

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: P332687-840

Luminaire Tested: **S124DIP-S1195D590U840-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332687-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1195D590U840-4F0-1E-UDD-F4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1195 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7298.5 lumens  
Efficiency: N/A  
Efficacy: 132.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Direct

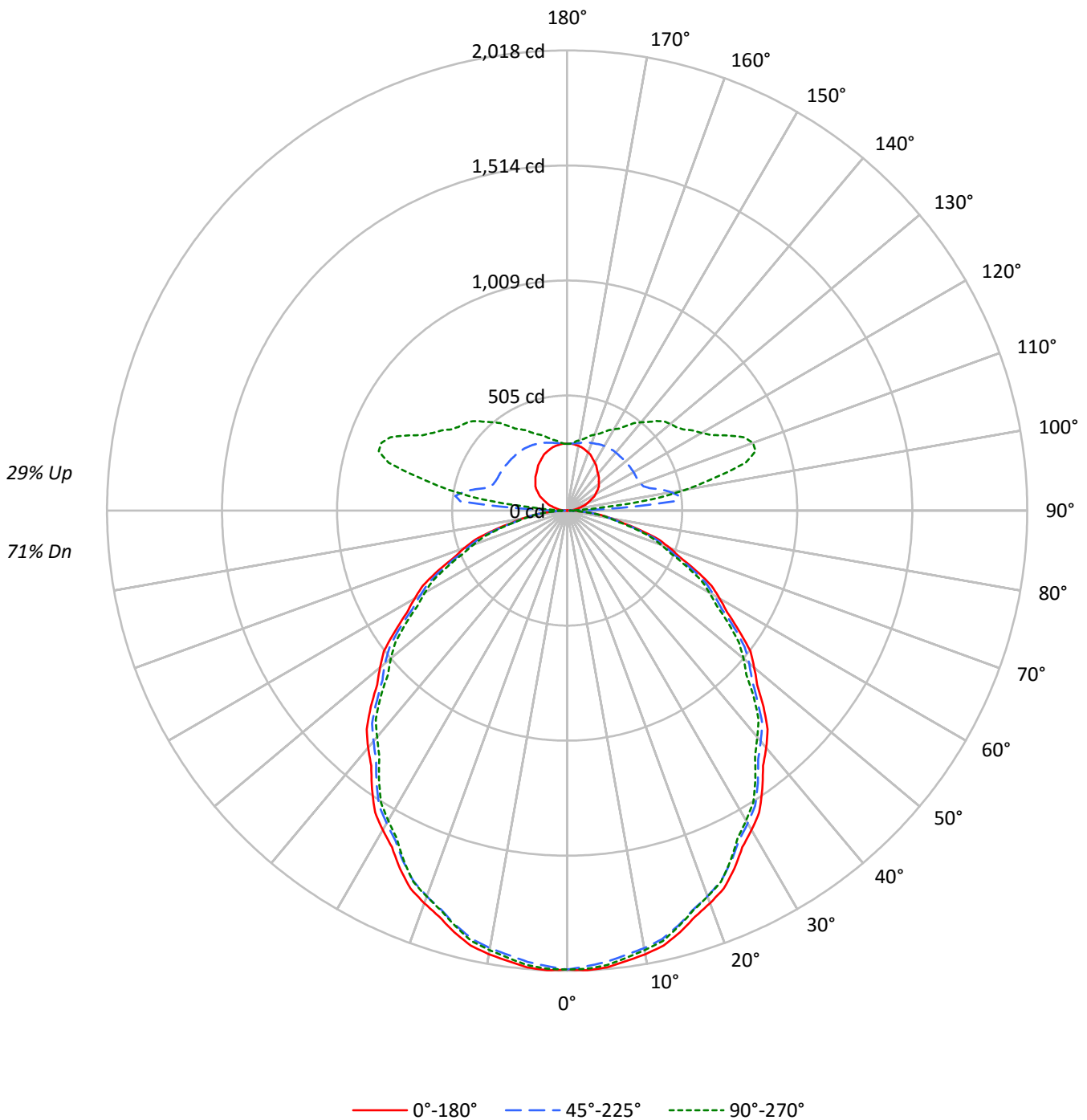
Input Watts (W): 55.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	75	75	75	71
1	102	98	94	90	97	93	89	86	83	81	78	75	72	71	66	65	63	60
2	93	86	79	74	88	81	75	71	73	68	65	65	62	59	58	56	53	50
3	85	75	68	61	80	71	65	59	64	59	54	58	54	50	52	48	45	42
4	78	67	58	52	73	63	56	50	57	51	46	52	47	43	46	42	39	36
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34	31
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30	28
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	35	30	27	24
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24	22
9	53	40	33	27	50	39	32	27	35	29	25	32	27	23	29	25	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20	18

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

	0°	45°	90°
0°	16247	16247	16247
5°	16295	16100	16216
10°	16193	15969	16047
15°	15998	15742	15782
20°	15738	15460	15474
25°	15441	15139	15097
30°	15077	14762	14626
35°	14701	14366	14177
40°	14309	13918	13663
45°	13900	13476	13218
50°	13448	13083	12679
55°	12960	12573	12165
60°	12471	12003	11638
65°	11922	11459	10997
70°	11306	10733	10315
75°	10359	9860	9607
80°	9219	8847	8619
85°	8068	7762	7614



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	189.5	2.6
10°-20°	534.0	7.3
20°-30°	786.0	10.8
30°-40°	913.7	12.5
40°-50°	913.7	12.5
50°-60°	799.3	11.0
60°-70°	593.6	8.1
70°-80°	337.2	4.6
80°-90°	98.9	1.4
90°-100°	211.8	2.9
100°-110°	440.8	6.0
110°-120°	394.8	5.4
120°-130°	332.1	4.6
130°-140°	276.9	3.8
140°-150°	211.5	2.9
150°-160°	148.7	2.0
160°-170°	87.5	1.2
170°-180°	28.5	0.4
0°-30°	1509.5	20.7
0°-40°	2423.2	33.2
0°-60°	4136.2	56.7
0°-90°	5165.9	70.8
90°-120°	1047.4	14.4
90°-150°	1868.0	25.6
90°-180°	2133.0	29.2
0°-180°	7298.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2012	2012	2012	2012	2012	
5°	2011	2004	1987	2003	2001	191
15°	1914	1907	1884	1892	1888	539
25°	1734	1722	1700	1701	1695	797
35°	1492	1480	1458	1447	1438	932
45°	1218	1205	1180	1163	1158	938
55°	921	915	893	875	864	824
65°	624	616	600	584	576	618
75°	332	324	316	310	308	353
85°	87	87	84	84	82	96
90°	1	5	10	12	12	6
95°	19	60	470	232	141	21
105°	67	98	378	814	810	72
115°	119	149	337	648	778	118
125°	165	196	335	551	621	147
135°	196	234	332	489	555	152
145°	226	259	331	412	453	142
155°	258	278	321	364	380	119
165°	280	289	308	326	331	79
175°	293	293	296	300	298	28
180°	293	293	293	293	293	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5
2.5°	2017.6	2016.8	2015.9	2015.1	2014.2	2012.2	2009.0	2005.9	2002.8	1999.6	2002.5
5°	2010.8	2009.4	2008.0	2006.6	2005.2	2002.5	1998.5	1994.6	1990.6	1986.7	1990.6
7.5°	1992.2	1990.7	1989.3	1987.8	1986.4	1983.6	1979.1	1974.8	1970.4	1966.0	1969.2
10°	1975.4	1974.0	1972.6	1971.1	1969.6	1966.6	1962.0	1957.3	1952.7	1948.0	1950.9
12.5°	1953.5	1952.1	1950.6	1949.1	1947.7	1944.5	1939.6	1934.7	1929.8	1924.8	1927.9
15°	1914.1	1912.7	1911.3	1909.9	1908.3	1905.0	1899.6	1894.2	1888.9	1883.5	1885.6
17.5°	1866.7	1864.9	1863.1	1861.4	1859.6	1856.1	1851.0	1845.9	1840.9	1835.7	1837.1
20°	1831.9	1830.1	1828.3	1826.5	1824.7	1821.1	1815.7	1810.4	1805.0	1799.6	1800.7
22.5°	1794.4	1792.1	1789.8	1787.4	1785.0	1781.1	1775.7	1770.4	1765.0	1759.6	1761.6
25°	1733.5	1731.0	1728.5	1726.0	1723.4	1719.7	1714.6	1709.7	1704.7	1699.6	1700.0
27.5°	1663.9	1661.2	1658.7	1656.1	1653.6	1649.9	1645.3	1640.6	1636.0	1631.2	1630.4
30°	1617.4	1614.6	1611.6	1608.8	1606.0	1602.2	1597.5	1592.9	1588.2	1583.6	1582.2
32.5°	1568.4	1565.8	1563.3	1560.6	1558.0	1554.3	1549.3	1544.4	1539.4	1534.5	1532.8
35°	1491.7	1489.1	1486.6	1484.1	1481.6	1477.8	1472.8	1467.8	1462.8	1457.7	1455.2
37.5°	1410.7	1408.4	1406.1	1403.8	1401.5	1397.7	1392.3	1386.9	1381.5	1376.1	1373.4
40°	1357.8	1354.9	1352.0	1349.2	1346.4	1342.2	1336.9	1331.4	1326.1	1320.7	1317.1
42.5°	1301.0	1299.3	1297.6	1295.9	1294.1	1290.3	1284.3	1278.4	1272.4	1266.5	1262.3
45°	1217.5	1215.0	1212.4	1209.9	1207.5	1203.4	1197.6	1191.8	1186.1	1180.4	1176.5
47.5°	1130.0	1128.3	1126.6	1124.9	1123.2	1119.7	1114.4	1109.1	1103.8	1098.5	1094.1
50°	1070.8	1069.3	1067.8	1066.4	1065.0	1061.8	1056.7	1051.8	1046.7	1041.7	1036.7
52.5°	1012.7	1011.0	1009.3	1007.5	1005.8	1002.3	997.0	991.7	986.4	981.1	976.6
55°	920.8	919.7	918.7	917.6	916.5	913.4	908.4	903.4	898.4	893.3	889.1
57.5°	833.0	831.8	830.6	829.4	828.2	825.1	820.1	815.2	810.2	805.3	801.2
60°	772.4	770.6	768.8	767.1	765.3	762.0	757.4	752.8	748.0	743.4	740.1
62.5°	713.1	711.6	710.0	708.5	707.1	703.9	698.9	694.0	689.0	684.1	681.2
65°	624.1	622.3	620.5	618.6	616.9	614.2	610.7	607.0	603.5	599.9	596.3
67.5°	534.4	532.8	531.1	529.5	527.9	525.2	521.8	518.4	514.9	511.5	508.1
70°	479.0	476.5	473.9	471.4	468.9	466.3	463.3	460.5	457.6	454.7	451.9
72.5°	419.6	417.1	414.5	412.0	409.6	407.2	404.9	402.5	400.3	398.0	395.7
75°	332.1	330.4	328.6	326.8	325.0	323.3	321.4	319.6	317.9	316.1	314.7
77.5°	248.6	247.8	247.1	246.3	245.5	244.3	242.8	241.2	239.6	238.0	237.6
80°	198.3	197.2	196.2	195.1	194.1	193.2	192.5	191.7	191.0	190.3	189.6
82.5°	149.4	148.9	148.3	147.8	147.3	147.0	146.8	146.7	146.5	146.4	146.0
85°	87.1	87.1	87.1	87.1	87.1	86.7	86.0	85.3	84.5	83.8	83.8
87.5°	33.6	33.6	33.6	33.5	33.3	33.0	33.4	33.1	33.1	33.0	32.9
90°	0.6	1.7	3.4	4.0	4.6	4.6	8.1	8.1	9.2	10.4	9.8
92.5°	6.6	9.6	14.9	22.0	30.4	42.4	71.7	116.3	160.0	182.7	152.2
95°	19.0	20.7	26.5	34.0	47.8	72.0	122.1	216.6	354.3	469.5	482.7
97.5°	34.1	34.1	39.1	45.9	57.9	78.2	116.7	194.7	331.6	494.5	606.5
100°	43.8	43.8	47.8	54.7	65.6	84.1	118.1	183.2	300.7	463.1	610.7
102.5°	53.0	53.9	57.5	63.9	74.4	91.9	122.7	180.0	279.9	424.0	576.0
105°	67.4	69.2	72.0	79.0	89.3	106.0	133.6	181.5	262.2	377.9	513.3
107.5°	83.3	84.4	87.4	94.7	104.6	121.1	146.4	190.0	258.9	352.1	462.6
110°	93.9	95.0	98.0	104.8	115.2	130.8	156.1	196.4	259.8	343.4	437.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	104.0	105.2	108.6	115.0	125.3	140.9	165.3	203.4	262.6	339.2	422.9
115°	118.7	120.4	124.4	130.2	141.2	156.7	179.8	214.3	267.9	337.0	409.6
117.5°	133.9	135.5	139.1	145.4	155.6	171.8	193.7	225.5	273.5	336.4	403.6
120°	144.0	145.2	149.2	155.5	165.3	181.5	203.4	233.3	277.7	336.4	400.4
122.5°	153.2	154.4	158.4	164.3	175.0	190.7	212.6	240.7	281.9	336.0	396.7
125°	165.3	167.6	171.1	177.4	188.3	204.5	225.2	251.8	288.0	335.3	390.6
127.5°	176.0	177.9	182.1	189.2	200.7	216.9	237.0	261.4	293.0	334.0	382.4
130°	182.1	184.3	188.9	197.6	208.5	225.2	244.8	267.3	296.7	333.6	377.3
132.5°	188.0	189.9	195.9	204.1	215.9	231.7	251.3	273.3	299.9	333.1	372.7
135°	196.4	198.7	204.5	214.3	226.4	241.4	260.3	281.1	304.8	332.3	365.8
137.5°	204.9	207.0	213.4	222.7	235.3	249.5	267.3	286.7	307.6	332.2	359.8
140°	210.9	212.6	218.9	228.7	240.8	254.6	272.0	290.3	309.9	331.8	356.6
142.5°	217.3	219.0	224.9	234.2	245.9	259.2	276.1	293.1	311.7	331.8	353.9
145°	226.4	228.1	233.9	242.0	252.9	265.6	280.5	296.1	312.9	330.6	349.1
147.5°	236.6	237.2	242.3	250.5	259.7	271.1	285.2	298.7	313.4	328.6	344.9
150°	243.1	243.7	248.3	255.2	263.9	274.8	287.5	300.1	313.4	327.2	341.6
152.5°	249.1	249.2	253.8	260.2	268.0	278.0	289.3	301.0	312.5	324.9	337.9
155°	257.5	258.1	261.6	267.3	273.7	282.3	292.1	301.8	311.0	321.4	332.3
157.5°	265.7	265.7	268.9	273.4	278.9	285.7	294.1	301.8	309.6	317.9	326.8
160°	270.7	270.7	273.1	277.1	281.7	288.0	295.0	301.8	308.2	315.1	322.7
162.5°	275.4	274.9	276.7	280.3	284.5	289.4	295.9	301.8	306.8	312.4	318.9
165°	280.5	280.5	281.7	284.6	287.5	290.9	296.1	300.7	304.2	308.2	312.9
167.5°	285.7	285.2	285.7	287.9	289.5	292.2	296.0	299.3	301.4	304.1	307.3
170°	288.0	287.5	288.0	289.7	290.9	292.7	295.5	298.4	299.5	301.2	303.6
172.5°	290.3	289.7	289.8	291.1	291.9	293.1	295.1	297.5	297.7	298.5	300.3
175°	292.7	292.1	292.1	292.7	293.3	293.3	294.4	296.1	295.5	295.5	296.7
177.5°	293.7	293.3	292.8	293.3	293.3	293.3	293.7	294.6	293.7	293.7	294.2
180°	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5	2012.5
2.5°	2005.3	2008.2	2011.0	2012.4	2012.1	2011.8	2011.4	2011.1
5°	1994.6	1998.5	2002.5	2004.1	2003.4	2002.7	2002.0	2001.1
7.5°	1972.4	1975.5	1978.6	1980.0	1979.6	1979.1	1978.7	1978.3
10°	1953.7	1956.6	1959.4	1960.6	1959.8	1959.1	1958.3	1957.6
12.5°	1931.1	1934.2	1937.4	1938.4	1937.4	1936.4	1935.4	1934.4
15°	1887.7	1890.0	1892.1	1892.6	1891.6	1890.5	1889.4	1888.3
17.5°	1838.5	1839.9	1841.2	1841.5	1840.8	1840.1	1839.4	1838.7
20°	1801.8	1802.8	1803.9	1804.1	1803.4	1802.7	1802.0	1801.2
22.5°	1763.5	1765.4	1767.4	1767.7	1766.5	1765.1	1763.8	1762.5
25°	1700.4	1700.7	1701.1	1700.5	1699.1	1697.7	1696.3	1694.9
27.5°	1629.5	1628.7	1627.8	1626.5	1624.7	1623.0	1621.1	1619.3
30°	1580.6	1579.2	1577.8	1576.2	1574.4	1572.7	1570.8	1569.0
32.5°	1531.1	1529.3	1527.6	1525.9	1524.1	1522.3	1520.6	1518.7
35°	1452.8	1450.3	1447.7	1445.6	1443.8	1442.0	1440.2	1438.5
37.5°	1370.7	1368.0	1365.2	1362.7	1360.4	1358.0	1355.6	1353.2
40°	1313.5	1309.9	1306.4	1303.6	1301.9	1300.1	1298.3	1296.5
42.5°	1258.2	1254.1	1249.9	1247.2	1246.0	1244.8	1243.5	1242.3
45°	1172.6	1168.6	1164.7	1162.2	1161.0	1159.9	1158.9	1157.8
47.5°	1089.6	1085.2	1080.8	1077.1	1074.4	1071.7	1068.9	1066.2
50°	1031.7	1026.6	1021.7	1018.0	1015.9	1013.8	1011.6	1009.5
52.5°	972.2	967.8	963.3	959.8	957.0	954.3	951.6	948.9
55°	884.7	880.5	876.2	872.9	870.8	868.7	866.5	864.3
57.5°	797.2	793.0	789.0	785.9	783.9	781.7	779.6	777.6
60°	736.9	733.8	730.5	728.0	726.2	724.4	722.7	720.8
62.5°	678.1	675.2	672.3	669.9	668.1	666.3	664.6	662.8
65°	592.7	589.2	585.5	582.9	581.1	579.3	577.4	575.7
67.5°	504.6	501.2	497.8	495.7	495.2	494.7	494.2	493.7
70°	449.0	446.2	443.2	441.3	440.2	439.2	438.1	437.0
72.5°	393.4	391.1	388.8	387.1	386.1	385.0	383.8	382.8
75°	313.2	311.7	310.3	309.4	309.1	308.7	308.3	308.0
77.5°	237.1	236.7	236.3	235.6	234.7	233.8	232.8	231.9
80°	188.8	188.1	187.4	186.9	186.5	186.1	185.8	185.4
82.5°	145.5	145.1	144.7	144.3	143.9	143.6	143.2	142.9
85°	83.8	83.8	83.8	83.7	83.3	82.9	82.6	82.2
87.5°	33.0	33.1	33.2	33.2	33.4	33.5	33.4	33.4
90°	10.4	10.9	11.5	11.5	12.1	12.6	12.1	12.1
92.5°	113.1	85.1	67.8	56.2	49.4	46.4	44.3	44.3
95°	426.9	337.6	260.3	204.5	176.3	158.4	148.0	140.6
97.5°	630.7	597.5	541.2	481.0	439.7	405.0	387.7	375.7
100°	694.8	706.3	678.0	635.4	585.3	550.2	532.9	528.3
102.5°	691.6	748.7	756.9	739.1	708.3	682.9	664.7	661.0
105°	645.2	744.9	801.9	825.6	826.7	822.0	814.0	810.5
107.5°	579.5	685.5	765.9	817.2	845.7	858.8	864.5	866.1
110°	539.8	639.4	723.0	786.4	827.3	851.4	861.8	867.0





TEST NUMBER: P332687-840

CATALOG NUMBER: S124DIP-S1195D590U840-4F0-1E-UDD-F4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	510.8	598.8	677.8	741.1	787.6	816.9	831.4	839.8
115°	481.6	552.5	619.9	675.2	720.6	755.3	773.7	778.3
117.5°	467.3	525.9	579.0	625.8	664.7	693.7	712.4	716.0
120°	460.9	514.4	560.5	601.4	634.3	659.6	674.6	681.0
122.5°	455.3	507.1	549.0	584.8	612.6	634.3	646.9	653.3
125°	445.9	495.4	535.1	566.8	589.9	606.6	617.5	621.0
127.5°	434.3	481.7	521.4	551.4	574.6	589.5	598.6	602.1
130°	425.2	470.7	509.8	540.4	564.0	578.3	587.6	591.1
132.5°	415.5	458.2	496.4	526.9	550.2	566.4	575.1	578.7
135°	402.1	439.6	474.6	503.5	526.5	542.7	551.9	555.3
137.5°	390.0	421.7	451.3	477.4	498.9	514.8	522.4	526.5
140°	383.0	410.2	436.1	460.3	480.5	493.1	501.2	505.8
142.5°	376.7	400.5	422.7	443.7	461.5	473.3	480.5	483.6
145°	367.5	387.1	404.5	420.5	434.9	444.7	450.5	453.3
147.5°	360.0	375.6	389.4	402.1	412.7	421.1	425.5	426.6
150°	355.5	368.7	380.2	390.6	399.8	407.3	410.7	411.3
152.5°	350.3	361.7	372.3	380.9	388.7	394.9	396.9	397.5
155°	342.7	351.9	360.6	367.5	373.3	377.9	379.6	379.6
157.5°	334.6	342.3	349.5	355.1	359.5	362.9	364.0	364.0
160°	329.5	335.9	342.1	346.8	350.2	353.8	354.3	354.3
162.5°	324.5	329.8	334.8	339.0	341.5	345.0	345.6	345.1
165°	317.4	320.8	324.9	327.8	330.1	332.3	331.8	331.2
167.5°	310.6	313.3	316.5	318.2	319.4	320.8	320.7	320.3
170°	306.5	308.2	310.5	312.3	313.4	314.0	313.4	313.4
172.5°	302.8	304.1	305.5	306.7	307.4	308.0	307.4	306.5
175°	297.8	298.4	299.5	299.5	299.5	300.7	299.5	298.4
177.5°	294.6	295.1	295.1	295.5	295.1	295.5	294.6	293.7
180°	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3

(END OF REPORT)