

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: P332827-940

Luminaire Tested: **S124DIW-S1020D1340U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332827-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S1020D1340U940-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1340 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8736.3 lumens  
Efficiency: N/A  
Efficacy: 125.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse

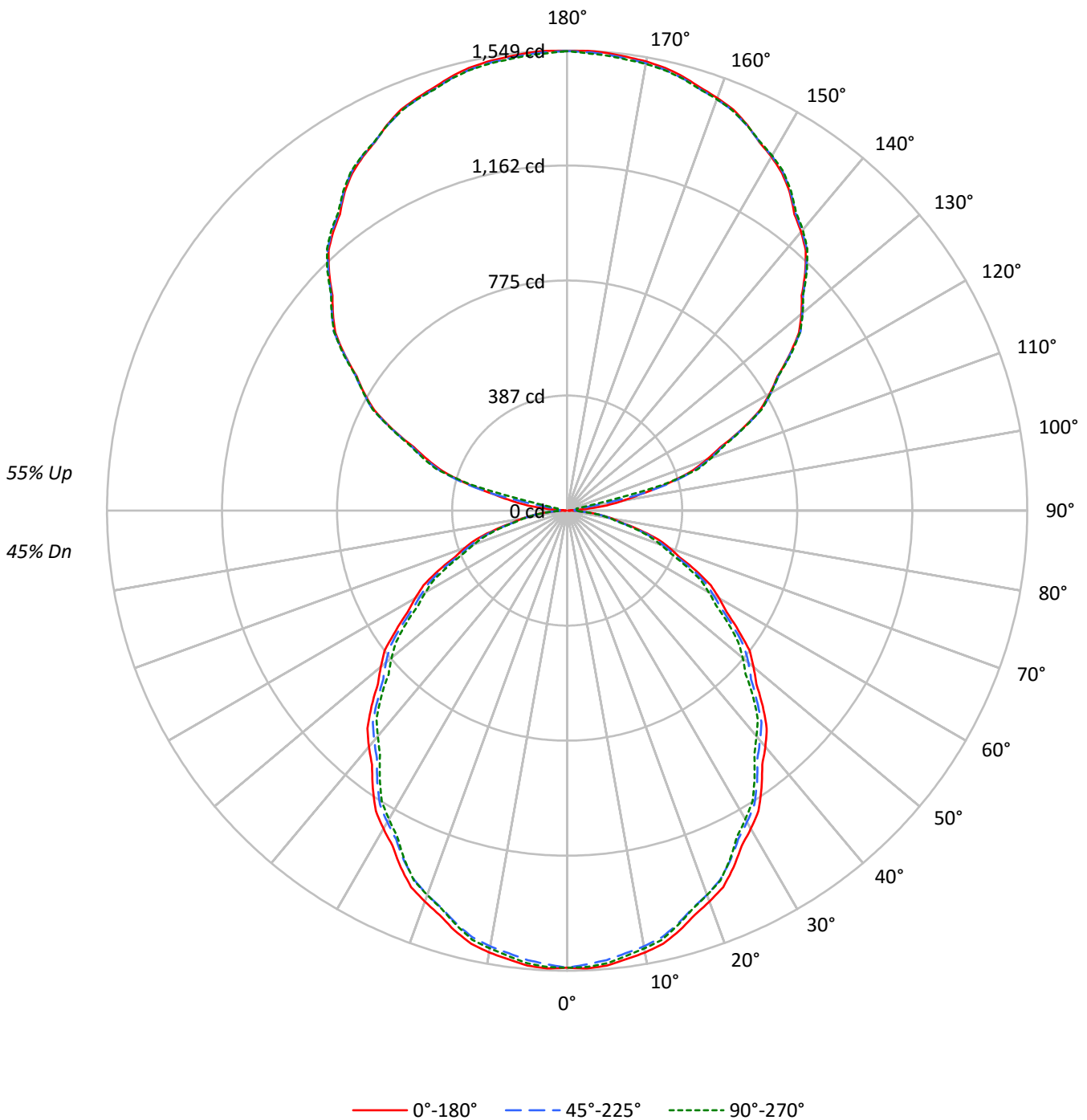
Input Watts (W): 69.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45				
1	97	92	88	85	88	85	81	78	71	68	66	58	56	55	46	45	44	38				
2	88	81	75	69	80	74	69	64	62	58	55	51	48	45	40	38	37	32				
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	36	33	31	27				
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23				
5	67	56	48	42	61	51	44	39	43	38	34	36	32	29	29	26	23	20				
6	62	50	42	36	57	46	39	34	39	34	29	32	28	25	26	23	21	18				
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16				
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14				
9	49	37	30	25	45	35	28	23	30	24	21	25	21	18	20	17	15	13				
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11				

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

	0°	45°	90°
0°	12421	12421	12421
5°	12459	12309	12399
10°	12381	12209	12269
15°	12232	12035	12066
20°	12032	11820	11832
25°	11805	11575	11541
30°	11527	11286	11182
35°	11239	10984	10838
40°	10940	10642	10446
45°	10628	10304	10106
50°	10282	10003	9693
55°	9909	9614	9301
60°	9536	9177	8898
65°	9116	8760	8407
70°	8641	8207	7886
75°	7923	7539	7346
80°	7053	6760	6592
85°	6169	5937	5826



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	144.9	1.7
10°-20°	408.3	4.7
20°-30°	600.9	6.9
30°-40°	698.6	8.0
40°-50°	698.6	8.0
50°-60°	611.1	7.0
60°-70°	453.8	5.2
70°-80°	257.8	3.0
80°-90°	78.9	0.9
90°-100°	52.9	0.6
100°-110°	337.2	3.9
110°-120°	645.1	7.4
120°-130°	818.9	9.4
130°-140°	876.2	10.0
140°-150°	819.3	9.4
150°-160°	660.7	7.6
160°-170°	426.2	4.9
170°-180°	146.9	1.7
0°-30°	1154.1	13.2
0°-40°	1852.6	21.2
0°-60°	3162.3	36.2
0°-90°	3952.9	45.2
90°-120°	1035.2	11.8
90°-150°	3549.6	40.6
90°-180°	4783.0	54.7
0°-180°	8736.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1539	1539	1539	1539	1539	
5°	1537	1532	1519	1532	1530	146
15°	1464	1458	1440	1447	1444	412
25°	1325	1316	1300	1300	1296	609
35°	1140	1131	1114	1106	1100	713
45°	931	922	902	889	885	717
55°	704	700	683	669	661	630
65°	477	471	459	447	440	472
75°	254	248	242	237	236	270
85°	67	66	64	64	63	73
90°	4	16	25	32	35	7
95°	64	26	25	32	34	82
105°	348	355	361	368	330	364
115°	650	653	652	654	655	639
125°	914	918	916	919	921	815
135°	1134	1133	1137	1139	1142	873
145°	1307	1310	1310	1312	1314	816
155°	1433	1434	1431	1435	1432	660
165°	1512	1506	1506	1514	1505	427
175°	1546	1540	1541	1550	1537	147
180°	1546	1546	1546	1546	1546	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6
2.5°	1542.6	1541.9	1541.2	1540.6	1540.0	1538.4	1536.0	1533.6	1531.2	1528.7	1531.0
5°	1537.4	1536.3	1535.3	1534.1	1533.0	1531.0	1527.9	1524.9	1522.0	1518.9	1522.0
7.5°	1523.1	1522.0	1520.9	1519.8	1518.8	1516.5	1513.1	1509.8	1506.5	1503.2	1505.6
10°	1510.3	1509.2	1508.1	1507.0	1505.9	1503.6	1500.0	1496.5	1492.9	1489.3	1491.5
12.5°	1493.5	1492.5	1491.3	1490.2	1489.2	1486.7	1482.9	1479.2	1475.3	1471.6	1474.0
15°	1463.5	1462.3	1461.2	1460.2	1459.0	1456.4	1452.3	1448.2	1444.1	1440.0	1441.6
17.5°	1427.2	1425.8	1424.4	1423.1	1421.7	1419.1	1415.1	1411.3	1407.4	1403.6	1404.5
20°	1400.5	1399.2	1397.8	1396.4	1395.1	1392.3	1388.2	1384.1	1380.0	1375.9	1376.7
22.5°	1372.0	1370.1	1368.3	1366.5	1364.8	1361.7	1357.6	1353.5	1349.4	1345.3	1346.8
25°	1325.3	1323.5	1321.5	1319.6	1317.7	1314.8	1311.0	1307.2	1303.3	1299.5	1299.8
27.5°	1272.1	1270.2	1268.1	1266.1	1264.2	1261.4	1257.8	1254.3	1250.7	1247.1	1246.5
30°	1236.6	1234.4	1232.2	1230.0	1227.8	1224.9	1221.4	1217.8	1214.2	1210.7	1209.6
32.5°	1199.1	1197.1	1195.2	1193.2	1191.2	1188.3	1184.5	1180.8	1177.0	1173.2	1171.9
35°	1140.4	1138.5	1136.6	1134.7	1132.7	1129.9	1126.1	1122.2	1118.4	1114.5	1112.6
37.5°	1078.5	1076.7	1075.0	1073.3	1071.5	1068.6	1064.4	1060.3	1056.2	1052.1	1050.1
40°	1038.1	1035.9	1033.7	1031.5	1029.3	1026.2	1022.1	1018.0	1013.9	1009.8	1007.0
42.5°	994.7	993.4	992.0	990.8	989.4	986.5	982.0	977.4	972.9	968.3	965.1
45°	930.9	928.9	927.0	925.1	923.2	920.0	915.6	911.2	906.9	902.5	899.5
47.5°	864.0	862.7	861.4	860.1	858.7	856.0	852.0	847.9	843.9	839.8	836.4
50°	818.7	817.5	816.5	815.4	814.2	811.8	808.0	804.1	800.3	796.5	792.6
52.5°	774.3	772.9	771.6	770.3	769.0	766.3	762.2	758.2	754.1	750.1	746.7
55°	704.0	703.1	702.3	701.5	700.7	698.4	694.6	690.7	686.9	683.1	679.8
57.5°	636.9	636.0	635.1	634.1	633.2	630.8	627.1	623.3	619.5	615.7	612.6
60°	590.6	589.2	587.8	586.5	585.1	582.6	579.1	575.5	571.9	568.4	565.9
62.5°	545.2	544.0	542.9	541.7	540.6	538.1	534.3	530.6	526.7	523.0	520.8
65°	477.2	475.7	474.4	473.1	471.6	469.6	466.8	464.1	461.4	458.6	455.9
67.5°	408.6	407.3	406.1	404.8	403.5	401.6	399.0	396.4	393.7	391.1	388.4
70°	366.1	364.3	362.3	360.4	358.5	356.4	354.3	352.0	349.9	347.7	345.4
72.5°	320.8	318.9	317.0	315.0	313.2	311.3	309.5	307.8	306.0	304.3	302.6
75°	254.0	252.6	251.2	249.9	248.5	247.1	245.8	244.4	243.0	241.7	240.6
77.5°	190.1	189.5	188.9	188.3	187.7	186.8	185.6	184.4	183.2	182.0	181.6
80°	151.7	150.8	150.0	149.2	148.4	147.7	147.1	146.6	146.1	145.4	144.9
82.5°	114.1	113.8	113.4	113.0	112.6	112.4	112.3	112.2	112.1	111.9	111.6
85°	66.6	66.6	66.6	66.6	66.6	66.3	65.7	65.2	64.6	64.1	64.1
87.5°	26.3	26.7	27.0	27.4	27.7	28.0	28.2	28.4	28.5	28.8	29.1
90°	3.5	6.3	9.1	11.9	14.8	17.2	19.3	21.3	23.4	25.4	27.0
92.5°	14.5	14.7	14.9	15.1	15.2	16.3	18.4	20.4	22.5	24.5	26.0
95°	63.6	54.8	46.1	37.4	28.6	24.4	24.7	25.0	25.1	25.4	27.0
97.5°	135.1	140.5	146.0	151.4	156.9	145.3	116.5	87.9	59.2	30.5	30.7
100°	189.7	194.3	198.9	203.6	208.2	192.8	157.3	121.8	86.3	50.9	46.5
102.5°	250.7	254.1	257.5	260.9	264.3	263.7	259.0	254.5	249.9	245.2	198.0
105°	348.1	349.6	351.2	352.8	354.3	355.7	357.0	358.3	359.5	360.9	363.2
107.5°	438.5	439.3	440.1	440.9	441.7	442.9	444.7	446.4	448.2	450.0	451.0
110°	499.6	500.4	501.2	501.9	502.7	503.9	505.4	506.9	508.5	510.1	510.6



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	558.8	560.3	561.7	563.0	564.5	565.4	566.2	566.9	567.7	568.4	568.3
115°	650.0	650.8	651.6	652.3	653.1	653.4	653.1	652.8	652.6	652.3	652.8
117.5°	732.1	733.2	734.1	735.2	736.2	737.0	737.6	738.2	738.7	739.3	739.2
120°	787.6	788.6	789.7	790.8	791.8	792.1	791.9	791.7	791.4	791.1	791.7
122.5°	839.5	840.1	840.7	841.3	842.0	842.4	842.8	843.1	843.5	843.8	844.2
125°	913.7	914.7	915.8	916.8	917.8	918.1	917.6	917.0	916.5	916.1	916.8
127.5°	984.0	984.3	984.5	984.8	985.1	985.8	986.9	988.1	989.4	990.5	990.3
130°	1029.4	1029.7	1029.9	1030.1	1030.4	1030.9	1031.7	1032.4	1033.2	1034.0	1034.3
132.5°	1071.0	1071.5	1071.9	1072.4	1072.8	1073.6	1074.6	1075.5	1076.5	1077.5	1077.7
135°	1133.5	1133.2	1132.9	1132.7	1132.5	1132.8	1133.8	1134.9	1136.0	1136.9	1137.5
137.5°	1188.7	1188.8	1188.9	1189.1	1189.2	1189.8	1190.9	1192.0	1193.2	1194.3	1194.9
140°	1224.9	1225.4	1225.8	1226.4	1226.9	1227.4	1227.9	1228.4	1229.0	1229.5	1230.2
142.5°	1257.2	1258.1	1259.1	1260.0	1261.0	1261.5	1261.9	1262.1	1262.5	1262.8	1263.4
145°	1307.0	1307.7	1308.5	1309.3	1310.0	1310.5	1310.5	1310.5	1310.5	1310.5	1310.7
147.5°	1346.5	1347.9	1349.4	1350.9	1352.3	1352.9	1352.6	1352.4	1352.1	1351.8	1352.0
150°	1375.2	1376.3	1377.2	1378.3	1379.3	1379.7	1379.5	1379.2	1378.9	1378.7	1378.7
152.5°	1399.3	1400.1	1400.9	1401.7	1402.6	1402.8	1402.3	1401.8	1401.3	1400.9	1401.3
155°	1433.1	1433.2	1433.5	1433.8	1434.0	1433.8	1433.1	1432.3	1431.5	1430.7	1431.7
157.5°	1461.5	1461.3	1461.2	1461.0	1460.9	1460.4	1459.5	1458.6	1457.8	1456.9	1458.2
160°	1478.1	1477.4	1476.6	1475.8	1475.1	1474.5	1474.3	1474.0	1473.7	1473.6	1475.1
162.5°	1492.9	1491.9	1491.0	1490.0	1489.1	1488.4	1488.2	1487.9	1487.6	1487.4	1488.9
165°	1511.7	1510.4	1509.1	1507.8	1506.5	1505.9	1505.9	1505.9	1505.9	1505.9	1508.0
167.5°	1526.5	1525.2	1523.8	1522.5	1521.2	1520.4	1520.3	1520.1	1519.9	1519.7	1522.1
170°	1534.8	1533.3	1531.7	1530.2	1528.7	1528.0	1528.2	1528.5	1528.7	1529.0	1531.1
172.5°	1540.3	1538.8	1537.3	1535.7	1534.2	1533.6	1533.8	1534.1	1534.3	1534.5	1536.6
175°	1546.4	1544.8	1543.3	1541.8	1540.2	1539.5	1539.8	1540.1	1540.3	1540.6	1542.9
177.5°	1549.2	1547.7	1546.2	1544.8	1543.4	1542.8	1543.3	1543.7	1544.1	1544.5	1546.1
180°	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6
2.5°	1533.1	1535.3	1537.6	1538.6	1538.3	1538.1	1537.8	1537.7
5°	1524.9	1527.9	1531.0	1532.2	1531.7	1531.1	1530.5	1530.0
7.5°	1508.0	1510.4	1512.8	1513.9	1513.5	1513.1	1512.8	1512.5
10°	1493.7	1495.9	1498.1	1498.9	1498.3	1497.8	1497.3	1496.7
12.5°	1476.4	1478.8	1481.2	1482.0	1481.3	1480.5	1479.7	1479.0
15°	1443.3	1444.9	1446.6	1447.0	1446.2	1445.4	1444.6	1443.7
17.5°	1405.6	1406.7	1407.7	1407.9	1407.4	1406.9	1406.3	1405.7
20°	1377.5	1378.4	1379.2	1379.3	1378.8	1378.2	1377.7	1377.2
22.5°	1348.3	1349.8	1351.2	1351.5	1350.5	1349.5	1348.5	1347.6
25°	1300.0	1300.3	1300.6	1300.1	1299.0	1298.0	1296.8	1295.7
27.5°	1245.9	1245.2	1244.6	1243.6	1242.2	1240.8	1239.4	1238.1
30°	1208.5	1207.4	1206.3	1205.1	1203.7	1202.3	1201.0	1199.6
32.5°	1170.5	1169.3	1168.0	1166.6	1165.2	1163.9	1162.5	1161.1
35°	1110.7	1108.8	1106.9	1105.2	1103.8	1102.5	1101.1	1099.7
37.5°	1047.9	1045.9	1043.8	1041.9	1040.1	1038.2	1036.4	1034.7
40°	1004.2	1001.5	998.8	996.8	995.3	994.0	992.7	991.2
42.5°	962.0	958.8	955.6	953.5	952.6	951.6	950.7	949.9
45°	896.4	893.4	890.4	888.5	887.7	886.9	886.0	885.2
47.5°	833.0	829.6	826.3	823.5	821.4	819.3	817.3	815.2
50°	788.8	785.0	781.1	778.4	776.7	775.1	773.5	771.8
52.5°	743.3	739.9	736.5	733.8	731.6	729.6	727.5	725.4
55°	676.5	673.2	669.9	667.4	665.8	664.1	662.5	660.8
57.5°	609.5	606.4	603.2	600.8	599.2	597.7	596.1	594.5
60°	563.5	561.0	558.5	556.6	555.2	553.8	552.5	551.1
62.5°	518.5	516.2	514.0	512.2	510.9	509.4	508.1	506.8
65°	453.2	450.4	447.6	445.6	444.3	442.9	441.5	440.1
67.5°	385.8	383.2	380.6	379.1	378.6	378.3	377.9	377.6
70°	343.3	341.1	338.9	337.4	336.6	335.7	334.9	334.1
72.5°	300.8	299.0	297.3	296.0	295.2	294.4	293.6	292.7
75°	239.4	238.4	237.3	236.6	236.3	236.0	235.8	235.5
77.5°	181.3	181.0	180.7	180.1	179.4	178.7	178.0	177.3
80°	144.4	143.8	143.3	142.9	142.6	142.3	142.0	141.8
82.5°	111.3	110.9	110.7	110.3	110.0	109.8	109.5	109.2
85°	64.1	64.1	64.1	63.9	63.7	63.4	63.1	62.9
87.5°	29.3	29.7	30.0	30.2	30.3	30.4	30.5	30.6
90°	28.5	30.1	31.7	32.6	33.2	33.7	34.2	34.7
92.5°	27.6	29.2	30.7	31.5	31.7	31.7	31.8	31.9
95°	28.5	30.1	31.7	32.5	32.7	33.0	33.3	33.5
97.5°	30.9	31.0	31.1	31.4	31.7	31.8	32.1	32.4
100°	42.2	37.8	33.4	31.4	31.7	31.8	32.1	32.4
102.5°	151.0	103.8	56.6	33.1	33.2	33.2	33.3	33.3
105°	365.5	367.8	370.1	366.7	357.4	348.1	338.9	329.7
107.5°	452.2	453.3	454.4	455.5	456.5	457.4	458.4	459.4
110°	511.1	511.6	512.1	512.7	513.5	514.3	515.1	515.9





TEST NUMBER: P332827-940

CATALOG NUMBER: S124DIW-S1020D1340U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	568.1	568.0	567.9	568.4	569.4	570.3	571.3	572.3
115°	653.4	653.9	654.3	654.6	654.6	654.6	654.6	654.6
117.5°	739.0	739.0	738.9	738.8	738.7	738.6	738.5	738.3
120°	792.1	792.6	793.2	793.2	792.6	792.1	791.7	791.1
122.5°	844.5	844.8	845.1	845.0	844.5	843.9	843.5	842.9
125°	917.6	918.4	919.1	919.6	919.9	920.2	920.4	920.7
127.5°	990.2	990.1	989.9	989.7	989.5	989.3	989.1	988.9
130°	1034.5	1034.7	1035.0	1035.2	1035.2	1035.2	1035.2	1035.2
132.5°	1078.0	1078.3	1078.5	1078.5	1078.3	1078.2	1077.9	1077.7
135°	1138.0	1138.4	1139.0	1139.5	1140.1	1140.5	1141.0	1141.6
137.5°	1195.4	1196.0	1196.6	1196.8	1196.6	1196.5	1196.3	1196.1
140°	1231.0	1231.8	1232.5	1233.1	1233.3	1233.6	1233.9	1234.1
142.5°	1263.9	1264.4	1265.1	1265.3	1265.4	1265.4	1265.5	1265.5
145°	1310.9	1311.2	1311.4	1311.9	1312.3	1312.9	1313.4	1313.9
147.5°	1352.3	1352.5	1352.6	1352.9	1353.2	1353.4	1353.6	1353.9
150°	1378.7	1378.7	1378.7	1378.8	1379.0	1379.3	1379.6	1379.8
152.5°	1401.7	1402.1	1402.5	1402.7	1402.5	1402.3	1402.2	1402.0
155°	1432.8	1433.8	1434.9	1434.9	1434.2	1433.4	1432.6	1431.9
157.5°	1459.6	1460.9	1462.2	1462.2	1460.9	1459.6	1458.2	1456.9
160°	1476.6	1478.1	1479.7	1479.7	1478.1	1476.6	1475.1	1473.6
162.5°	1490.5	1492.0	1493.5	1493.4	1491.7	1490.0	1488.2	1486.5
165°	1510.0	1512.1	1514.1	1513.9	1511.7	1509.4	1507.1	1504.8
167.5°	1524.3	1526.5	1528.8	1528.7	1526.1	1523.5	1521.0	1518.4
170°	1533.1	1535.2	1537.2	1537.0	1534.5	1531.9	1529.3	1526.7
172.5°	1538.6	1540.8	1542.8	1542.5	1539.6	1536.9	1534.1	1531.3
175°	1545.2	1547.6	1549.9	1549.4	1546.4	1543.3	1540.2	1537.1
177.5°	1547.8	1549.4	1551.1	1550.7	1548.2	1545.8	1543.3	1540.8
180°	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4	1546.4

(END OF REPORT)