

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: P192453

Luminaire Tested: **4WSL-LD2-45-UPL8-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192453
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-LD2-45-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

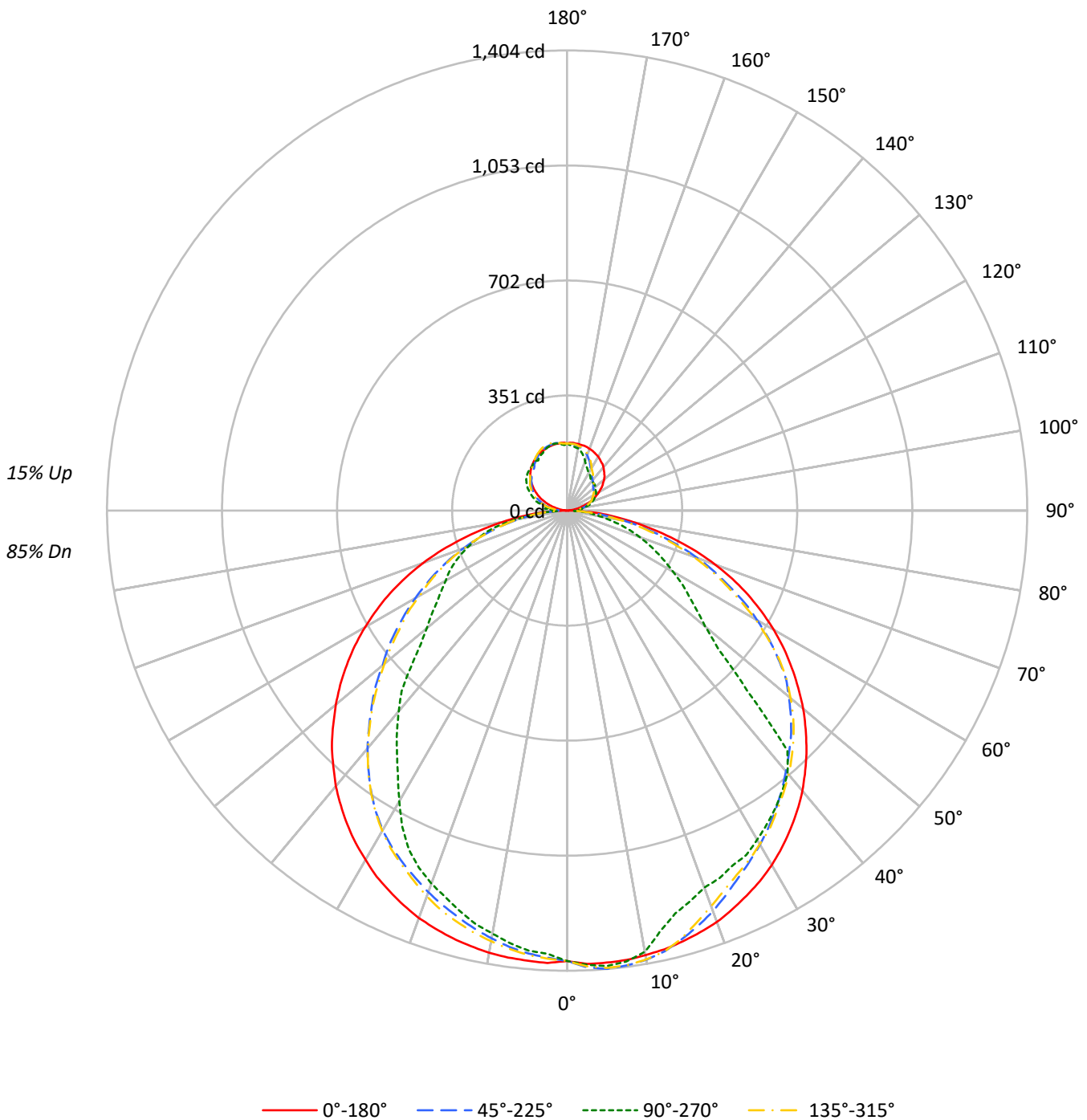
Lumens per Lamp: N/A
Luminaire Lumens: 4558.0 lumens
Efficiency: N/A
Efficacy: 114.2 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 39.9
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: P192453

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L830-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P192453

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L830-CD1-U

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7785	7785	7785	7785
5°	7873	7932	7840	7664
10°	7922	7863	7880	7541
15°	7982	7464	7921	7421
20°	8054	7380	7974	7300
25°	8102	7468	8010	7137
30°	8171	7584	8046	6699
35°	8211	7662	8090	6258
40°	8258	7736	8117	5908
45°	8275	6224	8134	5398
50°	8286	4837	8117	4928
55°	8269	4476	8109	4781
60°	8252	4217	8068	4851
65°	8165	4043	7988	5089
70°	7944	3899	7750	5312
75°	7440	3671	7215	5604
80°	6770	3360	6479	5328
85°	6598	3634	5928	4784



TEST NUMBER: P192453

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L830-CD1-U

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	2.9
10°-20°	371.0	8.1
20°-30°	561.6	12.3
30°-40°	678.1	14.9
40°-50°	692.3	15.2
50°-60°	605.3	13.3
60°-70°	469.1	10.3
70°-80°	282.1	6.2
80°-90°	87.1	1.9
90°-100°	36.7	0.8
100°-110°	70.2	1.5
110°-120°	95.3	2.1
120°-130°	108.4	2.4
130°-140°	110.0	2.4
140°-150°	101.2	2.2
150°-160°	83.5	1.8
160°-170°	56.1	1.2
170°-180°	19.5	0.4
0°-30°	1063.2	23.3
0°-40°	1741.2	38.2
0°-60°	3038.8	66.7
0°-90°	3877.0	85.1
90°-120°	202.3	4.4
90°-150°	521.8	11.4
90°-180°	681.0	14.9
0°-180°	4558.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1374	1374	1374	1374	1374	
5°	1384	1395	1379	1348	1384	132
15°	1361	1273	1351	1265	1361	385
25°	1296	1195	1282	1142	1296	598
35°	1187	1108	1170	905	1187	743
45°	1033	777	1015	674	1033	797
55°	837	453	821	484	837	748
65°	609	302	596	380	609	601
75°	340	168	330	256	340	361
85°	102	56	91	74	102	102
90°	2	31	2	35	2	7
95°	9	43	9	68	9	11
105°	47	72	46	91	47	50
115°	91	93	90	124	91	90
125°	131	106	128	152	131	116
135°	160	116	159	168	160	124
145°	181	124	180	178	181	114
155°	196	144	194	188	196	90
165°	204	180	203	204	204	58
175°	208	197	208	203	208	20
180°	204	204	204	204	204	



TEST NUMBER: P192453

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2
2.5°	1384.5	1377.1	1394.8	1397.7	1387.4	1390.4	1391.8	1375.6	1381.5	1359.5	1365.3
5°	1384.5	1383.0	1403.6	1400.7	1394.8	1396.2	1400.7	1381.5	1378.6	1352.1	1356.5
7.5°	1383.0	1385.9	1399.2	1396.2	1387.4	1391.8	1399.2	1384.5	1375.6	1344.7	1343.3
10°	1377.1	1381.5	1391.8	1383.0	1366.8	1374.2	1390.4	1381.5	1369.8	1333.0	1325.6
12.5°	1371.2	1374.2	1377.1	1340.3	1313.9	1331.5	1377.1	1374.2	1360.9	1319.7	1306.5
15°	1360.9	1365.3	1353.6	1300.6	1272.7	1290.3	1350.6	1362.4	1350.6	1300.6	1284.4
17.5°	1349.2	1353.6	1328.6	1269.7	1249.1	1257.9	1316.8	1347.7	1337.4	1283.0	1262.4
20°	1335.9	1340.3	1300.6	1237.3	1224.1	1231.5	1284.4	1331.5	1322.7	1262.4	1238.8
22.5°	1316.8	1324.2	1268.2	1215.3	1213.8	1213.8	1253.5	1312.4	1303.6	1237.3	1212.3
25°	1296.2	1303.6	1235.9	1194.7	1194.7	1194.7	1225.6	1287.4	1281.5	1210.9	1185.9
27.5°	1274.1	1281.5	1206.4	1180.0	1184.4	1177.0	1202.0	1259.4	1259.4	1184.4	1157.9
30°	1249.1	1256.5	1177.0	1156.4	1159.4	1156.4	1175.6	1230.0	1230.0	1153.5	1125.5
32.5°	1219.7	1227.0	1144.7	1128.5	1134.4	1131.4	1150.5	1200.6	1202.0	1121.1	1087.3
35°	1187.3	1196.2	1110.8	1102.0	1107.9	1103.5	1116.7	1169.7	1169.7	1085.8	1043.1
37.5°	1153.5	1162.3	1075.5	1072.6	1078.4	1074.0	1084.3	1137.3	1134.4	1049.0	996.1
40°	1116.7	1127.0	1038.7	1038.7	1046.1	1043.1	1052.0	1103.5	1097.6	1012.2	947.5
42.5°	1075.5	1088.7	1001.9	1003.4	994.6	1006.4	1015.2	1068.1	1056.4	971.0	894.5
45°	1032.8	1049.0	966.6	940.1	776.8	929.8	976.9	1032.8	1015.2	929.8	843.0
47.5°	987.2	1007.8	925.4	828.3	625.3	815.1	935.7	988.7	968.1	885.7	793.0
50°	940.1	963.7	882.8	732.7	548.8	718.0	890.1	944.6	921.0	840.1	735.6
52.5°	888.7	915.1	841.6	648.8	497.3	635.6	843.0	901.9	872.5	791.5	688.6
55°	837.2	865.1	785.7	576.7	453.2	565.0	788.6	847.5	821.0	741.5	637.1
57.5°	784.2	812.1	729.8	513.5	414.9	501.7	726.8	797.4	768.0	690.0	585.6
60°	728.3	756.2	669.4	456.1	372.2	447.3	663.5	741.5	712.1	637.1	535.5
62.5°	669.4	697.4	612.1	403.1	336.9	395.8	594.4	687.1	654.7	581.2	484.1
65°	609.1	629.7	544.4	353.1	301.6	347.2	532.6	619.4	595.9	522.3	435.5
67.5°	545.8	566.4	485.5	309.0	267.8	303.1	472.3	559.1	532.6	464.9	386.9
70°	479.6	497.3	423.7	266.3	235.4	261.9	409.0	491.4	467.9	404.6	335.5
72.5°	412.0	428.1	357.5	226.6	201.6	223.6	342.8	423.7	400.2	341.3	288.4
75°	339.9	356.0	295.7	186.9	167.7	183.9	282.5	351.6	329.6	281.0	239.8
77.5°	272.2	291.3	233.9	147.1	133.9	144.2	222.2	284.0	261.9	225.1	192.7
80°	207.5	223.6	173.6	111.8	103.0	110.3	161.8	216.3	198.6	173.6	150.1
82.5°	150.1	158.9	119.2	82.4	78.0	80.9	110.3	153.0	144.2	125.1	110.3
85°	101.5	100.0	73.6	57.4	55.9	57.4	66.2	92.7	91.2	83.9	70.6
87.5°	42.7	39.7	33.8	23.5	20.6	22.1	26.5	35.3	33.8	35.3	33.8
90°	1.5	14.7	23.5	29.4	30.9	29.4	23.5	14.7	1.5	16.2	26.5
92.5°	2.9	19.1	28.0	32.4	35.3	32.4	26.5	19.1	2.9	25.0	26.5
95°	8.8	26.5	32.4	39.7	42.7	39.7	32.4	25.0	8.8	22.1	39.7
97.5°	17.7	33.8	38.3	44.1	45.6	42.7	36.8	33.8	16.2	39.7	41.2
100°	26.5	42.7	50.0	50.0	51.5	50.0	48.6	41.2	25.0	44.1	50.0
102.5°	36.8	48.6	57.4	61.8	61.8	61.8	57.4	48.6	33.8	54.4	69.2
105°	47.1	53.0	63.3	69.2	72.1	69.2	63.3	54.4	45.6	63.3	73.6
107.5°	58.9	57.4	69.2	75.0	78.0	75.0	69.2	58.9	55.9	70.6	82.4
110°	70.6	63.3	75.0	80.9	82.4	80.9	75.0	63.3	67.7	79.4	91.2



TEST NUMBER: P192453

CATALOG NUMBER: 4WSL-LD2-45-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°	80.9	67.7	80.9	86.8	88.3	86.8	80.9	69.2	78.0	85.3	100.0
115°	91.2	72.1	83.9	91.2	92.7	91.2	83.9	73.6	89.7	92.7	107.4
117.5°	101.5	78.0	86.8	95.6	97.1	95.6	88.3	79.4	100.0	101.5	114.8
120°	111.8	85.3	91.2	98.6	101.5	100.0	91.2	86.8	108.9	108.9	120.6
122.5°	120.6	91.2	95.6	101.5	104.5	101.5	95.6	94.2	119.2	116.2	128.0
125°	130.9	97.1	98.6	104.5	105.9	104.5	100.0	98.6	128.0	122.1	132.4
127.5°	138.3	104.5	101.5	107.4	108.9	107.4	103.0	105.9	136.8	133.9	136.8
130°	147.1	111.8	104.5	110.3	111.8	111.8	104.5	114.8	144.2	142.7	142.7
132.5°	154.5	119.2	107.4	113.3	114.8	114.8	108.9	120.6	151.5	150.1	147.1
135°	160.4	129.5	113.3	113.3	116.2	116.2	114.8	130.9	158.9	157.4	154.5
137.5°	166.3	138.3	117.7	114.8	116.2	116.2	120.6	139.8	164.8	164.8	158.9
140°	172.1	147.1	120.6	117.7	117.7	120.6	125.1	148.6	170.7	170.7	160.4
142.5°	178.0	154.5	125.1	122.1	119.2	125.1	129.5	157.4	175.1	176.6	164.8
145°	181.0	161.8	130.9	126.5	123.6	130.9	136.8	164.8	179.5	182.4	173.6
147.5°	185.4	169.2	138.3	129.5	129.5	133.9	142.7	170.7	183.9	186.9	178.0
150°	189.8	175.1	144.2	133.9	130.9	138.3	148.6	176.6	188.3	191.3	183.9
152.5°	192.7	181.0	153.0	139.8	136.8	145.7	158.9	181.0	191.3	194.2	189.8
155°	195.7	185.4	163.3	145.7	144.2	151.5	167.7	185.4	194.2	197.2	194.2
157.5°	198.6	189.8	170.7	154.5	148.6	160.4	175.1	191.3	197.2	200.1	198.6
160°	200.1	192.7	179.5	163.3	160.4	170.7	182.4	192.7	198.6	203.0	201.6
162.5°	203.0	195.7	185.4	173.6	170.7	179.5	188.3	197.2	201.6	204.5	204.5
165°	204.5	198.6	191.3	182.4	179.5	188.3	192.7	200.1	203.0	204.5	206.0
167.5°	204.5	201.6	195.7	188.3	186.9	194.2	198.6	203.0	204.5	204.5	207.5
170°	206.0	203.0	198.6	194.2	192.7	198.6	200.1	204.5	206.0	204.5	208.9
172.5°	206.0	204.5	201.6	197.2	194.2	201.6	203.0	204.5	206.0	204.5	207.5
175°	207.5	204.5	204.5	201.6	197.2	204.5	204.5	204.5	207.5	204.5	206.0
177.5°	207.5	204.5	204.5	203.0	200.1	204.5	204.5	204.5	207.5	204.5	206.0
180°	204.5	204.5	204.5	204.5	204.5	204.5	204.5	204.5	204.5	204.5	204.5



TEST NUMBER: P192453

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1374.2	1374.2	1374.2	1374.2	1374.2	1374.2
2.5°	1363.9	1353.6	1356.5	1368.3	1363.9	1384.5
5°	1353.6	1347.7	1347.7	1360.9	1359.5	1384.5
7.5°	1337.4	1331.5	1334.5	1349.2	1352.1	1383.0
10°	1318.3	1310.9	1313.9	1334.5	1341.8	1377.1
12.5°	1297.7	1291.8	1294.7	1318.3	1328.6	1371.2
15°	1274.1	1265.3	1274.1	1299.1	1312.4	1360.9
17.5°	1247.6	1235.9	1246.2	1278.5	1294.7	1349.2
20°	1221.2	1210.9	1216.7	1252.1	1275.6	1335.9
22.5°	1194.7	1180.0	1185.9	1222.6	1252.1	1316.8
25°	1163.8	1141.7	1153.5	1193.2	1227.0	1296.2
27.5°	1122.6	1088.7	1113.8	1163.8	1197.6	1274.1
30°	1068.1	1024.0	1060.8	1128.5	1166.7	1249.1
32.5°	1007.8	960.7	1001.9	1088.7	1134.4	1219.7
35°	947.5	904.8	941.6	1044.6	1100.5	1187.3
37.5°	890.1	853.3	887.2	997.5	1065.2	1153.5
40°	835.7	798.9	834.2	946.0	1027.0	1116.7
42.5°	781.2	747.4	781.2	891.6	987.2	1075.5
45°	726.8	673.8	723.9	838.6	944.6	1032.8
47.5°	668.0	606.2	663.5	781.2	899.0	987.2
50°	612.1	559.1	609.1	728.3	851.9	940.1
52.5°	563.5	520.8	560.6	673.8	803.3	888.7
55°	517.9	484.1	517.9	620.9	751.8	837.2
57.5°	476.7	454.6	478.2	575.3	698.9	784.2
60°	441.4	428.1	442.9	519.4	645.9	728.3
62.5°	407.5	406.1	409.0	475.2	590.0	669.4
65°	372.2	379.6	372.2	428.1	534.1	609.1
67.5°	336.9	351.6	339.9	381.1	473.8	545.8
70°	304.6	320.7	304.6	332.5	413.4	479.6
72.5°	267.8	288.4	267.8	286.9	350.2	412.0
75°	232.5	256.0	233.9	239.8	289.8	339.9
77.5°	194.2	216.3	198.6	194.2	233.9	272.2
80°	154.5	163.3	154.5	153.0	181.0	207.5
82.5°	107.4	114.8	107.4	111.8	132.4	150.1
85°	70.6	73.6	70.6	72.1	88.3	101.5
87.5°	29.4	29.4	29.4	36.8	39.7	42.7
90°	32.4	35.3	32.4	26.5	16.2	1.5
92.5°	33.8	36.8	33.8	29.4	19.1	2.9
95°	60.3	67.7	57.4	36.8	30.9	8.8
97.5°	48.6	53.0	50.0	42.7	38.3	17.7
100°	57.4	61.8	57.4	60.3	47.1	26.5
102.5°	67.7	70.6	69.2	70.6	57.4	36.8
105°	88.3	91.2	88.3	76.5	66.2	47.1
107.5°	94.2	101.5	95.6	85.3	75.0	58.9
110°	101.5	107.4	103.0	94.2	82.4	70.6



TEST NUMBER: P192453

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	108.9	116.2	111.8	104.5	88.3	80.9
115°	117.7	123.6	120.6	111.8	97.1	91.2
117.5°	126.5	130.9	128.0	117.7	105.9	101.5
120°	133.9	139.8	136.8	125.1	113.3	111.8
122.5°	139.8	145.7	142.7	132.4	120.6	120.6
125°	145.7	151.5	148.6	138.3	126.5	130.9
127.5°	150.1	157.4	154.5	142.7	139.8	138.3
130°	156.0	160.4	158.9	147.1	147.1	147.1
132.5°	158.9	164.8	161.8	153.0	156.0	154.5
135°	160.4	167.7	164.8	160.4	163.3	160.4
137.5°	163.3	169.2	167.7	164.8	170.7	166.3
140°	167.7	170.7	172.1	167.7	176.6	172.1
142.5°	172.1	173.6	176.6	172.1	182.4	178.0
145°	175.1	178.0	181.0	181.0	186.9	181.0
147.5°	175.1	179.5	179.5	183.9	192.7	185.4
150°	179.5	176.6	185.4	189.8	195.7	189.8
152.5°	185.4	183.9	191.3	195.7	198.6	192.7
155°	186.9	188.3	192.7	200.1	201.6	195.7
157.5°	192.7	191.3	198.6	204.5	204.5	198.6
160°	197.2	197.2	204.5	207.5	206.0	200.1
162.5°	201.6	201.6	208.9	208.9	207.5	203.0
165°	204.5	204.5	211.9	210.4	207.5	204.5
167.5°	206.0	207.5	213.3	211.9	207.5	204.5
170°	207.5	207.5	213.3	210.4	207.5	206.0
172.5°	207.5	206.0	211.9	208.9	206.0	206.0
175°	206.0	203.0	208.9	206.0	206.0	207.5
177.5°	204.5	200.1	204.5	204.5	206.0	207.5
180°	204.5	204.5	204.5	204.5	204.5	204.5

(END OF REPORT)