

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: P331493-830

Luminaire Tested: **S122DIW-S290D1440U830-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331493-830  
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-S290D1440U830-4F0-1E-UDD-F  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1440 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6566.5 lumens  
Efficiency: N/A  
Efficacy: 123.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.3  
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

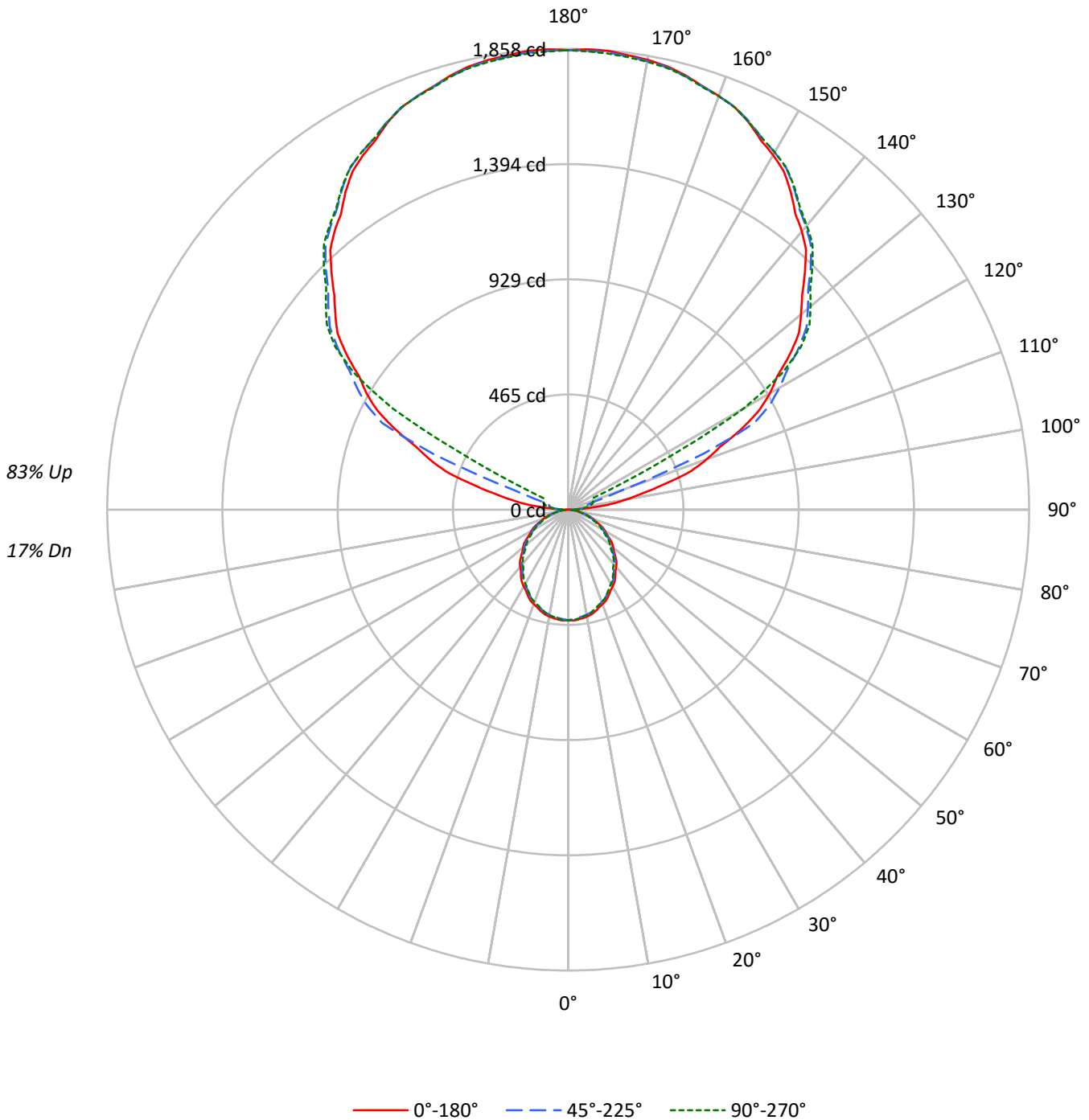
Input Watts (W): 53.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P331493-830

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	50	30	10	0													
RCR																																					
0	99	99	99	99	87	87	87	87	65	65	65	45	45	45	26	26	26	17																			
1	90	86	83	79	79	76	73	70	57	55	53	39	38	37	23	22	22	15																			
2	82	75	70	65	72	66	62	58	50	47	44	34	33	31	20	19	18	12																			
3	75	66	59	54	66	58	53	48	44	40	37	30	28	26	18	17	16	10																			
4	68	58	51	45	60	52	45	40	39	35	31	27	24	22	16	15	13	9																			
5	63	52	44	38	55	46	39	34	35	30	27	24	21	19	14	13	12	8																			
6	58	46	39	33	50	41	34	30	31	26	23	22	19	17	13	11	10	7																			
7	53	41	34	29	47	37	30	26	28	23	20	20	17	15	12	10	9	6																			
8	49	37	30	25	43	33	27	23	25	21	18	18	15	13	11	9	8	5																			
9	46	34	27	22	40	30	24	20	23	19	16	16	13	11	10	8	7	5																			
10	42	31	24	20	37	28	22	18	21	17	14	15	12	10	9	8	7	4																			

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

	0°	45°	90°
0°	7190	7190	7190
5°	7217	7112	7156
10°	7174	7040	7076
15°	7086	6950	6944
20°	6959	6813	6806
25°	6834	6645	6645
30°	6674	6490	6434
35°	6524	6303	6211
40°	6336	6119	6001
45°	6149	5934	5786
50°	5948	5745	5541
55°	5737	5520	5315
60°	5503	5254	5060
65°	5249	4989	4760
70°	4928	4669	4447
75°	4485	4298	4192
80°	3980	3868	3663
85°	3242	3094	2779



TEST NUMBER: P331493-830

CATALOG NUMBER: S122DIW-S290D1440U830-4F0-1E-UDD-F

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	41.9	0.6
10°-20°	117.8	1.8
20°-30°	173.2	2.6
30°-40°	201.2	3.1
40°-50°	200.9	3.1
50°-60°	175.2	2.7
60°-70°	129.6	2.0
70°-80°	73.4	1.1
80°-90°	24.3	0.4
90°-100°	61.8	0.9
100°-110°	226.6	3.5
110°-120°	605.8	9.2
120°-130°	1000.0	15.2
130°-140°	1063.4	16.2
140°-150°	988.4	15.1
150°-160°	794.7	12.1
160°-170°	512.1	7.8
170°-180°	176.3	2.7
0°-30°	332.9	5.1
0°-40°	534.0	8.1
0°-60°	910.2	13.9
0°-90°	1137.5	17.3
90°-120°	894.2	13.6
90°-150°	3946.0	60.1
90°-180°	5429.0	82.7
0°-180°	6566.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	445	445	445	445	445	
5°	445	443	439	442	442	42
15°	424	421	416	417	415	119
25°	384	380	373	374	373	176
35°	331	327	320	317	315	207
45°	269	266	260	255	253	208
55°	204	201	196	191	189	182
65°	137	135	131	127	125	136
75°	72	71	69	66	67	77
85°	18	17	17	16	15	20
90°	1	16	27	33	36	5
95°	87	46	52	58	58	107
105°	408	425	82	96	102	435
115°	771	794	827	236	110	759
125°	1090	1108	1133	1142	1146	971
135°	1349	1369	1382	1395	1393	1041
145°	1564	1564	1586	1594	1589	978
155°	1723	1712	1726	1734	1724	793
165°	1815	1808	1811	1819	1811	513
175°	1857	1848	1850	1858	1846	177
180°	1853	1853	1853	1853	1853	



TEST NUMBER: P331493-830

CATALOG NUMBER: S122DIW-S290D1440U830-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	445.3	445.3	445.3	445.3	445.3	445.3	445.3	445.3	445.3	445.3	445.3
2.5°	447.3	447.0	446.6	446.2	445.8	445.3	444.4	443.6	442.7	441.9	442.6
5°	445.3	444.9	444.5	444.1	443.7	443.1	442.1	441.0	439.9	438.8	439.6
7.5°	441.4	440.7	440.2	439.6	439.0	438.2	437.2	436.0	435.0	433.9	434.7
10°	437.6	437.0	436.3	435.6	434.9	434.0	432.9	431.8	430.6	429.4	430.2
12.5°	432.4	431.9	431.3	430.6	430.1	429.2	428.1	427.0	425.8	424.7	425.2
15°	423.9	423.3	422.7	422.2	421.6	420.8	419.4	418.2	417.0	415.8	416.1
17.5°	412.9	412.4	411.8	411.2	410.7	409.7	408.5	407.2	406.0	404.7	405.1
20°	405.0	404.4	403.9	403.3	402.7	401.8	400.5	399.2	397.8	396.5	396.8
22.5°	397.2	396.3	395.6	394.7	394.0	392.9	391.7	390.4	389.2	388.0	388.0
25°	383.6	382.9	382.1	381.4	380.6	379.4	377.8	376.2	374.6	373.0	373.2
27.5°	368.3	367.6	366.8	366.2	365.5	364.5	363.3	361.9	360.7	359.4	359.1
30°	358.0	357.2	356.5	355.7	354.9	353.8	352.4	351.0	349.5	348.1	347.8
32.5°	346.9	346.4	345.8	345.2	344.6	343.5	342.0	340.5	339.0	337.5	337.0
35°	331.0	330.0	329.0	328.1	327.2	325.9	324.4	322.9	321.4	319.8	319.2
37.5°	312.9	312.1	311.2	310.4	309.5	308.4	306.9	305.4	303.8	302.3	301.6
40°	300.6	299.8	299.1	298.3	297.6	296.4	294.8	293.3	291.8	290.3	289.5
42.5°	288.6	287.9	287.1	286.3	285.6	284.4	282.9	281.3	279.8	278.3	277.4
45°	269.3	268.6	268.0	267.3	266.6	265.6	264.2	262.8	261.4	259.9	258.8
47.5°	250.2	249.5	248.9	248.3	247.6	246.6	245.1	243.6	242.1	240.6	239.5
50°	236.8	236.3	235.8	235.4	234.9	233.9	232.6	231.3	230.0	228.7	227.3
52.5°	223.8	223.1	222.5	221.9	221.2	220.3	219.0	217.8	216.5	215.3	214.1
55°	203.8	203.2	202.6	202.1	201.5	200.7	199.5	198.4	197.3	196.1	194.9
57.5°	183.8	183.3	182.9	182.4	181.9	181.1	179.8	178.6	177.3	176.1	174.9
60°	170.4	170.0	169.7	169.3	168.9	168.1	166.7	165.4	164.0	162.7	161.6
62.5°	157.4	156.7	156.2	155.6	155.0	154.1	153.1	152.1	151.1	150.1	149.0
65°	137.4	136.9	136.3	135.7	135.2	134.4	133.5	132.5	131.6	130.6	129.7
67.5°	117.2	116.7	116.2	115.7	115.4	114.7	113.8	112.9	112.1	111.2	110.6
70°	104.4	104.1	103.7	103.3	102.9	102.4	101.5	100.7	99.7	98.9	98.2
72.5°	91.4	91.0	90.7	90.3	89.9	89.4	88.9	88.4	87.8	87.3	86.6
75°	71.9	71.7	71.5	71.4	71.2	70.9	70.4	69.8	69.4	68.9	68.3
77.5°	54.5	54.1	53.8	53.5	53.2	52.9	52.7	52.5	52.3	52.1	51.8
80°	42.8	42.7	42.6	42.5	42.4	42.3	42.1	41.9	41.8	41.6	41.3
82.5°	31.9	31.9	31.9	31.8	31.8	31.7	31.6	31.5	31.4	31.3	30.9
85°	17.5	17.4	17.3	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.4
87.5°	6.4	7.0	7.4	7.9	8.5	8.9	9.1	9.5	9.8	10.2	10.3
90°	1.3	4.6	7.9	11.2	14.4	17.2	19.7	22.1	24.4	26.8	28.3
92.5°	27.1	26.8	26.5	26.2	25.9	26.3	27.5	28.7	29.9	31.1	31.9
95°	87.1	77.3	67.5	57.7	47.8	43.9	46.0	48.1	50.2	52.3	53.7
97.5°	173.0	145.2	117.5	89.8	62.1	50.7	55.5	60.3	65.1	69.9	71.2
100°	237.2	196.4	155.6	114.8	74.0	56.2	61.2	66.3	71.4	76.4	78.8
102.5°	308.0	299.4	290.8	282.1	273.5	248.0	205.7	163.2	120.9	78.5	81.6
105°	407.6	416.4	425.4	434.3	443.3	407.1	325.7	244.4	163.1	81.8	85.0
107.5°	520.9	528.1	535.4	542.5	549.8	504.6	407.1	309.5	212.0	114.5	111.1
110°	593.9	600.1	606.3	612.7	618.9	578.9	492.9	406.8	320.7	234.6	204.8



TEST NUMBER: P331493-830

CATALOG NUMBER: S122DIW-S290D1440U830-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	662.5	668.0	673.5	679.1	684.7	676.7	655.5	634.2	612.9	591.7	483.1
115°	770.8	775.9	780.9	786.0	791.1	797.3	804.7	812.2	819.6	827.1	689.2
117.5°	867.6	873.3	878.9	884.6	890.2	895.6	900.7	905.9	911.0	916.2	882.8
120°	938.4	942.8	947.3	951.8	956.2	961.1	966.5	971.9	977.2	982.6	986.2
122.5°	998.4	1003.1	1007.9	1012.6	1017.3	1022.6	1028.3	1034.2	1040.0	1045.8	1048.0
125°	1089.9	1093.7	1097.6	1101.5	1105.3	1110.1	1115.8	1121.4	1127.1	1132.7	1134.8
127.5°	1172.7	1177.0	1181.3	1185.5	1189.9	1194.1	1198.3	1202.6	1206.8	1211.1	1214.1
130°	1225.2	1230.0	1234.7	1239.5	1244.3	1248.3	1251.6	1254.9	1258.1	1261.4	1264.7
132.5°	1278.8	1282.9	1286.9	1291.0	1295.1	1298.7	1302.0	1305.2	1308.5	1311.8	1314.7
135°	1348.6	1353.3	1358.1	1362.8	1367.6	1371.3	1374.0	1376.7	1379.4	1382.1	1385.1
137.5°	1419.1	1422.4	1425.8	1429.1	1432.4	1435.6	1438.6	1441.7	1444.7	1447.7	1450.7
140°	1465.2	1467.5	1470.0	1472.3	1474.7	1477.5	1480.8	1484.1	1487.4	1490.6	1493.4
142.5°	1503.8	1505.9	1508.1	1510.2	1512.4	1515.3	1519.1	1522.9	1526.5	1530.3	1532.8
145°	1564.4	1564.1	1563.8	1563.5	1563.2	1565.6	1570.7	1575.7	1580.7	1585.8	1587.9
147.5°	1617.2	1616.1	1615.0	1613.8	1612.7	1614.6	1619.6	1624.7	1629.7	1634.7	1636.2
150°	1651.5	1649.4	1647.4	1645.3	1643.1	1644.5	1649.3	1654.1	1658.8	1663.6	1665.4
152.5°	1680.5	1678.2	1675.8	1673.5	1671.2	1672.3	1676.8	1681.3	1685.8	1690.4	1692.1
155°	1722.6	1719.9	1717.2	1714.5	1711.8	1712.3	1715.9	1719.5	1723.1	1726.5	1728.3
157.5°	1755.6	1753.3	1751.1	1748.8	1746.5	1746.6	1749.1	1751.6	1754.1	1756.6	1758.7
160°	1774.8	1773.0	1771.3	1769.5	1767.7	1767.7	1769.5	1771.3	1773.0	1774.8	1776.6
162.5°	1792.0	1790.3	1788.5	1786.7	1784.9	1784.7	1786.3	1787.8	1789.4	1790.9	1793.0
165°	1815.1	1813.3	1811.5	1809.7	1807.9	1807.5	1808.4	1809.2	1810.2	1811.0	1813.2
167.5°	1832.2	1830.4	1828.6	1826.8	1825.0	1824.6	1825.4	1826.3	1827.1	1828.0	1830.0
170°	1841.9	1840.1	1838.3	1836.5	1834.8	1834.1	1834.8	1835.3	1835.9	1836.5	1838.6
172.5°	1848.3	1846.5	1844.7	1843.0	1841.2	1840.6	1841.2	1841.7	1842.4	1843.0	1845.0
175°	1856.6	1854.5	1852.5	1850.4	1848.3	1847.6	1848.1	1848.7	1849.4	1849.9	1852.0
177.5°	1857.9	1856.3	1854.6	1852.9	1851.2	1850.6	1850.8	1851.1	1851.2	1851.5	1853.2
180°	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6



TEST NUMBER: P331493-830

CATALOG NUMBER: S122DIW-S290D1440U830-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	445.3	445.3	445.3	445.3	445.3	445.3	445.3	445.3
2.5°	443.4	444.1	444.9	445.3	445.1	444.9	444.8	444.6
5°	440.5	441.2	442.0	442.2	442.1	441.9	441.7	441.5
7.5°	435.5	436.2	437.0	437.2	437.1	436.8	436.6	436.4
10°	431.0	431.8	432.5	432.7	432.4	432.2	431.9	431.6
12.5°	425.7	426.2	426.8	427.0	426.8	426.5	426.3	426.1
15°	416.5	416.9	417.3	417.3	416.8	416.3	415.8	415.4
17.5°	405.6	406.0	406.4	406.4	406.0	405.6	405.1	404.6
20°	397.1	397.4	397.7	397.6	397.2	396.8	396.4	396.1
22.5°	388.0	388.1	388.1	388.0	387.9	387.6	387.4	387.2
25°	373.3	373.5	373.7	373.7	373.5	373.3	373.2	373.0
27.5°	358.8	358.5	358.3	357.9	357.4	356.9	356.6	356.1
30°	347.5	347.2	346.9	346.7	346.3	345.9	345.5	345.1
32.5°	336.5	335.9	335.5	335.0	334.6	334.2	333.8	333.5
35°	318.7	318.1	317.5	317.1	316.6	316.1	315.7	315.1
37.5°	300.9	300.2	299.4	298.9	298.4	297.9	297.6	297.1
40°	288.6	287.8	286.9	286.3	285.9	285.5	285.1	284.7
42.5°	276.4	275.5	274.6	273.8	273.3	272.8	272.3	271.7
45°	257.8	256.7	255.7	255.0	254.6	254.2	253.8	253.4
47.5°	238.5	237.3	236.2	235.4	234.9	234.3	233.8	233.2
50°	226.0	224.6	223.3	222.4	222.0	221.5	221.0	220.6
52.5°	213.1	212.0	210.8	210.0	209.3	208.8	208.1	207.5
55°	193.8	192.7	191.5	190.8	190.3	189.7	189.3	188.8
57.5°	173.8	172.7	171.5	170.8	170.5	170.1	169.8	169.4
60°	160.6	159.6	158.5	157.9	157.6	157.3	157.0	156.7
62.5°	148.1	147.1	146.2	145.5	145.2	144.8	144.4	144.0
65°	128.8	128.0	127.1	126.5	126.0	125.5	125.1	124.6
67.5°	109.9	109.2	108.6	108.0	107.6	107.3	106.9	106.5
70°	97.6	96.9	96.2	95.8	95.4	94.9	94.5	94.2
72.5°	86.0	85.3	84.6	84.1	83.8	83.5	83.2	82.8
75°	67.8	67.2	66.6	66.4	66.6	66.8	67.0	67.2
77.5°	51.6	51.3	51.0	50.7	50.4	50.2	50.0	49.7
80°	41.0	40.7	40.4	40.2	40.0	39.8	39.6	39.4
82.5°	30.5	30.2	29.8	29.6	29.6	29.5	29.5	29.5
85°	16.1	15.8	15.6	15.4	15.3	15.2	15.1	15.0
87.5°	10.3	10.4	10.5	10.5	10.6	10.6	10.7	10.7
90°	29.8	31.3	32.8	33.8	34.4	35.0	35.6	36.2
92.5°	32.6	33.5	34.2	34.8	35.2	35.4	35.8	36.2
95°	55.2	56.7	58.2	58.8	58.5	58.2	58.0	57.7
97.5°	72.4	73.5	74.7	75.5	75.9	76.3	76.6	76.9
100°	81.2	83.6	86.0	87.5	88.0	88.6	89.3	89.8
102.5°	84.7	87.8	91.0	92.9	93.8	94.5	95.4	96.2
105°	88.3	91.6	94.9	97.1	98.3	99.5	100.7	101.9
107.5°	107.8	104.4	101.1	100.1	101.2	102.5	103.7	104.8
110°	175.0	145.2	115.5	101.1	102.4	103.5	104.7	105.9





TEST NUMBER: P331493-830

CATALOG NUMBER: S122DIW-S290D1440U830-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	374.4	265.7	157.0	103.1	104.2	105.1	106.0	107.0
115°	551.3	413.3	275.4	195.7	174.3	152.8	131.4	109.9
117.5°	849.4	816.1	782.7	730.8	660.3	589.7	519.2	448.8
120°	989.8	993.3	996.9	978.5	938.4	898.1	857.9	817.7
122.5°	1050.2	1052.3	1054.4	1051.6	1043.8	1036.0	1028.2	1020.4
125°	1136.9	1139.0	1141.0	1142.6	1143.5	1144.3	1145.3	1146.1
127.5°	1217.1	1220.1	1223.1	1224.8	1224.9	1225.1	1225.3	1225.5
130°	1268.0	1271.3	1274.5	1276.0	1275.7	1275.4	1275.2	1274.8
132.5°	1317.4	1320.2	1323.0	1324.3	1324.0	1323.7	1323.4	1323.0
135°	1388.0	1391.0	1394.0	1395.2	1394.6	1394.0	1393.4	1392.8
137.5°	1453.6	1456.5	1459.4	1460.4	1459.3	1458.4	1457.4	1456.3
140°	1496.0	1498.7	1501.4	1501.9	1500.5	1499.0	1497.5	1496.0
142.5°	1535.2	1537.7	1540.1	1540.6	1539.1	1537.6	1536.2	1534.6
145°	1590.0	1592.0	1594.2	1594.5	1593.0	1591.5	1590.0	1588.6
147.5°	1637.8	1639.3	1640.9	1641.0	1639.7	1638.5	1637.2	1636.0
150°	1667.2	1669.0	1670.8	1670.8	1669.4	1667.9	1666.4	1664.9
152.5°	1693.9	1695.7	1697.5	1697.4	1695.4	1693.6	1691.6	1689.6
155°	1730.1	1731.9	1733.7	1733.4	1731.1	1728.7	1726.3	1723.9
157.5°	1760.7	1762.6	1764.7	1764.5	1762.3	1759.9	1757.6	1755.3
160°	1778.4	1780.2	1782.0	1781.9	1779.8	1777.6	1775.6	1773.5
162.5°	1795.0	1797.1	1799.0	1798.7	1796.2	1793.7	1791.1	1788.6
165°	1815.2	1817.3	1819.4	1819.4	1817.3	1815.2	1813.2	1811.0
167.5°	1832.1	1834.2	1836.3	1836.0	1833.3	1830.6	1828.0	1825.2
170°	1840.7	1842.8	1844.8	1844.6	1841.9	1839.2	1836.5	1833.8
172.5°	1847.1	1849.2	1851.2	1851.0	1848.3	1845.6	1843.0	1840.2
175°	1854.1	1856.1	1858.2	1857.8	1854.8	1851.8	1848.9	1845.9
177.5°	1854.8	1856.5	1858.2	1857.9	1855.8	1853.7	1851.5	1849.4
180°	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6	1852.6

(END OF REPORT)