

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: P332828-830

Luminaire Tested: **S124DIW-S1020D1340U830-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332828-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S1020D1340U830-4F0-1E-UDD-F1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8563.2 lumens  
Efficiency: N/A  
Efficacy: 122.7 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

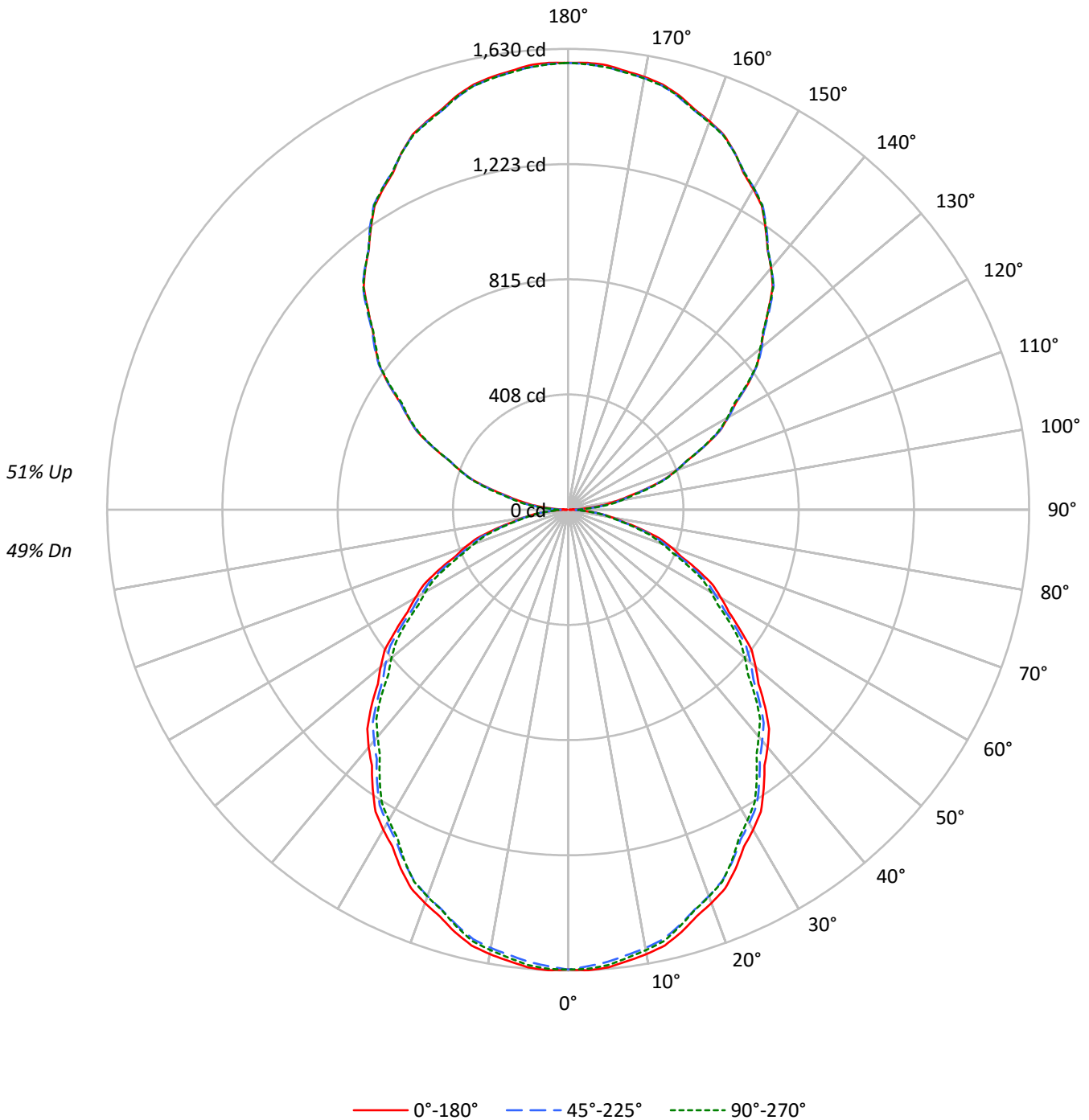
Input Watts (W): 69.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49					49			
1	97	93	89	86	90	86	83	80	72	70	68	60	58	57	49	47	46	41					41			
2	89	81	75	70	81	75	70	65	63	59	56	53	50	47	43	41	39	34					34			
3	81	71	64	58	74	66	60	54	56	51	47	47	43	40	38	35	33	29					29			
4	74	63	55	49	68	59	52	46	50	44	40	41	38	34	34	31	29	25					25			
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25	22					22			
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	28	24	22	19					19			
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20	17					17			
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	17	15					15			
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	14					14			
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12					12			

**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



TEST NUMBER: P332828-830

CATALOG NUMBER: S124DIW-S1020D1340U830-4F0-1E-UDD-F1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.2	1.8
10°-20°	431.5	5.0
20°-30°	635.2	7.4
30°-40°	738.4	8.6
40°-50°	738.4	8.6
50°-60°	645.9	7.5
60°-70°	479.7	5.6
70°-80°	272.5	3.2
80°-90°	83.4	1.0
90°-100°	104.3	1.2
100°-110°	308.8	3.6
110°-120°	524.1	6.1
120°-130°	691.1	8.1
130°-140°	776.2	9.1
140°-150°	762.7	8.9
150°-160°	641.5	7.5
160°-170°	426.8	5.0
170°-180°	149.5	1.7
0°-30°	1219.8	14.2
0°-40°	1958.2	22.9
0°-60°	3342.6	39.0
0°-90°	4178.2	48.8
90°-120°	937.2	10.9
90°-150°	3167.3	37.0
90°-180°	4385.0	51.2
0°-180°	8563.2	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	78
90°	4	17	27	34	37	8
95°	73	84	93	96	97	82
105°	285	286	291	295	298	302
115°	533	533	530	529	528	525
125°	776	776	775	772	770	692
135°	1001	1008	1008	1006	1002	774
145°	1216	1221	1222	1221	1218	761
155°	1394	1393	1392	1397	1392	641
165°	1517	1513	1511	1518	1513	427
175°	1578	1572	1571	1578	1571	150
180°	1580	1580	1580	1580	1580	



TEST NUMBER: P332828-830

CATALOG NUMBER: S124DIW-S1020D1340U830-4F0-1E-UDD-F1

**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°	27.8	28.2	28.6	28.9	29.3	29.6	29.8	30.0	30.2	30.4	30.7
90°	3.7	6.7	9.6	12.6	15.6	18.2	20.4	22.5	24.7	26.9	28.6
92.5°	26.2	29.6	33.0	36.4	39.9	42.3	43.8	45.3	46.8	48.4	49.4
95°	73.3	75.8	78.2	80.7	83.1	85.3	87.2	89.1	91.0	92.9	93.7
97.5°	128.1	130.1	132.1	133.9	135.9	138.0	140.3	142.5	144.7	146.9	147.9
100°	171.2	172.2	173.3	174.4	175.5	177.2	179.6	182.1	184.5	187.0	187.6
102.5°	216.1	216.6	217.0	217.4	217.8	219.1	221.4	223.7	225.8	228.1	228.8
105°	284.8	285.1	285.4	285.6	285.9	286.5	287.7	288.8	289.8	291.0	291.7
107.5°	356.9	357.2	357.6	357.9	358.3	358.4	358.6	358.8	359.0	359.1	359.9
110°	405.9	406.3	406.9	407.5	408.0	408.1	407.8	407.6	407.4	407.1	406.5



TEST NUMBER: P332828-830

CATALOG NUMBER: S124DIW-S1020D1340U830-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	456.7	456.8	456.9	457.0	457.1	456.9	456.5	455.9	455.4	455.0	454.9
115°	532.9	532.9	532.9	532.9	532.9	532.7	532.2	531.6	531.0	530.5	530.3
117.5°	604.8	605.0	605.3	605.5	605.7	605.6	605.2	604.8	604.5	604.1	603.1
120°	652.7	653.8	654.9	656.0	657.0	657.2	656.4	655.6	654.8	653.9	652.6
122.5°	702.6	703.0	703.5	703.9	704.4	704.4	704.0	703.6	703.2	702.9	701.9
125°	776.2	776.2	776.2	776.2	776.2	776.1	775.8	775.5	775.2	775.0	774.4
127.5°	842.9	843.8	844.6	845.4	846.2	846.4	845.9	845.6	845.1	844.6	844.1
130°	889.9	890.7	891.6	892.3	893.2	893.5	893.5	893.5	893.5	893.5	893.0
132.5°	937.8	938.4	939.0	939.6	940.2	940.4	940.2	939.9	939.7	939.5	939.0
135°	1001.1	1002.8	1004.4	1006.0	1007.7	1008.4	1008.4	1008.4	1008.4	1008.4	1008.0
137.5°	1070.1	1070.8	1071.6	1072.3	1073.1	1073.7	1074.1	1074.6	1075.0	1075.4	1074.7
140°	1116.1	1116.5	1117.1	1117.7	1118.2	1118.4	1118.4	1118.4	1118.4	1118.4	1118.2
142.5°	1158.1	1158.6	1159.1	1159.7	1160.3	1160.4	1160.2	1160.0	1159.8	1159.5	1159.5
145°	1216.3	1217.4	1218.4	1219.6	1220.6	1221.3	1221.5	1221.8	1222.1	1222.4	1222.1
147.5°	1273.9	1275.3	1276.6	1277.9	1279.1	1279.7	1279.5	1279.3	1279.0	1278.8	1278.7
150°	1309.2	1310.2	1311.4	1312.4	1313.5	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0
152.5°	1342.4	1343.0	1343.7	1344.3	1345.0	1345.5	1345.7	1345.9	1346.1	1346.3	1347.0
155°	1393.5	1393.5	1393.5	1393.5	1393.5	1393.4	1393.1	1392.8	1392.5	1392.3	1393.4
157.5°	1436.5	1436.1	1435.6	1435.0	1434.5	1434.3	1434.3	1434.2	1434.2	1434.1	1434.9
160°	1462.0	1461.7	1461.4	1461.1	1460.8	1460.6	1460.3	1460.1	1459.8	1459.5	1460.3
162.5°	1485.4	1484.7	1484.0	1483.3	1482.6	1482.1	1481.9	1481.6	1481.3	1481.0	1482.5
165°	1516.9	1516.2	1515.3	1514.5	1513.7	1513.1	1512.5	1511.9	1511.4	1510.8	1512.5
167.5°	1541.2	1540.0	1538.9	1537.8	1536.6	1536.1	1536.2	1536.2	1536.3	1536.3	1537.9
170°	1554.8	1553.5	1552.2	1550.8	1549.4	1548.9	1549.2	1549.4	1549.7	1549.9	1551.6
172.5°	1564.6	1563.5	1562.4	1561.2	1560.1	1559.5	1559.6	1559.6	1559.7	1559.7	1561.6
175°	1578.1	1576.7	1575.4	1574.0	1572.6	1571.8	1571.6	1571.3	1571.0	1570.7	1572.6
177.5°	1582.4	1581.4	1580.3	1579.2	1578.1	1577.6	1577.6	1577.6	1577.6	1577.6	1579.1
180°	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5



TEST NUMBER: P332828-830

CATALOG NUMBER: S124DIW-S1020D1340U830-4F0-1E-UDD-F1

**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°	31.0	31.4	31.7	32.0	32.0	32.1	32.2	32.3
90°	30.2	31.8	33.4	34.5	35.1	35.6	36.1	36.7
92.5°	50.3	51.4	52.3	53.0	53.3	53.6	53.9	54.3
95°	94.5	95.4	96.1	96.6	96.6	96.6	96.6	96.6
97.5°	148.9	149.9	150.8	151.4	151.4	151.4	151.4	151.4
100°	188.1	188.7	189.2	189.5	189.5	189.5	189.5	189.5
102.5°	229.6	230.4	231.1	231.6	231.9	232.1	232.2	232.5
105°	292.6	293.4	294.2	295.0	295.8	296.6	297.5	298.2
107.5°	360.6	361.4	362.2	362.5	362.5	362.4	362.4	362.3
110°	406.0	405.4	404.9	405.0	405.9	406.6	407.5	408.3





TEST NUMBER: P332828-830

CATALOG NUMBER: S124DIW-S1020D1340U830-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	454.8	454.7	454.5	454.6	454.7	454.9	455.1	455.2
115°	530.0	529.7	529.4	529.1	528.9	528.6	528.3	528.1
117.5°	602.3	601.3	600.4	599.6	599.1	598.6	598.0	597.5
120°	651.3	649.9	648.6	648.1	648.7	649.2	649.8	650.3
122.5°	701.0	700.1	699.2	698.2	697.2	696.3	695.3	694.3
125°	773.9	773.4	772.8	772.2	771.8	771.2	770.6	770.1
127.5°	843.6	843.0	842.4	842.0	841.6	841.1	840.7	840.3
130°	892.5	891.9	891.4	890.6	889.5	888.3	887.3	886.2
132.5°	938.4	937.9	937.4	936.9	936.4	935.9	935.6	935.1
135°	1007.4	1006.8	1006.3	1005.6	1004.8	1004.0	1003.1	1002.3
137.5°	1074.0	1073.4	1072.6	1072.3	1072.5	1072.7	1072.8	1073.0
140°	1117.9	1117.7	1117.4	1117.1	1116.8	1116.5	1116.3	1116.1
142.5°	1159.4	1159.4	1159.3	1159.2	1159.2	1159.1	1159.1	1159.0
145°	1221.8	1221.5	1221.3	1220.8	1219.9	1219.1	1218.3	1217.5
147.5°	1278.4	1278.2	1278.0	1277.7	1277.4	1277.1	1277.0	1276.7
150°	1314.0	1314.0	1314.0	1313.9	1313.6	1313.3	1313.1	1312.9
152.5°	1347.6	1348.3	1349.0	1348.9	1348.2	1347.5	1346.8	1346.0
155°	1394.5	1395.5	1396.7	1396.7	1395.5	1394.5	1393.4	1392.3
157.5°	1435.7	1436.5	1437.4	1437.3	1436.3	1435.4	1434.5	1433.6
160°	1461.1	1462.0	1462.7	1462.4	1461.1	1459.8	1458.4	1457.1
162.5°	1483.9	1485.4	1486.9	1487.0	1485.5	1484.2	1482.9	1481.5
165°	1514.1	1515.7	1517.4	1517.7	1516.6	1515.4	1514.4	1513.3
167.5°	1539.5	1541.2	1542.8	1542.8	1541.1	1539.4	1537.8	1536.1
170°	1553.2	1554.8	1556.5	1556.3	1554.4	1552.6	1550.7	1548.8
172.5°	1563.4	1565.3	1567.2	1567.1	1565.2	1563.3	1561.4	1559.5
175°	1574.5	1576.4	1578.4	1578.4	1576.4	1574.5	1572.6	1570.7
177.5°	1580.6	1582.2	1583.7	1583.6	1581.9	1580.1	1578.4	1576.6
180°	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5

(END OF REPORT)