

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: NEO-RAY

Report Number: P331491-840

Luminaire Tested: **S122DIW-S290D1440U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331491-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-2,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DIW-S290D1440U840-4F0-1E-UDD-D  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1440 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7029.4 lumens  
Efficiency: N/A  
Efficacy: 131.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

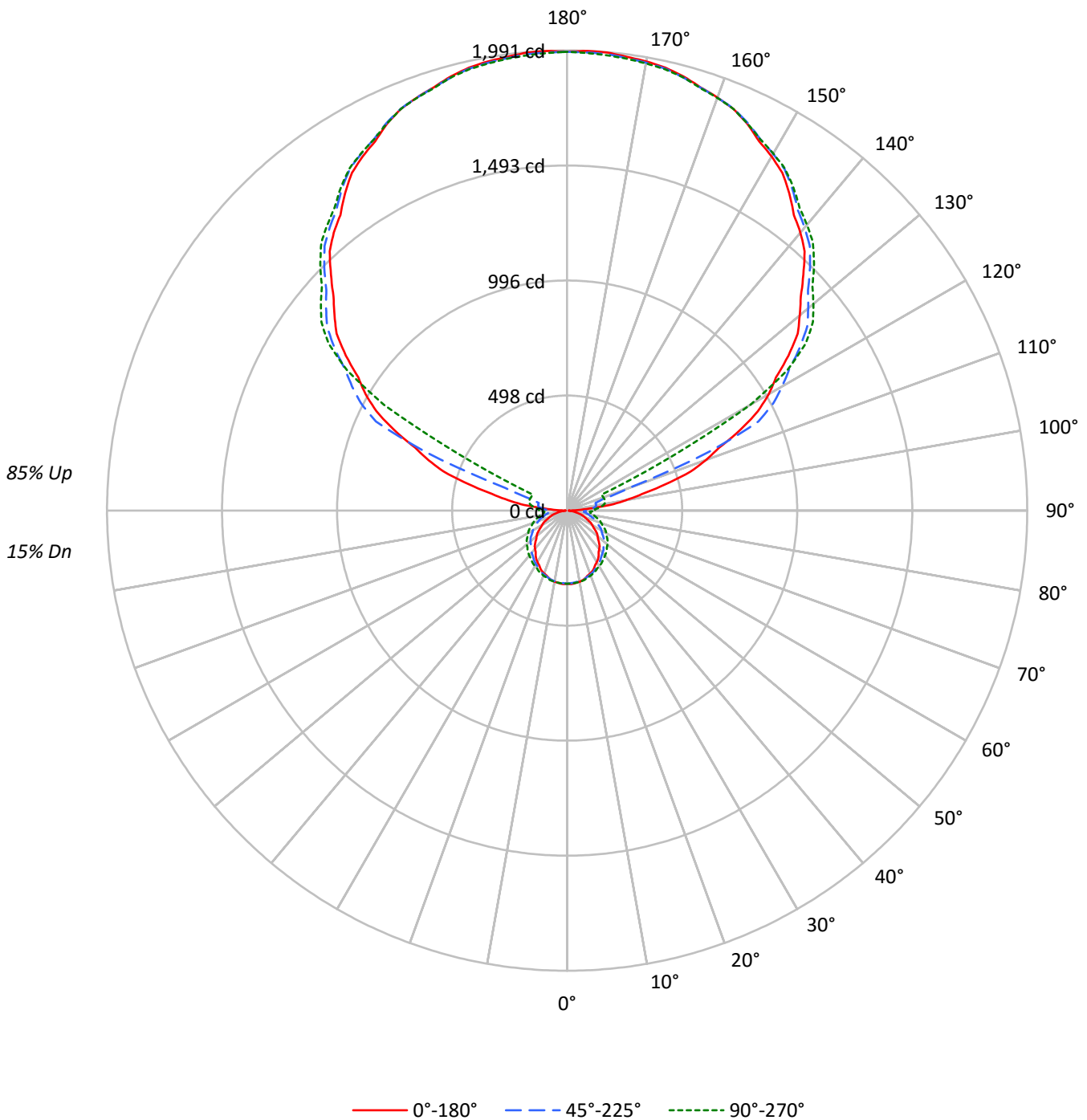
Input Watts (W): 53.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	99	99	99	99	87	87	87	87	64	64	64	43	43	43	24	24	24	15
1	90	85	81	78	78	75	72	69	55	53	51	37	36	35	21	20	19	12
2	81	74	68	63	71	65	60	56	48	45	42	32	30	29	18	17	16	10
3	74	65	58	52	64	57	51	46	42	38	35	28	26	24	16	14	13	8
4	67	57	50	44	59	50	44	39	37	33	30	25	22	20	14	13	11	7
5	62	51	43	37	54	45	38	33	33	29	25	22	20	17	12	11	10	6
6	57	45	37	32	49	40	33	28	30	25	22	20	17	15	11	10	8	5
7	52	40	33	28	45	36	29	25	27	22	19	18	15	13	10	9	7	4
8	48	36	29	24	42	32	26	22	24	20	16	16	14	11	9	8	7	4
9	45	33	26	21	39	29	23	19	22	18	15	15	12	10	8	7	6	3
10	42	30	23	19	36	27	21	17	20	16	13	14	11	9	8	6	5	3

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	5112	5112	5112
5°	5137	4921	4901
10°	5105	4774	4722
15°	5033	4621	4531
20°	4944	4456	4348
25°	4857	4297	4181
30°	4733	4133	4015
35°	4608	3975	3898
40°	4476	3840	3780
45°	4351	3721	3681
50°	4218	3612	3581
55°	4076	3496	3482
60°	3902	3373	3374
65°	3723	3232	3247
70°	3523	3079	3110
75°	3270	2929	2984
80°	2861	2776	2858
85°	2484	2642	2759



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	30.0	0.4
10°-20°	86.0	1.2
20°-30°	130.3	1.9
30°-40°	158.8	2.3
40°-50°	170.8	2.4
50°-60°	165.9	2.4
60°-70°	144.8	2.1
70°-80°	111.5	1.6
80°-90°	79.7	1.1
90°-100°	117.8	1.7
100°-110°	280.4	4.0
110°-120°	673.9	9.6
120°-130°	1085.3	15.4
130°-140°	1145.2	16.3
140°-150°	1060.0	15.1
150°-160°	851.5	12.1
160°-170°	548.7	7.8
170°-180°	188.9	2.7
0°-30°	246.3	3.5
0°-40°	405.1	5.8
0°-60°	741.7	10.6
0°-90°	1077.8	15.3
90°-120°	1072.1	15.3
90°-150°	4362.6	62.1
90°-180°	5952.0	84.7
0°-180°	7029.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	317	317	317	317	317	
5°	318	316	313	316	316	30
15°	303	304	304	308	307	85
25°	275	278	283	288	289	127
35°	237	245	254	263	267	148
45°	194	207	223	237	242	150
55°	149	166	190	205	212	133
65°	102	125	151	170	176	101
75°	56	82	112	130	137	60
85°	17	45	74	93	100	18
90°	6	48	89	114	123	7
95°	97	75	109	132	137	117
105°	439	472	127	158	170	469
115°	828	859	914	293	164	815
125°	1169	1189	1229	1251	1260	1042
135°	1445	1468	1486	1509	1511	1116
145°	1676	1676	1699	1711	1707	1048
155°	1846	1834	1850	1857	1847	850
165°	1945	1937	1940	1949	1940	549
175°	1989	1980	1982	1991	1978	189
180°	1985	1985	1985	1985	1985	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6
2.5°	318.4	318.1	317.9	317.6	317.4	317.0	316.4	315.9	315.3	314.7	315.1
5°	317.5	317.2	316.9	316.6	316.2	315.8	315.2	314.6	314.0	313.4	314.0
7.5°	314.6	314.4	314.2	314.0	313.8	313.5	313.0	312.6	312.0	311.5	312.4
10°	312.5	312.3	312.0	311.8	311.6	311.3	311.0	310.7	310.4	310.1	310.9
12.5°	308.7	308.8	308.8	308.9	308.9	308.8	308.6	308.4	308.1	307.9	308.7
15°	302.8	303.0	303.2	303.4	303.6	303.7	303.7	303.7	303.7	303.7	304.6
17.5°	295.1	295.5	295.9	296.4	296.8	297.2	297.5	297.8	298.1	298.5	299.4
20°	289.9	290.4	290.9	291.4	292.0	292.5	292.9	293.3	293.7	294.1	295.2
22.5°	284.5	285.0	285.6	286.2	286.8	287.4	287.9	288.5	289.1	289.6	290.7
25°	275.3	276.0	276.7	277.4	278.1	278.9	279.8	280.7	281.7	282.6	283.8
27.5°	264.3	265.4	266.6	267.7	268.9	270.0	271.0	272.2	273.3	274.4	275.9
30°	256.9	258.2	259.5	260.8	262.2	263.6	264.9	266.2	267.5	268.8	270.4
32.5°	248.8	250.3	251.8	253.3	254.8	256.3	257.9	259.4	261.1	262.6	264.5
35°	237.2	238.9	240.7	242.4	244.1	245.9	247.9	249.8	251.8	253.7	255.9
37.5°	224.5	226.5	228.5	230.6	232.5	234.8	237.3	239.7	242.3	244.8	247.3
40°	216.1	218.3	220.6	222.8	225.0	227.5	230.2	233.1	235.8	238.5	241.2
42.5°	208.0	210.3	212.5	214.7	217.0	219.6	222.9	226.0	229.1	232.3	235.2
45°	194.5	197.2	200.1	202.8	205.5	208.6	212.3	215.8	219.3	223.0	226.1
47.5°	181.2	184.2	187.2	190.2	193.2	196.8	201.0	205.1	209.3	213.5	216.8
50°	172.1	175.2	178.3	181.5	184.7	188.5	193.2	197.7	202.3	206.9	210.4
52.5°	163.2	166.5	169.9	173.2	176.5	180.6	185.4	190.3	195.1	200.0	203.5
55°	149.1	152.8	156.4	160.1	163.8	168.2	173.6	178.8	184.2	189.5	193.2
57.5°	135.1	139.3	143.4	147.5	151.7	156.4	161.9	167.2	172.7	178.1	182.1
60°	125.2	129.7	134.0	138.4	142.8	147.8	153.7	159.5	165.3	171.1	175.0
62.5°	116.4	121.0	125.5	130.1	134.6	139.8	145.6	151.4	157.2	163.1	167.1
65°	101.8	106.8	111.8	116.8	121.8	127.3	133.3	139.4	145.4	151.4	155.6
67.5°	88.5	93.7	98.9	104.1	109.4	115.0	121.2	127.3	133.5	139.7	143.9
70°	78.9	84.2	89.5	94.8	100.1	105.9	112.2	118.6	124.9	131.2	135.6
72.5°	70.1	75.5	81.0	86.4	92.0	97.9	104.3	110.7	117.1	123.5	127.8
75°	56.5	62.1	67.9	73.5	79.3	85.3	91.9	98.5	104.9	111.5	115.8
77.5°	43.2	49.2	55.1	61.1	67.2	73.4	80.1	86.6	93.3	99.9	104.3
80°	34.4	40.6	46.9	53.0	59.3	65.7	72.3	79.0	85.5	92.2	96.4
82.5°	27.1	33.2	39.4	45.4	51.6	58.1	64.7	71.5	78.2	84.8	89.2
85°	16.6	22.8	29.2	35.4	41.8	48.2	54.7	61.3	67.8	74.3	78.6
87.5°	9.3	16.1	22.8	29.6	36.4	43.3	50.3	57.4	64.4	71.4	75.9
90°	6.1	15.5	24.8	34.3	43.7	53.0	62.0	71.1	80.2	89.3	94.9
92.5°	33.2	38.4	43.6	48.8	53.9	60.4	67.9	75.4	83.0	90.6	95.4
95°	97.0	91.3	85.5	79.8	74.0	75.3	83.7	92.1	100.4	108.8	114.2
97.5°	188.4	163.1	137.6	112.2	86.8	79.6	90.7	101.7	112.7	123.8	128.9
100°	257.4	217.5	177.5	137.5	97.7	83.2	94.3	105.4	116.6	127.7	134.1
102.5°	332.9	327.1	321.2	315.5	309.6	286.8	247.0	207.1	167.3	127.4	134.5
105°	438.9	451.4	464.0	476.6	489.1	454.4	372.5	290.7	208.9	127.0	134.1
107.5°	560.4	570.5	580.5	590.6	600.7	556.0	456.6	357.2	257.8	158.3	158.2
110°	638.1	646.8	655.6	664.3	673.1	633.8	546.5	459.3	372.0	284.9	256.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	711.7	719.3	726.9	734.6	742.3	737.0	719.0	700.9	683.0	664.9	551.7
115°	827.7	834.2	840.8	847.4	853.8	863.4	876.0	888.6	901.1	913.7	769.0
117.5°	930.9	937.8	944.5	951.3	958.2	966.3	976.1	985.8	995.6	1005.3	972.6
120°	1006.7	1012.0	1017.1	1022.4	1027.5	1035.0	1044.9	1054.7	1064.5	1074.4	1081.1
122.5°	1071.1	1076.3	1081.6	1086.7	1092.0	1099.5	1109.6	1119.7	1129.8	1139.9	1145.0
125°	1168.6	1172.8	1176.9	1181.0	1185.2	1191.9	1201.2	1210.6	1219.9	1229.2	1234.3
127.5°	1257.4	1261.8	1266.4	1270.8	1275.4	1281.2	1288.3	1295.5	1302.6	1309.8	1315.7
130°	1313.6	1318.7	1323.6	1328.7	1333.7	1339.0	1344.6	1350.3	1355.9	1361.6	1367.6
132.5°	1371.1	1375.3	1379.6	1383.8	1388.1	1392.8	1398.0	1403.1	1408.3	1413.4	1418.8
135°	1445.3	1450.5	1455.5	1460.7	1465.8	1470.3	1474.2	1478.0	1482.0	1485.8	1491.2
137.5°	1520.9	1524.5	1528.0	1531.6	1535.1	1538.7	1542.5	1546.1	1549.8	1553.6	1558.5
140°	1570.3	1572.8	1575.2	1577.6	1580.1	1583.2	1586.9	1590.6	1594.4	1598.0	1602.6
142.5°	1611.6	1613.9	1616.1	1618.2	1620.4	1623.6	1627.6	1631.7	1635.8	1639.8	1643.8
145°	1676.2	1675.8	1675.5	1675.2	1674.9	1677.4	1682.8	1688.3	1693.6	1699.1	1701.9
147.5°	1732.7	1731.5	1730.3	1729.1	1727.9	1729.9	1735.3	1740.7	1746.1	1751.4	1753.1
150°	1769.5	1767.3	1765.0	1762.8	1760.5	1762.0	1767.1	1772.2	1777.3	1782.4	1784.3
152.5°	1800.5	1798.1	1795.5	1793.0	1790.6	1791.7	1796.5	1801.4	1806.2	1811.1	1813.0
155°	1845.6	1842.7	1839.9	1836.9	1834.1	1834.6	1838.5	1842.3	1846.1	1849.9	1851.8
157.5°	1881.0	1878.6	1876.1	1873.7	1871.3	1871.4	1874.0	1876.7	1879.4	1882.1	1884.3
160°	1901.6	1899.7	1897.8	1895.9	1894.0	1894.0	1895.9	1897.8	1899.7	1901.6	1903.5
162.5°	1920.0	1918.1	1916.2	1914.3	1912.4	1912.2	1913.9	1915.5	1917.2	1918.8	1921.1
165°	1944.7	1942.8	1940.9	1938.9	1937.0	1936.6	1937.5	1938.4	1939.4	1940.4	1942.7
167.5°	1963.1	1961.2	1959.2	1957.3	1955.4	1954.9	1955.8	1956.7	1957.6	1958.5	1960.8
170°	1973.5	1971.6	1969.6	1967.7	1965.8	1965.1	1965.8	1966.4	1967.0	1967.7	1969.9
172.5°	1980.3	1978.4	1976.5	1974.6	1972.7	1972.1	1972.7	1973.3	1974.0	1974.6	1976.8
175°	1989.2	1987.0	1984.8	1982.6	1980.3	1979.5	1980.1	1980.7	1981.5	1982.1	1984.3
177.5°	1990.6	1988.9	1987.1	1985.3	1983.5	1982.8	1983.0	1983.3	1983.5	1983.8	1985.6
180°	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6
2.5°	315.5	315.9	316.3	316.5	316.3	316.1	316.0	315.8
5°	314.6	315.2	315.8	316.0	315.9	315.8	315.7	315.6
7.5°	313.1	313.8	314.6	314.9	314.8	314.7	314.6	314.5
10°	311.7	312.6	313.4	313.8	313.7	313.6	313.5	313.4
12.5°	309.5	310.3	311.1	311.5	311.4	311.3	311.2	311.1
15°	305.5	306.5	307.4	307.8	307.7	307.6	307.5	307.4
17.5°	300.4	301.3	302.3	302.8	302.8	302.8	302.8	302.8
20°	296.3	297.4	298.5	299.1	299.1	299.1	299.1	299.1
22.5°	292.0	293.1	294.2	294.8	295.0	295.1	295.3	295.5
25°	285.1	286.3	287.5	288.2	288.5	288.8	289.1	289.4
27.5°	277.4	279.0	280.5	281.4	281.7	281.9	282.1	282.4
30°	272.1	273.8	275.4	276.3	276.6	276.9	277.2	277.5
32.5°	266.3	268.2	270.1	271.4	271.9	272.5	273.0	273.5
35°	258.2	260.4	262.7	264.2	264.9	265.6	266.3	267.0
37.5°	249.7	252.3	254.8	256.4	257.1	257.9	258.6	259.3
40°	243.9	246.5	249.1	251.0	251.9	252.8	253.7	254.6
42.5°	238.1	241.0	243.9	245.8	246.7	247.6	248.5	249.4
45°	229.2	232.5	235.6	237.7	238.7	239.7	240.8	241.8
47.5°	220.2	223.4	226.7	228.9	230.0	231.2	232.3	233.4
50°	213.8	217.3	220.8	223.1	224.2	225.3	226.4	227.5
52.5°	207.0	210.6	214.1	216.5	217.7	218.9	220.2	221.3
55°	196.8	200.5	204.2	206.6	207.9	209.3	210.7	212.0
57.5°	186.0	190.0	193.9	196.5	197.9	199.2	200.6	202.0
60°	178.8	182.8	186.6	189.2	190.7	192.1	193.6	195.0
62.5°	171.3	175.4	179.6	182.3	183.6	184.9	186.3	187.6
65°	159.8	163.9	168.1	170.9	172.2	173.5	174.8	176.1
67.5°	148.0	152.3	156.5	159.4	160.7	162.1	163.5	164.9
70°	140.0	144.3	148.8	151.6	152.8	154.0	155.2	156.4
72.5°	132.1	136.4	140.7	143.6	145.0	146.5	148.0	149.5
75°	120.3	124.6	129.1	131.9	133.2	134.5	135.8	137.1
77.5°	108.7	113.0	117.3	120.3	121.7	123.1	124.5	125.9
80°	100.8	105.0	109.4	112.2	113.6	115.0	116.4	117.9
82.5°	93.4	97.8	102.0	104.8	106.1	107.6	108.9	110.2
85°	82.9	87.2	91.5	94.3	95.7	97.1	98.6	100.0
87.5°	80.4	84.8	89.4	92.3	93.7	95.1	96.6	98.1
90°	100.6	106.3	112.0	115.7	117.6	119.5	121.3	123.2
92.5°	100.2	105.0	109.9	113.1	114.7	116.3	118.0	119.6
95°	119.7	125.2	130.7	133.8	134.7	135.6	136.5	137.4
97.5°	133.9	139.0	144.0	147.3	148.9	150.5	152.1	153.6
100°	140.4	146.7	153.0	157.1	158.9	160.6	162.4	164.1
102.5°	141.5	148.6	155.5	160.1	162.1	164.1	166.0	168.0
105°	141.2	148.3	155.4	160.2	162.5	164.9	167.3	169.8
107.5°	158.0	157.9	157.7	158.9	161.3	163.7	166.0	168.4
110°	227.5	198.8	170.3	157.1	159.5	161.9	164.3	166.7





TEST NUMBER: P331491-840

CATALOG NUMBER: S122DIW-S290D1440U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	438.6	325.4	212.2	156.7	158.9	161.0	163.1	165.2
115°	624.3	479.6	334.9	251.6	229.6	207.8	186.0	164.1
117.5°	939.9	907.2	874.4	820.8	746.3	671.9	597.3	522.9
120°	1087.7	1094.4	1101.1	1083.5	1041.5	999.5	957.6	915.5
122.5°	1150.0	1155.2	1160.2	1159.0	1151.7	1144.3	1136.8	1129.4
125°	1239.2	1244.3	1249.2	1252.6	1254.5	1256.4	1258.3	1260.1
127.5°	1321.4	1327.2	1332.9	1336.4	1337.5	1338.6	1339.7	1340.7
130°	1373.5	1379.5	1385.4	1388.7	1389.2	1389.7	1390.2	1390.7
132.5°	1424.1	1429.6	1434.9	1437.8	1438.4	1438.9	1439.3	1439.8
135°	1496.5	1501.9	1507.1	1510.0	1510.2	1510.3	1510.5	1510.7
137.5°	1563.6	1568.5	1573.6	1575.9	1575.5	1575.1	1574.7	1574.3
140°	1607.1	1611.5	1616.1	1617.8	1616.8	1615.9	1614.9	1613.9
142.5°	1647.7	1651.6	1655.5	1657.0	1655.9	1654.8	1653.8	1652.6
145°	1704.8	1707.7	1710.5	1711.4	1710.3	1709.2	1708.1	1707.0
147.5°	1754.8	1756.7	1758.4	1758.7	1757.6	1756.5	1755.3	1754.3
150°	1786.2	1788.2	1790.1	1790.2	1788.7	1787.1	1785.4	1783.8
152.5°	1814.9	1816.8	1818.8	1818.7	1816.5	1814.5	1812.4	1810.3
155°	1853.7	1855.6	1857.5	1857.2	1854.7	1852.2	1849.6	1847.0
157.5°	1886.4	1888.5	1890.8	1890.6	1888.1	1885.6	1883.1	1880.7
160°	1905.4	1907.3	1909.3	1909.1	1906.9	1904.6	1902.4	1900.2
162.5°	1923.2	1925.4	1927.5	1927.2	1924.5	1921.8	1919.0	1916.3
165°	1944.9	1947.1	1949.3	1949.3	1947.1	1944.9	1942.7	1940.4
167.5°	1963.0	1965.2	1967.4	1967.1	1964.3	1961.4	1958.5	1955.6
170°	1972.2	1974.4	1976.6	1976.3	1973.5	1970.5	1967.7	1964.8
172.5°	1979.0	1981.3	1983.5	1983.2	1980.3	1977.4	1974.6	1971.7
175°	1986.5	1988.7	1990.9	1990.5	1987.3	1984.1	1981.0	1977.7
177.5°	1987.3	1989.1	1990.9	1990.6	1988.3	1986.1	1983.8	1981.5
180°	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9	1984.9

(END OF REPORT)