

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: P192473

Luminaire Tested: **4WSL-LD2-70-UPL8-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192473
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-LD2-70-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
OT85W1202772A0DIML

Summary

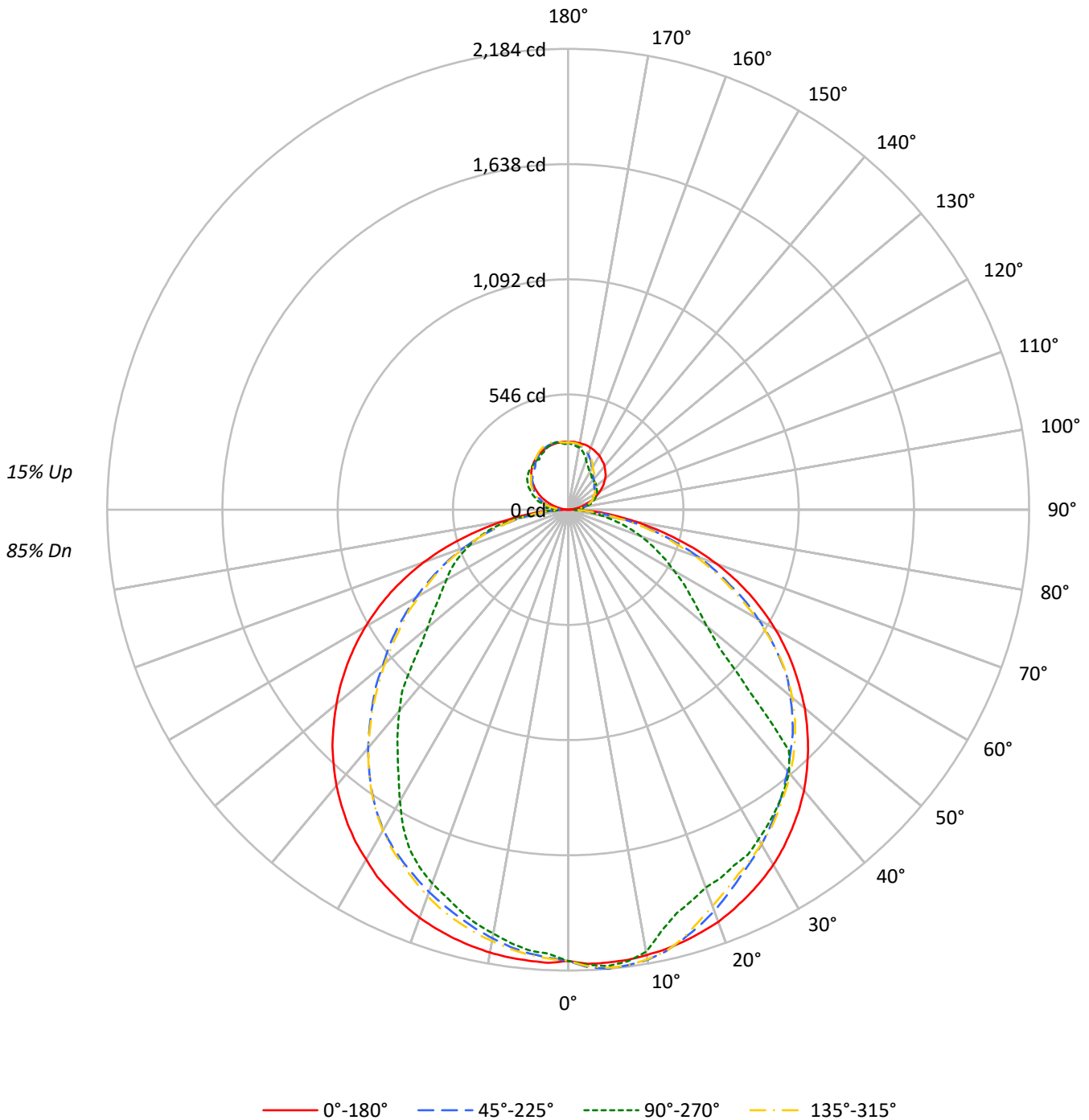
Lumens per Lamp: N/A
Luminaire Lumens: 7093.0 lumens
Efficiency: N/A
Efficacy: 103.2 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 68.7
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: P192473

CATALOG NUMBER: 4WSL-LD2-70-UPL8-UNV-L830-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P192473

CATALOG NUMBER: 4WSL-LD2-70-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	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°	12115	12115	12115	12115
5°	12252	12343	12200	11926
10°	12328	12236	12262	11735
15°	12421	11616	12327	11548
20°	12533	11484	12409	11360
25°	12609	11621	12465	11106
30°	12716	11802	12521	10424
35°	12779	11923	12588	9738
40°	12852	12039	12631	9194
45°	12877	9685	12657	8401
50°	12894	7527	12632	7668
55°	12868	6965	12619	7440
60°	12841	6564	12555	7549
65°	12707	6292	12431	7918
70°	12363	6067	12060	8267
75°	11577	5713	11227	8720
80°	10531	5230	10084	8290
85°	10270	5655	9230	7443



TEST NUMBER: P192473

CATALOG NUMBER: 4WSL-LD2-70-UPL8-UNV-L830-CD1-U

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.3	2.9
10°-20°	577.3	8.1
20°-30°	873.9	12.3
30°-40°	1055.2	14.9
40°-50°	1077.3	15.2
50°-60°	941.9	13.3
60°-70°	730.0	10.3
70°-80°	438.9	6.2
80°-90°	135.5	1.9
90°-100°	57.1	0.8
100°-110°	109.2	1.5
110°-120°	148.4	2.1
120°-130°	168.7	2.4
130°-140°	171.1	2.4
140°-150°	157.5	2.2
150°-160°	129.9	1.8
160°-170°	87.4	1.2
170°-180°	30.4	0.4
0°-30°	1654.4	23.3
0°-40°	2709.7	38.2
0°-60°	4728.9	66.7
0°-90°	6033.3	85.1
90°-120°	314.7	4.4
90°-150°	812.0	11.4
90°-180°	1060.0	14.9
0°-180°	7093.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2138	2138	2138	2138	2138	
5°	2154	2170	2145	2097	2154	205
15°	2118	1980	2102	1969	2118	599
25°	2017	1859	1994	1777	2017	931
35°	1848	1724	1820	1408	1848	1157
45°	1607	1209	1580	1049	1607	1240
55°	1303	705	1278	753	1303	1164
65°	948	469	927	591	948	935
75°	529	261	513	398	529	561
85°	158	87	142	114	158	159
90°	2	48	2	55	2	10
95°	14	66	14	105	14	17
105°	73	112	71	142	73	78
115°	142	144	140	192	142	141
125°	204	165	199	236	204	181
135°	250	181	247	261	250	193
145°	282	192	279	277	282	177
155°	304	224	302	293	304	141
165°	318	279	316	318	318	90
175°	323	307	323	316	323	31
180°	318	318	318	318	318	



TEST NUMBER: P192473

CATALOG NUMBER: 4WSL-LD2-70-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°	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4
2.5°	2154.5	2143.0	2170.5	2175.1	2159.0	2163.6	2165.9	2140.7	2149.9	2115.5	2124.7
5°	2154.5	2152.2	2184.2	2179.7	2170.5	2172.8	2179.7	2149.9	2145.3	2104.1	2111.0
7.5°	2152.2	2156.8	2177.4	2172.8	2159.0	2165.9	2177.4	2154.5	2140.7	2092.7	2090.4
10°	2143.0	2149.9	2165.9	2152.2	2127.0	2138.4	2163.6	2149.9	2131.6	2074.3	2062.9
12.5°	2133.9	2138.4	2143.0	2085.8	2044.6	2072.0	2143.0	2138.4	2117.8	2053.7	2033.1
15°	2117.8	2124.7	2106.4	2024.0	1980.5	2007.9	2101.8	2120.1	2101.8	2024.0	1998.8
17.5°	2099.5	2106.4	2067.5	1975.9	1943.8	1957.6	2049.2	2097.2	2081.2	1996.5	1964.4
20°	2078.9	2085.8	2024.0	1925.5	1904.9	1916.4	1998.8	2072.0	2058.3	1964.4	1927.8
22.5°	2049.2	2060.6	1973.6	1891.2	1888.9	1888.9	1950.7	2042.3	2028.5	1925.5	1886.6
25°	2017.1	2028.5	1923.2	1859.1	1859.1	1859.1	1907.2	2003.4	1994.2	1884.3	1845.4
27.5°	1982.8	1994.2	1877.4	1836.2	1843.1	1831.6	1870.6	1959.9	1959.9	1843.1	1801.9
30°	1943.8	1955.3	1831.6	1799.6	1804.2	1799.6	1829.4	1914.1	1914.1	1795.0	1751.5
32.5°	1898.0	1909.5	1781.3	1756.1	1765.2	1760.7	1790.4	1868.3	1870.6	1744.6	1692.0
35°	1847.7	1861.4	1728.6	1714.9	1724.0	1717.2	1737.8	1820.2	1820.2	1689.7	1623.3
37.5°	1795.0	1808.7	1673.7	1669.1	1678.2	1671.4	1687.4	1769.8	1765.2	1632.5	1550.0
40°	1737.8	1753.8	1616.4	1616.4	1627.9	1623.3	1637.0	1717.2	1708.0	1575.2	1474.5
42.5°	1673.7	1694.3	1559.2	1561.5	1547.7	1566.1	1579.8	1662.2	1643.9	1511.1	1392.0
45°	1607.3	1632.5	1504.2	1463.0	1208.9	1447.0	1520.3	1607.3	1579.8	1447.0	1311.9
47.5°	1536.3	1568.3	1440.1	1289.0	973.1	1268.4	1456.2	1538.6	1506.5	1378.3	1234.1
50°	1463.0	1499.7	1373.7	1140.2	854.0	1117.3	1385.2	1469.9	1433.3	1307.3	1144.8
52.5°	1382.9	1424.1	1309.6	1009.7	773.9	989.1	1311.9	1403.5	1357.7	1231.8	1071.5
55°	1302.8	1346.3	1222.6	897.5	705.2	879.2	1227.2	1318.8	1277.6	1153.9	991.4
57.5°	1220.3	1263.8	1135.6	799.1	645.7	780.7	1131.0	1240.9	1195.1	1073.8	911.2
60°	1133.3	1176.8	1041.7	709.8	579.3	696.0	1032.6	1153.9	1108.1	991.4	833.4
62.5°	1041.7	1085.2	952.5	627.3	524.3	615.9	925.0	1069.2	1018.9	904.4	753.3
65°	947.9	979.9	847.1	549.5	469.4	540.3	828.8	963.9	927.3	812.8	677.7
67.5°	849.4	881.5	755.6	480.8	416.7	471.6	734.9	870.0	828.8	723.5	602.2
70°	746.4	773.9	659.4	414.4	366.3	407.5	636.5	764.7	728.1	629.6	522.0
72.5°	641.1	666.3	556.4	352.6	313.7	348.0	533.5	659.4	622.8	531.2	448.8
75°	528.9	554.1	460.2	290.8	261.0	286.2	439.6	547.2	512.9	437.3	373.2
77.5°	423.6	453.3	364.0	229.0	208.3	224.4	345.7	441.9	407.5	350.3	299.9
80°	322.8	348.0	270.2	174.0	160.3	171.7	251.9	336.6	309.1	270.2	233.5
82.5°	233.5	247.3	185.5	128.2	121.3	125.9	171.7	238.1	224.4	194.6	171.7
85°	158.0	155.7	114.5	89.3	87.0	89.3	103.0	144.2	142.0	130.5	109.9
87.5°	66.4	61.8	52.7	36.6	32.1	34.3	41.2	54.9	52.7	54.9	52.7
90°	2.3	22.9	36.6	45.8	48.1	45.8	36.6	22.9	2.3	25.2	41.2
92.5°	4.6	29.8	43.5	50.4	54.9	50.4	41.2	29.8	4.6	38.9	41.2
95°	13.7	41.2	50.4	61.8	66.4	61.8	50.4	38.9	13.7	34.3	61.8
97.5°	27.5	52.7	59.5	68.7	71.0	66.4	57.2	52.7	25.2	61.8	64.1
100°	41.2	66.4	77.8	77.8	80.1	77.8	75.6	64.1	38.9	68.7	77.8
102.5°	57.2	75.6	89.3	96.2	96.2	96.2	89.3	75.6	52.7	84.7	107.6
105°	73.3	82.4	98.5	107.6	112.2	107.6	98.5	84.7	71.0	98.5	114.5
107.5°	91.6	89.3	107.6	116.8	121.3	116.8	107.6	91.6	87.0	109.9	128.2
110°	109.9	98.5	116.8	125.9	128.2	125.9	116.8	98.5	105.3	123.6	142.0



TEST NUMBER: P192473

CATALOG NUMBER: 4WSL-LD2-70-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°	125.9	105.3	125.9	135.1	137.4	135.1	125.9	107.6	121.3	132.8	155.7
115°	142.0	112.2	130.5	142.0	144.2	142.0	130.5	114.5	139.7	144.2	167.1
117.5°	158.0	121.3	135.1	148.8	151.1	148.8	137.4	123.6	155.7	158.0	178.6
120°	174.0	132.8	142.0	153.4	158.0	155.7	142.0	135.1	169.4	169.4	187.7
122.5°	187.7	142.0	148.8	158.0	162.6	158.0	148.8	146.5	185.5	180.9	199.2
125°	203.8	151.1	153.4	162.6	164.8	162.6	155.7	153.4	199.2	190.0	206.1
127.5°	215.2	162.6	158.0	167.1	169.4	167.1	160.3	164.8	212.9	208.3	212.9
130°	229.0	174.0	162.6	171.7	174.0	174.0	162.6	178.6	224.4	222.1	222.1
132.5°	240.4	185.5	167.1	176.3	178.6	178.6	169.4	187.7	235.8	233.5	229.0
135°	249.6	201.5	176.3	176.3	180.9	180.9	178.6	203.8	247.3	245.0	240.4
137.5°	258.7	215.2	183.2	178.6	180.9	180.9	187.7	217.5	256.4	256.4	247.3
140°	267.9	229.0	187.7	183.2	183.2	187.7	194.6	231.2	265.6	265.6	249.6
142.5°	277.0	240.4	194.6	190.0	185.5	194.6	201.5	245.0	272.5	274.7	256.4
145°	281.6	251.9	203.8	196.9	192.3	203.8	212.9	256.4	279.3	283.9	270.2
147.5°	288.5	263.3	215.2	201.5	201.5	208.3	222.1	265.6	286.2	290.8	277.0
150°	295.4	272.5	224.4	208.3	203.8	215.2	231.2	274.7	293.1	297.6	286.2
152.5°	299.9	281.6	238.1	217.5	212.9	226.7	247.3	281.6	297.6	302.2	295.4
155°	304.5	288.5	254.1	226.7	224.4	235.8	261.0	288.5	302.2	306.8	302.2
157.5°	309.1	295.4	265.6	240.4	231.2	249.6	272.5	297.6	306.8	311.4	309.1
160°	311.4	299.9	279.3	254.1	249.6	265.6	283.9	299.9	309.1	316.0	313.7
162.5°	316.0	304.5	288.5	270.2	265.6	279.3	293.1	306.8	313.7	318.2	318.2
165°	318.2	309.1	297.6	283.9	279.3	293.1	299.9	311.4	316.0	318.2	320.5
167.5°	318.2	313.7	304.5	293.1	290.8	302.2	309.1	316.0	318.2	318.2	322.8
170°	320.5	316.0	309.1	302.2	299.9	309.1	311.4	318.2	320.5	318.2	325.1
172.5°	320.5	318.2	313.7	306.8	302.2	313.7	316.0	318.2	320.5	318.2	322.8
175°	322.8	318.2	318.2	313.7	306.8	318.2	318.2	318.2	322.8	318.2	320.5
177.5°	322.8	318.2	318.2	316.0	311.4	318.2	318.2	318.2	322.8	318.2	320.5
180°	318.2	318.2	318.2	318.2	318.2	318.2	318.2	318.2	318.2	318.2	318.2



TEST NUMBER: P192473

CATALOG NUMBER: 4WSL-LD2-70-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2138.4	2138.4	2138.4	2138.4	2138.4	2138.4
2.5°	2122.4	2106.4	2111.0	2129.3	2122.4	2154.5
5°	2106.4	2097.2	2097.2	2117.8	2115.5	2154.5
7.5°	2081.2	2072.0	2076.6	2099.5	2104.1	2152.2
10°	2051.4	2040.0	2044.6	2076.6	2088.1	2143.0
12.5°	2019.4	2010.2	2014.8	2051.4	2067.5	2133.9
15°	1982.8	1969.0	1982.8	2021.7	2042.3	2117.8
17.5°	1941.5	1923.2	1939.3	1989.6	2014.8	2099.5
20°	1900.3	1884.3	1893.5	1948.4	1985.0	2078.9
22.5°	1859.1	1836.2	1845.4	1902.6	1948.4	2049.2
25°	1811.0	1776.7	1795.0	1856.8	1909.5	2017.1
27.5°	1746.9	1694.3	1733.2	1811.0	1863.7	1982.8
30°	1662.2	1593.5	1650.8	1756.1	1815.6	1943.8
32.5°	1568.3	1495.1	1559.2	1694.3	1765.2	1898.0
35°	1474.5	1408.1	1465.3	1625.6	1712.6	1847.7
37.5°	1385.2	1327.9	1380.6	1552.3	1657.6	1795.0
40°	1300.5	1243.2	1298.2	1472.2	1598.1	1737.8
42.5°	1215.8	1163.1	1215.8	1387.5	1536.3	1673.7
45°	1131.0	1048.6	1126.5	1305.0	1469.9	1607.3
47.5°	1039.5	943.3	1032.6	1215.8	1398.9	1536.3
50°	952.5	870.0	947.9	1133.3	1325.7	1463.0
52.5°	876.9	810.5	872.3	1048.6	1250.1	1382.9
55°	805.9	753.3	805.9	966.2	1170.0	1302.8
57.5°	741.8	707.5	744.1	895.2	1087.5	1220.3
60°	686.9	666.3	689.2	808.2	1005.1	1133.3
62.5°	634.2	631.9	636.5	739.5	918.1	1041.7
65°	579.3	590.7	579.3	666.3	831.1	947.9
67.5°	524.3	547.2	528.9	593.0	737.2	849.4
70°	473.9	499.1	473.9	517.4	643.4	746.4
72.5°	416.7	448.8	416.7	446.5	544.9	641.1
75°	361.7	398.4	364.0	373.2	451.0	528.9
77.5°	302.2	336.6	309.1	302.2	364.0	423.6
80°	240.4	254.1	240.4	238.1	281.6	322.8
82.5°	167.1	178.6	167.1	174.0	206.1	233.5
85°	109.9	114.5	109.9	112.2	137.4	158.0
87.5°	45.8	45.8	45.8	57.2	61.8	66.4
90°	50.4	54.9	50.4	41.2	25.2	2.3
92.5°	52.7	57.2	52.7	45.8	29.8	4.6
95°	93.9	105.3	89.3	57.2	48.1	13.7
97.5°	75.6	82.4	77.8	66.4	59.5	27.5
100°	89.3	96.2	89.3	93.9	73.3	41.2
102.5°	105.3	109.9	107.6	109.9	89.3	57.2
105°	137.4	142.0	137.4	119.1	103.0	73.3
107.5°	146.5	158.0	148.8	132.8	116.8	91.6
110°	158.0	167.1	160.3	146.5	128.2	109.9



TEST NUMBER: P192473

CATALOG NUMBER: 4WSL-LD2-70-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	169.4	180.9	174.0	162.6	137.4	125.9
115°	183.2	192.3	187.7	174.0	151.1	142.0
117.5°	196.9	203.8	199.2	183.2	164.8	158.0
120°	208.3	217.5	212.9	194.6	176.3	174.0
122.5°	217.5	226.7	222.1	206.1	187.7	187.7
125°	226.7	235.8	231.2	215.2	196.9	203.8
127.5°	233.5	245.0	240.4	222.1	217.5	215.2
130°	242.7	249.6	247.3	229.0	229.0	229.0
132.5°	247.3	256.4	251.9	238.1	242.7	240.4
135°	249.6	261.0	256.4	249.6	254.1	249.6
137.5°	254.1	263.3	261.0	256.4	265.6	258.7
140°	261.0	265.6	267.9	261.0	274.7	267.9
142.5°	267.9	270.2	274.7	267.9	283.9	277.0
145°	272.5	277.0	281.6	281.6	290.8	281.6
147.5°	272.5	279.3	279.3	286.2	299.9	288.5
150°	279.3	274.7	288.5	295.4	304.5	295.4
152.5°	288.5	286.2	297.6	304.5	309.1	299.9
155°	290.8	293.1	299.9	311.4	313.7	304.5
157.5°	299.9	297.6	309.1	318.2	318.2	309.1
160°	306.8	306.8	318.2	322.8	320.5	311.4
162.5°	313.7	313.7	325.1	325.1	322.8	316.0
165°	318.2	318.2	329.7	327.4	322.8	318.2
167.5°	320.5	322.8	332.0	329.7	322.8	318.2
170°	322.8	322.8	332.0	327.4	322.8	320.5
172.5°	322.8	320.5	329.7	325.1	320.5	320.5
175°	320.5	316.0	325.1	320.5	320.5	322.8
177.5°	318.2	311.4	318.2	318.2	320.5	322.8
180°	318.2	318.2	318.2	318.2	318.2	318.2

(END OF REPORT)