

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: P332116-940

Luminaire Tested: **S123DIW-S340D1535U940-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332116-940  
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-S340D1535U940-4F0-1E-UDD-D  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 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: 6758.7 lumens  
Efficiency: N/A  
Efficacy: 126.6 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

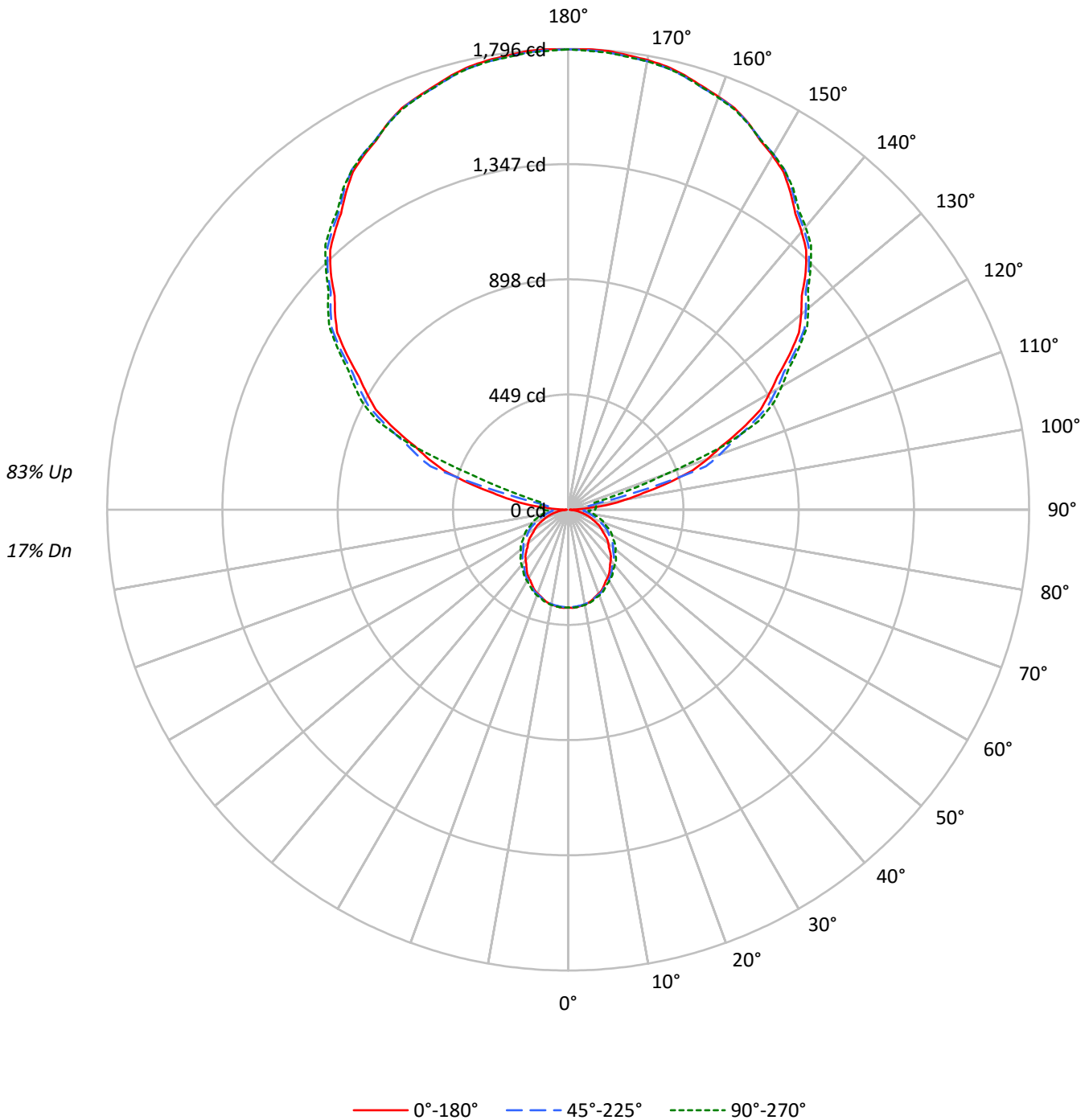
Input Watts (W): 53.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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						17													
1	90	86	82	79	79	76	72	70	56	54	52	39	38	36	22	22	21	14						14													
2	82	75	69	64	72	66	61	57	49	46	43	34	32	30	20	19	18	11						11													
3	74	65	58	53	65	58	52	47	43	39	36	30	27	25	17	16	15	9						9													
4	68	58	50	44	59	51	45	40	38	34	30	26	24	21	15	14	13	8						8													
5	62	51	43	38	54	45	39	34	34	29	26	23	21	18	14	12	11	7						7													
6	57	46	38	32	50	40	34	29	30	26	22	21	18	16	12	11	9	6						6													
7	53	41	33	28	46	36	30	25	27	23	19	19	16	14	11	10	8	5						5													
8	49	37	30	24	43	33	26	22	25	20	17	17	14	12	10	9	7	5						5													
9	45	33	26	22	40	30	24	19	23	18	15	16	13	11	9	8	7	4						4													
10	42	30	24	19	37	27	21	17	21	16	13	14	12	10	9	7	6	4						4													

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

	0°	45°	90°
0°	4105	4105	4105
5°	4118	4002	4004
10°	4082	3910	3890
15°	4029	3805	3766
20°	3954	3686	3630
25°	3860	3549	3485
30°	3767	3425	3339
35°	3659	3294	3223
40°	3557	3175	3098
45°	3445	3060	2998
50°	3333	2947	2888
55°	3211	2831	2789
60°	3090	2713	2689
65°	2967	2588	2567
70°	2783	2448	2443
75°	2551	2287	2318
80°	2278	2128	2175
85°	2025	2018	2090



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	36.2	0.5
10°-20°	103.1	1.5
20°-30°	154.2	2.3
30°-40°	184.1	2.7
40°-50°	192.6	2.9
50°-60°	180.7	2.7
60°-70°	151.0	2.2
70°-80°	108.0	1.6
80°-90°	69.4	1.0
90°-100°	105.7	1.6
100°-110°	340.6	5.0
110°-120°	766.7	11.3
120°-130°	962.3	14.2
130°-140°	1021.2	15.1
140°-150°	951.3	14.1
150°-160°	766.5	11.3
160°-170°	494.7	7.3
170°-180°	170.5	2.5
0°-30°	293.4	4.3
0°-40°	477.5	7.1
0°-60°	850.9	12.6
0°-90°	1179.3	17.4
90°-120°	1212.9	17.9
90°-150°	4147.8	61.4
90°-180°	5579.0	82.5
0°-180°	6758.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	381	381	381	381	381	
5°	382	381	378	382	381	36
15°	364	365	364	368	368	102
25°	328	332	334	339	339	151
35°	282	289	295	301	302	177
45°	231	241	251	259	263	178
55°	176	190	205	216	219	158
65°	122	138	156	168	173	120
75°	66	86	106	120	125	71
85°	20	41	63	77	81	21
90°	7	41	79	98	105	8
95°	86	52	82	104	109	104
105°	401	418	323	112	105	425
115°	747	761	787	810	819	738
125°	1052	1063	1080	1091	1097	939
135°	1309	1316	1326	1337	1336	1007
145°	1510	1518	1521	1527	1529	944
155°	1662	1660	1661	1667	1660	766
165°	1753	1749	1748	1757	1749	495
175°	1794	1788	1789	1797	1788	171
180°	1794	1794	1794	1794	1794	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4
2.5°	383.1	382.9	382.6	382.5	382.2	381.8	381.2	380.6	380.0	379.4	380.0
5°	381.8	381.7	381.5	381.3	381.1	380.8	380.1	379.6	379.1	378.5	379.2
7.5°	378.1	378.2	378.2	378.2	378.3	378.0	377.5	376.9	376.4	375.9	376.7
10°	374.8	375.0	375.1	375.3	375.5	375.4	374.9	374.4	374.0	373.5	374.4
12.5°	370.8	371.0	371.3	371.6	371.8	371.8	371.5	371.1	370.9	370.5	371.4
15°	363.6	363.8	364.1	364.4	364.6	364.8	364.6	364.5	364.4	364.4	365.3
17.5°	354.5	355.0	355.5	356.1	356.6	356.9	356.9	356.8	356.8	356.8	357.6
20°	347.8	348.3	348.8	349.5	350.0	350.4	350.5	350.7	350.9	351.1	352.0
22.5°	340.8	341.3	341.9	342.4	343.0	343.4	343.7	343.9	344.2	344.5	345.5
25°	328.2	329.1	330.1	331.0	331.9	332.5	332.8	333.1	333.3	333.7	334.8
27.5°	315.6	316.6	317.7	318.8	319.9	320.7	321.2	321.8	322.4	323.0	324.0
30°	306.7	307.8	309.1	310.2	311.5	312.4	313.2	313.9	314.6	315.4	316.5
32.5°	296.7	298.0	299.3	300.7	302.0	303.2	304.2	305.1	306.1	307.0	308.3
35°	282.5	284.0	285.5	287.0	288.5	289.8	291.0	292.2	293.4	294.6	296.0
37.5°	267.6	269.2	270.9	272.6	274.2	275.8	277.2	278.7	280.3	281.7	283.3
40°	257.6	259.3	260.9	262.6	264.2	266.0	267.9	269.7	271.5	273.4	275.0
42.5°	246.6	248.7	250.7	252.7	254.8	256.7	258.7	260.6	262.5	264.4	266.2
45°	231.0	233.3	235.4	237.6	239.9	242.1	244.4	246.7	249.1	251.4	253.2
47.5°	214.6	217.1	219.6	222.2	224.7	227.3	229.9	232.6	235.1	237.8	239.8
50°	204.0	206.6	209.2	211.8	214.4	217.0	219.9	222.8	225.7	228.5	230.7
52.5°	192.7	195.5	198.1	200.9	203.7	206.6	209.7	212.9	216.1	219.2	221.4
55°	176.2	179.2	182.3	185.3	188.3	191.5	194.8	198.2	201.5	204.8	207.3
57.5°	160.1	163.2	166.4	169.6	172.7	176.2	179.8	183.4	187.1	190.7	193.2
60°	148.7	152.0	155.4	158.7	162.0	165.6	169.4	173.2	176.9	180.7	183.3
62.5°	138.1	141.5	144.9	148.3	151.7	155.4	159.4	163.5	167.5	171.5	174.0
65°	121.7	125.4	128.9	132.5	136.2	140.0	144.0	148.1	152.1	156.2	159.0
67.5°	105.1	109.0	112.8	116.5	120.4	124.4	128.5	132.7	136.8	141.0	143.9
70°	93.5	97.5	101.4	105.4	109.3	113.6	118.0	122.4	126.9	131.3	134.3
72.5°	82.8	86.9	90.8	94.8	98.7	103.0	107.5	112.2	116.7	121.4	124.4
75°	66.1	70.4	74.7	79.1	83.5	87.9	92.6	97.1	101.7	106.4	109.4
77.5°	51.5	55.8	60.2	64.6	68.9	73.5	78.1	82.8	87.4	92.1	95.3
80°	41.1	45.7	50.2	54.8	59.2	63.9	68.7	73.5	78.3	83.1	86.2
82.5°	32.2	36.7	41.4	45.9	50.6	55.3	60.2	65.0	69.9	74.8	77.9
85°	20.3	25.0	29.6	34.2	38.8	43.6	48.5	53.3	58.2	63.1	66.3
87.5°	11.3	16.5	21.7	26.9	32.1	37.5	42.9	48.3	53.9	59.3	62.7
90°	6.8	14.2	21.7	29.2	36.6	44.7	53.2	61.8	70.4	78.9	83.3
92.5°	29.9	33.1	36.4	39.6	42.9	48.2	55.8	63.3	70.9	78.4	83.4
95°	85.9	77.3	68.8	60.3	51.7	51.4	59.1	66.9	74.6	82.5	87.4
97.5°	167.6	165.3	163.1	160.9	158.7	149.1	132.1	115.1	98.1	81.1	86.2
100°	229.0	237.9	246.8	255.7	264.6	248.0	206.1	164.1	122.1	80.2	85.2
102.5°	299.1	306.0	312.9	319.9	326.8	307.1	260.8	214.5	168.2	121.9	117.2
105°	400.6	406.1	411.5	417.1	422.5	413.8	391.2	368.5	345.8	323.1	273.2
107.5°	507.3	511.8	516.2	520.8	525.2	531.5	539.4	547.4	555.4	563.4	527.4
110°	578.4	582.5	586.5	590.5	594.5	600.0	607.0	613.9	620.9	627.9	620.5



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	646.7	650.1	653.6	657.1	660.7	665.8	672.6	679.4	686.2	693.0	695.5
115°	747.3	750.2	753.0	755.9	758.8	763.2	769.3	775.3	781.2	787.2	792.4
117.5°	845.1	847.9	850.8	853.6	856.6	860.2	864.7	869.2	873.7	878.2	882.7
120°	905.5	908.7	911.8	914.9	918.0	921.6	925.5	929.4	933.4	937.3	941.7
122.5°	967.3	969.8	972.2	974.6	977.0	980.3	984.4	988.4	992.4	996.4	1000.1
125°	1051.7	1054.1	1056.5	1058.8	1061.2	1064.3	1068.2	1072.0	1075.9	1079.8	1082.3
127.5°	1133.8	1136.1	1138.4	1140.7	1143.0	1145.9	1149.5	1153.2	1156.8	1160.5	1163.2
130°	1185.0	1187.3	1189.6	1191.9	1194.2	1196.8	1199.8	1202.8	1205.9	1208.9	1211.8
132.5°	1233.8	1236.1	1238.5	1240.8	1243.1	1245.5	1247.9	1250.4	1252.9	1255.3	1258.1
135°	1308.6	1310.3	1312.0	1313.7	1315.4	1317.2	1319.5	1321.7	1323.9	1326.1	1328.6
137.5°	1372.5	1374.7	1376.9	1379.0	1381.2	1383.0	1384.1	1385.4	1386.6	1387.8	1390.7
140°	1414.8	1416.6	1418.4	1420.1	1421.9	1423.4	1424.6	1425.8	1426.9	1428.1	1430.7
142.5°	1454.3	1456.0	1457.7	1459.4	1461.1	1462.4	1463.4	1464.3	1465.3	1466.2	1468.4
145°	1509.5	1511.4	1513.4	1515.5	1517.4	1518.7	1519.3	1519.8	1520.5	1521.1	1522.4
147.5°	1561.0	1562.5	1563.8	1565.1	1566.5	1567.4	1568.1	1568.7	1569.2	1569.9	1570.7
150°	1593.0	1593.9	1594.8	1595.7	1596.6	1597.3	1597.9	1598.6	1599.1	1599.7	1600.3
152.5°	1621.8	1622.3	1622.6	1623.1	1623.5	1623.9	1624.3	1624.6	1625.0	1625.3	1626.4
155°	1662.3	1661.8	1661.2	1660.6	1660.0	1659.8	1660.2	1660.5	1660.7	1661.0	1662.5
157.5°	1693.8	1693.8	1693.7	1693.6	1693.6	1693.4	1693.1	1692.8	1692.6	1692.2	1694.0
160°	1713.1	1712.7	1712.4	1712.2	1711.8	1711.5	1711.3	1710.9	1710.7	1710.4	1712.2
162.5°	1731.2	1730.4	1729.7	1728.8	1728.0	1727.5	1727.2	1727.0	1726.6	1726.4	1728.4
165°	1753.0	1752.1	1751.2	1750.3	1749.4	1748.9	1748.6	1748.3	1748.0	1747.7	1750.1
167.5°	1770.0	1768.9	1767.7	1766.6	1765.3	1764.8	1764.8	1764.8	1764.8	1764.8	1767.1
170°	1779.7	1778.5	1777.3	1776.1	1775.0	1774.3	1774.3	1774.3	1774.3	1774.3	1776.7
172.5°	1786.1	1784.7	1783.2	1781.8	1780.4	1779.8	1780.0	1780.3	1780.5	1780.7	1783.2
175°	1794.3	1792.9	1791.4	1789.9	1788.4	1787.8	1788.1	1788.4	1788.7	1789.0	1791.1
177.5°	1796.4	1795.3	1794.1	1793.0	1791.7	1791.3	1791.5	1791.7	1792.0	1792.2	1794.1
180°	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4
2.5°	380.6	381.2	381.8	382.0	382.0	381.9	381.8	381.7
5°	380.0	380.8	381.5	381.8	381.7	381.6	381.5	381.4
7.5°	377.7	378.6	379.5	380.0	379.9	379.7	379.6	379.5
10°	375.4	376.3	377.2	377.6	377.4	377.2	377.0	376.8
12.5°	372.2	373.1	373.9	374.3	374.1	373.9	373.7	373.5
15°	366.2	367.1	368.1	368.5	368.4	368.3	368.2	368.1
17.5°	358.4	359.3	360.1	360.4	360.3	360.2	360.1	359.9
20°	352.8	353.6	354.5	354.9	355.0	355.1	355.2	355.3
22.5°	346.5	347.6	348.7	349.2	349.1	349.0	349.0	348.9
25°	336.0	337.2	338.4	339.0	339.0	339.0	339.0	339.0
27.5°	325.0	326.1	327.2	327.7	327.8	327.9	327.9	328.0
30°	317.5	318.7	319.8	320.3	320.3	320.3	320.3	320.3
32.5°	309.4	310.6	311.7	312.5	312.7	312.9	313.2	313.3
35°	297.4	298.7	300.1	301.0	301.4	301.8	302.1	302.5
37.5°	284.8	286.4	288.0	288.9	289.2	289.5	289.8	290.1
40°	276.5	278.1	279.6	280.6	281.0	281.4	281.8	282.1
42.5°	267.9	269.6	271.3	272.4	273.0	273.4	273.9	274.5
45°	254.9	256.6	258.4	259.7	260.4	261.1	261.9	262.6
47.5°	241.7	243.8	245.8	247.0	247.5	248.2	248.7	249.3
50°	232.7	234.9	237.0	238.4	239.1	239.7	240.3	241.0
52.5°	223.6	225.8	228.0	229.5	230.3	231.1	231.8	232.6
55°	209.8	212.3	214.8	216.4	217.1	217.9	218.6	219.4
57.5°	195.7	198.2	200.7	202.4	203.3	204.2	205.1	205.9
60°	185.9	188.5	191.1	192.9	193.9	194.9	195.9	197.0
62.5°	176.6	179.1	181.7	183.5	184.5	185.4	186.4	187.3
65°	161.8	164.5	167.3	169.2	170.0	171.0	171.9	172.8
67.5°	147.0	150.0	153.0	155.0	155.7	156.5	157.3	158.0
70°	137.2	140.2	143.1	145.1	146.0	146.9	147.8	148.7
72.5°	127.3	130.4	133.4	135.5	136.3	137.2	138.2	139.1
75°	112.4	115.5	118.6	120.6	121.7	122.9	123.9	125.1
77.5°	98.5	101.7	105.0	106.9	107.8	108.7	109.5	110.4
80°	89.3	92.6	95.7	97.6	98.6	99.5	100.5	101.4
82.5°	81.1	84.2	87.4	89.3	90.3	91.2	92.1	93.1
85°	69.5	72.6	75.7	77.8	78.6	79.6	80.5	81.4
87.5°	66.1	69.5	72.9	75.1	76.1	77.1	78.2	79.2
90°	87.6	91.9	96.2	99.2	100.7	102.2	103.7	105.2
92.5°	88.4	93.3	98.3	101.4	102.5	103.8	105.0	106.2
95°	92.3	97.3	102.2	105.1	106.0	107.0	107.9	108.8
97.5°	91.3	96.4	101.6	104.7	105.9	107.2	108.3	109.6
100°	90.2	95.3	100.3	103.4	104.7	105.9	107.1	108.3
102.5°	112.4	107.6	102.9	101.3	102.7	104.2	105.7	107.1
105°	223.4	173.5	123.7	99.5	100.9	102.4	103.8	105.2
107.5°	491.4	455.4	419.5	382.1	343.4	304.7	266.0	227.3
110°	613.1	605.6	598.3	573.8	532.2	490.5	449.0	407.3





TEST NUMBER: P332116-940

CATALOG NUMBER: S123DIW-S340D1535U940-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	698.0	700.5	703.0	700.2	692.1	683.9	675.8	667.7
115°	797.5	802.7	807.9	811.5	813.4	815.3	817.3	819.2
117.5°	887.3	891.9	896.4	899.2	900.2	901.1	902.1	903.0
120°	946.3	950.7	955.3	957.8	958.5	959.1	959.7	960.4
122.5°	1003.8	1007.5	1011.3	1013.5	1014.4	1015.3	1016.2	1017.1
125°	1084.9	1087.4	1089.9	1091.8	1093.1	1094.2	1095.5	1096.7
127.5°	1166.0	1168.8	1171.5	1173.0	1173.0	1173.0	1173.0	1173.1
130°	1214.8	1217.7	1220.7	1222.1	1222.1	1222.1	1222.0	1222.0
132.5°	1261.0	1263.8	1266.7	1268.0	1267.8	1267.7	1267.5	1267.2
135°	1331.1	1333.7	1336.3	1337.4	1336.9	1336.5	1336.1	1335.6
137.5°	1393.6	1396.4	1399.4	1400.7	1400.6	1400.4	1400.3	1400.2
140°	1433.2	1435.7	1438.3	1439.6	1439.4	1439.3	1439.2	1439.0
142.5°	1470.6	1472.7	1475.0	1475.9	1475.5	1475.2	1474.7	1474.4
145°	1523.8	1525.1	1526.3	1527.2	1527.6	1527.9	1528.3	1528.7
147.5°	1571.5	1572.3	1573.1	1573.0	1572.0	1570.9	1569.9	1568.9
150°	1600.9	1601.5	1602.0	1602.0	1601.3	1600.6	1599.9	1599.2
152.5°	1627.5	1628.5	1629.6	1629.4	1628.1	1626.7	1625.5	1624.2
155°	1664.0	1665.4	1667.0	1666.8	1665.0	1663.2	1661.4	1659.7
157.5°	1695.8	1697.5	1699.3	1699.1	1696.7	1694.4	1692.1	1689.8
160°	1714.0	1715.7	1717.4	1717.3	1715.2	1713.2	1711.1	1709.1
162.5°	1730.4	1732.4	1734.4	1734.5	1732.7	1730.8	1729.0	1727.2
165°	1752.4	1754.8	1757.2	1757.3	1755.2	1753.2	1751.1	1749.0
167.5°	1769.5	1771.8	1774.2	1774.2	1771.8	1769.5	1767.1	1764.8
170°	1779.1	1781.5	1783.9	1783.9	1781.5	1779.1	1776.7	1774.3
172.5°	1785.5	1787.9	1790.2	1790.1	1787.5	1784.9	1782.3	1779.7
175°	1793.1	1795.2	1797.3	1797.2	1794.7	1792.4	1790.0	1787.7
177.5°	1796.0	1797.9	1799.8	1799.6	1797.2	1794.8	1792.4	1790.1
180°	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3	1794.3

(END OF REPORT)