

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: P332110-935

Luminaire Tested: **S123DIW-S340D1320U935-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332110-935  
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-S340D1320U935-4F0-1E-UDD-D  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5786.1 lumens  
Efficiency: N/A  
Efficacy: 124.2 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

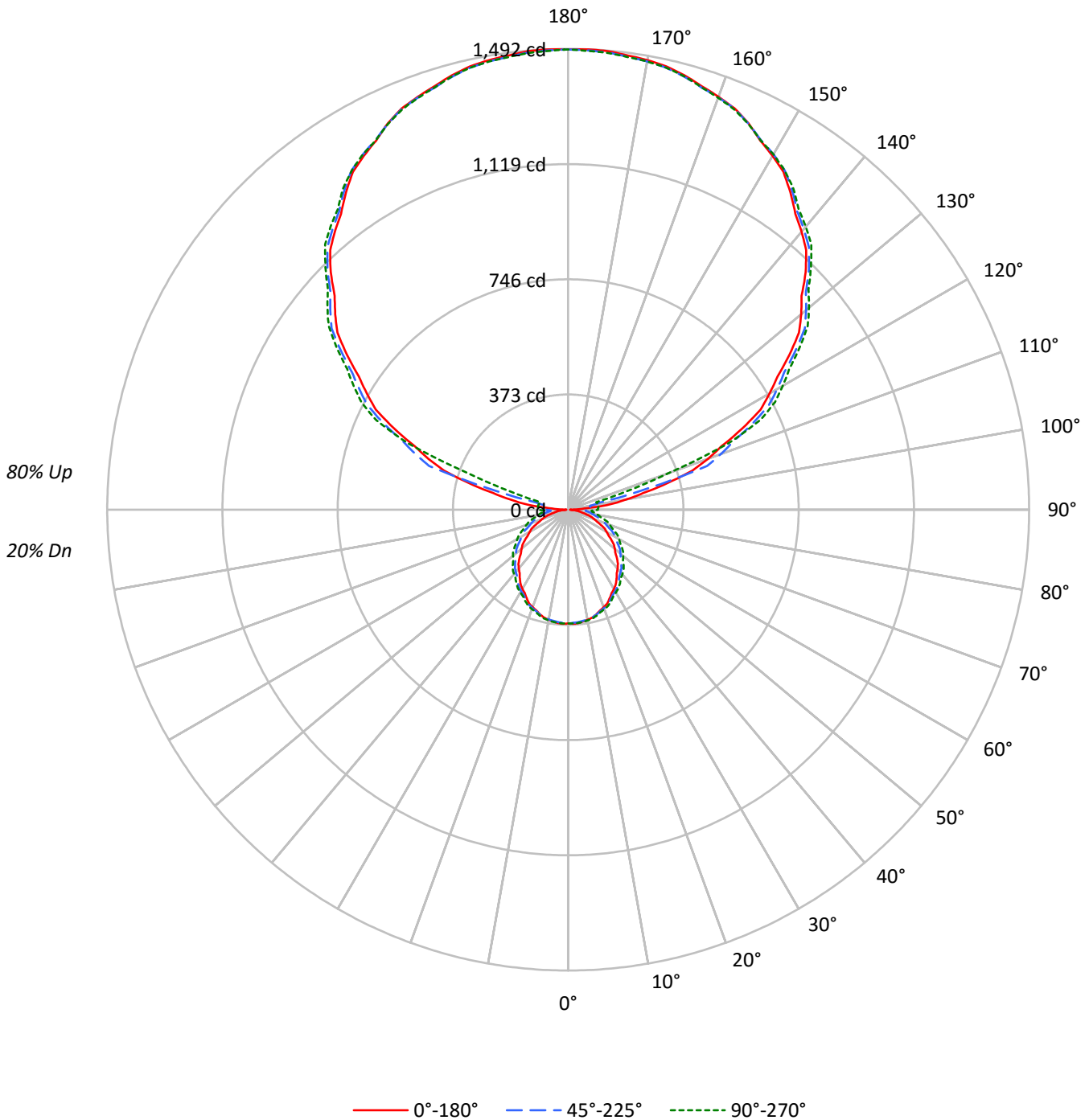
Input Watts (W): 46.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332110-935

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### Luminous Intensity Polar Plot





TEST NUMBER: P332110-935

CATALOG NUMBER: S123DIW-S340D1320U935-4F0-1E-UDD-D

**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	100	100	100	100	88	88	88	88	66	66	66	47	47	47	28	28	28	20
1	91	86	82	79	80	76	73	70	57	55	53	40	39	38	24	24	23	16
2	82	75	69	64	72	66	61	57	50	47	44	35	33	31	21	20	19	13
3	75	66	59	53	66	58	52	47	44	40	37	31	28	26	19	17	16	11
4	68	58	50	44	60	51	45	40	39	34	31	27	24	22	16	15	14	9
5	62	51	44	38	55	46	39	34	35	30	26	24	21	19	15	13	12	8
6	57	46	38	32	50	41	34	29	31	26	23	22	19	16	13	12	10	7
7	53	41	33	28	46	37	30	25	28	23	20	20	17	14	12	10	9	6
8	49	37	30	25	43	33	27	22	25	21	17	18	15	13	11	9	8	5
9	45	34	27	22	40	30	24	20	23	19	15	16	13	11	10	8	7	5
10	42	31	24	19	37	27	21	17	21	17	14	15	12	10	9	8	6	4

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

	0°	45°	90°
0°	3963	3963	3963
5°	3977	3865	3866
10°	3941	3776	3757
15°	3890	3674	3636
20°	3818	3559	3504
25°	3728	3427	3365
30°	3637	3307	3224
35°	3533	3181	3112
40°	3435	3065	2991
45°	3327	2955	2895
50°	3219	2846	2789
55°	3100	2734	2693
60°	2984	2620	2596
65°	2865	2499	2479
70°	2685	2362	2359
75°	2462	2208	2239
80°	2201	2054	2100
85°	1955	1950	2018



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.9	0.6
10°-20°	99.5	1.7
20°-30°	148.9	2.6
30°-40°	177.8	3.1
40°-50°	186.0	3.2
50°-60°	174.5	3.0
60°-70°	145.8	2.5
70°-80°	104.3	1.8
80°-90°	66.4	1.1
90°-100°	93.2	1.6
100°-110°	286.9	5.0
110°-120°	639.4	11.1
120°-130°	800.7	13.8
130°-140°	848.8	14.7
140°-150°	790.2	13.7
150°-160°	636.5	11.0
160°-170°	410.8	7.1
170°-180°	141.6	2.4
0°-30°	283.3	4.9
0°-40°	461.0	8.0
0°-60°	821.6	14.2
0°-90°	1138.0	19.7
90°-120°	1019.5	17.6
90°-150°	3459.1	59.8
90°-180°	4648.0	80.3
0°-180°	5786.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	368	368	368	368	368	
5°	369	368	366	368	368	35
15°	351	352	352	356	355	99
25°	317	321	322	327	327	146
35°	273	279	284	290	292	171
45°	223	233	243	250	254	172
55°	170	183	198	208	212	152
65°	118	133	151	162	167	116
75°	64	83	103	116	121	68
85°	20	40	61	74	79	21
90°	6	37	72	89	96	7
95°	72	46	74	93	98	87
105°	333	349	272	98	94	353
115°	621	633	657	677	685	613
125°	874	883	898	909	914	780
135°	1087	1093	1102	1112	1111	836
145°	1254	1261	1263	1268	1270	784
155°	1380	1378	1379	1384	1378	636
165°	1456	1453	1451	1459	1452	411
175°	1490	1485	1486	1493	1485	142
180°	1490	1490	1490	1490	1490	



TEST NUMBER: P332110-935

CATALOG NUMBER: S123DIW-S340D1320U935-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	368.2	368.2	368.2	368.2	368.2	368.2	368.2	368.2	368.2	368.2	368.2
2.5°	369.9	369.7	369.5	369.3	369.0	368.7	368.1	367.5	367.0	366.4	367.0
5°	368.7	368.5	368.3	368.2	368.0	367.6	367.0	366.5	366.0	365.5	366.2
7.5°	365.1	365.2	365.2	365.2	365.2	365.0	364.5	363.9	363.4	362.9	363.8
10°	361.9	362.1	362.2	362.4	362.6	362.5	362.0	361.5	361.1	360.7	361.5
12.5°	358.0	358.3	358.5	358.8	359.0	359.0	358.7	358.3	358.1	357.7	358.6
15°	351.0	351.3	351.5	351.8	352.1	352.2	352.1	352.0	351.9	351.8	352.8
17.5°	342.2	342.8	343.3	343.8	344.3	344.6	344.6	344.5	344.5	344.5	345.3
20°	335.8	336.3	336.8	337.4	337.9	338.3	338.5	338.6	338.8	339.0	339.8
22.5°	329.1	329.6	330.1	330.6	331.2	331.6	331.8	332.1	332.3	332.6	333.6
25°	316.9	317.8	318.7	319.6	320.5	321.1	321.3	321.6	321.8	322.2	323.3
27.5°	304.7	305.7	306.8	307.8	308.8	309.6	310.1	310.7	311.3	311.9	312.9
30°	296.1	297.2	298.4	299.5	300.7	301.6	302.4	303.1	303.8	304.5	305.6
32.5°	286.5	287.7	289.0	290.3	291.6	292.7	293.7	294.6	295.6	296.4	297.6
35°	272.8	274.2	275.7	277.1	278.5	279.8	280.9	282.1	283.3	284.5	285.8
37.5°	258.4	259.9	261.6	263.2	264.8	266.3	267.7	269.1	270.6	272.0	273.5
40°	248.7	250.4	251.9	253.6	255.1	256.8	258.6	260.5	262.2	264.0	265.5
42.5°	238.2	240.1	242.0	244.0	246.0	247.9	249.8	251.6	253.5	255.3	257.0
45°	223.1	225.2	227.3	229.5	231.6	233.8	236.0	238.2	240.5	242.7	244.4
47.5°	207.2	209.7	212.1	214.6	217.0	219.5	222.0	224.5	227.0	229.6	231.5
50°	197.0	199.5	202.0	204.5	207.0	209.6	212.3	215.2	217.9	220.7	222.7
52.5°	186.1	188.7	191.3	194.0	196.7	199.5	202.5	205.6	208.6	211.6	213.8
55°	170.1	173.1	176.0	178.9	181.8	184.9	188.1	191.4	194.6	197.8	200.2
57.5°	154.5	157.6	160.7	163.8	166.8	170.1	173.6	177.1	180.6	184.2	186.6
60°	143.6	146.8	150.1	153.3	156.4	159.9	163.6	167.2	170.8	174.5	177.0
62.5°	133.4	136.6	139.9	143.2	146.5	150.1	153.9	157.8	161.7	165.6	168.0
65°	117.5	121.1	124.5	127.9	131.5	135.2	139.1	143.0	146.9	150.8	153.5
67.5°	101.5	105.2	108.9	112.5	116.2	120.1	124.1	128.1	132.1	136.1	139.0
70°	90.2	94.1	97.9	101.8	105.6	109.7	113.9	118.2	122.5	126.7	129.7
72.5°	80.0	83.9	87.6	91.5	95.3	99.4	103.8	108.3	112.7	117.2	120.1
75°	63.8	68.0	72.2	76.4	80.6	84.9	89.4	93.8	98.2	102.7	105.6
77.5°	49.7	53.9	58.1	62.3	66.6	70.9	75.4	79.9	84.4	88.9	92.0
80°	39.7	44.1	48.5	52.9	57.2	61.7	66.3	70.9	75.6	80.2	83.3
82.5°	31.1	35.5	40.0	44.3	48.8	53.4	58.1	62.8	67.5	72.2	75.3
85°	19.6	24.1	28.6	33.1	37.5	42.1	46.8	51.5	56.2	61.0	64.0
87.5°	10.9	15.8	20.8	25.7	30.7	35.6	40.9	46.1	51.2	56.4	59.7
90°	6.3	13.2	20.0	26.8	33.7	40.9	48.6	56.4	64.1	71.9	75.9
92.5°	25.5	28.8	32.0	35.2	38.5	43.6	50.5	57.3	64.2	71.1	75.7
95°	72.0	65.3	58.7	52.1	45.5	45.7	52.8	59.9	67.0	74.0	78.5
97.5°	139.7	138.3	136.9	135.5	134.1	126.7	113.1	99.5	86.0	72.5	77.1
100°	190.7	198.5	206.3	214.0	221.8	208.5	174.3	140.0	105.7	71.5	76.0
102.5°	248.8	254.9	261.1	267.2	273.3	257.4	219.5	181.6	143.7	105.8	102.2
105°	333.1	337.9	342.9	347.7	352.5	345.8	327.4	309.2	290.8	272.5	231.5
107.5°	421.6	425.7	429.6	433.6	437.6	443.2	450.3	457.4	464.5	471.7	442.1
110°	480.7	484.2	487.8	491.4	495.0	499.9	506.2	512.5	518.7	525.0	519.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	537.4	540.4	543.5	546.6	549.7	554.3	560.4	566.6	572.7	578.9	581.3
115°	620.9	623.5	625.9	628.5	631.0	635.1	640.5	645.9	651.3	656.8	661.3
117.5°	702.1	704.6	707.1	709.5	712.0	715.3	719.5	723.6	727.7	731.8	736.0
120°	752.3	754.8	757.5	760.2	762.8	766.0	769.7	773.4	777.1	780.8	784.8
122.5°	803.6	805.6	807.7	809.8	811.8	814.7	818.4	822.2	825.9	829.7	833.0
125°	873.6	875.6	877.5	879.5	881.5	884.2	887.8	891.4	894.9	898.5	900.9
127.5°	941.8	943.7	945.6	947.4	949.3	951.9	955.2	958.6	961.9	965.2	967.8
130°	984.3	986.2	988.1	990.0	991.8	994.1	997.0	999.7	1002.5	1005.2	1007.9
132.5°	1024.8	1026.7	1028.6	1030.6	1032.5	1034.6	1036.8	1039.1	1041.3	1043.4	1046.0
135°	1086.8	1088.2	1089.7	1091.1	1092.4	1094.1	1096.1	1098.0	1100.0	1101.9	1104.3
137.5°	1140.0	1141.7	1143.5	1145.3	1147.1	1148.6	1149.7	1150.7	1151.8	1153.0	1155.5
140°	1175.0	1176.5	1178.0	1179.5	1180.9	1182.2	1183.2	1184.2	1185.2	1186.2	1188.5
142.5°	1207.8	1209.2	1210.7	1212.0	1213.4	1214.5	1215.3	1216.1	1216.9	1217.7	1219.7
145°	1253.6	1255.3	1256.9	1258.5	1260.2	1261.2	1261.7	1262.2	1262.7	1263.2	1264.4
147.5°	1296.4	1297.5	1298.6	1299.8	1301.0	1301.7	1302.3	1302.7	1303.2	1303.7	1304.4
150°	1323.0	1323.7	1324.5	1325.2	1325.9	1326.5	1327.1	1327.5	1328.0	1328.5	1329.0
152.5°	1346.9	1347.2	1347.6	1347.9	1348.2	1348.6	1348.9	1349.2	1349.4	1349.8	1350.7
155°	1380.5	1380.1	1379.6	1379.1	1378.5	1378.5	1378.7	1379.0	1379.2	1379.4	1380.7
157.5°	1406.7	1406.6	1406.6	1406.5	1406.4	1406.4	1406.1	1405.8	1405.6	1405.3	1406.8
160°	1422.6	1422.4	1422.1	1421.9	1421.6	1421.4	1421.2	1420.9	1420.6	1420.4	1421.9
162.5°	1437.7	1437.0	1436.4	1435.7	1435.1	1434.7	1434.4	1434.2	1433.9	1433.7	1435.4
165°	1455.9	1455.1	1454.3	1453.6	1452.9	1452.4	1452.2	1451.9	1451.6	1451.4	1453.4
167.5°	1470.0	1469.0	1468.0	1467.1	1466.0	1465.6	1465.6	1465.6	1465.6	1465.6	1467.6
170°	1478.0	1477.0	1476.0	1475.1	1474.0	1473.5	1473.5	1473.5	1473.5	1473.5	1475.5
172.5°	1483.3	1482.1	1480.9	1479.7	1478.6	1478.1	1478.3	1478.5	1478.7	1478.9	1480.8
175°	1490.1	1488.9	1487.7	1486.4	1485.2	1484.7	1485.0	1485.2	1485.5	1485.7	1487.5
177.5°	1491.9	1490.9	1490.0	1489.0	1488.0	1487.6	1487.8	1488.0	1488.2	1488.4	1490.0
180°	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	368.2	368.2	368.2	368.2	368.2	368.2	368.2	368.2
2.5°	367.5	368.1	368.7	368.9	368.9	368.8	368.7	368.6
5°	366.9	367.6	368.3	368.7	368.6	368.4	368.3	368.2
7.5°	364.7	365.6	366.4	366.9	366.8	366.6	366.5	366.4
10°	362.5	363.3	364.2	364.5	364.4	364.2	364.0	363.9
12.5°	359.4	360.2	361.0	361.4	361.2	361.0	360.8	360.7
15°	353.6	354.5	355.4	355.8	355.7	355.6	355.5	355.4
17.5°	346.0	346.9	347.7	348.0	347.8	347.8	347.7	347.5
20°	340.6	341.4	342.2	342.7	342.8	342.9	342.9	343.0
22.5°	334.6	335.6	336.7	337.2	337.1	337.0	337.0	336.9
25°	324.4	325.6	326.7	327.4	327.4	327.4	327.4	327.4
27.5°	313.8	314.9	315.9	316.4	316.5	316.6	316.6	316.7
30°	306.6	307.7	308.8	309.3	309.3	309.3	309.3	309.3
32.5°	298.8	299.9	301.0	301.7	302.0	302.1	302.4	302.6
35°	287.1	288.4	289.8	290.7	291.0	291.4	291.7	292.1
37.5°	275.0	276.6	278.1	279.0	279.2	279.6	279.8	280.1
40°	267.0	268.5	270.0	271.0	271.3	271.7	272.1	272.4
42.5°	258.6	260.3	261.9	263.0	263.6	264.0	264.5	265.0
45°	246.1	247.8	249.5	250.7	251.4	252.1	252.9	253.6
47.5°	233.4	235.4	237.3	238.5	239.0	239.6	240.1	240.7
50°	224.7	226.8	228.9	230.2	230.8	231.4	232.0	232.7
52.5°	215.9	218.0	220.2	221.6	222.4	223.2	223.9	224.6
55°	202.6	205.0	207.4	209.0	209.7	210.4	211.1	211.8
57.5°	189.0	191.4	193.8	195.4	196.3	197.2	198.0	198.8
60°	179.5	182.0	184.5	186.2	187.2	188.2	189.2	190.2
62.5°	170.5	173.0	175.5	177.2	178.1	179.0	179.9	180.9
65°	156.2	158.9	161.5	163.3	164.2	165.1	166.0	166.9
67.5°	141.9	144.8	147.7	149.6	150.3	151.1	151.9	152.6
70°	132.5	135.3	138.2	140.1	140.9	141.8	142.8	143.6
72.5°	123.0	125.9	128.8	130.8	131.6	132.5	133.5	134.3
75°	108.6	111.5	114.5	116.5	117.5	118.6	119.7	120.8
77.5°	95.1	98.2	101.3	103.2	104.1	105.0	105.7	106.6
80°	86.3	89.4	92.4	94.3	95.2	96.1	97.0	97.9
82.5°	78.3	81.3	84.4	86.3	87.2	88.1	88.9	89.9
85°	67.1	70.1	73.1	75.1	75.9	76.9	77.7	78.6
87.5°	62.9	66.1	69.3	71.5	72.4	73.4	74.4	75.4
90°	79.9	83.9	88.0	90.7	92.0	93.4	94.8	96.2
92.5°	80.2	84.7	89.3	92.0	93.2	94.3	95.4	96.5
95°	83.0	87.5	92.0	94.7	95.6	96.4	97.4	98.2
97.5°	81.7	86.4	91.0	93.8	95.0	96.2	97.3	98.4
100°	80.5	85.1	89.6	92.5	93.7	94.8	95.9	97.0
102.5°	98.7	95.1	91.4	90.3	91.7	93.0	94.4	95.7
105°	190.5	149.4	108.3	88.4	89.8	91.1	92.4	93.7
107.5°	412.6	383.1	353.5	322.7	290.7	258.6	226.6	194.6
110°	513.4	507.6	501.8	481.6	447.2	412.7	378.2	343.8





TEST NUMBER: P332110-935

CATALOG NUMBER: S123DIW-S340D1320U935-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	583.7	586.0	588.4	586.3	579.6	573.0	566.4	559.7
115°	665.9	670.5	675.1	678.3	680.0	681.7	683.4	685.1
117.5°	740.0	744.2	748.2	750.7	751.7	752.5	753.4	754.3
120°	788.8	792.8	796.9	799.2	799.8	800.4	801.0	801.7
122.5°	836.4	839.7	843.1	845.2	845.9	846.8	847.6	848.4
125°	903.3	905.6	908.0	909.7	910.9	912.0	913.1	914.2
127.5°	970.3	972.8	975.4	976.7	976.9	977.0	977.1	977.1
130°	1010.6	1013.2	1015.9	1017.3	1017.4	1017.4	1017.4	1017.4
132.5°	1048.7	1051.3	1053.9	1055.2	1055.1	1055.0	1054.9	1054.8
135°	1106.6	1109.0	1111.3	1112.3	1112.1	1111.7	1111.5	1111.2
137.5°	1158.1	1160.7	1163.3	1164.6	1164.5	1164.5	1164.4	1164.4
140°	1190.8	1193.2	1195.5	1196.6	1196.6	1196.5	1196.4	1196.4
142.5°	1221.7	1223.7	1225.6	1226.5	1226.2	1226.0	1225.7	1225.5
145°	1265.6	1266.8	1268.0	1268.8	1269.1	1269.5	1269.9	1270.2
147.5°	1305.1	1305.9	1306.6	1306.5	1305.7	1304.8	1304.1	1303.2
150°	1329.5	1330.0	1330.5	1330.4	1329.9	1329.3	1328.8	1328.2
152.5°	1351.5	1352.5	1353.3	1353.2	1352.1	1351.0	1350.0	1348.8
155°	1381.9	1383.1	1384.4	1384.2	1382.8	1381.3	1379.8	1378.4
157.5°	1408.3	1409.8	1411.3	1411.0	1409.1	1407.2	1405.2	1403.3
160°	1423.3	1424.9	1426.3	1426.2	1424.4	1422.7	1421.0	1419.3
162.5°	1437.0	1438.7	1440.4	1440.5	1438.9	1437.4	1435.9	1434.3
165°	1455.3	1457.3	1459.3	1459.4	1457.7	1456.0	1454.2	1452.5
167.5°	1469.6	1471.4	1473.4	1473.4	1471.4	1469.6	1467.6	1465.6
170°	1477.5	1479.5	1481.4	1481.4	1479.5	1477.5	1475.5	1473.5
172.5°	1482.8	1484.8	1486.8	1486.6	1484.5	1482.3	1480.1	1478.0
175°	1489.2	1490.9	1492.6	1492.5	1490.6	1488.6	1486.6	1484.6
177.5°	1491.5	1493.1	1494.7	1494.5	1492.5	1490.6	1488.6	1486.6
180°	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1	1490.1

(END OF REPORT)