

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: P332146-840

Luminaire Tested: **S123DIW-S560D1535U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332146-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S560D1535U840-4F0-1E-UDD-D  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 560 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1535 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8589.0 lumens  
Efficiency: N/A  
Efficacy: 141.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

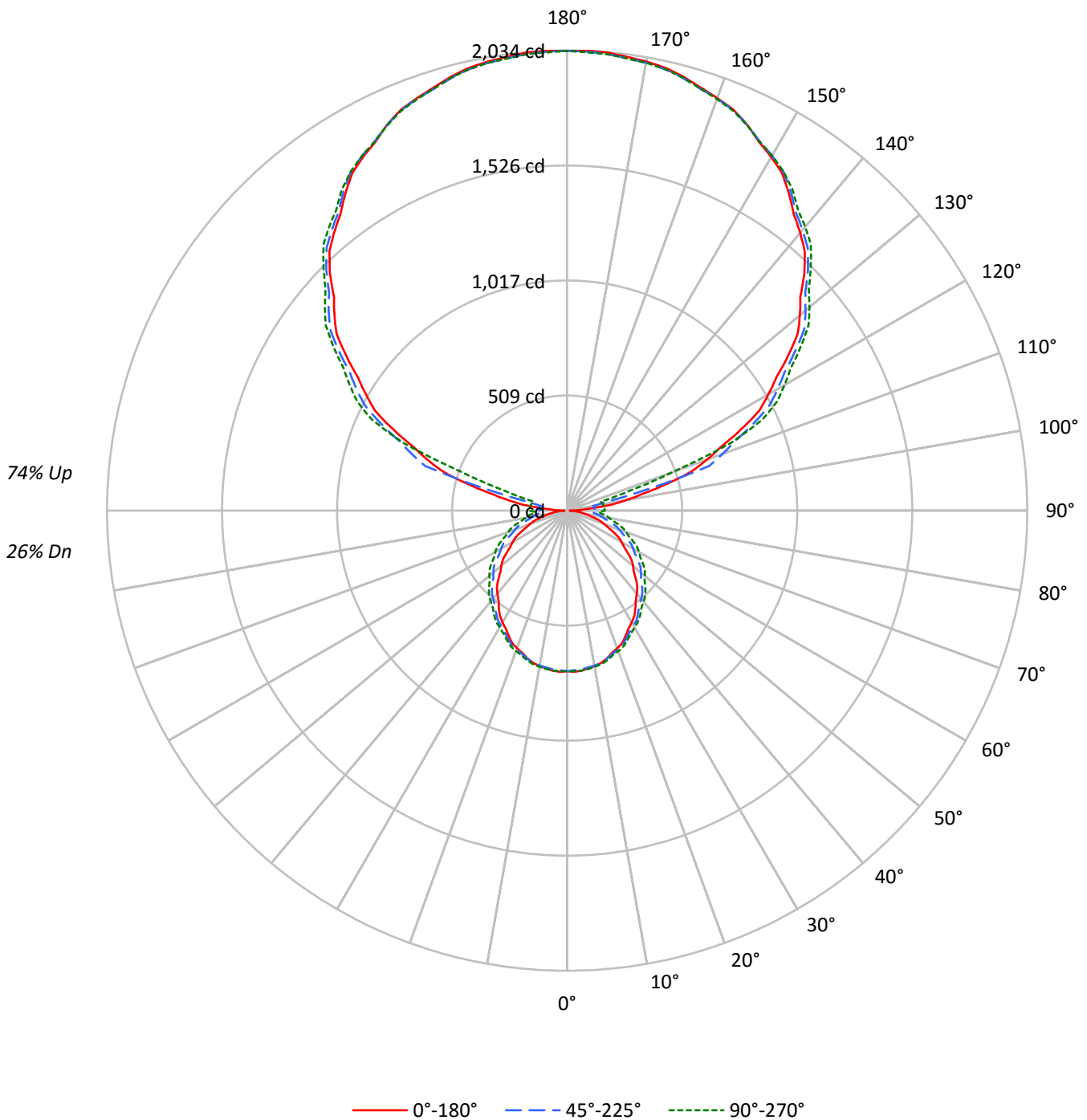
Input Watts (W): 60.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26
1	92	87	83	80	82	78	75	72	60	58	56	44	42	41	29	28	27	20
2	83	76	70	65	74	68	63	58	52	49	46	38	36	34	25	24	23	17
3	76	66	59	54	67	59	53	48	46	42	38	34	31	28	22	20	19	14
4	69	59	51	45	61	52	46	41	41	36	32	30	27	24	20	18	16	12
5	63	52	44	38	56	46	40	35	36	31	28	26	23	21	17	16	14	10
6	58	46	38	33	52	42	35	30	32	27	24	24	20	18	16	14	12	9
7	54	42	34	29	48	37	31	26	29	24	21	22	18	16	14	12	11	8
8	50	38	30	25	44	34	27	23	26	22	18	20	16	14	13	11	10	7
9	46	34	27	22	41	31	24	20	24	19	16	18	15	12	12	10	9	6
10	43	31	24	20	38	28	22	18	22	18	14	17	13	11	11	9	8	6

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

	0°	45°	90°
0°	7643	7643	7643
5°	7667	7451	7455
10°	7599	7280	7244
15°	7501	7084	7012
20°	7361	6862	6756
25°	7189	6606	6489
30°	7011	6375	6216
35°	6812	6132	6000
40°	6623	5910	5767
45°	6414	5697	5582
50°	6206	5488	5378
55°	5978	5271	5194
60°	5753	5053	5005
65°	5525	4819	4780
70°	5183	4558	4549
75°	4746	4256	4316
80°	4241	3962	4047
85°	3780	3757	3892



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	67.3	0.8
10°-20°	191.9	2.2
20°-30°	287.0	3.3
30°-40°	342.8	4.0
40°-50°	358.6	4.2
50°-60°	336.5	3.9
60°-70°	281.1	3.3
70°-80°	201.1	2.3
80°-90°	125.6	1.5
90°-100°	149.1	1.7
100°-110°	407.4	4.7
110°-120°	882.7	10.3
120°-130°	1098.1	12.8
130°-140°	1160.2	13.5
140°-150°	1078.1	12.6
150°-160°	868.0	10.1
160°-170°	560.2	6.5
170°-180°	193.1	2.2
0°-30°	546.3	6.4
0°-40°	889.0	10.4
0°-60°	1584.2	18.4
0°-90°	2192.0	25.5
90°-120°	1439.3	16.8
90°-150°	4775.7	55.6
90°-180°	6397.0	74.5
0°-180°	8589.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	710	710	710	710	710	
5°	711	709	705	710	710	67
15°	677	679	678	686	685	191
25°	611	619	621	631	631	282
35°	526	538	548	560	563	329
45°	430	449	468	482	489	332
55°	328	354	381	401	408	294
65°	227	257	291	313	322	224
75°	123	160	198	223	233	131
85°	38	77	118	143	152	40
90°	12	65	124	155	167	11
95°	101	74	123	156	166	120
105°	456	484	389	157	153	483
115°	848	867	908	940	954	837
125°	1192	1205	1232	1251	1260	1064
135°	1483	1491	1505	1523	1523	1141
145°	1710	1719	1723	1731	1735	1070
155°	1883	1880	1881	1888	1880	867
165°	1985	1981	1979	1990	1981	561
175°	2032	2025	2026	2035	2025	193
180°	2032	2032	2032	2032	2032	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1
2.5°	713.3	712.9	712.5	712.0	711.6	710.8	709.7	708.6	707.5	706.4	707.5
5°	710.9	710.5	710.2	709.9	709.5	708.8	707.8	706.8	705.8	704.7	706.1
7.5°	704.0	704.0	704.1	704.2	704.3	703.8	702.8	701.8	700.7	699.7	701.5
10°	697.8	698.1	698.4	698.8	699.1	698.9	698.0	697.2	696.3	695.5	697.2
12.5°	690.3	690.8	691.4	691.8	692.3	692.3	691.7	691.1	690.4	689.8	691.5
15°	676.9	677.4	677.9	678.4	678.9	679.1	678.9	678.7	678.6	678.4	680.1
17.5°	659.8	660.9	662.0	663.0	664.0	664.5	664.4	664.3	664.3	664.2	665.7
20°	647.5	648.5	649.5	650.6	651.6	652.3	652.7	653.0	653.3	653.7	655.2
22.5°	634.5	635.5	636.5	637.6	638.6	639.3	639.9	640.4	640.9	641.3	643.3
25°	611.2	612.9	614.6	616.3	618.0	619.1	619.7	620.2	620.7	621.2	623.4
27.5°	587.6	589.6	591.6	593.5	595.4	596.9	598.0	599.2	600.3	601.4	603.3
30°	570.9	573.1	575.3	577.6	579.9	581.7	583.0	584.4	585.7	587.1	589.3
32.5°	552.3	554.8	557.3	559.9	562.4	564.5	566.3	568.0	569.9	571.7	573.9
35°	526.0	528.8	531.5	534.3	537.0	539.6	541.8	544.0	546.2	548.5	551.1
37.5°	498.2	501.3	504.3	507.5	510.6	513.5	516.2	519.0	521.7	524.5	527.5
40°	479.6	482.7	485.8	488.9	492.0	495.2	498.7	502.1	505.5	509.0	511.9
42.5°	459.2	463.0	466.8	470.5	474.3	478.0	481.6	485.1	488.8	492.3	495.5
45°	430.1	434.2	438.4	442.5	446.6	450.8	455.1	459.4	463.7	468.0	471.3
47.5°	399.6	404.3	409.0	413.6	418.3	423.1	428.1	432.9	437.9	442.8	446.5
50°	379.8	384.7	389.4	394.3	399.1	404.1	409.5	414.9	420.1	425.5	429.4
52.5°	358.8	363.9	369.0	374.1	379.1	384.7	390.5	396.4	402.2	408.2	412.2
55°	328.0	333.7	339.3	345.0	350.7	356.6	362.8	369.0	375.2	381.3	386.0
57.5°	298.0	303.9	309.8	315.7	321.6	328.0	334.8	341.5	348.3	355.1	359.7
60°	276.9	283.2	289.3	295.5	301.6	308.3	315.4	322.4	329.4	336.5	341.3
62.5°	257.1	263.5	269.8	276.1	282.5	289.3	296.8	304.3	311.7	319.2	324.0
65°	226.6	233.4	240.0	246.8	253.5	260.6	268.2	275.7	283.3	290.8	296.0
67.5°	195.7	202.9	210.0	217.0	224.2	231.6	239.3	247.0	254.7	262.4	268.0
70°	174.1	181.5	188.8	196.2	203.6	211.5	219.6	227.9	236.2	244.5	249.9
72.5°	154.2	161.7	169.1	176.4	183.8	191.8	200.3	208.8	217.3	225.9	231.6
75°	123.0	131.1	139.2	147.2	155.3	163.7	172.3	180.9	189.5	198.0	203.7
77.5°	95.7	103.9	112.1	120.2	128.4	136.7	145.4	154.1	162.8	171.5	177.4
80°	76.5	85.0	93.4	101.9	110.3	119.0	127.8	136.8	145.8	154.7	160.6
82.5°	59.9	68.5	77.0	85.5	94.1	102.9	112.0	121.1	130.2	139.3	145.1
85°	37.9	46.5	55.1	63.7	72.3	81.1	90.3	99.4	108.5	117.5	123.4
87.5°	20.9	30.1	39.4	48.6	57.8	67.3	76.9	86.5	96.1	105.8	111.9
90°	11.6	23.3	35.1	46.9	58.7	71.1	84.2	97.4	110.5	123.6	130.9
92.5°	37.6	44.1	50.8	57.5	64.1	73.4	85.3	97.3	109.2	121.1	129.0
95°	100.6	93.5	86.5	79.5	72.4	74.9	87.1	99.2	111.3	123.4	131.1
97.5°	192.7	192.6	192.5	192.3	192.2	184.1	167.9	151.9	135.7	119.7	127.4
100°	262.1	274.3	286.5	298.7	310.9	294.9	250.4	206.0	161.6	117.1	124.8
102.5°	341.2	351.0	360.7	370.5	380.3	360.5	311.1	261.8	212.4	162.9	159.5
105°	456.1	463.9	471.7	479.6	487.4	479.9	457.1	434.2	411.4	388.7	334.1
107.5°	576.5	583.0	589.5	595.9	602.4	611.5	623.3	635.1	646.8	658.6	619.7
110°	656.8	662.7	668.4	674.2	679.9	688.1	698.7	709.2	719.8	730.4	723.8



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	734.2	739.1	744.1	749.0	754.0	761.6	771.9	782.2	792.4	802.7	807.3
115°	847.8	851.9	856.0	860.0	864.1	870.7	880.0	889.2	898.4	907.6	915.0
117.5°	958.5	962.2	965.9	969.8	973.5	979.1	986.4	993.7	1001.1	1008.5	1015.2
120°	1026.7	1030.6	1034.4	1038.3	1042.2	1047.5	1054.2	1060.9	1067.5	1074.2	1080.9
122.5°	1096.7	1099.6	1102.6	1105.5	1108.4	1113.3	1119.9	1126.6	1133.3	1139.9	1145.7
125°	1191.9	1194.7	1197.4	1200.0	1202.7	1207.2	1213.6	1219.9	1226.2	1232.5	1236.8
127.5°	1285.0	1287.5	1290.0	1292.5	1295.1	1299.2	1304.9	1310.6	1316.4	1322.1	1326.6
130°	1342.9	1345.4	1348.0	1350.5	1353.0	1356.7	1361.4	1366.2	1371.0	1375.7	1380.4
132.5°	1397.9	1400.6	1403.2	1405.8	1408.5	1411.7	1415.5	1419.4	1423.2	1427.0	1431.5
135°	1482.6	1484.4	1486.3	1488.1	1490.0	1492.5	1495.7	1498.9	1502.2	1505.4	1509.5
137.5°	1554.9	1557.3	1559.7	1562.2	1564.6	1566.7	1568.4	1570.2	1572.1	1573.9	1578.2
140°	1602.6	1604.6	1606.6	1608.6	1610.6	1612.5	1614.0	1615.5	1617.0	1618.5	1622.4
142.5°	1647.3	1649.2	1651.0	1652.9	1654.8	1656.3	1657.4	1658.5	1659.6	1660.7	1664.1
145°	1709.8	1711.9	1714.1	1716.4	1718.5	1719.9	1720.6	1721.2	1721.9	1722.6	1724.6
147.5°	1767.9	1769.5	1771.0	1772.5	1774.0	1775.1	1775.8	1776.6	1777.2	1777.9	1779.0
150°	1804.1	1805.1	1806.1	1807.2	1808.2	1809.0	1809.7	1810.4	1811.0	1811.7	1812.3
152.5°	1836.7	1837.2	1837.7	1838.2	1838.7	1839.1	1839.5	1839.9	1840.3	1840.7	1841.9
155°	1882.6	1882.0	1881.3	1880.7	1880.0	1879.8	1880.2	1880.5	1880.8	1881.1	1882.8
157.5°	1918.2	1918.2	1918.1	1918.0	1918.0	1917.8	1917.4	1917.1	1916.8	1916.4	1918.4
160°	1940.1	1939.6	1939.3	1939.0	1938.6	1938.3	1938.0	1937.6	1937.3	1937.0	1939.0
162.5°	1960.6	1959.6	1958.8	1957.9	1957.0	1956.4	1956.1	1955.8	1955.4	1955.1	1957.4
165°	1985.3	1984.3	1983.3	1982.3	1981.3	1980.6	1980.2	1979.9	1979.6	1979.2	1982.0
167.5°	2004.6	2003.3	2002.0	2000.6	1999.2	1998.6	1998.6	1998.6	1998.6	1998.6	2001.2
170°	2015.5	2014.2	2012.8	2011.4	2010.1	2009.4	2009.4	2009.4	2009.4	2009.4	2012.2
172.5°	2022.8	2021.1	2019.5	2017.9	2016.3	2015.6	2015.9	2016.2	2016.4	2016.7	2019.4
175°	2032.1	2030.4	2028.7	2027.1	2025.4	2024.7	2025.1	2025.4	2025.7	2026.1	2028.4
177.5°	2034.5	2033.2	2031.8	2030.5	2029.1	2028.6	2028.9	2029.1	2029.4	2029.7	2031.8
180°	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1
2.5°	708.6	709.7	710.8	711.3	711.1	711.0	710.9	710.7
5°	707.5	708.8	710.2	710.8	710.6	710.4	710.3	710.1
7.5°	703.2	704.9	706.7	707.4	707.2	707.0	706.8	706.6
10°	698.9	700.6	702.4	703.0	702.7	702.4	702.0	701.7
12.5°	693.1	694.6	696.2	696.8	696.5	696.1	695.8	695.5
15°	681.9	683.6	685.3	686.1	685.9	685.7	685.6	685.4
17.5°	667.3	668.8	670.3	671.1	670.8	670.6	670.3	670.0
20°	656.8	658.3	659.8	660.8	660.9	661.1	661.3	661.4
22.5°	645.2	647.2	649.1	650.1	649.9	649.8	649.7	649.6
25°	625.6	627.9	630.2	631.3	631.3	631.3	631.3	631.3
27.5°	605.2	607.1	609.0	610.2	610.3	610.4	610.6	610.7
30°	591.3	593.3	595.4	596.4	596.4	596.4	596.4	596.4
32.5°	576.0	578.2	580.5	581.8	582.2	582.6	583.0	583.4
35°	553.6	556.2	558.8	560.4	561.1	561.8	562.5	563.2
37.5°	530.3	533.2	536.1	538.0	538.5	539.0	539.6	540.1
40°	514.8	517.8	520.7	522.5	523.2	523.9	524.5	525.2
42.5°	498.7	501.9	505.1	507.2	508.2	509.1	510.1	511.0
45°	474.5	477.8	481.1	483.4	484.7	486.1	487.6	488.9
47.5°	450.2	453.8	457.5	459.9	460.9	462.0	463.1	464.1
50°	433.3	437.4	441.3	443.8	445.0	446.3	447.5	448.7
52.5°	416.4	420.4	424.5	427.3	428.8	430.2	431.7	433.2
55°	390.6	395.3	399.9	402.9	404.3	405.7	407.1	408.5
57.5°	364.5	369.1	373.8	376.9	378.5	380.1	381.7	383.3
60°	346.2	350.9	355.8	359.1	361.0	362.8	364.8	366.7
62.5°	328.8	333.7	338.4	341.7	343.5	345.2	347.0	348.7
65°	301.1	306.3	311.5	315.0	316.7	318.4	320.1	321.8
67.5°	273.7	279.3	285.0	288.5	289.9	291.3	292.9	294.3
70°	255.5	260.9	266.5	270.0	271.8	273.5	275.2	276.9
72.5°	237.1	242.8	248.4	252.2	253.9	255.6	257.3	259.0
75°	209.3	215.1	220.8	224.6	226.6	228.7	230.8	232.9
77.5°	183.4	189.3	195.3	199.1	200.8	202.3	203.9	205.5
80°	166.4	172.3	178.1	181.9	183.6	185.3	187.0	188.7
82.5°	151.0	156.7	162.6	166.4	168.1	169.9	171.6	173.3
85°	129.3	135.1	141.0	144.7	146.4	148.1	149.9	151.6
87.5°	118.1	124.1	130.3	134.2	136.1	137.9	139.8	141.7
90°	138.0	145.2	152.4	157.1	159.6	162.0	164.3	166.7
92.5°	136.8	144.7	152.5	157.4	159.5	161.4	163.4	165.4
95°	138.8	146.4	154.1	158.8	160.5	162.2	164.0	165.7
97.5°	135.2	143.1	150.9	155.8	157.8	159.9	162.0	164.0
100°	132.5	140.2	147.8	152.7	154.7	156.7	158.9	160.9
102.5°	156.0	152.5	149.1	148.5	150.8	153.1	155.4	157.7
105°	279.5	224.9	170.4	144.2	146.4	148.7	150.9	153.1
107.5°	580.8	541.8	502.8	461.7	418.5	375.3	332.0	288.8
110°	717.2	710.6	704.0	677.4	630.8	584.2	537.6	491.0





TEST NUMBER: P332146-840

CATALOG NUMBER: S123DIW-S560D1535U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	811.8	816.4	820.9	818.9	810.2	801.6	793.0	784.4
115°	922.5	930.0	937.6	942.6	945.3	948.1	950.8	953.5
117.5°	1022.0	1028.7	1035.5	1039.8	1041.4	1043.0	1044.6	1046.2
120°	1087.5	1094.1	1100.8	1104.7	1105.9	1107.1	1108.3	1109.5
122.5°	1151.3	1157.0	1162.8	1166.3	1167.8	1169.2	1170.7	1172.3
125°	1241.1	1245.4	1249.7	1252.7	1254.7	1256.5	1258.4	1260.2
127.5°	1331.1	1335.5	1340.0	1342.5	1343.0	1343.5	1344.0	1344.5
130°	1385.0	1389.6	1394.2	1396.7	1397.0	1397.5	1397.8	1398.2
132.5°	1435.9	1440.5	1444.9	1447.2	1447.5	1447.7	1447.9	1448.1
135°	1513.6	1517.7	1521.9	1523.8	1523.7	1523.5	1523.4	1523.2
137.5°	1582.6	1586.9	1591.1	1593.5	1593.7	1593.9	1594.0	1594.2
140°	1626.4	1630.2	1634.2	1636.3	1636.4	1636.6	1636.8	1637.0
142.5°	1667.5	1670.8	1674.3	1675.9	1675.8	1675.7	1675.7	1675.6
145°	1726.7	1728.8	1730.8	1732.1	1732.8	1733.5	1734.2	1734.9
147.5°	1780.0	1781.1	1782.2	1782.3	1781.3	1780.4	1779.5	1778.6
150°	1813.0	1813.7	1814.3	1814.3	1813.7	1813.0	1812.4	1811.7
152.5°	1843.1	1844.3	1845.5	1845.3	1843.9	1842.4	1841.0	1839.5
155°	1884.5	1886.1	1887.8	1887.6	1885.6	1883.6	1881.6	1879.7
157.5°	1920.5	1922.5	1924.5	1924.2	1921.6	1918.9	1916.3	1913.7
160°	1941.1	1943.0	1945.0	1944.9	1942.5	1940.2	1937.8	1935.5
162.5°	1959.6	1962.0	1964.2	1964.3	1962.3	1960.1	1958.1	1956.0
165°	1984.6	1987.3	1990.0	1990.1	1987.8	1985.5	1983.1	1980.7
167.5°	2004.0	2006.6	2009.3	2009.3	2006.6	2004.0	2001.2	1998.6
170°	2014.8	2017.5	2020.2	2020.2	2017.5	2014.8	2012.2	2009.4
172.5°	2022.1	2024.8	2027.4	2027.3	2024.4	2021.4	2018.4	2015.5
175°	2030.7	2033.1	2035.5	2035.3	2032.6	2029.9	2027.2	2024.6
177.5°	2034.0	2036.1	2038.3	2038.0	2035.3	2032.7	2029.9	2027.3
180°	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1	2032.1

(END OF REPORT)