6	1095.6	1027.5	1002.6
32.5°	1086.4	1093.0	1019.6	1005.2	1010.4	1007.8	1024.8	1069.4	1070.7	998.6	968.5
35°	1057.6	1065.5	989.4	981.6	986.8	982.9	994.7	1041.9	1041.9	967.2	929.2
37.5°	1027.5	1035.3	958.0	955.4	960.6	956.7	965.9	1013.0	1010.4	934.4	887.2
40°	994.7	1003.9	925.2	925.2	931.8	929.2	937.0	982.9	977.7	901.6	844.0
42.5°	958.0	969.8	892.5	893.8	885.9	896.4	904.3	951.4	941.0	864.9	796.8
45°	920.0	934.4	861.0	837.4	692.0	828.3	870.2	920.0	904.3	828.3	750.9
47.5°	879.4	897.7	824.3	737.8	557.0	726.0	833.5	880.7	862.3	788.9	706.4
50°	837.4	858.4	786.3	652.6	488.8	639.5	792.9	841.4	820.4	748.3	655.3
52.5°	791.6	815.1	749.6	577.9	443.0	566.1	750.9	803.4	777.1	705.1	613.3
55°	745.7	770.6	699.8	513.7	403.6	503.2	702.4	754.9	731.3	660.5	567.5
57.5°	698.5	723.4	650.0	457.4	369.6	446.9	647.4	710.3	684.1	614.6	521.6
60°	648.7	673.6	596.3	406.3	331.6	398.4	591.0	660.5	634.3	567.5	477.0
62.5°	596.3	621.2	545.2	359.1	300.1	352.5	529.5	612.0	583.2	517.7	431.2
65°	542.6	560.9	484.9	314.5	268.7	309.3	474.4	551.7	530.8	465.2	387.9
67.5°	486.2	504.6	432.5	275.2	238.5	270.0	420.7	498.0	474.4	414.1	344.7
70°	427.2	443.0	377.4	237.2	209.7	233.3	364.3	437.7	416.7	360.4	298.8
72.5°	366.9	381.4	318.5	201.8	179.5	199.2	305.4	377.4	356.5	304.0	256.9
75°	302.7	317.1	263.4	166.4	149.4	163.8	251.6	313.2	293.6	250.3	213.6
77.5°	242.4	259.5	208.4	131.1	119.3	128.4	197.9	252.9	233.3	200.5	171.7
80°	184.8	199.2	154.6	99.6	91.7	98.3	144.2	192.6	176.9	154.6	133.7
82.5°	133.7	141.5	106.2	73.4	69.5	72.1	98.3	136.3	128.4	111.4	98.3
85°	90.4	89.1	65.5	51.1	49.8	51.1	59.0	82.6	81.3	74.7	62.9
87.5°	38.0	35.4	30.1	21.0	18.3	19.7	23.6	31.5	30.1	31.5	30.1
90°	1.3	13.1	21.0	26.2	27.5	26.2	21.0	13.1	1.3	14.4	23.6
92.5°	2.6	17.0	24.9	28.8	31.5	28.8	23.6	17.0	2.6	22.3	23.6
95°	7.9	23.6	28.8	35.4	38.0	35.4	28.8	22.3	7.9	19.7	35.4
97.5°	15.7	30.1	34.1	39.3	40.6	38.0	32.8	30.1	14.4	35.4	36.7
100°	23.6	38.0	44.6	44.6	45.9	44.6	43.2	36.7	22.3	39.3	44.6
102.5°	32.8	43.2	51.1	55.0	55.0	55.0	51.1	43.2	30.1	48.5	61.6
105°	41.9	47.2	56.4	61.6	64.2	61.6	56.4	48.5	40.6	56.4	65.5
107.5°	52.4	51.1	61.6	66.8	69.5	66.8	61.6	52.4	49.8	62.9	73.4
110°	62.9	56.4	66.8	72.1	73.4	72.1	66.8	56.4	60.3	70.8	81.3



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CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	72.1	60.3	72.1	77.3	78.6	77.3	72.1	61.6	69.5	76.0	89.1
115°	81.3	64.2	74.7	81.3	82.6	81.3	74.7	65.5	79.9	82.6	95.7
117.5°	90.4	69.5	77.3	85.2	86.5	85.2	78.6	70.8	89.1	90.4	102.2
120°	99.6	76.0	81.3	87.8	90.4	89.1	81.3	77.3	97.0	97.0	107.5
122.5°	107.5	81.3	85.2	90.4	93.0	90.4	85.2	83.9	106.2	103.5	114.0
125°	116.6	86.5	87.8	93.0	94.4	93.0	89.1	87.8	114.0	108.8	117.9
127.5°	123.2	93.0	90.4	95.7	97.0	95.7	91.7	94.4	121.9	119.3	121.9
130°	131.1	99.6	93.0	98.3	99.6	99.6	93.0	102.2	128.4	127.1	127.1
132.5°	137.6	106.2	95.7	100.9	102.2	102.2	97.0	107.5	135.0	133.7	131.1
135°	142.8	115.3	100.9	100.9	103.5	103.5	102.2	116.6	141.5	140.2	137.6
137.5°	148.1	123.2	104.8	102.2	103.5	103.5	107.5	124.5	146.8	146.8	141.5
140°	153.3	131.1	107.5	104.8	104.8	107.5	111.4	132.4	152.0	152.0	142.8
142.5°	158.6	137.6	111.4	108.8	106.2	111.4	115.3	140.2	156.0	157.3	146.8
145°	161.2	144.2	116.6	112.7	110.1	116.6	121.9	146.8	159.9	162.5	154.6
147.5°	165.1	150.7	123.2	115.3	115.3	119.3	127.1	152.0	163.8	166.4	158.6
150°	169.1	156.0	128.4	119.3	116.6	123.2	132.4	157.3	167.7	170.4	163.8
152.5°	171.7	161.2	136.3	124.5	121.9	129.7	141.5	161.2	170.4	173.0	169.1
155°	174.3	165.1	145.5	129.7	128.4	135.0	149.4	165.1	173.0	175.6	173.0
157.5°	176.9	169.1	152.0	137.6	132.4	142.8	156.0	170.4	175.6	178.2	176.9
160°	178.2	171.7	159.9	145.5	142.8	152.0	162.5	171.7	176.9	180.9	179.5
162.5°	180.9	174.3	165.1	154.6	152.0	159.9	167.7	175.6	179.5	182.2	182.2
165°	182.2	176.9	170.4	162.5	159.9	167.7	171.7	178.2	180.9	182.2	183.5
167.5°	182.2	179.5	174.3	167.7	166.4	173.0	176.9	180.9	182.2	182.2	184.8
170°	183.5	180.9	176.9	173.0	171.7	176.9	178.2	182.2	183.5	182.2	186.1
172.5°	183.5	182.2	179.5	175.6	173.0	179.5	180.9	182.2	183.5	182.2	184.8
175°	184.8	182.2	182.2	179.5	175.6	182.2	182.2	182.2	184.8	182.2	183.5
177.5°	184.8	182.2	182.2	180.9	178.2	182.2	182.2	182.2	184.8	182.2	183.5
180°	182.2	182.2	182.2	182.2	182.2	182.2	182.2	182.2	182.2	182.2	182.2



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CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1224.0	1224.0	1224.0	1224.0	1224.0	1224.0
2.5°	1214.9	1205.7	1208.3	1218.8	1214.9	1233.2
5°	1205.7	1200.4	1200.4	1212.2	1210.9	1233.2
7.5°	1191.3	1186.0	1188.7	1201.8	1204.4	1231.9
10°	1174.2	1167.7	1170.3	1188.7	1195.2	1226.7
12.5°	1155.9	1150.6	1153.3	1174.2	1183.4	1221.4
15°	1134.9	1127.1	1134.9	1157.2	1169.0	1212.2
17.5°	1111.3	1100.8	1110.0	1138.9	1153.3	1201.8
20°	1087.7	1078.6	1083.8	1115.3	1136.2	1190.0
22.5°	1064.1	1051.0	1056.3	1089.1	1115.3	1172.9
25°	1036.6	1017.0	1027.5	1062.8	1093.0	1154.6
27.5°	999.9	969.8	992.1	1036.6	1066.8	1134.9
30°	951.4	912.1	944.9	1005.2	1039.2	1112.6
32.5°	897.7	855.8	892.5	969.8	1010.4	1086.4
35°	844.0	806.0	838.7	930.5	980.3	1057.6
37.5°	792.9	760.1	790.2	888.5	948.8	1027.5
40°	744.4	711.6	743.1	842.7	914.7	994.7
42.5°	695.9	665.7	695.9	794.2	879.4	958.0
45°	647.4	600.2	644.8	747.0	841.4	920.0
47.5°	595.0	539.9	591.0	695.9	800.7	879.4
50°	545.2	498.0	542.6	648.7	758.8	837.4
52.5°	501.9	463.9	499.3	600.2	715.5	791.6
55°	461.3	431.2	461.3	553.0	669.7	745.7
57.5°	424.6	405.0	425.9	512.4	622.5	698.5
60°	393.2	381.4	394.5	462.6	575.3	648.7
62.5°	363.0	361.7	364.3	423.3	525.5	596.3
65°	331.6	338.1	331.6	381.4	475.7	542.6
67.5°	300.1	313.2	302.7	339.4	422.0	486.2
70°	271.3	285.7	271.3	296.2	368.3	427.2
72.5°	238.5	256.9	238.5	255.6	311.9	366.9
75°	207.1	228.0	208.4	213.6	258.2	302.7
77.5°	173.0	192.6	176.9	173.0	208.4	242.4
80°	137.6	145.5	137.6	136.3	161.2	184.8
82.5°	95.7	102.2	95.7	99.6	117.9	133.7
85°	62.9	65.5	62.9	64.2	78.6	90.4
87.5°	26.2	26.2	26.2	32.8	35.4	38.0
90°	28.8	31.5	28.8	23.6	14.4	1.3
92.5°	30.1	32.8	30.1	26.2	17.0	2.6
95°	53.7	60.3	51.1	32.8	27.5	7.9
97.5°	43.2	47.2	44.6	38.0	34.1	15.7
100°	51.1	55.0	51.1	53.7	41.9	23.6
102.5°	60.3	62.9	61.6	62.9	51.1	32.8
105°	78.6	81.3	78.6	68.1	59.0	41.9
107.5°	83.9	90.4	85.2	76.0	66.8	52.4
110°	90.4	95.7	91.7	83.9	73.4	62.9



TEST NUMBER: P192449

CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	97.0	103.5	99.6	93.0	78.6	72.1
115°	104.8	110.1	107.5	99.6	86.5	81.3
117.5°	112.7	116.6	114.0	104.8	94.4	90.4
120°	119.3	124.5	121.9	111.4	100.9	99.6
122.5°	124.5	129.7	127.1	117.9	107.5	107.5
125°	129.7	135.0	132.4	123.2	112.7	116.6
127.5°	133.7	140.2	137.6	127.1	124.5	123.2
130°	138.9	142.8	141.5	131.1	131.1	131.1
132.5°	141.5	146.8	144.2	136.3	138.9	137.6
135°	142.8	149.4	146.8	142.8	145.5	142.8
137.5°	145.5	150.7	149.4	146.8	152.0	148.1
140°	149.4	152.0	153.3	149.4	157.3	153.3
142.5°	153.3	154.6	157.3	153.3	162.5	158.6
145°	156.0	158.6	161.2	161.2	166.4	161.2
147.5°	156.0	159.9	159.9	163.8	171.7	165.1
150°	159.9	157.3	165.1	169.1	174.3	169.1
152.5°	165.1	163.8	170.4	174.3	176.9	171.7
155°	166.4	167.7	171.7	178.2	179.5	174.3
157.5°	171.7	170.4	176.9	182.2	182.2	176.9
160°	175.6	175.6	182.2	184.8	183.5	178.2
162.5°	179.5	179.5	186.1	186.1	184.8	180.9
165°	182.2	182.2	188.7	187.4	184.8	182.2
167.5°	183.5	184.8	190.0	188.7	184.8	182.2
170°	184.8	184.8	190.0	187.4	184.8	183.5
172.5°	184.8	183.5	188.7	186.1	183.5	183.5
175°	183.5	180.9	186.1	183.5	183.5	184.8
177.5°	182.2	178.2	182.2	182.2	183.5	184.8
180°	182.2	182.2	182.2	182.2	182.2	182.2

(END OF REPORT)