

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: P332111-840

Luminaire Tested: **S123DIW-S340D1320U840-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332111-840  
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-D1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

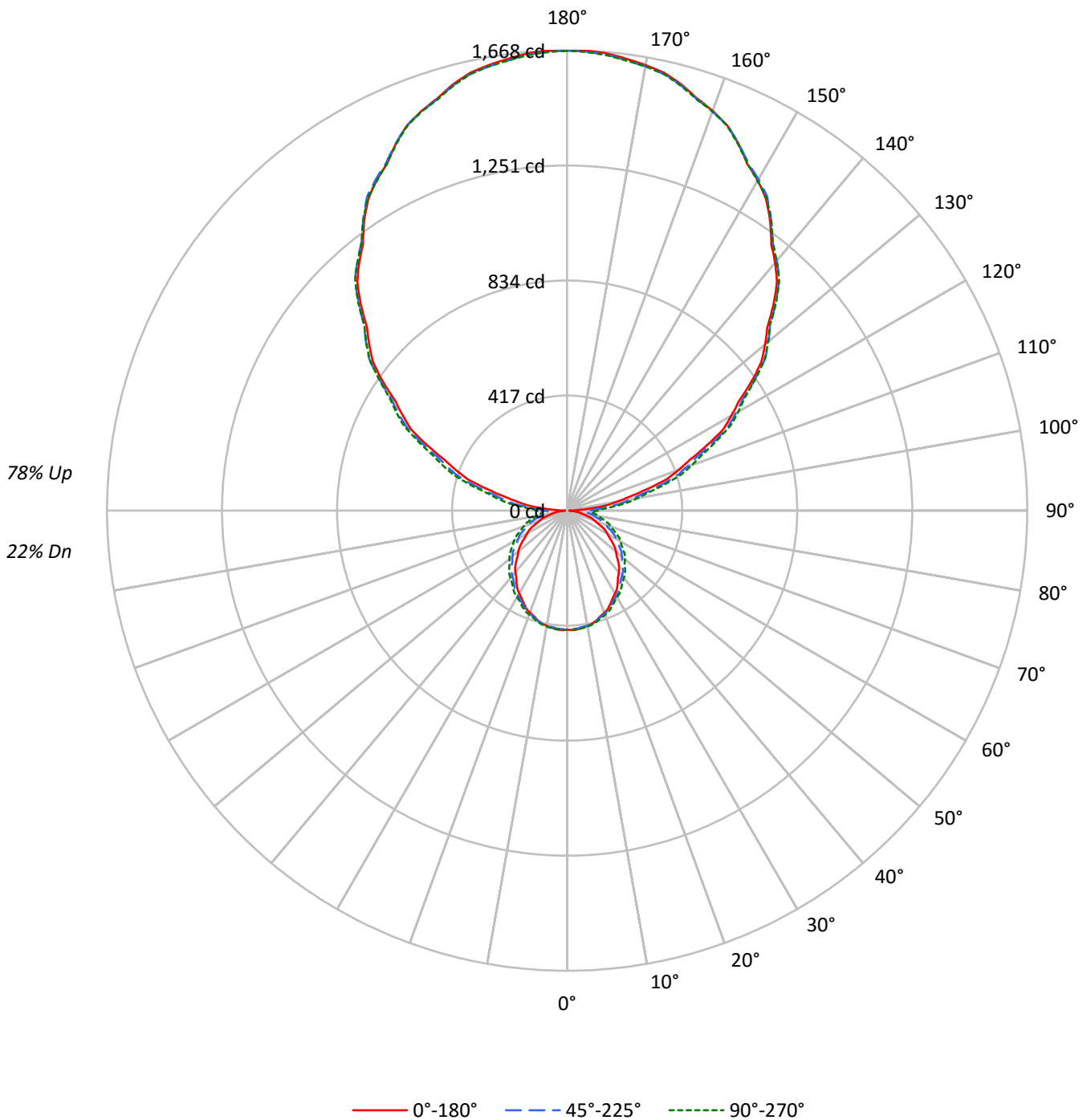
Lumens per Lamp: N/A  
Luminaire Lumens: 6076.1 lumens  
Efficiency: N/A  
Efficacy: 130.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 46.6  
Input Voltage (V): 120  
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



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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	50	30	10	0	
RCR																						
0	100	100	100	100	89	89	89	89	68	68	68	48	48	48	30	30	30	22				
1	91	87	83	79	80	77	74	71	58	56	54	42	40	39	26	25	25	17				
2	83	75	69	64	73	67	62	58	51	48	45	36	34	32	23	21	20	14				
3	75	66	59	53	66	59	53	48	45	41	37	32	29	27	20	18	17	12				
4	69	58	51	45	60	52	45	40	40	35	31	28	25	23	18	16	15	10				
5	63	52	44	38	55	46	39	34	35	30	27	25	22	20	16	14	13	9				
6	58	46	38	33	51	41	34	29	31	27	23	23	19	17	14	12	11	8				
7	53	41	34	28	47	37	30	26	28	24	20	20	17	15	13	11	10	7				
8	49	37	30	25	43	33	27	22	26	21	18	19	15	13	12	10	9	6				
9	46	34	27	22	40	30	24	20	23	19	16	17	14	12	11	9	8	5				
10	42	31	24	19	38	28	22	18	21	17	14	16	13	10	10	8	7	5				

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

	0°	45°	90°
0°	4649	4649	4649
5°	4664	4533	4534
10°	4622	4428	4406
15°	4562	4309	4265
20°	4477	4174	4110
25°	4372	4019	3947
30°	4265	3879	3780
35°	4143	3731	3649
40°	4030	3595	3508
45°	3902	3466	3395
50°	3776	3338	3272
55°	3636	3207	3158
60°	3499	3074	3045
65°	3360	2931	2907
70°	3149	2772	2766
75°	2886	2590	2626
80°	2583	2410	2462
85°	2294	2286	2367



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.9	0.7
10°-20°	116.7	1.9
20°-30°	174.6	2.9
30°-40°	208.5	3.4
40°-50°	218.1	3.6
50°-60°	204.7	3.4
60°-70°	171.0	2.8
70°-80°	122.3	2.0
80°-90°	77.9	1.3
90°-100°	154.4	2.5
100°-110°	358.7	5.9
110°-120°	575.4	9.5
120°-130°	740.2	12.2
130°-140°	823.3	13.5
140°-150°	804.8	13.2
150°-160°	676.5	11.1
160°-170°	450.3	7.4
170°-180°	157.7	2.6
0°-30°	332.3	5.5
0°-40°	540.8	8.9
0°-60°	963.6	15.9
0°-90°	1334.8	22.0
90°-120°	1088.6	17.9
90°-150°	3456.8	56.9
90°-180°	4741.0	78.0
0°-180°	6076.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	432	432	432	432	432	
5°	432	431	429	432	432	41
15°	412	413	413	417	417	116
25°	372	376	378	384	384	171
35°	320	327	334	340	342	200
45°	262	273	285	293	297	202
55°	200	215	232	244	248	179
65°	138	156	177	191	196	136
75°	75	97	120	135	142	80
85°	23	47	72	87	92	24
90°	8	44	85	105	113	9
95°	82	110	144	163	168	91
105°	298	313	344	357	364	319
115°	559	569	583	595	598	553
125°	816	820	831	835	834	728
135°	1058	1065	1069	1072	1072	815
145°	1283	1285	1289	1291	1288	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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9
2.5°	433.8	433.6	433.3	433.1	432.8	432.4	431.7	431.0	430.4	429.7	430.4
5°	432.4	432.2	432.0	431.8	431.6	431.2	430.5	429.9	429.3	428.7	429.5
7.5°	428.2	428.3	428.3	428.3	428.4	428.1	427.5	426.9	426.3	425.7	426.7
10°	424.4	424.6	424.9	425.1	425.3	425.2	424.5	424.0	423.5	423.0	424.0
12.5°	419.9	420.2	420.5	420.8	421.1	421.0	420.7	420.3	420.0	419.6	420.6
15°	411.7	412.0	412.3	412.6	412.9	413.1	412.9	412.8	412.7	412.6	413.7
17.5°	401.4	402.0	402.6	403.2	403.8	404.1	404.1	404.0	404.0	404.0	405.0
20°	393.8	394.5	395.1	395.8	396.4	396.8	397.0	397.2	397.4	397.6	398.6
22.5°	386.0	386.6	387.2	387.8	388.5	388.9	389.2	389.5	389.8	390.1	391.3
25°	371.7	372.7	373.9	374.9	375.9	376.6	376.9	377.2	377.5	377.9	379.2
27.5°	357.4	358.6	359.8	361.0	362.2	363.1	363.8	364.5	365.2	365.8	367.0
30°	347.3	348.6	350.0	351.3	352.7	353.8	354.7	355.5	356.3	357.2	358.4
32.5°	336.0	337.5	339.0	340.5	342.0	343.4	344.5	345.6	346.7	347.7	349.1
35°	319.9	321.6	323.4	325.0	326.7	328.2	329.5	330.9	332.2	333.7	335.2
37.5°	303.1	304.9	306.8	308.7	310.5	312.4	314.0	315.7	317.4	319.0	320.8
40°	291.8	293.7	295.5	297.4	299.2	301.2	303.4	305.5	307.5	309.6	311.4
42.5°	279.3	281.7	283.9	286.2	288.5	290.7	293.0	295.1	297.3	299.4	301.4
45°	261.7	264.2	266.6	269.1	271.7	274.2	276.8	279.4	282.1	284.7	286.7
47.5°	243.1	245.9	248.7	251.7	254.5	257.4	260.3	263.4	266.3	269.3	271.6
50°	231.1	234.0	236.9	239.8	242.8	245.8	249.0	252.4	255.6	258.8	261.3
52.5°	218.2	221.4	224.4	227.5	230.7	234.0	237.5	241.2	244.7	248.2	250.7
55°	199.5	203.0	206.4	209.8	213.3	216.9	220.7	224.5	228.2	232.0	234.8
57.5°	181.3	184.8	188.4	192.1	195.6	199.5	203.6	207.7	211.9	216.0	218.8
60°	168.4	172.2	176.0	179.8	183.5	187.5	191.9	196.1	200.4	204.7	207.6
62.5°	156.4	160.3	164.1	167.9	171.8	176.0	180.6	185.1	189.7	194.2	197.0
65°	137.8	142.0	146.0	150.1	154.2	158.5	163.1	167.7	172.3	176.9	180.1
67.5°	119.1	123.4	127.7	132.0	136.3	140.9	145.5	150.3	154.9	159.7	163.0
70°	105.8	110.4	114.8	119.4	123.8	128.7	133.6	138.7	143.7	148.7	152.1
72.5°	93.8	98.4	102.8	107.3	111.8	116.6	121.8	127.0	132.2	137.4	140.9
75°	74.8	79.8	84.6	89.6	94.5	99.6	104.8	110.0	115.2	120.5	123.9
77.5°	58.3	63.2	68.2	73.1	78.1	83.2	88.5	93.7	99.0	104.3	108.0
80°	46.6	51.7	56.9	62.0	67.1	72.4	77.8	83.2	88.7	94.1	97.7
82.5°	36.5	41.6	46.9	52.0	57.3	62.6	68.2	73.6	79.2	84.7	88.3
85°	23.0	28.3	33.5	38.8	43.9	49.4	54.9	60.4	65.9	71.5	75.0
87.5°	12.8	18.6	24.3	30.2	36.0	41.9	48.0	54.0	60.2	66.2	70.0
90°	7.5	15.5	23.5	31.5	39.6	48.2	57.3	66.3	75.5	84.6	89.4
92.5°	37.5	44.0	50.6	57.3	63.8	70.9	78.3	85.6	93.0	100.5	104.8
95°	82.4	88.6	94.7	100.8	106.9	113.7	121.2	128.6	136.0	143.5	147.9
97.5°	141.9	147.0	152.3	157.4	162.7	168.5	175.1	181.7	188.2	194.9	199.3
100°	182.4	187.4	192.6	197.6	202.8	208.4	214.7	221.0	227.2	233.5	237.4
102.5°	229.1	233.2	237.2	241.4	245.4	250.7	257.4	264.0	270.6	277.3	281.1
105°	298.4	301.5	304.7	307.7	310.8	315.9	323.1	330.1	337.3	344.4	347.3
107.5°	378.6	381.0	383.5	386.1	388.5	392.4	397.7	403.0	408.4	413.6	417.4
110°	428.5	431.0	433.4	435.9	438.4	442.0	446.8	451.5	456.3	461.0	464.9



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	480.9	482.8	484.6	486.6	488.5	491.5	495.6	499.8	503.9	508.1	512.0
115°	559.0	561.2	563.3	565.4	567.5	570.2	573.4	576.5	579.8	582.9	585.7
117.5°	638.0	639.3	640.8	642.1	643.5	645.5	648.3	651.1	653.9	656.6	659.0
120°	686.9	689.1	691.5	693.7	696.0	698.1	700.1	702.1	704.1	706.1	708.2
122.5°	738.2	739.8	741.3	742.9	744.5	746.5	749.0	751.5	754.1	756.6	758.2
125°	816.1	817.0	817.8	818.7	819.6	821.2	823.6	826.2	828.6	831.0	832.0
127.5°	888.4	890.2	891.9	893.6	895.4	897.3	899.1	901.0	902.8	904.7	905.1
130°	936.5	938.8	941.0	943.2	945.4	947.3	948.5	949.7	950.9	952.1	952.9
132.5°	984.4	986.7	989.1	991.4	993.6	995.3	996.3	997.3	998.5	999.5	1000.0
135°	1057.9	1059.6	1061.2	1062.9	1064.5	1065.7	1066.6	1067.4	1068.3	1069.1	1069.9
137.5°	1125.9	1127.3	1128.7	1130.0	1131.5	1132.8	1134.2	1135.6	1137.0	1138.4	1138.8
140°	1172.8	1174.2	1175.6	1177.1	1178.5	1179.5	1180.1	1180.7	1181.3	1181.9	1183.3
142.5°	1215.7	1217.1	1218.4	1219.8	1221.1	1222.1	1222.7	1223.4	1223.9	1224.5	1225.6
145°	1282.7	1283.2	1283.7	1284.1	1284.6	1285.4	1286.2	1287.1	1288.0	1288.8	1289.4
147.5°	1340.9	1342.0	1343.0	1344.1	1345.1	1346.0	1346.9	1347.7	1348.5	1349.3	1349.6
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



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9
2.5°	431.0	431.7	432.4	432.6	432.6	432.5	432.4	432.3
5°	430.3	431.2	432.0	432.4	432.3	432.1	432.0	431.9
7.5°	427.8	428.8	429.8	430.3	430.2	430.0	429.9	429.8
10°	425.2	426.2	427.2	427.6	427.4	427.2	427.0	426.8
12.5°	421.5	422.5	423.4	423.8	423.6	423.4	423.2	423.0
15°	414.8	415.8	416.9	417.3	417.2	417.1	417.0	416.9
17.5°	405.9	406.9	407.8	408.2	408.0	407.9	407.8	407.6
20°	399.5	400.4	401.4	401.9	402.0	402.1	402.2	402.3
22.5°	392.4	393.6	394.9	395.5	395.4	395.3	395.3	395.2
25°	380.5	381.9	383.2	384.0	384.0	384.0	384.0	384.0
27.5°	368.1	369.3	370.5	371.1	371.2	371.3	371.3	371.4
30°	359.6	360.9	362.1	362.7	362.7	362.7	362.7	362.7
32.5°	350.4	351.7	353.0	353.9	354.2	354.4	354.7	354.9
35°	336.8	338.3	339.9	340.9	341.3	341.7	342.1	342.5
37.5°	322.6	324.4	326.2	327.2	327.5	327.9	328.2	328.5
40°	313.2	315.0	316.7	317.8	318.2	318.7	319.1	319.5
42.5°	303.4	305.3	307.2	308.5	309.1	309.6	310.2	310.8
45°	288.6	290.6	292.7	294.1	294.9	295.7	296.6	297.4
47.5°	273.8	276.1	278.3	279.7	280.3	281.0	281.7	282.4
50°	263.6	266.0	268.4	270.0	270.7	271.5	272.2	273.0
52.5°	253.3	255.7	258.2	259.9	260.8	261.8	262.6	263.5
55°	237.6	240.4	243.3	245.1	245.9	246.8	247.6	248.4
57.5°	221.7	224.5	227.3	229.2	230.2	231.3	232.3	233.2
60°	210.6	213.5	216.4	218.4	219.5	220.8	221.9	223.1
62.5°	200.0	202.9	205.8	207.8	208.9	210.0	211.1	212.2
65°	183.2	186.3	189.5	191.6	192.6	193.7	194.7	195.7
67.5°	166.4	169.9	173.3	175.5	176.3	177.2	178.1	178.9
70°	155.4	158.8	162.1	164.3	165.3	166.3	167.4	168.4
72.5°	144.2	147.6	151.1	153.4	154.4	155.4	156.5	157.5
75°	127.3	130.8	134.3	136.6	137.8	139.2	140.4	141.7
77.5°	111.6	115.2	118.9	121.1	122.1	123.1	124.0	125.0
80°	101.2	104.8	108.4	110.6	111.7	112.7	113.8	114.8
82.5°	91.8	95.3	99.0	101.2	102.3	103.3	104.3	105.4
85°	78.7	82.2	85.7	88.1	89.1	90.2	91.2	92.2
87.5°	73.8	77.6	81.4	83.8	85.0	86.1	87.4	88.5
90°	94.0	98.8	103.5	106.6	108.3	109.9	111.6	113.2
92.5°	109.3	113.7	118.1	120.6	121.2	121.8	122.4	123.0
95°	152.3	156.7	161.2	163.9	164.9	165.9	167.0	168.0
97.5°	203.8	208.2	212.7	215.4	216.3	217.2	218.1	219.1
100°	241.3	245.2	249.1	251.9	253.5	255.1	256.7	258.4
102.5°	285.0	288.8	292.6	295.0	295.9	296.8	297.8	298.7
105°	350.2	353.1	356.1	358.3	359.8	361.4	362.9	364.5
107.5°	421.1	424.9	428.6	430.7	431.3	431.9	432.4	433.0
110°	468.8	472.7	476.6	478.7	478.9	479.2	479.4	479.7





TEST NUMBER: P332111-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	516.0	520.1	524.1	526.5	527.4	528.2	529.0	529.8
115°	588.5	591.3	594.1	595.8	596.3	596.8	597.4	597.9
117.5°	661.5	663.9	666.3	667.5	667.5	667.5	667.5	667.5
120°	710.3	712.5	714.6	715.7	715.8	716.0	716.1	716.3
122.5°	759.7	761.2	762.9	763.6	763.5	763.5	763.4	763.3
125°	833.1	834.1	835.2	835.5	835.1	834.7	834.1	833.7
127.5°	905.5	906.1	906.5	906.4	905.7	905.1	904.5	903.8
130°	953.7	954.5	955.3	955.0	953.6	952.3	950.9	949.5
132.5°	1000.5	1001.0	1001.5	1001.3	1000.5	999.6	998.8	997.8
135°	1070.7	1071.4	1072.1	1072.4	1072.3	1072.3	1072.2	1072.2
137.5°	1139.3	1139.7	1140.1	1140.0	1139.5	1138.9	1138.3	1137.7
140°	1184.6	1185.8	1187.1	1187.0	1185.5	1184.0	1182.5	1180.9
142.5°	1226.7	1227.8	1228.9	1229.0	1227.9	1226.9	1225.8	1224.8
145°	1289.9	1290.4	1291.0	1290.9	1290.1	1289.4	1288.7	1287.9
147.5°	1349.8	1350.1	1350.3	1349.8	1348.4	1347.1	1345.6	1344.3
150°	1387.0	1387.0	1387.0	1386.2	1384.7	1383.2	1381.7	1380.1
152.5°	1421.5	1422.0	1422.4	1421.9	1420.5	1419.0	1417.5	1416.0
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)