

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: P332821-830

Luminaire Tested: **S124DIW-S1020D1050U830-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332821-830  
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-S1020D1050U830-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1050 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8126.6 lumens  
Efficiency: N/A  
Efficacy: 132.8 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

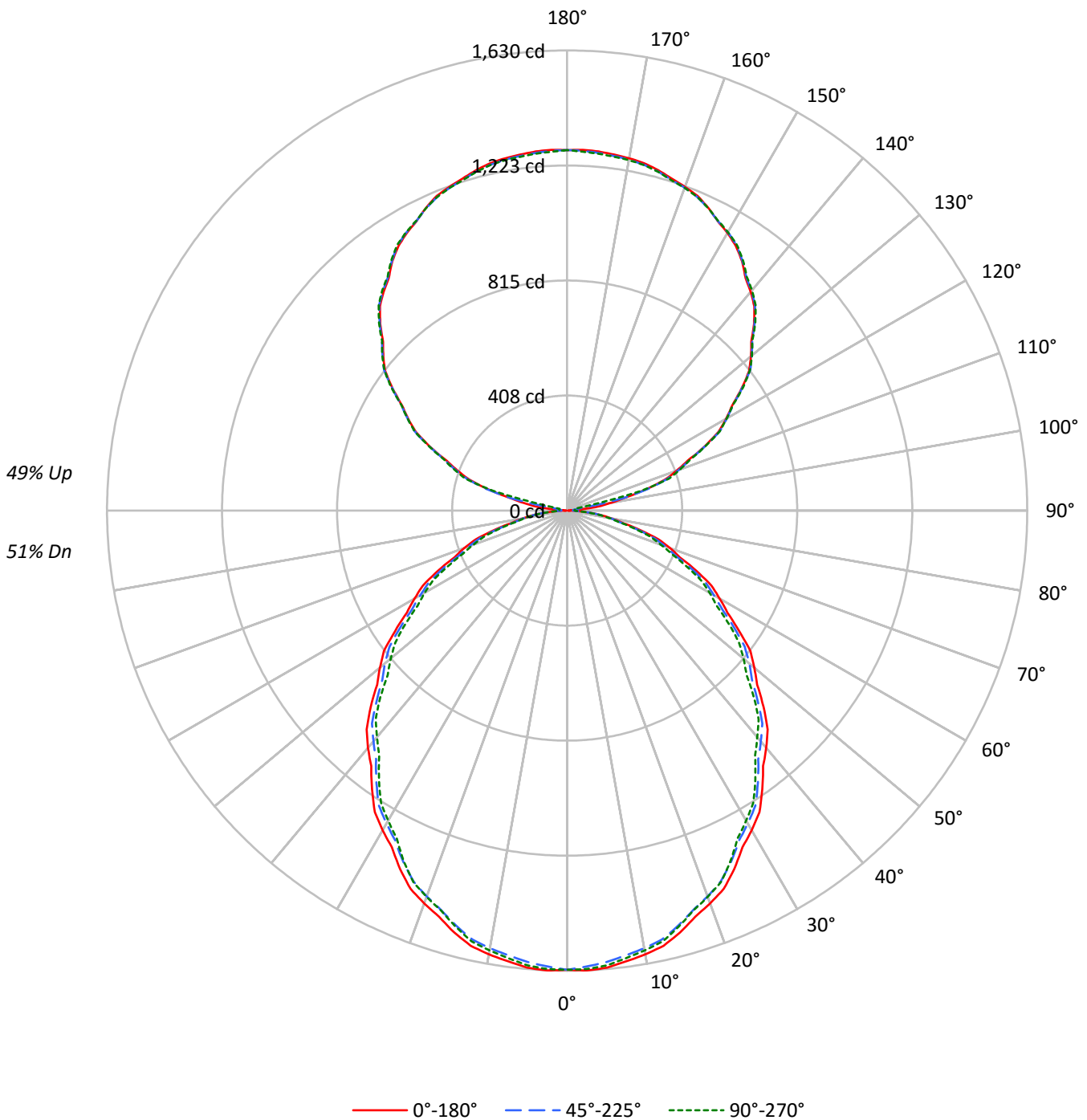
Input Watts (W): 61.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	51
1	98	94	90	86	90	87	83	80	74	71	69	62	60	58	51	49	48	43
2	89	82	76	70	82	76	70	66	65	61	57	54	51	49	45	43	41	36
3	81	72	65	59	75	67	60	55	57	52	48	48	44	41	39	37	35	31
4	75	64	56	50	69	59	52	47	51	45	41	43	39	35	35	32	30	26
5	68	57	49	43	63	53	46	40	45	40	35	38	34	31	32	29	26	23
6	63	51	43	37	58	47	40	35	41	35	31	35	30	27	29	26	23	20
7	58	46	38	32	54	43	36	31	37	31	27	32	27	24	26	23	20	18
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	21	18	16
9	50	38	31	25	47	36	29	24	31	25	22	27	22	19	22	19	16	14
10	47	35	28	23	44	33	26	22	29	23	19	25	20	17	21	17	15	13

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

	0°	45°	90°
0°	13130	13130	13130
5°	13169	13011	13105
10°	13086	12904	12969
15°	12929	12721	12754
20°	12718	12494	12506
25°	12479	12235	12200
30°	12185	11929	11820
35°	11880	11610	11456
40°	11564	11248	11041
45°	11233	10891	10683
50°	10868	10574	10246
55°	10473	10162	9831
60°	10078	9700	9405
65°	9635	9259	8886
70°	9135	8674	8337
75°	8372	7966	7764
80°	7452	7146	6969
85°	6521	6280	6150



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.2	1.9
10°-20°	431.5	5.3
20°-30°	635.2	7.8
30°-40°	738.4	9.1
40°-50°	738.4	9.1
50°-60°	645.9	7.9
60°-70°	479.7	5.9
70°-80°	272.5	3.4
80°-90°	82.3	1.0
90°-100°	43.7	0.5
100°-110°	278.4	3.4
110°-120°	532.6	6.6
120°-130°	676.2	8.3
130°-140°	723.4	8.9
140°-150°	676.5	8.3
150°-160°	545.5	6.7
160°-170°	351.9	4.3
170°-180°	121.3	1.5
0°-30°	1219.8	15.0
0°-40°	1958.2	24.1
0°-60°	3342.6	41.1
0°-90°	4177.1	51.4
90°-120°	854.7	10.5
90°-150°	2930.8	36.1
90°-180°	3949.0	48.6
0°-180°	8126.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1626	1626	1626	1626	1626	
5°	1625	1619	1606	1619	1617	154
15°	1547	1541	1522	1529	1526	436
25°	1401	1391	1374	1374	1370	644
35°	1205	1196	1178	1169	1162	753
45°	984	974	954	940	936	758
55°	744	739	722	707	698	666
65°	504	497	485	472	465	499
75°	268	262	255	250	249	285
85°	70	70	68	68	66	77
90°	3	13	21	27	29	6
95°	52	22	21	26	28	68
105°	288	293	298	304	272	301
115°	537	539	539	540	540	528
125°	754	758	756	759	760	673
135°	936	935	939	941	942	721
145°	1079	1082	1082	1083	1085	674
155°	1183	1184	1181	1185	1182	545
165°	1248	1244	1243	1250	1242	353
175°	1277	1271	1272	1280	1269	122
180°	1277	1277	1277	1277	1277	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1630.5	1629.8	1629.1	1628.4	1627.8	1626.1	1623.5	1621.0	1618.4	1615.9	1618.3
5°	1625.0	1623.9	1622.8	1621.6	1620.4	1618.3	1615.0	1611.8	1608.7	1605.5	1608.7
7.5°	1610.0	1608.7	1607.6	1606.5	1605.3	1603.0	1599.4	1595.9	1592.3	1588.8	1591.4
10°	1596.4	1595.3	1594.0	1592.9	1591.8	1589.3	1585.5	1581.8	1578.0	1574.2	1576.5
12.5°	1578.7	1577.5	1576.3	1575.2	1574.0	1571.4	1567.4	1563.5	1559.4	1555.5	1558.0
15°	1546.9	1545.7	1544.5	1543.4	1542.2	1539.5	1535.1	1530.8	1526.4	1522.1	1523.8
17.5°	1508.5	1507.1	1505.6	1504.2	1502.8	1500.0	1495.8	1491.8	1487.6	1483.6	1484.6
20°	1480.4	1478.9	1477.5	1476.0	1474.6	1471.7	1467.4	1463.0	1458.7	1454.3	1455.2
22.5°	1450.2	1448.2	1446.3	1444.4	1442.6	1439.4	1435.0	1430.7	1426.3	1422.0	1423.6
25°	1400.9	1398.9	1396.8	1394.8	1392.8	1389.8	1385.7	1381.7	1377.6	1373.6	1373.9
27.5°	1344.6	1342.6	1340.4	1338.3	1336.2	1333.3	1329.6	1325.8	1322.0	1318.2	1317.6
30°	1307.1	1304.8	1302.4	1300.1	1297.8	1294.8	1291.0	1287.2	1283.5	1279.7	1278.6
32.5°	1267.4	1265.4	1263.3	1261.2	1259.1	1256.0	1252.1	1248.1	1244.1	1240.1	1238.7
35°	1205.4	1203.4	1201.4	1199.4	1197.3	1194.3	1190.2	1186.2	1182.1	1178.1	1176.0
37.5°	1140.0	1138.1	1136.3	1134.4	1132.6	1129.5	1125.1	1120.8	1116.4	1112.1	1109.9
40°	1097.3	1095.0	1092.6	1090.3	1088.0	1084.7	1080.3	1076.0	1071.7	1067.3	1064.4
42.5°	1051.4	1050.0	1048.6	1047.3	1045.8	1042.7	1037.9	1033.1	1028.3	1023.5	1020.1
45°	983.9	981.8	979.9	977.8	975.8	972.4	967.8	963.2	958.6	953.9	950.7
47.5°	913.2	911.9	910.5	909.1	907.7	904.8	900.6	896.3	892.0	887.7	884.1
50°	865.3	864.1	863.0	861.9	860.6	858.1	854.0	850.0	845.9	841.9	837.8
52.5°	818.4	817.0	815.6	814.3	812.8	810.0	805.7	801.4	797.1	792.9	789.3
55°	744.1	743.2	742.3	741.5	740.6	738.2	734.1	730.1	726.0	722.0	718.5
57.5°	673.3	672.2	671.3	670.2	669.3	666.8	662.8	658.8	654.8	650.8	647.5
60°	624.2	622.7	621.3	619.9	618.4	615.9	612.1	608.3	604.5	600.8	598.1
62.5°	576.3	575.0	573.8	572.6	571.4	568.8	564.8	560.8	556.8	552.8	550.4
65°	504.4	502.8	501.4	500.0	498.5	496.3	493.4	490.6	487.7	484.7	481.9
67.5°	431.9	430.6	429.2	427.9	426.5	424.5	421.7	419.0	416.1	413.4	410.6
70°	387.0	385.0	383.0	381.0	378.9	376.7	374.5	372.1	369.9	367.5	365.1
72.5°	339.1	337.1	335.1	333.0	331.0	329.0	327.2	325.4	323.5	321.6	319.8
75°	268.4	267.0	265.5	264.1	262.7	261.2	259.8	258.4	256.8	255.4	254.3
77.5°	201.0	200.3	199.6	199.1	198.4	197.5	196.1	194.9	193.6	192.4	192.0
80°	160.3	159.4	158.5	157.7	156.8	156.1	155.5	155.0	154.4	153.7	153.2
82.5°	120.6	120.3	119.9	119.4	119.0	118.8	118.7	118.6	118.5	118.3	118.0
85°	70.4	70.4	70.4	70.4	70.4	70.1	69.5	68.9	68.3	67.8	67.8
87.5°	27.7	27.9	28.2	28.4	28.7	28.7	28.9	29.0	29.1	29.2	29.5
90°	2.8	5.2	7.5	9.9	12.2	14.2	15.9	17.6	19.3	21.0	22.2
92.5°	12.1	12.2	12.3	12.4	12.5	13.5	15.2	16.9	18.6	20.3	21.5
95°	52.5	45.3	38.1	30.9	23.7	20.2	20.4	20.5	20.8	21.0	22.2
97.5°	111.5	116.0	120.6	125.1	129.5	120.0	96.2	72.6	48.9	25.2	25.4
100°	156.7	160.4	164.3	168.1	171.9	159.2	129.9	100.6	71.4	42.0	38.5
102.5°	207.1	209.8	212.6	215.5	218.2	217.7	214.0	210.1	206.2	202.5	163.5
105°	287.5	288.7	290.0	291.2	292.6	293.7	294.7	295.9	296.9	297.9	299.8
107.5°	362.1	362.8	363.4	364.0	364.7	365.7	367.1	368.6	370.0	371.5	372.4
110°	412.6	413.2	413.8	414.4	415.1	416.0	417.4	418.6	419.9	421.1	421.6



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	461.5	462.6	463.7	464.9	466.0	466.9	467.5	468.1	468.6	469.3	469.2
115°	536.7	537.3	538.0	538.6	539.2	539.4	539.2	539.0	538.9	538.6	539.0
117.5°	604.5	605.3	606.1	607.0	607.8	608.5	609.0	609.4	609.9	610.4	610.3
120°	650.4	651.2	652.1	652.9	653.7	654.0	653.8	653.7	653.4	653.2	653.7
122.5°	693.1	693.6	694.1	694.7	695.1	695.6	695.9	696.2	696.4	696.7	697.0
125°	754.4	755.3	756.1	757.0	757.8	758.0	757.6	757.1	756.8	756.3	757.0
127.5°	812.5	812.7	812.9	813.1	813.3	813.9	814.9	815.9	816.8	817.8	817.7
130°	849.9	850.2	850.4	850.6	850.7	851.2	851.9	852.4	853.1	853.8	853.9
132.5°	884.3	884.7	885.0	885.4	885.8	886.5	887.2	888.1	888.8	889.7	889.9
135°	935.9	935.7	935.5	935.2	935.0	935.4	936.2	937.1	937.9	938.8	939.1
137.5°	981.5	981.6	981.7	981.8	981.8	982.3	983.3	984.2	985.1	986.1	986.6
140°	1011.3	1011.7	1012.2	1012.6	1013.0	1013.4	1013.9	1014.3	1014.7	1015.1	1015.8
142.5°	1038.0	1038.8	1039.5	1040.4	1041.1	1041.6	1041.9	1042.1	1042.4	1042.6	1043.1
145°	1079.1	1079.8	1080.3	1081.0	1081.7	1081.9	1081.9	1081.9	1081.9	1081.9	1082.2
147.5°	1111.7	1113.0	1114.2	1115.3	1116.5	1117.0	1116.8	1116.6	1116.3	1116.2	1116.3
150°	1135.5	1136.3	1137.2	1138.0	1138.9	1139.2	1139.0	1138.8	1138.5	1138.3	1138.3
152.5°	1155.3	1156.0	1156.7	1157.3	1158.0	1158.2	1157.8	1157.4	1157.1	1156.7	1157.0
155°	1183.2	1183.5	1183.6	1183.8	1184.0	1183.8	1183.2	1182.6	1181.9	1181.3	1182.1
157.5°	1206.7	1206.5	1206.5	1206.3	1206.2	1205.8	1205.0	1204.3	1203.6	1202.9	1204.0
160°	1220.4	1219.8	1219.2	1218.5	1217.9	1217.5	1217.3	1217.0	1216.8	1216.6	1217.9
162.5°	1232.7	1231.9	1231.1	1230.2	1229.5	1228.9	1228.7	1228.5	1228.3	1228.0	1229.4
165°	1248.1	1247.1	1246.0	1244.9	1243.9	1243.4	1243.4	1243.4	1243.4	1243.4	1245.1
167.5°	1260.4	1259.2	1258.2	1257.1	1255.9	1255.4	1255.2	1255.1	1255.0	1254.8	1256.7
170°	1267.2	1265.9	1264.7	1263.4	1262.2	1261.6	1261.8	1262.1	1262.3	1262.4	1264.1
172.5°	1271.8	1270.5	1269.2	1268.0	1266.7	1266.2	1266.4	1266.6	1266.9	1267.1	1268.8
175°	1276.8	1275.5	1274.2	1273.0	1271.7	1271.2	1271.4	1271.6	1271.8	1272.1	1273.9
177.5°	1279.0	1277.9	1276.7	1275.5	1274.3	1273.9	1274.2	1274.6	1274.9	1275.3	1276.6
180°	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1620.5	1622.9	1625.2	1626.3	1626.0	1625.8	1625.5	1625.3
5°	1611.8	1615.0	1618.3	1619.6	1619.0	1618.3	1617.8	1617.2
7.5°	1593.9	1596.5	1599.0	1600.2	1599.8	1599.4	1599.0	1598.7
10°	1578.9	1581.2	1583.5	1584.3	1583.8	1583.2	1582.6	1582.1
12.5°	1560.6	1563.1	1565.7	1566.5	1565.8	1564.9	1564.1	1563.3
15°	1525.6	1527.3	1529.1	1529.5	1528.6	1527.8	1526.9	1526.0
17.5°	1485.7	1486.9	1487.9	1488.2	1487.6	1487.0	1486.5	1485.8
20°	1456.0	1457.0	1457.8	1457.9	1457.4	1456.8	1456.2	1455.7
22.5°	1425.1	1426.7	1428.2	1428.5	1427.5	1426.4	1425.4	1424.4
25°	1374.1	1374.4	1374.7	1374.2	1373.1	1372.0	1370.7	1369.6
27.5°	1316.9	1316.2	1315.5	1314.5	1313.0	1311.5	1310.0	1308.6
30°	1277.4	1276.2	1275.1	1273.8	1272.3	1270.8	1269.4	1268.0
32.5°	1237.3	1236.0	1234.5	1233.1	1231.6	1230.2	1228.8	1227.3
35°	1174.0	1172.0	1170.0	1168.2	1166.8	1165.4	1163.9	1162.4
37.5°	1107.7	1105.5	1103.3	1101.3	1099.4	1097.4	1095.5	1093.6
40°	1061.5	1058.6	1055.7	1053.6	1052.1	1050.7	1049.2	1047.7
42.5°	1016.8	1013.4	1010.0	1007.9	1006.9	1005.9	1004.9	1004.0
45°	947.5	944.3	941.1	939.1	938.3	937.5	936.5	935.7
47.5°	880.5	876.9	873.4	870.4	868.3	866.0	863.8	861.7
50°	833.8	829.7	825.7	822.7	821.0	819.3	817.6	815.8
52.5°	785.7	782.0	778.4	775.6	773.4	771.2	769.0	766.8
55°	715.0	711.5	708.0	705.5	703.7	702.0	700.2	698.5
57.5°	644.2	640.9	637.6	635.1	633.4	631.8	630.1	628.4
60°	595.6	593.0	590.3	588.3	586.8	585.4	584.0	582.5
62.5°	548.1	545.6	543.3	541.4	540.0	538.5	537.1	535.6
65°	479.0	476.1	473.2	471.0	469.6	468.2	466.7	465.2
67.5°	407.8	405.0	402.3	400.7	400.2	399.8	399.4	399.1
70°	362.9	360.5	358.3	356.7	355.8	354.9	354.0	353.2
72.5°	317.9	316.0	314.2	312.8	312.0	311.1	310.3	309.3
75°	253.1	251.9	250.8	250.1	249.8	249.5	249.2	248.9
77.5°	191.6	191.3	191.0	190.4	189.6	188.9	188.1	187.4
80°	152.6	152.0	151.5	151.0	150.7	150.4	150.1	149.9
82.5°	117.6	117.3	117.0	116.6	116.3	116.0	115.7	115.5
85°	67.8	67.8	67.8	67.6	67.3	67.0	66.7	66.4
87.5°	29.7	30.0	30.3	30.4	30.5	30.5	30.6	30.7
90°	23.6	24.8	26.1	27.0	27.3	27.8	28.2	28.7
92.5°	22.8	24.0	25.4	26.0	26.1	26.2	26.3	26.4
95°	23.6	24.8	26.1	26.9	27.1	27.2	27.5	27.7
97.5°	25.4	25.6	25.7	25.9	26.1	26.3	26.5	26.8
100°	34.8	31.2	27.6	25.9	26.1	26.3	26.5	26.8
102.5°	124.6	85.7	46.8	27.3	27.3	27.4	27.4	27.5
105°	301.8	303.7	305.6	302.7	295.1	287.5	279.8	272.2
107.5°	373.3	374.3	375.2	376.1	376.9	377.7	378.5	379.3
110°	422.0	422.4	422.8	423.4	424.0	424.6	425.3	425.9





TEST NUMBER: P332821-830

CATALOG NUMBER: S124DIW-S1020D1050U830-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	469.1	469.0	468.9	469.3	470.1	470.9	471.7	472.5
115°	539.4	539.9	540.3	540.5	540.5	540.5	540.5	540.5
117.5°	610.2	610.2	610.1	610.0	609.9	609.8	609.7	609.6
120°	654.0	654.5	654.9	654.9	654.5	654.0	653.7	653.2
122.5°	697.3	697.5	697.8	697.7	697.3	696.8	696.4	696.0
125°	757.6	758.3	758.8	759.3	759.5	759.7	760.0	760.2
127.5°	817.6	817.5	817.3	817.2	817.0	816.8	816.6	816.5
130°	854.1	854.4	854.6	854.7	854.7	854.7	854.7	854.7
132.5°	890.0	890.3	890.5	890.5	890.3	890.1	890.0	889.9
135°	939.6	940.0	940.5	940.8	941.3	941.7	942.2	942.5
137.5°	987.0	987.5	988.0	988.2	988.0	987.9	987.8	987.6
140°	1016.4	1017.0	1017.7	1018.1	1018.3	1018.5	1018.7	1019.0
142.5°	1043.6	1044.1	1044.5	1044.7	1044.8	1044.8	1044.9	1044.9
145°	1082.4	1082.6	1082.8	1083.2	1083.5	1084.0	1084.4	1084.9
147.5°	1116.5	1116.6	1116.8	1117.0	1117.3	1117.5	1117.7	1117.9
150°	1138.3	1138.3	1138.3	1138.4	1138.6	1138.9	1139.1	1139.3
152.5°	1157.3	1157.6	1158.0	1158.1	1158.0	1157.8	1157.7	1157.6
155°	1183.0	1183.8	1184.7	1184.8	1184.1	1183.6	1182.9	1182.2
157.5°	1205.0	1206.2	1207.3	1207.3	1206.2	1205.0	1204.0	1202.9
160°	1219.2	1220.4	1221.7	1221.7	1220.4	1219.2	1217.9	1216.6
162.5°	1230.6	1231.9	1233.1	1233.1	1231.6	1230.2	1228.8	1227.3
165°	1246.8	1248.5	1250.2	1250.0	1248.1	1246.2	1244.3	1242.4
167.5°	1258.6	1260.5	1262.3	1262.2	1260.1	1257.9	1255.8	1253.7
170°	1265.8	1267.5	1269.2	1269.0	1266.9	1264.8	1262.6	1260.6
172.5°	1270.5	1272.1	1273.8	1273.6	1271.2	1268.9	1266.7	1264.3
175°	1275.8	1277.7	1279.7	1279.3	1276.8	1274.2	1271.7	1269.1
177.5°	1278.0	1279.3	1280.7	1280.3	1278.3	1276.3	1274.2	1272.2
180°	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8	1276.8

(END OF REPORT)