

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: P332110-930

Luminaire Tested: **S123DIW-S340D1320U930-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332110-930  
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-S340D1320U930-4F0-1E-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: 5478.9 lumens  
Efficiency: N/A  
Efficacy: 117.6 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

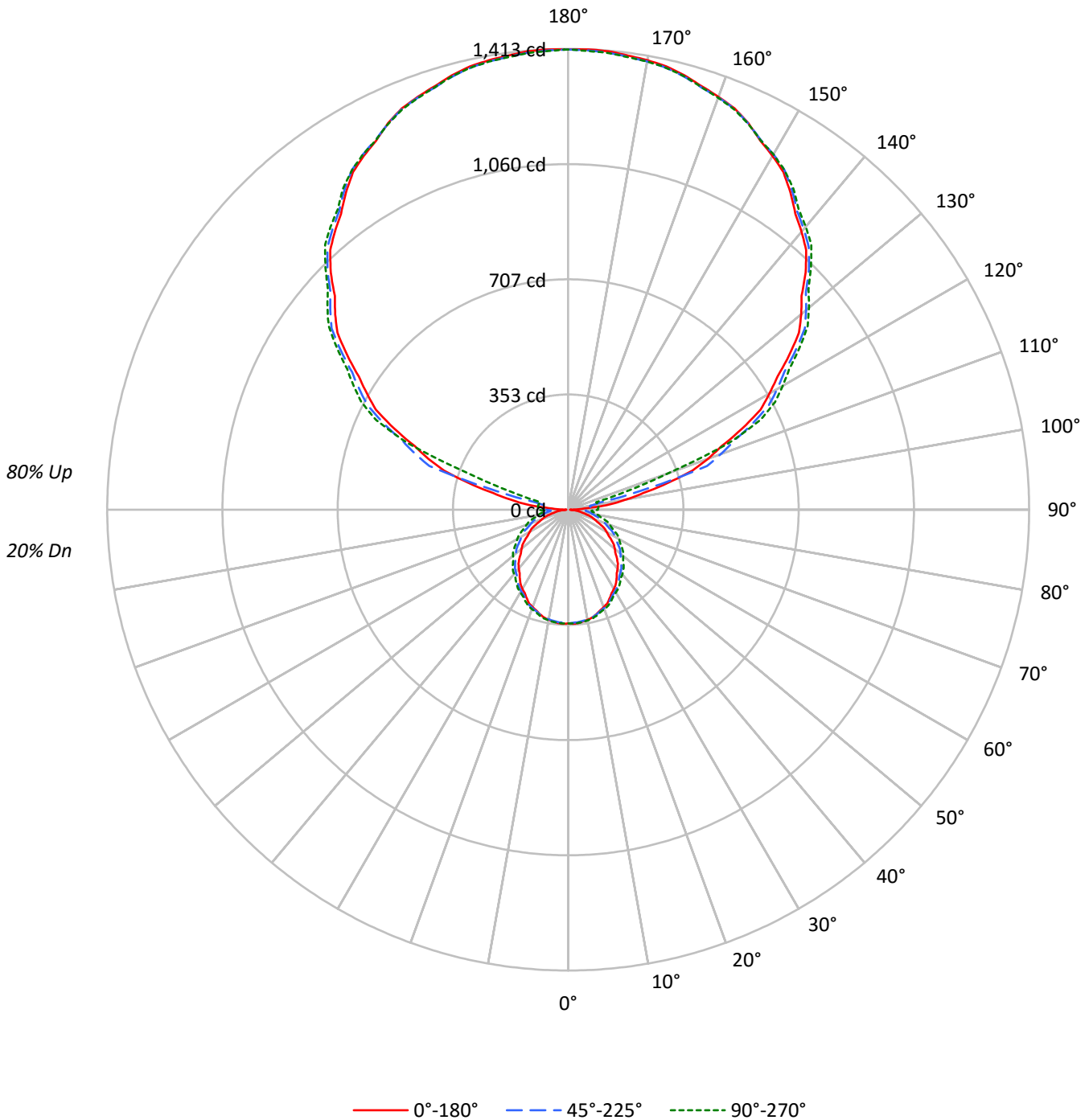
Input Watts (W): 46.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332110-930

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### Luminous Intensity Polar Plot





TEST NUMBER: P332110-930

CATALOG NUMBER: S123DIW-S340D1320U930-4F0-1E-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	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					20			
1	91	86	82	79	80	76	73	70	57	55	53	40	39	38	24	24	23	16					16			
2	82	75	69	64	72	66	61	57	50	47	44	35	33	31	21	20	19	13					13			
3	75	66	59	53	66	58	52	47	44	40	37	31	28	26	19	17	16	11					11			
4	68	58	50	44	60	51	45	40	39	34	31	27	24	22	16	15	14	9					9			
5	62	51	44	38	55	46	39	34	35	30	26	24	21	19	15	13	12	8					8			
6	57	46	38	32	50	41	34	29	31	26	23	22	19	16	13	12	10	7					7			
7	53	41	33	28	46	37	30	25	28	23	20	20	17	14	12	10	9	6					6			
8	49	37	30	25	43	33	27	22	25	21	17	18	15	13	11	9	8	5					5			
9	45	34	27	22	40	30	24	20	23	19	15	16	13	11	10	8	7	5					5			
10	42	31	24	19	37	27	21	17	21	17	14	15	12	10	9	8	6	4					4			

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

	0°	45°	90°
0°	3753	3753	3753
5°	3765	3659	3661
10°	3732	3575	3556
15°	3684	3479	3443
20°	3615	3370	3318
25°	3530	3245	3186
30°	3444	3132	3053
35°	3345	3012	2946
40°	3252	2903	2833
45°	3149	2798	2741
50°	3047	2695	2641
55°	2936	2589	2550
60°	2826	2482	2458
65°	2714	2366	2347
70°	2542	2237	2234
75°	2331	2092	2120
80°	2084	1946	1988
85°	1855	1845	1910



TEST NUMBER: P332110-930

CATALOG NUMBER: S123DIW-S340D1320U930-4F0-1E-UDD-D

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	33.1	0.6
10°-20°	94.2	1.7
20°-30°	141.0	2.6
30°-40°	168.3	3.1
40°-50°	176.1	3.2
50°-60°	165.3	3.0
60°-70°	138.0	2.5
70°-80°	98.8	1.8
80°-90°	62.8	1.1
90°-100°	88.3	1.6
100°-110°	271.7	5.0
110°-120°	605.4	11.1
120°-130°	758.2	13.8
130°-140°	803.7	14.7
140°-150°	748.2	13.7
150°-160°	602.7	11.0
160°-170°	389.0	7.1
170°-180°	134.1	2.4
0°-30°	268.3	4.9
0°-40°	436.6	8.0
0°-60°	778.0	14.2
0°-90°	1077.6	19.7
90°-120°	965.4	17.6
90°-150°	3275.5	59.8
90°-180°	4401.0	80.3
0°-180°	5478.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	349	349	349	349	349	
5°	349	348	346	349	349	33
15°	332	333	333	337	337	94
25°	300	304	305	310	310	138
35°	258	264	269	275	276	162
45°	211	220	230	237	240	163
55°	161	174	187	197	201	144
65°	111	126	143	154	158	110
75°	60	78	97	109	114	64
85°	19	38	58	70	74	20
90°	6	35	68	85	91	6
95°	68	43	70	88	93	82
105°	315	331	258	93	89	334
115°	588	599	622	641	649	580
125°	827	836	851	861	866	739
135°	1029	1035	1043	1053	1052	792
145°	1187	1194	1196	1201	1203	743
155°	1307	1305	1306	1311	1305	602
165°	1379	1376	1374	1382	1375	389
175°	1411	1406	1407	1413	1406	134
180°	1411	1411	1411	1411	1411	



TEST NUMBER: P332110-930

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	348.7	348.7	348.7	348.7	348.7	348.7	348.7	348.7	348.7	348.7	348.7
2.5°	350.3	350.1	349.8	349.7	349.4	349.1	348.5	348.0	347.5	346.9	347.5
5°	349.1	348.9	348.8	348.6	348.5	348.1	347.6	347.1	346.6	346.1	346.7
7.5°	345.7	345.8	345.8	345.8	345.8	345.6	345.1	344.6	344.1	343.6	344.5
10°	342.7	342.8	343.0	343.2	343.3	343.2	342.8	342.3	341.9	341.5	342.3
12.5°	339.0	339.2	339.5	339.7	340.0	339.9	339.7	339.3	339.1	338.8	339.6
15°	332.4	332.6	332.9	333.1	333.4	333.5	333.4	333.3	333.2	333.1	334.0
17.5°	324.1	324.6	325.1	325.5	326.0	326.3	326.3	326.2	326.2	326.2	326.9
20°	318.0	318.5	318.9	319.5	320.0	320.3	320.5	320.7	320.8	321.0	321.8
22.5°	311.6	312.1	312.6	313.1	313.6	314.0	314.2	314.5	314.7	315.0	315.9
25°	300.1	300.9	301.8	302.6	303.5	304.0	304.3	304.5	304.8	305.1	306.1
27.5°	288.5	289.5	290.5	291.5	292.4	293.2	293.7	294.2	294.8	295.3	296.3
30°	280.4	281.4	282.6	283.6	284.8	285.6	286.3	287.0	287.6	288.4	289.3
32.5°	271.3	272.5	273.7	274.9	276.1	277.2	278.1	279.0	279.9	280.7	281.8
35°	258.3	259.7	261.1	262.4	263.7	265.0	266.0	267.2	268.2	269.4	270.6
37.5°	244.7	246.1	247.7	249.2	250.7	252.2	253.5	254.9	256.2	257.6	259.0
40°	235.5	237.1	238.6	240.1	241.6	243.2	244.9	246.6	248.3	250.0	251.4
42.5°	225.5	227.4	229.2	231.1	232.9	234.7	236.5	238.2	240.0	241.7	243.4
45°	211.2	213.3	215.2	217.3	219.3	221.4	223.5	225.6	227.7	229.8	231.5
47.5°	196.2	198.5	200.8	203.2	205.5	207.8	210.2	212.6	215.0	217.4	219.2
50°	186.5	188.9	191.3	193.6	196.0	198.4	201.1	203.7	206.4	209.0	210.9
52.5°	176.2	178.7	181.2	183.7	186.2	188.9	191.8	194.7	197.5	200.4	202.4
55°	161.1	163.9	166.6	169.4	172.2	175.1	178.1	181.2	184.3	187.3	189.6
57.5°	146.3	149.2	152.1	155.1	157.9	161.1	164.4	167.7	171.0	174.4	176.7
60°	136.0	139.0	142.1	145.1	148.1	151.4	154.9	158.3	161.8	165.3	167.6
62.5°	126.3	129.4	132.5	135.6	138.7	142.1	145.8	149.4	153.1	156.8	159.1
65°	111.3	114.6	117.9	121.2	124.5	128.0	131.7	135.4	139.1	142.8	145.4
67.5°	96.1	99.6	103.1	106.6	110.1	113.7	117.5	121.3	125.1	128.9	131.6
70°	85.4	89.1	92.7	96.4	100.0	103.9	107.9	111.9	116.0	120.0	122.8
72.5°	75.7	79.4	83.0	86.7	90.3	94.2	98.3	102.6	106.7	111.0	113.7
75°	60.4	64.4	68.3	72.3	76.3	80.4	84.6	88.8	93.0	97.3	100.0
77.5°	47.0	51.0	55.0	59.0	63.0	67.2	71.4	75.7	79.9	84.2	87.2
80°	37.6	41.7	45.9	50.1	54.1	58.5	62.8	67.2	71.6	76.0	78.8
82.5°	29.4	33.6	37.8	42.0	46.2	50.5	55.0	59.4	63.9	68.4	71.3
85°	18.6	22.8	27.1	31.3	35.5	39.9	44.4	48.8	53.2	57.7	60.6
87.5°	10.4	15.0	19.6	24.3	29.0	33.8	38.7	43.6	48.5	53.4	56.5
90°	6.0	12.5	18.9	25.4	31.9	38.7	46.1	53.4	60.7	68.1	71.9
92.5°	24.1	27.2	30.3	33.3	36.4	41.3	47.8	54.3	60.8	67.3	71.7
95°	68.2	61.9	55.6	49.3	43.1	43.3	50.0	56.7	63.4	70.1	74.4
97.5°	132.2	130.9	129.6	128.3	127.0	119.9	107.1	94.2	81.4	68.6	73.0
100°	180.6	187.9	195.3	202.7	210.0	197.5	165.0	132.6	100.1	67.7	72.0
102.5°	235.6	241.4	247.2	253.0	258.8	243.7	207.8	171.9	136.1	100.2	96.8
105°	315.4	320.0	324.7	329.2	333.8	327.4	310.1	292.8	275.4	258.0	219.2
107.5°	399.3	403.1	406.8	410.6	414.3	419.6	426.4	433.2	439.9	446.6	418.7
110°	455.2	458.5	461.9	465.3	468.7	473.4	479.3	485.3	491.1	497.1	491.6



TEST NUMBER: P332110-930

CATALOG NUMBER: S123DIW-S340D1320U930-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	508.8	511.8	514.7	517.6	520.6	524.9	530.7	536.5	542.3	548.1	550.4
115°	587.9	590.4	592.7	595.2	597.5	601.4	606.5	611.6	616.8	621.9	626.2
117.5°	664.8	667.2	669.5	671.8	674.2	677.4	681.3	685.2	689.1	693.0	696.9
120°	712.3	714.8	717.3	719.8	722.4	725.4	728.9	732.3	735.8	739.3	743.1
122.5°	760.9	762.9	764.8	766.8	768.7	771.4	774.9	778.5	782.0	785.6	788.8
125°	827.2	829.1	831.0	832.8	834.7	837.3	840.7	844.1	847.4	850.8	853.0
127.5°	891.8	893.6	895.4	897.2	898.9	901.4	904.5	907.7	910.9	914.0	916.4
130°	932.1	933.8	935.6	937.4	939.1	941.3	944.0	946.6	949.3	951.9	954.4
132.5°	970.4	972.2	974.0	975.9	977.7	979.7	981.8	983.9	986.0	988.1	990.5
135°	1029.2	1030.5	1031.8	1033.1	1034.5	1036.0	1037.9	1039.8	1041.6	1043.4	1045.7
137.5°	1079.5	1081.1	1082.8	1084.5	1086.2	1087.6	1088.7	1089.6	1090.7	1091.8	1094.2
140°	1112.6	1114.0	1115.5	1116.9	1118.3	1119.4	1120.4	1121.4	1122.3	1123.2	1125.4
142.5°	1143.7	1145.0	1146.4	1147.7	1149.0	1150.1	1150.8	1151.5	1152.3	1153.1	1155.0
145°	1187.1	1188.6	1190.2	1191.7	1193.3	1194.3	1194.7	1195.2	1195.7	1196.1	1197.3
147.5°	1227.6	1228.7	1229.7	1230.8	1231.9	1232.7	1233.1	1233.5	1234.0	1234.5	1235.2
150°	1252.8	1253.4	1254.2	1254.8	1255.6	1256.1	1256.6	1257.0	1257.5	1258.0	1258.5
152.5°	1275.4	1275.7	1276.0	1276.4	1276.7	1277.0	1277.3	1277.6	1277.8	1278.1	1279.0
155°	1307.3	1306.8	1306.4	1305.9	1305.4	1305.3	1305.5	1305.8	1306.0	1306.2	1307.4
157.5°	1332.0	1332.0	1332.0	1331.9	1331.8	1331.7	1331.5	1331.2	1331.0	1330.7	1332.1
160°	1347.1	1346.9	1346.6	1346.4	1346.1	1346.0	1345.7	1345.5	1345.2	1345.0	1346.4
162.5°	1361.4	1360.7	1360.2	1359.5	1358.9	1358.5	1358.3	1358.0	1357.8	1357.6	1359.2
165°	1378.6	1377.9	1377.1	1376.5	1375.7	1375.3	1375.1	1374.8	1374.6	1374.4	1376.2
167.5°	1392.0	1391.1	1390.1	1389.2	1388.2	1387.8	1387.8	1387.8	1387.8	1387.8	1389.7
170°	1399.5	1398.6	1397.7	1396.8	1395.8	1395.3	1395.3	1395.3	1395.3	1395.3	1397.2
172.5°	1404.6	1403.5	1402.3	1401.2	1400.1	1399.6	1399.8	1400.0	1400.2	1400.4	1402.2
175°	1411.0	1409.9	1408.8	1407.5	1406.4	1405.9	1406.1	1406.4	1406.6	1406.9	1408.5
177.5°	1412.8	1411.8	1410.9	1410.0	1409.0	1408.7	1408.8	1409.0	1409.2	1409.4	1410.9
180°	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0



TEST NUMBER: P332110-930

CATALOG NUMBER: S123DIW-S340D1320U930-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	348.7	348.7	348.7	348.7	348.7	348.7	348.7	348.7
2.5°	348.0	348.5	349.1	349.3	349.3	349.2	349.1	349.0
5°	347.4	348.1	348.8	349.1	349.0	348.9	348.8	348.7
7.5°	345.4	346.2	347.0	347.4	347.3	347.2	347.1	347.0
10°	343.2	344.1	344.9	345.2	345.0	344.9	344.7	344.5
12.5°	340.3	341.1	341.9	342.2	342.0	341.9	341.7	341.5
15°	334.8	335.7	336.6	336.9	336.8	336.7	336.6	336.6
17.5°	327.7	328.5	329.2	329.5	329.4	329.3	329.2	329.1
20°	322.5	323.3	324.1	324.5	324.6	324.7	324.7	324.8
22.5°	316.8	317.8	318.8	319.3	319.2	319.1	319.1	319.0
25°	307.2	308.3	309.4	310.0	310.0	310.0	310.0	310.0
27.5°	297.2	298.2	299.1	299.6	299.7	299.8	299.8	299.9
30°	290.3	291.4	292.4	292.9	292.9	292.9	292.9	292.9
32.5°	282.9	284.0	285.0	285.7	285.9	286.1	286.3	286.5
35°	271.9	273.1	274.4	275.2	275.6	275.9	276.2	276.5
37.5°	260.4	261.9	263.3	264.2	264.4	264.7	265.0	265.2
40°	252.8	254.3	255.7	256.6	256.9	257.3	257.6	258.0
42.5°	244.9	246.5	248.0	249.1	249.6	250.0	250.5	250.9
45°	233.0	234.6	236.3	237.4	238.1	238.7	239.5	240.1
47.5°	221.0	222.9	224.7	225.8	226.3	226.9	227.4	228.0
50°	212.8	214.7	216.7	218.0	218.6	219.2	219.7	220.4
52.5°	204.5	206.4	208.5	209.9	210.6	211.3	212.0	212.7
55°	191.8	194.1	196.4	197.9	198.5	199.3	199.9	200.6
57.5°	179.0	181.2	183.5	185.1	185.9	186.7	187.5	188.3
60°	170.0	172.4	174.7	176.3	177.2	178.2	179.1	180.1
62.5°	161.4	163.8	166.2	167.8	168.7	169.5	170.4	171.3
65°	147.9	150.4	153.0	154.7	155.5	156.4	157.2	158.0
67.5°	134.4	137.1	139.9	141.7	142.4	143.1	143.8	144.5
70°	125.5	128.2	130.9	132.6	133.5	134.3	135.2	136.0
72.5°	116.4	119.2	122.0	123.8	124.7	125.5	126.4	127.2
75°	102.8	105.6	108.4	110.3	111.3	112.3	113.3	114.4
77.5°	90.1	93.0	96.0	97.8	98.6	99.4	100.1	100.9
80°	81.7	84.6	87.5	89.3	90.2	91.0	91.9	92.7
82.5°	74.1	77.0	79.9	81.7	82.6	83.4	84.2	85.1
85°	63.5	66.4	69.2	71.1	71.9	72.8	73.6	74.4
87.5°	59.5	62.6	65.6	67.7	68.6	69.5	70.4	71.4
90°	75.7	79.5	83.3	85.9	87.2	88.5	89.8	91.1
92.5°	75.9	80.2	84.5	87.2	88.2	89.3	90.3	91.4
95°	78.6	82.8	87.1	89.7	90.5	91.3	92.2	93.0
97.5°	77.4	81.8	86.2	88.9	89.9	91.1	92.1	93.2
100°	76.2	80.6	84.9	87.6	88.7	89.8	90.8	91.9
102.5°	93.4	90.0	86.6	85.5	86.8	88.1	89.4	90.6
105°	180.3	141.5	102.6	83.7	85.0	86.3	87.5	88.7
107.5°	390.7	362.7	334.8	305.6	275.2	244.9	214.6	184.3
110°	486.2	480.6	475.2	456.1	423.5	390.8	358.2	325.5





TEST NUMBER: P332110-930

CATALOG NUMBER: S123DIW-S340D1320U930-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	552.7	554.9	557.2	555.2	548.9	542.6	536.3	530.0
115°	630.6	635.0	639.3	642.3	643.9	645.5	647.1	648.7
117.5°	700.7	704.7	708.5	710.9	711.8	712.6	713.4	714.3
120°	746.9	750.7	754.6	756.8	757.3	757.9	758.5	759.1
122.5°	792.0	795.2	798.3	800.3	801.0	801.8	802.6	803.4
125°	855.3	857.5	859.8	861.4	862.5	863.6	864.6	865.7
127.5°	918.8	921.2	923.7	924.9	925.0	925.1	925.2	925.3
130°	956.9	959.4	962.0	963.3	963.4	963.4	963.4	963.4
132.5°	993.0	995.5	997.9	999.1	999.1	999.0	998.9	998.8
135°	1047.9	1050.1	1052.3	1053.3	1053.0	1052.7	1052.5	1052.2
137.5°	1096.7	1099.1	1101.6	1102.8	1102.7	1102.7	1102.6	1102.6
140°	1127.6	1129.8	1132.0	1133.1	1133.1	1133.0	1132.9	1132.9
142.5°	1156.8	1158.7	1160.6	1161.4	1161.1	1160.9	1160.7	1160.5
145°	1198.4	1199.5	1200.7	1201.4	1201.8	1202.2	1202.5	1202.8
147.5°	1235.8	1236.6	1237.2	1237.1	1236.4	1235.6	1234.9	1234.0
150°	1258.9	1259.4	1259.9	1259.8	1259.3	1258.7	1258.3	1257.7
152.5°	1279.8	1280.7	1281.5	1281.4	1280.3	1279.3	1278.3	1277.2
155°	1308.6	1309.7	1310.9	1310.8	1309.4	1308.0	1306.6	1305.2
157.5°	1333.6	1335.0	1336.4	1336.1	1334.3	1332.5	1330.6	1328.9
160°	1347.8	1349.2	1350.6	1350.5	1348.8	1347.2	1345.6	1343.9
162.5°	1360.7	1362.4	1363.9	1364.0	1362.5	1361.1	1359.7	1358.2
165°	1378.1	1380.0	1381.9	1381.9	1380.3	1378.7	1377.0	1375.4
167.5°	1391.6	1393.3	1395.2	1395.2	1393.3	1391.6	1389.7	1387.8
170°	1399.1	1400.9	1402.8	1402.8	1400.9	1399.1	1397.2	1395.3
172.5°	1404.1	1406.0	1407.9	1407.7	1405.7	1403.6	1401.6	1399.5
175°	1410.1	1411.8	1413.4	1413.2	1411.4	1409.6	1407.7	1405.8
177.5°	1412.3	1413.9	1415.4	1415.2	1413.3	1411.4	1409.6	1407.7
180°	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0	1411.0

(END OF REPORT)