

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: P332110-940

Luminaire Tested: **S123DIW-S340D1320U940-4F0-1E-UDD-D**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332110-940
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-S340D1320U940-4F0-1E-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: 5992.4 lumens
Efficiency: N/A
Efficacy: 128.6 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

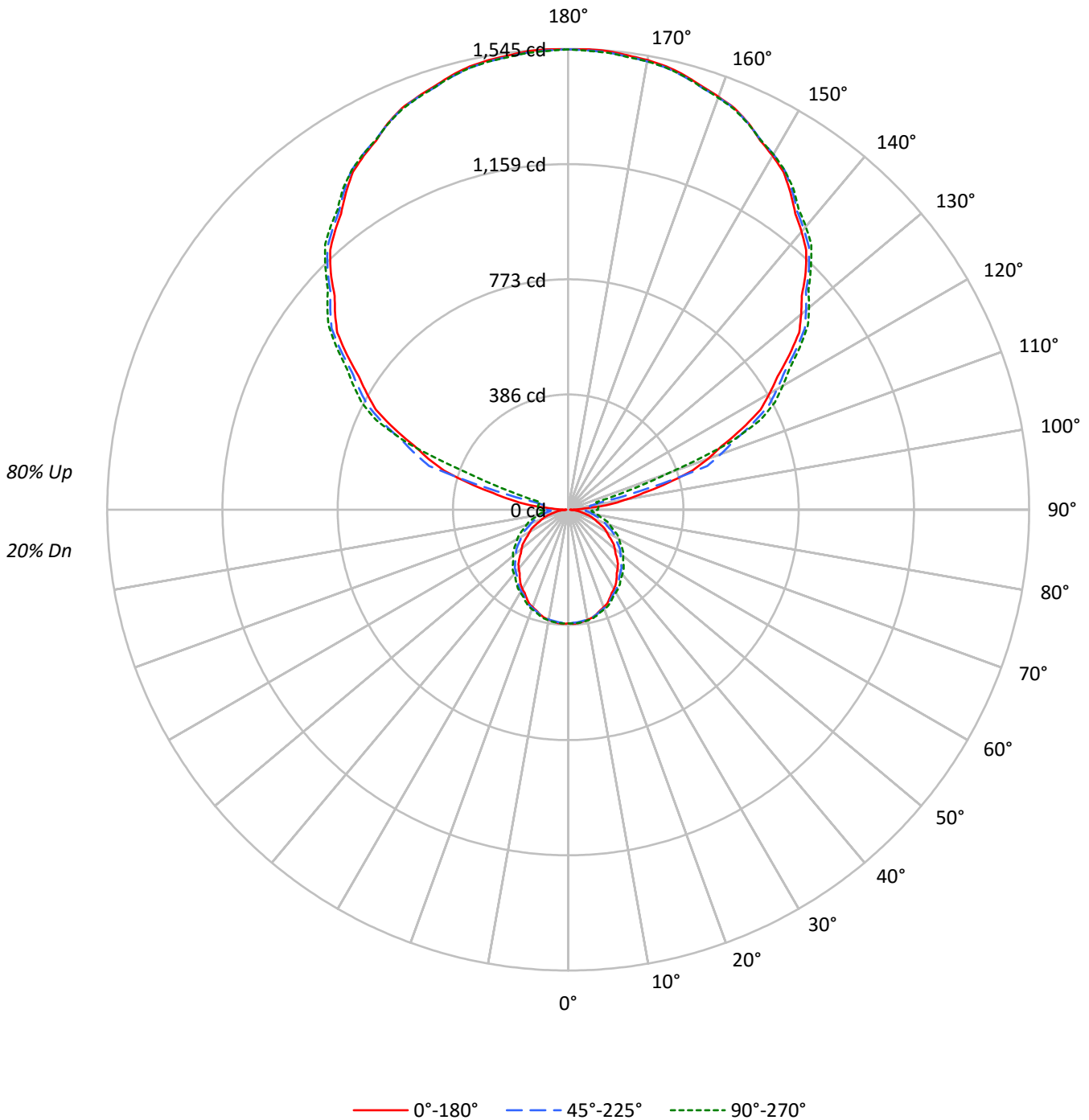
Input Watts (W): 46.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P332110-940

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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	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°	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	0.6
10°-20°	103.1	1.7
20°-30°	154.2	2.6
30°-40°	184.1	3.1
40°-50°	192.6	3.2
50°-60°	180.7	3.0
60°-70°	151.0	2.5
70°-80°	108.0	1.8
80°-90°	68.7	1.1
90°-100°	96.5	1.6
100°-110°	297.1	5.0
110°-120°	662.2	11.1
120°-130°	829.3	13.8
130°-140°	879.0	14.7
140°-150°	818.3	13.7
150°-160°	659.2	11.0
160°-170°	425.5	7.1
170°-180°	146.6	2.4
0°-30°	293.4	4.9
0°-40°	477.5	8.0
0°-60°	850.9	14.2
0°-90°	1178.6	19.7
90°-120°	1055.8	17.6
90°-150°	3582.5	59.8
90°-180°	4814.0	80.3
0°-180°	5992.4	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°	6	39	74	92	100	7
95°	74	47	77	97	102	90
105°	345	362	282	102	97	366
115°	643	656	680	701	710	635
125°	905	914	931	941	947	808
135°	1126	1132	1141	1151	1151	866
145°	1298	1306	1308	1314	1316	812
155°	1430	1428	1429	1434	1428	658
165°	1508	1504	1503	1511	1504	426
175°	1543	1538	1539	1546	1538	147
180°	1543	1543	1543	1543	1543	



TEST NUMBER: P332110-940

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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	16.4	21.5	26.6	31.7	36.9	42.4	47.7	53.1	58.4	61.8
90°	6.5	13.6	20.7	27.7	34.9	42.4	50.4	58.4	66.4	74.5	78.6
92.5°	26.4	29.8	33.2	36.5	39.9	45.1	52.3	59.4	66.5	73.7	78.4
95°	74.5	67.7	60.8	53.9	47.2	47.3	54.7	62.1	69.4	76.7	81.3
97.5°	144.6	143.2	141.8	140.4	138.9	131.2	117.2	103.1	89.1	75.1	79.8
100°	197.5	205.5	213.7	221.7	229.7	216.0	180.5	145.0	109.5	74.0	78.7
102.5°	257.7	264.0	270.4	276.7	283.0	266.5	227.3	188.1	148.8	109.6	105.8
105°	345.0	350.0	355.1	360.1	365.1	358.1	339.1	320.2	301.2	282.2	239.8
107.5°	436.7	440.9	445.0	449.1	453.2	459.0	466.4	473.8	481.1	488.5	457.9
110°	497.8	501.5	505.2	508.9	512.6	517.7	524.2	530.7	537.2	543.7	537.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	556.5	559.7	562.9	566.1	569.4	574.1	580.4	586.8	593.2	599.5	602.0
115°	643.0	645.7	648.3	650.9	653.5	657.7	663.3	669.0	674.6	680.2	684.9
117.5°	727.1	729.7	732.3	734.8	737.4	740.8	745.1	749.4	753.7	758.0	762.2
120°	779.1	781.8	784.5	787.3	790.1	793.4	797.2	800.9	804.8	808.6	812.8
122.5°	832.2	834.4	836.5	838.7	840.8	843.7	847.6	851.5	855.3	859.3	862.7
125°	904.7	906.8	908.8	910.9	912.9	915.8	919.4	923.2	926.8	930.6	933.0
127.5°	975.4	977.3	979.3	981.2	983.2	985.9	989.3	992.7	996.2	999.6	1002.3
130°	1019.4	1021.4	1023.3	1025.3	1027.2	1029.6	1032.5	1035.4	1038.2	1041.1	1043.8
132.5°	1061.3	1063.3	1065.3	1067.4	1069.3	1071.5	1073.8	1076.1	1078.4	1080.7	1083.3
135°	1125.6	1127.0	1128.5	1130.0	1131.4	1133.1	1135.1	1137.2	1139.2	1141.2	1143.7
137.5°	1180.6	1182.4	1184.3	1186.2	1188.0	1189.5	1190.7	1191.8	1192.9	1194.1	1196.8
140°	1216.9	1218.4	1220.0	1221.6	1223.1	1224.3	1225.4	1226.5	1227.4	1228.5	1230.9
142.5°	1250.9	1252.3	1253.8	1255.3	1256.7	1257.8	1258.6	1259.5	1260.3	1261.1	1263.2
145°	1298.3	1300.0	1301.7	1303.4	1305.1	1306.2	1306.7	1307.2	1307.8	1308.2	1309.5
147.5°	1342.6	1343.8	1345.0	1346.1	1347.4	1348.2	1348.7	1349.2	1349.7	1350.2	1350.9
150°	1370.2	1370.9	1371.7	1372.4	1373.2	1373.9	1374.4	1374.8	1375.4	1375.9	1376.4
152.5°	1394.9	1395.3	1395.6	1396.0	1396.3	1396.7	1397.0	1397.3	1397.6	1397.9	1398.8
155°	1429.8	1429.3	1428.8	1428.3	1427.7	1427.6	1427.9	1428.2	1428.4	1428.6	1429.9
157.5°	1456.9	1456.8	1456.8	1456.7	1456.6	1456.5	1456.3	1456.0	1455.7	1455.5	1457.0
160°	1473.4	1473.1	1472.8	1472.6	1472.3	1472.1	1471.9	1471.6	1471.3	1471.1	1472.6
162.5°	1489.0	1488.3	1487.6	1486.9	1486.3	1485.9	1485.6	1485.3	1485.1	1484.8	1486.6
165°	1507.8	1507.0	1506.2	1505.5	1504.7	1504.2	1504.0	1503.7	1503.4	1503.2	1505.2
167.5°	1522.4	1521.4	1520.4	1519.4	1518.3	1517.9	1517.9	1517.9	1517.9	1517.9	1519.9
170°	1530.7	1529.6	1528.7	1527.7	1526.6	1526.1	1526.1	1526.1	1526.1	1526.1	1528.1
172.5°	1536.2	1535.0	1533.7	1532.5	1531.3	1530.8	1531.0	1531.2	1531.4	1531.6	1533.7
175°	1543.3	1542.0	1540.8	1539.4	1538.2	1537.7	1537.9	1538.2	1538.5	1538.7	1540.5
177.5°	1545.2	1544.1	1543.1	1542.1	1541.1	1540.7	1540.9	1541.1	1541.2	1541.5	1543.1
180°	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3



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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°	65.1	68.5	71.8	74.0	75.0	76.1	77.0	78.1
90°	82.8	86.9	91.1	93.9	95.3	96.8	98.2	99.6
92.5°	83.0	87.7	92.5	95.3	96.5	97.6	98.8	100.0
95°	86.0	90.6	95.2	98.1	99.0	99.9	100.9	101.7
97.5°	84.6	89.4	94.3	97.2	98.4	99.6	100.8	101.9
100°	83.4	88.1	92.8	95.8	97.0	98.2	99.3	100.5
102.5°	102.2	98.4	94.7	93.5	95.0	96.3	97.7	99.1
105°	197.2	154.7	112.2	91.6	93.0	94.3	95.7	97.0
107.5°	427.3	396.7	366.1	334.2	301.0	267.9	234.7	201.5
110°	531.7	525.7	519.7	498.8	463.2	427.4	391.7	356.1



TEST NUMBER: P332110-940

CATALOG NUMBER: S123DIW-S340D1320U940-4F0-1E-UDD-D

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	604.5	606.9	609.4	607.3	600.3	593.4	586.6	579.7
115°	689.6	694.5	699.2	702.5	704.3	706.0	707.8	709.5
117.5°	766.4	770.7	774.9	777.5	778.5	779.4	780.2	781.2
120°	816.9	821.1	825.3	827.7	828.3	828.9	829.6	830.3
122.5°	866.2	869.7	873.2	875.3	876.1	877.0	877.8	878.7
125°	935.5	937.9	940.4	942.2	943.3	944.5	945.7	946.8
127.5°	1004.9	1007.5	1010.2	1011.6	1011.7	1011.8	1011.9	1012.0
130°	1046.6	1049.4	1052.1	1053.6	1053.6	1053.6	1053.7	1053.7
132.5°	1086.1	1088.8	1091.5	1092.8	1092.7	1092.6	1092.5	1092.4
135°	1146.1	1148.5	1150.9	1152.0	1151.7	1151.4	1151.1	1150.8
137.5°	1199.4	1202.1	1204.8	1206.1	1206.0	1206.0	1205.9	1205.9
140°	1233.3	1235.7	1238.1	1239.3	1239.3	1239.2	1239.1	1239.1
142.5°	1265.2	1267.3	1269.4	1270.2	1270.0	1269.7	1269.4	1269.3
145°	1310.7	1312.0	1313.2	1314.0	1314.4	1314.8	1315.2	1315.5
147.5°	1351.7	1352.5	1353.2	1353.1	1352.3	1351.4	1350.6	1349.7
150°	1376.9	1377.4	1378.0	1377.9	1377.3	1376.7	1376.2	1375.6
152.5°	1399.7	1400.7	1401.6	1401.5	1400.3	1399.2	1398.1	1397.0
155°	1431.2	1432.4	1433.8	1433.6	1432.1	1430.6	1429.1	1427.5
157.5°	1458.6	1460.1	1461.6	1461.3	1459.4	1457.4	1455.4	1453.4
160°	1474.1	1475.7	1477.2	1477.0	1475.2	1473.5	1471.7	1469.9
162.5°	1488.3	1490.0	1491.7	1491.8	1490.2	1488.7	1487.1	1485.5
165°	1507.3	1509.3	1511.4	1511.4	1509.7	1507.9	1506.1	1504.3
167.5°	1522.0	1523.9	1526.0	1526.0	1523.9	1522.0	1519.9	1517.9
170°	1530.2	1532.2	1534.3	1534.3	1532.2	1530.2	1528.1	1526.1
172.5°	1535.7	1537.8	1539.8	1539.6	1537.4	1535.2	1532.9	1530.7
175°	1542.3	1544.1	1545.9	1545.7	1543.7	1541.7	1539.6	1537.6
177.5°	1544.7	1546.4	1548.0	1547.8	1545.8	1543.7	1541.7	1539.6
180°	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3	1543.3

(END OF REPORT)