

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: P332428-840

Luminaire Tested: **S123RDIW-S560D1535U840-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332428-840  
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: S123RDIW-S560D1535U840-4F0-1E-UDD-F  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 1535 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8357.4 lumens  
Efficiency: N/A  
Efficacy: 137.9 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.06 / 1.22  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

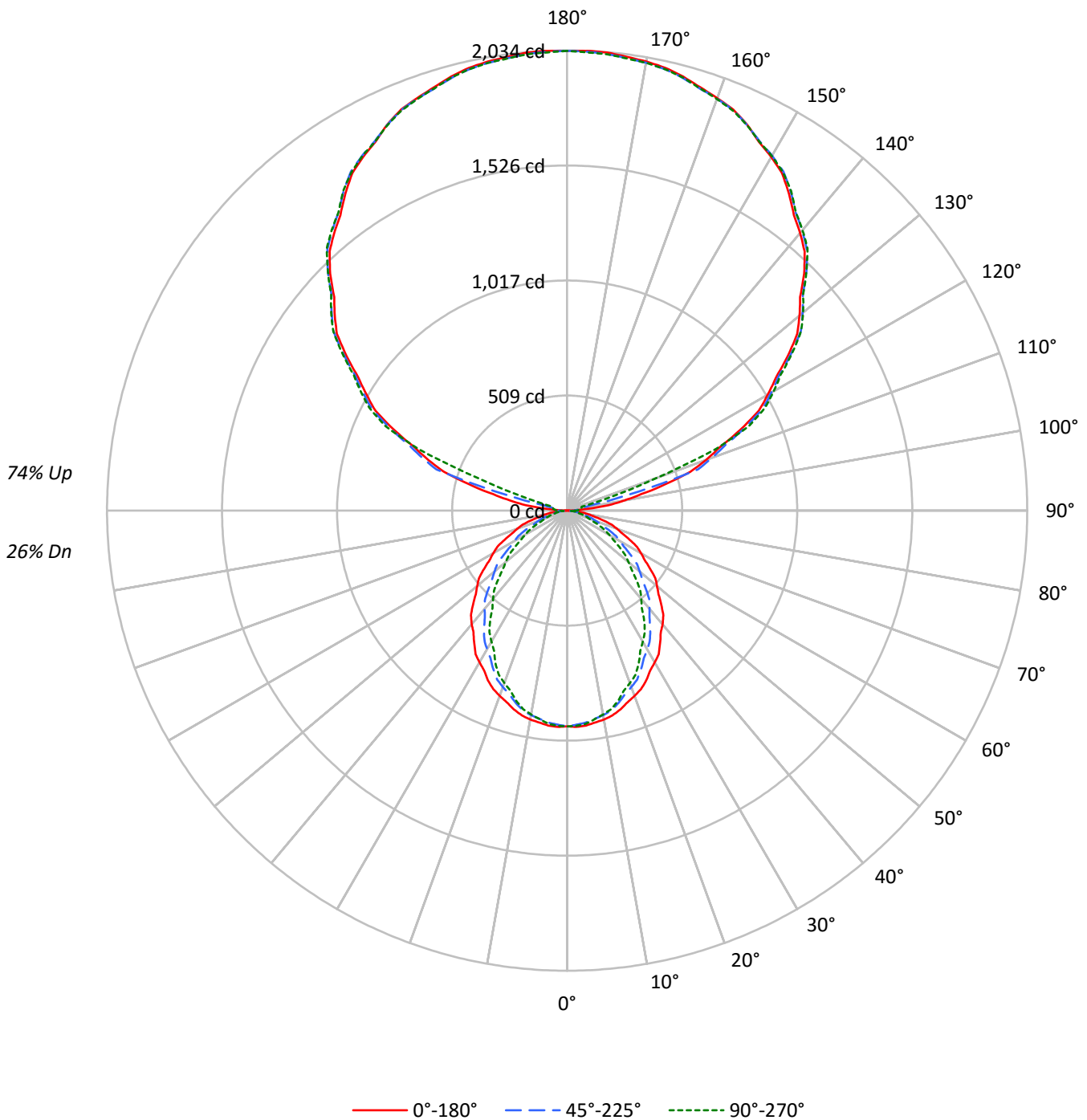
Input Watts (W): 60.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	93	88	85	81	82	79	76	73	61	59	57	45	44	43	30	30	29	22
2	84	77	72	67	75	69	64	60	54	51	48	40	38	36	27	26	25	19
3	77	68	61	56	68	61	55	50	48	44	40	35	33	31	24	22	21	16
4	70	60	53	47	63	54	48	43	42	38	34	31	29	26	21	20	18	14
5	65	54	46	40	57	48	42	37	38	33	30	28	25	23	19	17	16	12
6	59	48	40	35	53	43	36	32	34	29	26	25	22	20	18	16	14	11
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	13	10
8	51	39	32	27	45	35	29	24	28	23	20	21	18	16	15	13	11	9
9	47	36	28	24	42	32	26	22	26	21	18	19	16	14	14	12	10	8
10	44	32	26	21	39	29	23	19	23	19	16	18	15	13	13	11	9	7

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

	0°	45°	90°
0°	10267	10267	10267
5°	10306	10164	10222
10°	10248	10037	10002
15°	10137	9802	9698
20°	9986	9507	9286
25°	9830	9178	8884
30°	9625	8797	8316
35°	9412	8418	7796
40°	9218	7967	7152
45°	8961	7524	6570
50°	8679	7021	5921
55°	8392	6446	5315
60°	8127	5828	4646
65°	7784	5163	3978
70°	7352	4334	3213
75°	6725	3410	3023
80°	5994	3025	2777
85°	5064	2668	2482



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	89.6	1.1
10°-20°	249.2	3.0
20°-30°	358.8	4.3
30°-40°	404.2	4.8
40°-50°	386.7	4.6
50°-60°	316.7	3.8
60°-70°	213.7	2.6
70°-80°	107.5	1.3
80°-90°	34.1	0.4
90°-100°	73.9	0.9
100°-110°	352.1	4.2
110°-120°	845.8	10.1
120°-130°	1077.0	12.9
130°-140°	1150.8	13.8
140°-150°	1076.1	12.9
150°-160°	868.0	10.4
160°-170°	560.2	6.7
170°-180°	193.1	2.3
0°-30°	697.6	8.3
0°-40°	1101.8	13.2
0°-60°	1805.2	21.6
0°-90°	2160.4	25.9
90°-120°	1271.8	15.2
90°-150°	4575.6	54.7
90°-180°	6197.0	74.1
0°-180°	8357.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	954	954	954	954	954	
5°	954	950	941	947	946	90
15°	910	900	880	876	870	256
25°	828	808	773	757	748	381
35°	716	687	641	608	593	448
45°	589	552	494	452	432	454
55°	447	408	344	300	283	401
65°	306	262	203	166	156	302
75°	162	124	82	75	73	172
85°	41	25	22	20	20	46
90°	2	17	36	42	45	6
95°	92	35	47	57	57	114
105°	450	458	331	78	66	477
115°	844	853	867	881	888	833
125°	1190	1201	1208	1211	1214	1062
135°	1481	1490	1496	1500	1496	1140
145°	1709	1719	1723	1726	1726	1069
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°	953.8	953.8	953.8	953.8	953.8	953.8	953.8	953.8	953.8	953.8	953.8
2.5°	956.9	956.3	955.8	955.2	954.7	953.6	952.0	950.3	948.7	947.1	948.6
5°	953.8	953.0	952.1	951.3	950.4	949.0	946.8	944.8	942.7	940.7	942.2
7.5°	945.0	944.1	943.1	942.2	941.3	939.5	936.9	934.1	931.4	928.8	929.6
10°	937.6	936.3	935.1	933.9	932.8	930.6	927.6	924.4	921.3	918.3	918.4
12.5°	927.1	925.7	924.3	923.0	921.7	919.2	915.3	911.6	907.8	904.0	903.9
15°	909.7	907.9	905.9	904.0	902.2	898.8	894.0	889.2	884.3	879.6	878.7
17.5°	887.9	885.8	883.5	881.3	879.1	874.9	868.8	862.7	856.6	850.5	848.7
20°	871.8	869.1	866.4	863.5	860.8	856.2	849.6	843.1	836.6	830.0	827.8
22.5°	853.8	850.7	847.6	844.3	841.2	836.2	829.2	822.2	815.4	808.4	805.6
25°	827.7	823.4	819.1	814.9	810.5	804.5	796.5	788.6	780.7	772.8	769.2
27.5°	796.0	791.2	786.5	781.7	777.0	770.2	761.4	752.7	743.9	735.1	730.0
30°	774.4	769.2	764.1	758.9	753.8	746.3	736.7	727.1	717.4	707.8	702.0
32.5°	752.7	746.9	741.0	735.2	729.3	721.3	711.1	700.9	690.7	680.5	674.2
35°	716.3	710.1	704.0	697.8	691.6	683.2	672.5	661.9	651.2	640.6	633.1
37.5°	679.5	672.7	665.8	658.8	652.0	642.9	631.5	620.2	608.7	597.3	589.0
40°	656.0	648.4	640.9	633.3	625.7	615.8	603.7	591.5	579.3	567.0	558.1
42.5°	629.3	621.8	614.3	606.7	599.2	589.1	576.4	563.8	551.2	538.6	528.8
45°	588.7	581.0	573.2	565.5	557.7	547.2	534.0	520.8	507.6	494.3	484.5
47.5°	548.0	539.5	531.0	522.5	514.0	503.2	489.9	476.7	463.4	450.2	439.6
50°	518.3	510.2	502.1	494.0	485.9	474.9	461.0	447.2	433.2	419.3	408.6
52.5°	491.7	482.9	474.1	465.3	456.7	445.4	431.5	417.8	403.9	390.2	379.1
55°	447.2	438.7	430.3	421.8	413.4	401.9	387.3	372.7	358.1	343.5	333.5
57.5°	406.0	396.8	387.6	378.4	369.2	357.3	342.6	328.0	313.3	298.6	289.2
60°	377.5	368.1	358.6	349.1	339.7	327.8	313.6	299.3	285.0	270.7	261.5
62.5°	349.0	339.6	330.1	320.6	311.2	299.3	285.1	270.8	256.5	242.3	233.6
65°	305.6	296.1	286.7	277.2	267.7	256.3	242.9	229.5	216.1	202.7	194.3
67.5°	262.1	252.6	243.0	233.4	223.9	212.7	199.8	186.9	174.1	161.2	154.9
70°	233.6	224.3	215.1	205.8	196.5	185.8	173.8	161.8	149.8	137.7	131.7
72.5°	205.1	196.0	186.8	177.7	168.5	158.5	147.6	136.6	125.7	114.8	109.9
75°	161.7	153.4	145.2	136.9	128.7	119.8	110.4	100.9	91.5	82.0	80.3
77.5°	122.1	114.6	107.1	99.7	92.2	85.4	79.4	73.3	67.2	61.1	60.2
80°	96.7	89.7	82.6	75.5	68.5	63.2	59.6	55.9	52.3	48.8	48.2
82.5°	72.6	66.4	60.4	54.3	48.2	44.3	42.6	41.0	39.3	37.6	37.1
85°	41.0	37.3	33.4	29.7	25.9	23.7	23.2	22.7	22.2	21.6	21.3
87.5°	15.1	14.3	13.4	12.6	11.8	11.8	12.7	13.5	14.4	15.2	15.5
90°	1.5	4.8	8.2	11.6	14.9	18.8	23.1	27.5	31.9	36.3	37.6
92.5°	28.1	27.2	26.2	25.2	24.3	25.4	28.8	32.1	35.3	38.7	40.8
95°	92.1	78.4	64.6	50.8	37.1	32.0	35.7	39.4	43.1	46.8	49.2
97.5°	185.1	178.9	172.8	166.5	160.4	145.2	121.1	96.9	72.8	48.6	51.3
100°	255.2	261.9	268.5	275.3	282.0	259.1	206.8	154.5	102.2	49.8	52.5
102.5°	334.9	339.7	344.6	349.3	354.2	328.0	270.8	213.7	156.5	99.4	91.0
105°	449.9	453.6	457.3	461.0	464.6	451.4	421.2	391.0	360.8	330.6	271.2
107.5°	571.3	574.2	577.1	580.2	583.1	586.9	591.7	596.5	601.3	606.0	562.5
110°	652.2	654.9	657.5	660.2	663.0	666.1	669.8	673.5	677.2	680.9	669.8



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	729.5	732.0	734.4	736.8	739.1	742.3	745.9	749.6	753.3	757.0	757.2
115°	843.9	846.0	848.0	850.0	852.0	854.5	857.6	860.5	863.5	866.6	869.9
117.5°	954.7	957.3	959.7	962.2	964.7	966.7	968.3	969.8	971.3	972.9	975.5
120°	1023.6	1026.6	1029.7	1032.7	1035.7	1037.7	1038.6	1039.7	1040.7	1041.7	1044.4
122.5°	1093.7	1096.1	1098.6	1101.1	1103.6	1105.5	1106.7	1108.0	1109.2	1110.5	1112.5
125°	1189.6	1192.3	1195.1	1197.7	1200.4	1202.4	1203.8	1205.1	1206.5	1207.8	1208.5
127.5°	1282.6	1285.4	1288.1	1290.7	1293.4	1295.6	1297.2	1298.8	1300.4	1302.0	1303.0
130°	1340.6	1343.3	1346.0	1348.7	1351.4	1353.4	1354.7	1356.0	1357.5	1358.8	1360.1
132.5°	1396.2	1398.9	1401.6	1404.2	1406.9	1408.9	1409.9	1411.0	1412.0	1413.1	1414.4
135°	1481.1	1483.1	1485.1	1487.1	1489.1	1490.8	1492.1	1493.5	1494.8	1496.1	1497.1
137.5°	1553.5	1556.1	1558.6	1561.2	1563.7	1565.4	1566.1	1566.8	1567.6	1568.3	1569.9
140°	1601.8	1603.9	1605.9	1607.9	1609.9	1611.3	1612.4	1613.4	1614.4	1615.4	1616.8
142.5°	1646.5	1648.5	1650.5	1652.5	1654.6	1656.1	1657.1	1658.1	1659.1	1660.1	1661.1
145°	1709.0	1711.3	1713.7	1716.1	1718.4	1719.9	1720.6	1721.2	1721.9	1722.6	1723.2
147.5°	1767.9	1769.5	1771.0	1772.5	1774.0	1775.1	1775.8	1776.6	1777.2	1777.9	1778.6
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°	953.8	953.8	953.8	953.8	953.8	953.8	953.8	953.8
2.5°	950.1	951.6	953.1	953.7	953.4	953.1	952.9	952.6
5°	943.7	945.3	946.8	947.5	947.2	946.7	946.4	946.0
7.5°	930.5	931.3	932.2	932.3	931.7	931.2	930.6	930.0
10°	918.6	918.8	918.9	918.6	917.8	916.9	916.0	915.1
12.5°	903.8	903.7	903.6	903.0	902.0	901.0	900.1	899.1
15°	877.9	877.0	876.2	875.0	873.8	872.7	871.5	870.3
17.5°	846.9	845.1	843.1	841.4	839.6	837.8	836.0	834.2
20°	825.6	823.3	821.1	819.0	816.9	814.9	812.7	810.7
22.5°	802.8	800.0	797.3	794.9	792.9	791.0	789.1	787.2
25°	765.6	761.9	758.4	755.6	753.8	751.8	749.9	748.0
27.5°	725.0	720.0	715.0	711.0	708.1	705.3	702.4	699.4
30°	696.1	690.2	684.5	680.1	677.4	674.7	671.9	669.1
32.5°	667.8	661.4	655.0	650.4	647.5	644.6	641.7	638.8
35°	625.7	618.3	611.0	605.7	602.6	599.6	596.4	593.3
37.5°	580.6	572.2	563.8	557.7	553.9	550.1	546.2	542.4
40°	549.2	540.2	531.3	524.8	520.9	516.9	513.0	509.0
42.5°	519.1	509.3	499.5	492.8	489.3	485.7	482.2	478.7
45°	474.7	464.9	455.1	448.2	444.0	439.9	435.8	431.6
47.5°	428.9	418.3	407.6	400.4	396.8	393.0	389.4	385.7
50°	398.0	387.3	376.7	369.3	365.4	361.4	357.5	353.6
52.5°	368.1	357.0	345.9	338.6	335.1	331.5	328.0	324.5
55°	323.6	313.6	303.6	296.9	293.5	290.0	286.6	283.2
57.5°	279.7	270.3	260.9	254.8	251.9	248.9	246.0	243.1
60°	252.2	242.9	233.6	227.5	224.6	221.7	218.7	215.8
62.5°	224.8	216.1	207.3	201.5	198.4	195.3	192.3	189.2
65°	185.8	177.4	169.0	163.8	162.0	160.1	158.1	156.2
67.5°	148.7	142.3	136.0	131.9	129.9	127.8	125.8	123.8
70°	125.6	119.7	113.6	109.7	107.8	105.9	104.0	102.1
72.5°	104.9	100.1	95.1	92.3	91.5	90.7	89.9	89.1
75°	78.6	76.9	75.1	74.1	73.7	73.4	73.0	72.7
77.5°	59.3	58.4	57.4	56.8	56.5	56.0	55.7	55.3
80°	47.7	47.2	46.7	46.3	45.9	45.5	45.2	44.8
82.5°	36.6	36.1	35.5	35.2	35.1	35.1	35.0	34.9
85°	21.0	20.6	20.3	20.1	20.1	20.1	20.1	20.1
87.5°	15.6	15.7	15.9	15.9	15.9	15.9	15.9	15.9
90°	38.9	40.3	41.6	42.6	43.3	43.9	44.6	45.2
92.5°	42.9	45.1	47.3	48.5	48.9	49.3	49.7	50.1
95°	51.5	53.8	56.1	57.4	57.4	57.4	57.4	57.4
97.5°	54.0	56.7	59.4	60.9	61.2	61.5	61.9	62.2
100°	55.1	57.9	60.6	62.1	62.4	62.7	63.1	63.4
102.5°	82.7	74.4	66.0	62.2	62.8	63.4	64.0	64.6
105°	211.9	152.5	93.1	63.7	64.4	65.1	65.7	66.4
107.5°	518.9	475.3	431.8	387.7	343.0	298.1	253.4	208.6
110°	658.7	647.6	636.6	607.0	559.1	511.1	463.1	415.2





TEST NUMBER: P332428-840

CATALOG NUMBER: S123RDIW-S560D1535U840-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	757.4	757.6	757.8	752.9	742.7	732.6	722.5	712.3
115°	873.3	876.7	880.0	882.3	883.7	885.0	886.4	887.8
117.5°	978.3	980.9	983.6	985.1	985.3	985.6	985.9	986.1
120°	1047.1	1049.8	1052.5	1053.8	1053.8	1053.8	1053.8	1053.8
122.5°	1114.3	1116.2	1118.1	1119.1	1119.4	1119.6	1119.9	1120.2
125°	1209.1	1209.8	1210.4	1211.1	1211.8	1212.4	1213.2	1213.9
127.5°	1304.1	1305.3	1306.3	1306.5	1305.9	1305.1	1304.4	1303.8
130°	1361.4	1362.8	1364.1	1364.4	1363.8	1363.1	1362.4	1361.8
132.5°	1415.8	1417.1	1418.5	1418.7	1417.7	1416.8	1415.8	1414.9
135°	1498.1	1499.1	1500.2	1500.2	1499.1	1498.1	1497.1	1496.1
137.5°	1571.6	1573.2	1574.8	1575.2	1574.6	1573.9	1573.2	1572.6
140°	1618.1	1619.4	1620.7	1621.1	1620.4	1619.8	1619.1	1618.4
142.5°	1662.2	1663.3	1664.4	1664.5	1663.6	1662.5	1661.6	1660.7
145°	1723.9	1724.6	1725.3	1725.7	1725.7	1725.7	1725.7	1725.7
147.5°	1779.2	1779.9	1780.6	1780.1	1778.6	1777.1	1775.4	1773.9
150°	1813.0	1813.7	1814.3	1814.2	1813.2	1812.2	1811.2	1810.2
152.5°	1843.1	1844.3	1845.5	1845.3	1843.8	1842.2	1840.7	1839.2
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)