

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: P332113-840

Luminaire Tested: **S123DIW-S340D1320U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332113-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S340D1320U840-4F0-1E-UDD-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6048.5 lumens  
Efficiency: N/A  
Efficacy: 129.8 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

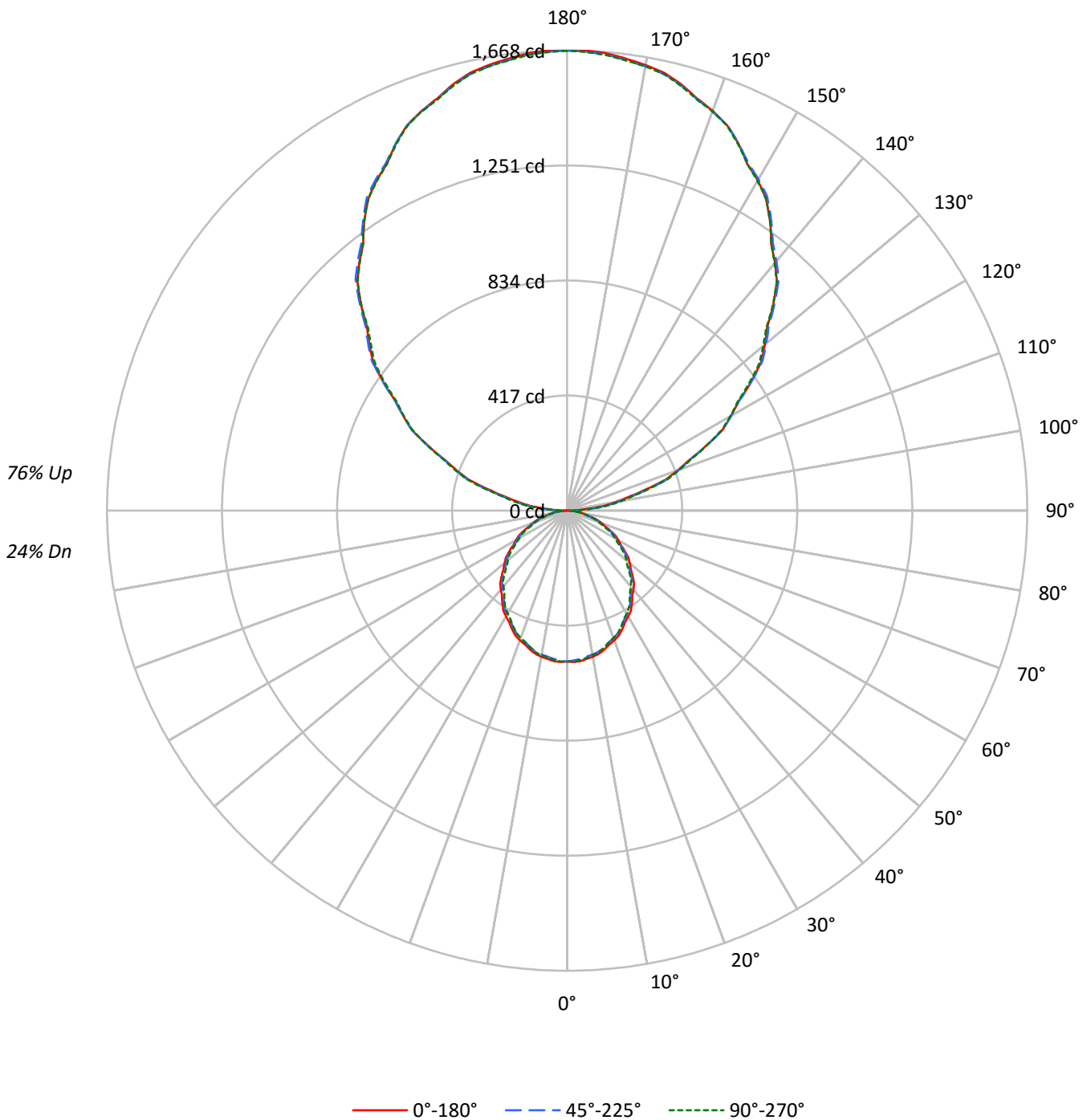
Input Watts (W): 46.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332113-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-F1

### 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	69	69	69	50	50	50	32	32	32	24
1	92	88	84	81	81	78	75	72	60	58	56	43	42	41	28	27	27	20
2	84	76	71	66	74	68	63	59	52	49	46	38	36	34	25	24	22	17
3	76	67	60	55	67	60	54	49	46	42	39	34	31	29	22	20	19	14
4	70	59	52	46	62	53	46	42	41	36	33	30	27	25	19	18	16	12
5	64	53	45	39	56	47	40	35	36	32	28	27	24	21	17	16	14	10
6	59	47	39	34	52	42	35	31	33	28	24	24	21	18	16	14	12	9
7	54	42	35	29	48	38	31	27	30	25	21	22	19	16	14	13	11	8
8	50	38	31	26	44	34	28	23	27	22	19	20	17	14	13	11	10	7
9	46	35	28	23	41	31	25	21	24	20	17	18	15	13	12	10	9	7
10	43	32	25	20	38	28	22	18	22	18	15	17	14	11	11	9	8	6

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

	0°	45°	90°
0°	5890	5890	5890
5°	5919	5837	5877
10°	5879	5786	5822
15°	5810	5721	5731
20°	5730	5628	5632
25°	5621	5516	5505
30°	5504	5392	5351
35°	5380	5261	5194
40°	5251	5117	5039
45°	5107	4985	4864
50°	4963	4823	4687
55°	4778	4654	4511
60°	4590	4456	4316
65°	4422	4241	4111
70°	4176	3997	3821
75°	3818	3681	3523
80°	3440	3298	3267
85°	3013	2902	2791



TEST NUMBER: P332113-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-F1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	51.5	0.9
10°-20°	145.6	2.4
20°-30°	215.0	3.6
30°-40°	251.2	4.2
40°-50°	252.5	4.2
50°-60°	221.8	3.7
60°-70°	165.2	2.7
70°-80°	94.1	1.6
80°-90°	31.9	0.5
90°-100°	108.6	1.8
100°-110°	325.1	5.4
110°-120°	553.0	9.1
120°-130°	727.3	12.0
130°-140°	817.5	13.5
140°-150°	803.6	13.3
150°-160°	676.5	11.2
160°-170°	450.3	7.4
170°-180°	157.7	2.6
0°-30°	412.1	6.8
0°-40°	663.3	11.0
0°-60°	1137.6	18.8
0°-90°	1428.9	23.6
90°-120°	986.7	16.3
90°-150°	3335.1	55.1
90°-180°	4620.0	76.4
0°-180°	6048.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	547	547	547	547	547	
5°	548	545	540	545	544	52
15°	521	519	513	517	514	147
25°	473	470	464	465	464	218
35°	409	406	400	398	395	256
45°	336	333	328	322	320	259
55°	255	254	248	243	240	228
65°	174	171	166	163	161	171
75°	92	90	88	86	85	98
85°	24	24	24	23	23	27
90°	1	15	31	37	39	6
95°	77	87	97	102	102	87
105°	295	298	309	309	312	316
115°	557	560	558	559	558	551
125°	815	818	816	811	806	726
135°	1057	1064	1064	1058	1056	814
145°	1282	1285	1289	1287	1282	801
155°	1468	1468	1470	1474	1466	676
165°	1599	1596	1595	1602	1594	451
175°	1663	1658	1658	1665	1657	158
180°	1667	1667	1667	1667	1667	



TEST NUMBER: P332113-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2
2.5°	549.2	548.8	548.5	548.2	547.8	547.1	546.2	545.3	544.4	543.5	544.3
5°	547.8	547.1	546.6	546.1	545.6	544.8	543.6	542.5	541.3	540.2	541.2
7.5°	542.4	541.8	541.3	540.8	540.3	539.4	538.3	537.0	535.8	534.6	535.5
10°	537.9	537.3	536.7	536.2	535.7	534.8	533.4	532.1	530.7	529.4	530.3
12.5°	531.8	531.4	530.9	530.5	530.1	529.2	528.0	526.6	525.3	524.1	524.8
15°	521.4	521.0	520.5	520.1	519.7	518.8	517.5	516.0	514.7	513.4	514.2
17.5°	509.2	508.7	508.2	507.6	507.1	506.1	504.7	503.4	502.0	500.7	501.2
20°	500.2	499.6	499.0	498.3	497.7	496.7	495.3	493.9	492.6	491.3	491.7
22.5°	490.0	489.4	488.8	488.2	487.6	486.6	485.1	483.8	482.4	481.1	481.4
25°	473.3	472.7	472.1	471.5	470.9	469.9	468.5	467.2	465.7	464.4	464.5
27.5°	455.6	454.9	454.3	453.7	453.1	452.1	450.7	449.2	447.8	446.3	446.4
30°	442.8	442.2	441.7	441.2	440.7	439.7	438.3	436.8	435.4	433.8	433.8
32.5°	430.0	429.3	428.6	427.9	427.3	426.3	425.2	424.0	422.9	421.8	421.2
35°	409.4	408.8	408.1	407.5	406.9	405.9	404.6	403.1	401.8	400.4	399.8
37.5°	388.3	387.5	386.7	385.9	385.2	384.1	382.6	381.2	379.9	378.5	377.8
40°	373.7	372.9	372.3	371.7	371.1	370.0	368.6	367.1	365.7	364.2	363.3
42.5°	358.9	358.2	357.5	356.8	356.1	355.0	353.6	352.0	350.6	349.1	348.3
45°	335.5	335.1	334.7	334.3	333.9	333.0	331.5	330.2	328.8	327.5	326.3
47.5°	312.3	311.6	311.0	310.4	309.8	308.9	307.6	306.3	305.1	303.8	302.6
50°	296.4	295.9	295.4	294.9	294.4	293.4	292.1	290.7	289.3	288.0	286.8
52.5°	279.8	279.5	279.1	278.8	278.4	277.5	276.1	274.7	273.3	271.8	270.8
55°	254.6	254.5	254.4	254.3	254.2	253.4	252.1	250.6	249.3	248.0	246.8
57.5°	230.5	230.1	229.7	229.4	229.0	228.3	227.2	226.1	225.1	224.0	223.0
60°	213.2	213.1	213.0	212.9	212.8	212.1	210.8	209.5	208.3	207.0	206.1
62.5°	197.7	197.4	197.2	196.9	196.6	195.9	194.6	193.4	192.1	190.9	190.0
65°	173.6	173.1	172.6	172.1	171.6	170.8	169.8	168.6	167.6	166.5	165.7
67.5°	148.1	147.6	147.2	146.7	146.3	145.6	144.9	144.1	143.3	142.5	141.8
70°	132.7	132.1	131.5	130.8	130.2	129.6	129.0	128.3	127.6	127.0	126.3
72.5°	116.5	116.0	115.6	115.1	114.6	114.1	113.4	112.7	112.0	111.3	110.6
75°	91.8	91.3	90.9	90.5	90.1	89.7	89.4	89.1	88.8	88.5	88.0
77.5°	69.8	69.6	69.4	69.2	68.9	68.6	68.3	67.9	67.5	67.1	66.8
80°	55.5	55.2	54.9	54.6	54.2	54.0	53.8	53.6	53.4	53.2	53.0
82.5°	41.6	41.5	41.5	41.4	41.3	41.3	41.2	41.2	41.2	41.1	40.9
85°	24.4	24.2	24.0	23.8	23.6	23.5	23.5	23.5	23.5	23.5	23.3
87.5°	10.1	10.4	10.7	11.0	11.4	11.9	12.5	13.2	13.9	14.5	14.7
90°	1.3	4.2	7.2	10.0	12.9	16.3	20.1	23.8	27.7	31.4	32.6
92.5°	31.7	33.6	35.6	37.7	39.6	41.7	43.8	45.9	48.2	50.3	51.2
95°	77.3	79.3	81.4	83.4	85.4	87.7	90.0	92.3	94.6	96.9	98.1
97.5°	137.2	138.8	140.3	141.8	143.3	144.9	146.6	148.2	150.0	151.7	153.0
100°	178.1	179.9	181.6	183.4	185.1	186.7	188.1	189.7	191.1	192.6	193.4
102.5°	225.3	226.3	227.4	228.4	229.4	231.0	232.9	234.8	236.7	238.6	239.5
105°	294.7	295.3	295.9	296.4	297.0	298.6	301.2	303.9	306.5	309.1	309.1
107.5°	375.4	375.8	376.1	376.5	376.8	377.5	378.5	379.6	380.6	381.6	382.6
110°	425.7	426.3	426.9	427.4	428.0	428.6	429.2	429.8	430.3	430.9	432.1



TEST NUMBER: P332113-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	478.1	478.4	478.8	479.1	479.5	479.7	479.8	479.9	480.1	480.2	481.6
115°	556.6	557.5	558.4	559.3	560.2	560.3	559.7	559.2	558.6	558.0	558.3
117.5°	635.8	636.3	636.9	637.5	638.1	638.0	637.2	636.5	635.7	635.0	634.9
120°	685.0	686.7	688.5	690.2	692.0	692.2	690.6	689.2	687.8	686.3	686.0
122.5°	736.4	737.6	738.9	740.2	741.4	741.7	740.9	740.2	739.4	738.7	737.9
125°	814.7	815.6	816.4	817.3	818.2	818.3	817.7	817.2	816.6	816.0	814.9
127.5°	887.0	888.9	890.7	892.5	894.4	895.0	894.4	893.7	893.1	892.5	890.8
130°	935.1	937.5	939.9	942.2	944.5	945.2	944.3	943.5	942.6	941.7	940.6
132.5°	983.4	985.7	988.1	990.4	992.7	993.5	992.9	992.3	991.6	991.0	989.6
135°	1057.0	1058.7	1060.5	1062.2	1064.0	1064.7	1064.4	1064.1	1063.8	1063.5	1062.4
137.5°	1125.1	1126.5	1128.0	1129.4	1130.9	1132.1	1132.8	1133.6	1134.3	1135.1	1133.8
140°	1172.3	1173.7	1175.2	1176.6	1178.1	1178.9	1179.2	1179.5	1179.8	1180.1	1179.8
142.5°	1215.2	1216.7	1218.1	1219.6	1221.0	1222.0	1222.5	1223.0	1223.6	1224.2	1223.9
145°	1282.2	1282.8	1283.4	1284.0	1284.5	1285.4	1286.2	1287.1	1288.0	1288.8	1288.5
147.5°	1340.9	1342.0	1343.0	1344.1	1345.1	1346.0	1346.9	1347.7	1348.5	1349.3	1349.3
150°	1381.8	1382.4	1383.0	1383.5	1384.1	1384.7	1385.3	1385.8	1386.4	1387.0	1387.0
152.5°	1415.3	1416.1	1416.9	1417.7	1418.6	1419.2	1419.6	1419.9	1420.3	1420.6	1421.1
155°	1468.2	1468.2	1468.2	1468.2	1468.2	1468.4	1468.6	1468.9	1469.3	1469.6	1470.8
157.5°	1513.3	1513.0	1512.6	1512.3	1511.9	1511.9	1512.1	1512.3	1512.6	1512.8	1514.0
160°	1541.6	1541.1	1540.4	1539.8	1539.2	1538.9	1538.9	1538.9	1538.9	1538.9	1540.4
162.5°	1566.7	1565.9	1565.1	1564.3	1563.5	1563.2	1563.5	1563.7	1563.9	1564.1	1565.6
165°	1599.2	1598.3	1597.5	1596.6	1595.8	1595.3	1595.3	1595.3	1595.3	1595.3	1597.0
167.5°	1625.2	1624.0	1622.9	1621.6	1620.5	1620.0	1620.2	1620.5	1620.7	1620.9	1622.8
170°	1639.8	1638.7	1637.5	1636.4	1635.2	1634.6	1634.6	1634.6	1634.6	1634.6	1636.6
172.5°	1651.3	1650.2	1649.0	1647.9	1646.7	1646.1	1646.1	1646.1	1646.1	1646.1	1647.9
175°	1663.4	1662.2	1661.1	1659.9	1658.7	1658.2	1658.2	1658.2	1658.2	1658.2	1659.9
177.5°	1668.4	1667.5	1666.5	1665.6	1664.7	1664.2	1664.2	1664.2	1664.2	1664.2	1665.6
180°	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4



TEST NUMBER: P332113-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	547.2	547.2	547.2	547.2	547.2	547.2	547.2	547.2
2.5°	545.1	546.0	546.8	547.2	547.1	547.0	546.9	546.8
5°	542.3	543.3	544.4	544.8	544.6	544.4	544.1	543.9
7.5°	536.5	537.5	538.4	538.8	538.7	538.6	538.5	538.3
10°	531.3	532.2	533.1	533.5	533.3	533.1	532.9	532.7
12.5°	525.4	526.1	526.8	527.1	527.0	526.8	526.7	526.6
15°	515.0	515.8	516.7	516.8	516.1	515.5	514.9	514.3
17.5°	501.8	502.4	503.0	503.2	502.9	502.7	502.5	502.3
20°	492.1	492.5	492.9	493.0	492.6	492.3	492.0	491.7
22.5°	481.7	482.1	482.4	482.4	482.0	481.6	481.2	480.8
25°	464.6	464.7	464.8	464.7	464.4	464.1	463.8	463.5
27.5°	446.5	446.6	446.6	446.5	446.1	445.7	445.2	444.8
30°	433.8	433.8	433.8	433.4	432.7	432.0	431.3	430.5
32.5°	420.6	420.0	419.5	419.0	418.6	418.2	417.8	417.4
35°	399.2	398.6	397.9	397.4	396.9	396.3	395.8	395.3
37.5°	377.0	376.3	375.5	375.0	374.7	374.3	374.0	373.7
40°	362.5	361.7	360.8	360.2	359.8	359.4	359.0	358.6
42.5°	347.5	346.6	345.8	345.2	344.8	344.4	344.0	343.5
45°	325.0	323.8	322.4	321.6	321.0	320.5	320.0	319.5
47.5°	301.3	300.1	298.8	298.0	297.5	297.1	296.6	296.2
50°	285.7	284.5	283.4	282.5	281.9	281.2	280.6	279.9
52.5°	269.8	268.8	267.8	267.0	266.4	265.8	265.2	264.6
55°	245.7	244.5	243.4	242.6	242.1	241.5	241.0	240.4
57.5°	222.0	220.9	219.8	219.0	218.4	217.8	217.2	216.6
60°	205.2	204.2	203.3	202.6	202.0	201.5	201.0	200.5
62.5°	188.9	188.0	187.1	186.4	186.1	185.7	185.4	185.0
65°	164.9	164.1	163.2	162.7	162.4	162.0	161.7	161.4
67.5°	141.0	140.3	139.6	139.0	138.6	138.0	137.6	137.2
70°	125.6	124.8	124.1	123.5	123.0	122.5	121.9	121.4
72.5°	110.0	109.3	108.7	108.2	108.0	107.7	107.3	107.0
75°	87.5	86.8	86.3	85.9	85.6	85.3	85.0	84.7
77.5°	66.3	66.0	65.6	65.5	65.5	65.5	65.5	65.5
80°	52.9	52.8	52.7	52.7	52.7	52.7	52.7	52.7
82.5°	40.8	40.6	40.4	40.2	40.2	40.1	40.0	39.9
85°	23.1	22.9	22.7	22.6	22.6	22.6	22.6	22.6
87.5°	14.8	15.0	15.1	15.2	15.5	15.6	15.7	15.8
90°	33.7	34.9	36.1	37.0	37.6	38.2	38.7	39.3
92.5°	52.1	53.1	54.0	54.3	53.9	53.6	53.2	52.9
95°	99.3	100.4	101.6	102.2	102.2	102.2	102.2	102.2
97.5°	154.3	155.7	157.0	157.6	157.5	157.4	157.3	157.1
100°	194.3	195.1	196.0	196.7	197.3	197.9	198.5	199.0
102.5°	240.3	241.3	242.2	242.5	242.4	242.3	242.2	242.1
105°	309.1	309.1	309.1	309.4	310.0	310.5	311.1	311.7
107.5°	383.5	384.5	385.4	385.7	385.4	385.0	384.7	384.3
110°	433.2	434.4	435.6	435.9	435.3	434.7	434.1	433.5





TEST NUMBER: P332113-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	482.9	484.3	485.7	486.4	486.3	486.1	486.0	485.9
115°	558.6	558.9	559.2	559.2	558.9	558.6	558.3	558.0
117.5°	634.9	634.8	634.7	634.3	633.5	632.7	631.9	631.1
120°	685.7	685.5	685.2	684.7	684.2	683.6	683.0	682.4
122.5°	737.2	736.4	735.7	734.9	734.1	733.3	732.5	731.6
125°	813.6	812.5	811.3	810.2	809.0	807.8	806.7	805.5
127.5°	889.2	887.6	886.0	884.4	883.1	881.8	880.5	879.1
130°	939.4	938.3	937.1	935.4	933.4	931.4	929.4	927.4
132.5°	988.2	986.7	985.4	983.9	982.3	980.8	979.2	977.7
135°	1061.2	1060.1	1058.8	1058.0	1057.4	1056.8	1056.2	1055.7
137.5°	1132.6	1131.4	1130.1	1129.0	1127.9	1126.8	1125.7	1124.6
140°	1179.5	1179.2	1178.9	1177.8	1175.8	1173.7	1171.6	1169.6
142.5°	1223.6	1223.2	1222.9	1222.0	1220.4	1218.9	1217.3	1215.8
145°	1288.2	1288.0	1287.7	1287.0	1285.8	1284.5	1283.4	1282.2
147.5°	1349.3	1349.3	1349.3	1348.5	1346.8	1344.9	1343.2	1341.5
150°	1387.0	1387.0	1387.0	1386.1	1384.4	1382.7	1380.9	1379.2
152.5°	1421.5	1422.0	1422.4	1421.9	1420.4	1418.9	1417.3	1415.8
155°	1471.9	1473.1	1474.2	1473.8	1471.8	1469.8	1467.6	1465.6
157.5°	1515.2	1516.4	1517.7	1517.4	1515.8	1514.2	1512.6	1511.0
160°	1541.9	1543.4	1544.8	1545.0	1543.8	1542.7	1541.5	1540.2
162.5°	1567.0	1568.5	1569.9	1569.7	1567.9	1566.0	1564.2	1562.3
165°	1598.8	1600.5	1602.3	1602.2	1600.1	1598.1	1596.0	1594.0
167.5°	1624.6	1626.4	1628.2	1628.2	1626.4	1624.6	1622.8	1620.9
170°	1638.7	1640.7	1642.7	1642.7	1640.7	1638.7	1636.6	1634.6
172.5°	1649.7	1651.5	1653.4	1653.3	1651.2	1649.1	1647.1	1645.1
175°	1661.6	1663.4	1665.2	1665.0	1662.9	1660.9	1658.9	1656.9
177.5°	1667.0	1668.4	1669.8	1669.7	1668.0	1666.4	1664.8	1663.1
180°	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4	1667.4

(END OF REPORT)