

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: P332810

Luminaire Tested: **S124DIW-S1020D470U835-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332810
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-S1020D470U835-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6055.2 lumens
Efficiency: N/A
Efficacy: 131.1 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: Semi-Direct

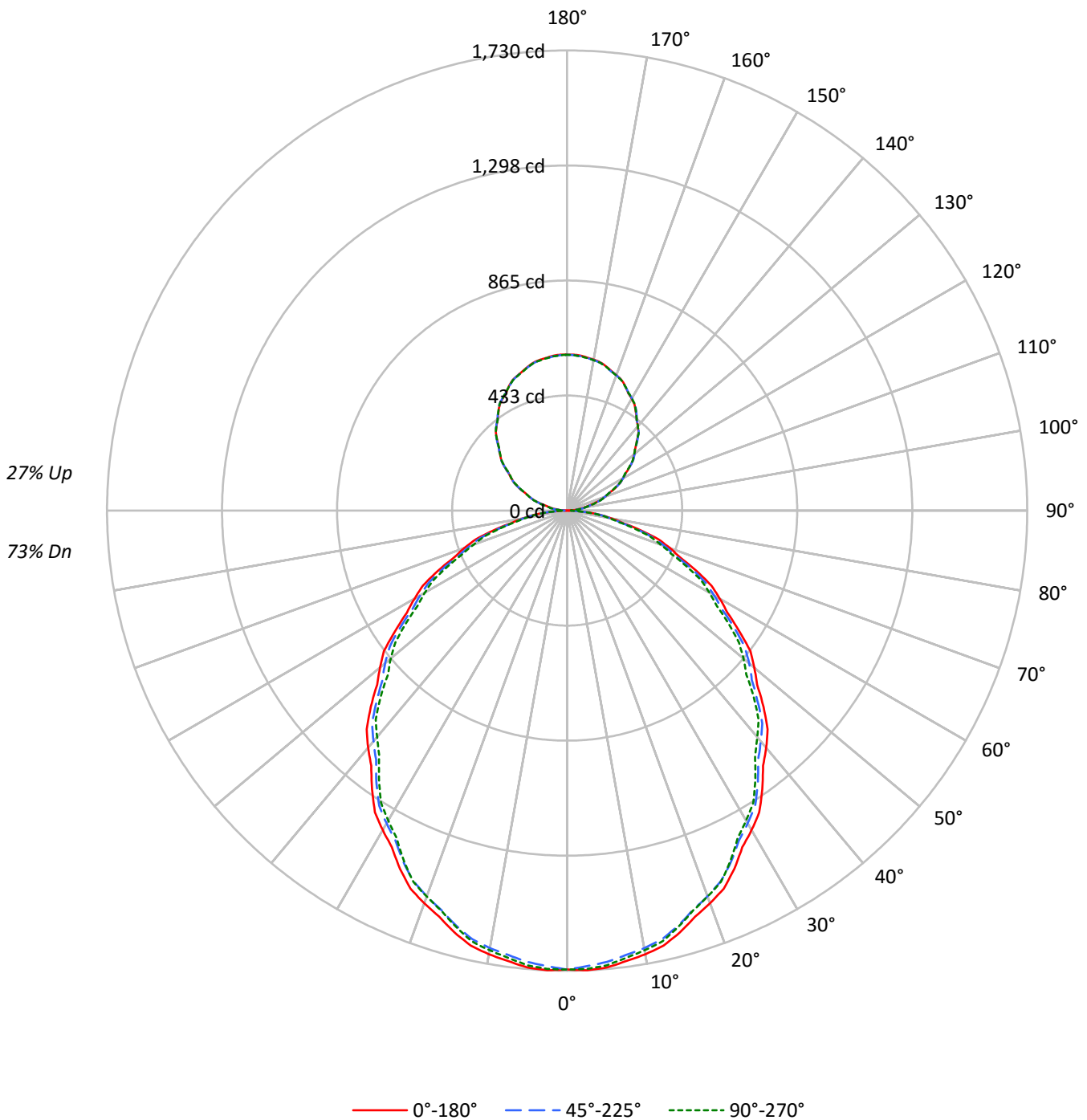
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332810

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-F1

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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77	77	77	77	73	
1	103	98	94	91	98	94	90	87	84	82	79	76	74	72	68	67	65	65	65	65	62	
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55	55	55	55	51	
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47	47	47	47	44	
4	78	67	59	52	74	64	56	51	58	52	47	53	48	44	48	44	40	40	40	40	37	
5	72	60	51	45	68	57	49	44	52	46	41	47	42	38	43	39	35	35	35	35	32	
6	66	54	45	39	63	52	44	38	47	41	36	43	38	33	39	35	31	31	31	31	29	
7	62	49	40	35	58	47	39	34	43	36	32	39	34	30	36	31	28	28	28	28	25	
8	57	44	36	31	54	43	35	30	39	33	28	36	30	26	33	28	25	25	25	25	23	
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22	22	22	22	20	
10	50	37	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20	20	20	20	19	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13930	13930	13930
5°	13972	13804	13904
10°	13884	13691	13759
15°	13717	13497	13531
20°	13493	13256	13268
25°	13239	12981	12944
30°	12928	12656	12541
35°	12604	12318	12154
40°	12269	11934	11715
45°	11918	11555	11334
50°	11531	11218	10870
55°	11112	10781	10431
60°	10693	10291	9978
65°	10222	9824	9429
70°	9692	9203	8844
75°	8883	8453	8238
80°	7908	7583	7392
85°	6919	6660	6530



TEST NUMBER: P332810

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-F1

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	2.7
10°-20°	457.8	7.6
20°-30°	673.9	11.1
30°-40°	783.4	12.9
40°-50°	783.4	12.9
50°-60°	685.3	11.3
60°-70°	508.9	8.4
70°-80°	289.1	4.8
80°-90°	85.2	1.4
90°-100°	38.6	0.6
100°-110°	114.5	1.9
110°-120°	194.3	3.2
120°-130°	256.2	4.2
130°-140°	287.7	4.8
140°-150°	282.7	4.7
150°-160°	237.8	3.9
160°-170°	158.2	2.6
170°-180°	55.4	0.9
0°-30°	1294.2	21.4
0°-40°	2077.6	34.3
0°-60°	3546.4	58.6
0°-90°	4429.6	73.2
90°-120°	347.4	5.7
90°-150°	1174.1	19.4
90°-180°	1626.0	26.9
0°-180°	6055.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1724	1718	1703	1718	1716	163
15°	1641	1635	1615	1622	1619	462
25°	1486	1476	1457	1458	1453	684
35°	1279	1269	1250	1240	1233	799
45°	1044	1034	1012	997	993	804
55°	790	784	766	750	741	707
65°	535	528	514	501	494	530
75°	285	278	271	266	264	303
85°	75	75	72	72	70	82
90°	1	6	10	13	14	6
95°	27	31	34	36	36	30
105°	106	106	108	109	111	112
115°	198	198	197	196	196	195
125°	288	288	287	286	286	256
135°	371	374	374	373	372	287
145°	451	453	453	453	451	282
155°	517	517	516	518	516	238
165°	562	561	560	563	561	158
175°	585	583	582	585	582	56
180°	586	586	586	586	586	



TEST NUMBER: P332810

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5
2.5°	1729.9	1729.2	1728.4	1727.7	1727.0	1725.2	1722.5	1719.8	1717.1	1714.4	1716.9
5°	1724.1	1722.9	1721.7	1720.4	1719.2	1716.9	1713.5	1710.1	1706.8	1703.4	1706.8
7.5°	1708.1	1706.8	1705.6	1704.4	1703.2	1700.7	1696.9	1693.2	1689.4	1685.7	1688.4
10°	1693.7	1692.5	1691.2	1690.0	1688.8	1686.2	1682.2	1678.2	1674.2	1670.2	1672.6
12.5°	1674.9	1673.7	1672.4	1671.2	1670.0	1667.2	1663.0	1658.8	1654.5	1650.3	1653.0
15°	1641.2	1639.9	1638.7	1637.5	1636.2	1633.3	1628.7	1624.1	1619.5	1614.9	1616.7
17.5°	1600.5	1599.0	1597.4	1595.9	1594.4	1591.4	1587.0	1582.7	1578.3	1574.0	1575.1
20°	1570.6	1569.1	1567.6	1566.0	1564.5	1561.4	1556.8	1552.2	1547.6	1543.0	1543.9
22.5°	1538.6	1536.5	1534.5	1532.5	1530.5	1527.1	1522.5	1517.9	1513.3	1508.7	1510.4
25°	1486.3	1484.2	1482.0	1479.8	1477.7	1474.5	1470.2	1465.9	1461.6	1457.3	1457.6
27.5°	1426.6	1424.4	1422.1	1419.9	1417.7	1414.6	1410.6	1406.6	1402.6	1398.6	1397.9
30°	1386.8	1384.3	1381.8	1379.4	1376.9	1373.7	1369.7	1365.7	1361.7	1357.7	1356.5
32.5°	1344.7	1342.5	1340.3	1338.1	1335.9	1332.6	1328.4	1324.2	1319.9	1315.7	1314.2
35°	1278.9	1276.8	1274.6	1272.5	1270.3	1267.1	1262.8	1258.5	1254.2	1249.9	1247.7
37.5°	1209.5	1207.5	1205.6	1203.6	1201.6	1198.4	1193.7	1189.1	1184.5	1179.9	1177.6
40°	1164.2	1161.7	1159.2	1156.8	1154.3	1150.8	1146.2	1141.6	1137.0	1132.4	1129.3
42.5°	1115.5	1114.0	1112.5	1111.1	1109.6	1106.3	1101.2	1096.1	1091.0	1085.9	1082.3
45°	1043.9	1041.7	1039.6	1037.4	1035.3	1031.7	1026.8	1021.9	1017.0	1012.1	1008.7
47.5°	968.9	967.5	966.0	964.5	963.0	960.0	955.5	950.9	946.4	941.8	938.0
50°	918.1	916.8	915.6	914.4	913.1	910.4	906.1	901.8	897.5	893.2	888.9
52.5°	868.3	866.8	865.3	863.9	862.4	859.4	854.8	850.3	845.7	841.2	837.4
55°	789.5	788.5	787.6	786.7	785.8	783.2	778.9	774.6	770.3	766.0	762.3
57.5°	714.3	713.2	712.2	711.1	710.1	707.4	703.2	699.0	694.7	690.5	687.0
60°	662.3	660.7	659.2	657.7	656.1	653.4	649.4	645.4	641.4	637.4	634.6
62.5°	611.4	610.1	608.8	607.5	606.2	603.5	599.2	595.0	590.7	586.5	584.0
65°	535.1	533.5	532.0	530.5	528.9	526.6	523.5	520.5	517.4	514.3	511.3
67.5°	458.2	456.8	455.4	454.0	452.5	450.4	447.4	444.5	441.5	438.6	435.6
70°	410.6	408.5	406.3	404.2	402.0	399.7	397.3	394.8	392.4	389.9	387.4
72.5°	359.8	357.6	355.5	353.3	351.2	349.1	347.1	345.2	343.2	341.2	339.3
75°	284.8	283.3	281.7	280.2	278.7	277.1	275.6	274.1	272.5	271.0	269.8
77.5°	213.2	212.5	211.8	211.2	210.5	209.5	208.1	206.8	205.4	204.1	203.7
80°	170.1	169.1	168.2	167.3	166.4	165.6	165.0	164.4	163.8	163.1	162.5
82.5°	128.0	127.6	127.2	126.7	126.3	126.0	125.9	125.8	125.7	125.5	125.2
85°	74.7	74.7	74.7	74.7	74.7	74.4	73.7	73.1	72.5	71.9	71.9
87.5°	29.0	29.0	29.0	29.0	28.9	28.9	28.8	28.7	28.6	28.5	28.7
90°	1.4	2.5	3.6	4.7	5.8	6.7	7.6	8.4	9.2	10.0	10.6
92.5°	9.7	11.0	12.2	13.5	14.8	15.7	16.3	16.8	17.4	17.9	18.3
95°	27.2	28.1	29.0	29.9	30.8	31.6	32.3	33.0	33.7	34.4	34.7
97.5°	47.5	48.2	48.9	49.7	50.4	51.2	52.0	52.8	53.6	54.5	54.8
100°	63.4	63.8	64.2	64.6	65.1	65.7	66.6	67.5	68.4	69.3	69.5
102.5°	80.1	80.3	80.4	80.6	80.8	81.3	82.1	82.9	83.7	84.6	84.8
105°	105.6	105.7	105.8	105.9	106.0	106.2	106.6	107.0	107.4	107.8	108.1
107.5°	132.3	132.4	132.6	132.7	132.8	132.9	133.0	133.0	133.1	133.1	133.4
110°	150.4	150.6	150.8	151.0	151.2	151.3	151.2	151.1	151.0	150.9	150.7



TEST NUMBER: P332810

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	169.3	169.3	169.4	169.4	169.5	169.4	169.2	169.0	168.8	168.7	168.6
115°	197.6	197.6	197.6	197.6	197.6	197.5	197.3	197.1	196.9	196.7	196.6
117.5°	224.2	224.3	224.4	224.5	224.5	224.5	224.4	224.2	224.1	223.9	223.6
120°	242.0	242.4	242.8	243.2	243.6	243.6	243.3	243.0	242.7	242.4	241.9
122.5°	260.5	260.6	260.8	260.9	261.1	261.1	261.0	260.8	260.7	260.6	260.2
125°	287.7	287.7	287.7	287.7	287.7	287.7	287.6	287.5	287.4	287.3	287.1
127.5°	312.5	312.8	313.1	313.4	313.7	313.8	313.6	313.4	313.3	313.1	312.9
130°	329.9	330.2	330.5	330.8	331.1	331.2	331.2	331.2	331.2	331.2	331.0
132.5°	347.6	347.9	348.1	348.3	348.5	348.6	348.5	348.4	348.4	348.3	348.1
135°	371.1	371.7	372.3	372.9	373.5	373.8	373.8	373.8	373.8	373.8	373.6
137.5°	396.7	397.0	397.2	397.5	397.8	398.0	398.2	398.4	398.5	398.7	398.4
140°	413.7	413.9	414.1	414.3	414.5	414.6	414.6	414.6	414.6	414.6	414.5
142.5°	429.3	429.5	429.7	429.9	430.1	430.2	430.1	430.0	429.9	429.8	429.8
145°	450.9	451.3	451.7	452.1	452.5	452.7	452.8	452.9	453.0	453.1	453.0
147.5°	472.3	472.7	473.2	473.7	474.2	474.4	474.3	474.2	474.2	474.1	474.0
150°	485.3	485.7	486.1	486.5	486.9	487.1	487.1	487.1	487.1	487.1	487.1
152.5°	497.6	497.9	498.1	498.4	498.6	498.8	498.8	498.9	499.0	499.1	499.3
155°	516.6	516.6	516.6	516.6	516.6	516.5	516.4	516.3	516.2	516.1	516.5
157.5°	532.5	532.3	532.2	532.0	531.8	531.7	531.7	531.7	531.6	531.6	531.9
160°	542.0	541.9	541.8	541.7	541.6	541.5	541.4	541.3	541.2	541.1	541.4
162.5°	550.7	550.4	550.1	549.9	549.6	549.4	549.3	549.2	549.1	549.0	549.6
165°	562.3	562.0	561.7	561.4	561.1	560.9	560.7	560.5	560.3	560.1	560.7
167.5°	571.3	570.9	570.5	570.1	569.6	569.4	569.4	569.5	569.5	569.5	570.1
170°	576.4	575.9	575.4	574.9	574.4	574.2	574.3	574.4	574.5	574.6	575.2
172.5°	580.0	579.6	579.2	578.8	578.3	578.1	578.1	578.2	578.2	578.2	578.9
175°	585.0	584.5	584.0	583.5	583.0	582.7	582.6	582.5	582.4	582.3	583.0
177.5°	586.6	586.2	585.8	585.4	585.0	584.8	584.8	584.8	584.8	584.8	585.4
180°	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9



TEST NUMBER: P332810

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5
2.5°	1719.3	1721.8	1724.3	1725.4	1725.1	1724.9	1724.6	1724.4
5°	1710.1	1713.5	1716.9	1718.3	1717.7	1717.0	1716.4	1715.8
7.5°	1691.1	1693.8	1696.5	1697.7	1697.3	1696.9	1696.5	1696.2
10°	1675.1	1677.6	1680.0	1680.9	1680.3	1679.7	1679.1	1678.5
12.5°	1655.7	1658.4	1661.1	1662.0	1661.2	1660.3	1659.4	1658.6
15°	1618.6	1620.4	1622.3	1622.7	1621.8	1620.9	1620.0	1619.0
17.5°	1576.3	1577.5	1578.6	1578.9	1578.3	1577.7	1577.1	1576.4
20°	1544.8	1545.8	1546.7	1546.8	1546.2	1545.6	1545.0	1544.4
22.5°	1512.0	1513.7	1515.3	1515.6	1514.5	1513.4	1512.3	1511.2
25°	1457.9	1458.2	1458.5	1458.0	1456.8	1455.6	1454.3	1453.1
27.5°	1397.2	1396.4	1395.7	1394.6	1393.0	1391.5	1389.9	1388.4
30°	1355.3	1354.0	1352.8	1351.4	1349.9	1348.3	1346.8	1345.3
32.5°	1312.7	1311.3	1309.8	1308.3	1306.7	1305.2	1303.7	1302.1
35°	1245.6	1243.4	1241.3	1239.4	1237.9	1236.4	1234.8	1233.3
37.5°	1175.2	1172.9	1170.6	1168.4	1166.4	1164.3	1162.3	1160.3
40°	1126.2	1123.1	1120.1	1117.8	1116.2	1114.7	1113.2	1111.6
42.5°	1078.8	1075.2	1071.6	1069.3	1068.3	1067.2	1066.2	1065.2
45°	1005.3	1001.9	998.5	996.4	995.5	994.6	993.6	992.7
47.5°	934.2	930.4	926.6	923.5	921.2	918.8	916.5	914.2
50°	884.6	880.3	876.0	872.9	871.0	869.2	867.4	865.5
52.5°	833.6	829.7	825.9	822.9	820.5	818.2	815.9	813.5
55°	758.6	754.9	751.2	748.5	746.6	744.8	742.9	741.1
57.5°	683.5	680.0	676.5	673.8	672.0	670.3	668.5	666.7
60°	631.9	629.1	626.3	624.2	622.6	621.1	619.6	618.0
62.5°	581.5	578.9	576.4	574.4	572.9	571.3	569.8	568.3
65°	508.2	505.1	502.0	499.7	498.2	496.7	495.1	493.6
67.5°	432.7	429.7	426.8	425.1	424.6	424.2	423.8	423.4
70°	385.0	382.5	380.1	378.4	377.5	376.5	375.6	374.7
72.5°	337.3	335.3	333.4	331.9	331.0	330.1	329.2	328.2
75°	268.5	267.3	266.1	265.3	265.0	264.7	264.4	264.1
77.5°	203.3	203.0	202.6	202.0	201.2	200.4	199.6	198.8
80°	161.9	161.3	160.7	160.2	159.9	159.6	159.3	159.0
82.5°	124.8	124.4	124.1	123.7	123.4	123.1	122.8	122.5
85°	71.9	71.9	71.9	71.7	71.4	71.1	70.8	70.5
87.5°	28.8	28.9	29.0	29.1	29.1	29.2	29.2	29.3
90°	11.2	11.8	12.4	12.8	13.0	13.2	13.4	13.6
92.5°	18.7	19.0	19.4	19.6	19.8	19.9	20.0	20.1
95°	35.0	35.3	35.6	35.8	35.8	35.8	35.8	35.8
97.5°	55.2	55.6	55.9	56.1	56.1	56.1	56.1	56.1
100°	69.7	69.9	70.1	70.2	70.2	70.2	70.2	70.2
102.5°	85.1	85.4	85.7	85.9	85.9	86.0	86.1	86.2
105°	108.5	108.8	109.1	109.4	109.7	110.0	110.3	110.6
107.5°	133.7	134.0	134.3	134.4	134.4	134.4	134.3	134.3
110°	150.5	150.3	150.1	150.1	150.4	150.7	151.0	151.3



TEST NUMBER: P332810

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	168.6	168.5	168.5	168.5	168.6	168.6	168.7	168.7
115°	196.5	196.4	196.3	196.2	196.1	196.0	195.9	195.8
117.5°	223.3	222.9	222.6	222.3	222.1	221.9	221.7	221.5
120°	241.4	240.9	240.4	240.3	240.5	240.7	240.9	241.1
122.5°	259.9	259.5	259.2	258.8	258.5	258.1	257.7	257.4
125°	286.9	286.7	286.5	286.3	286.1	285.9	285.7	285.5
127.5°	312.7	312.5	312.3	312.1	312.0	311.8	311.7	311.5
130°	330.8	330.6	330.4	330.1	329.7	329.3	328.9	328.5
132.5°	347.9	347.7	347.5	347.3	347.1	347.0	346.8	346.7
135°	373.4	373.2	373.0	372.8	372.5	372.2	371.9	371.6
137.5°	398.1	397.9	397.6	397.5	397.6	397.6	397.7	397.8
140°	414.4	414.3	414.2	414.1	414.0	413.9	413.8	413.7
142.5°	429.8	429.8	429.8	429.7	429.7	429.7	429.7	429.7
145°	452.9	452.8	452.7	452.5	452.2	451.9	451.6	451.3
147.5°	473.9	473.8	473.8	473.7	473.6	473.5	473.4	473.3
150°	487.1	487.1	487.1	487.1	487.0	486.9	486.8	486.7
152.5°	499.6	499.8	500.1	500.0	499.8	499.5	499.3	499.0
155°	516.9	517.3	517.7	517.7	517.3	516.9	516.5	516.1
157.5°	532.2	532.5	532.8	532.8	532.5	532.1	531.8	531.4
160°	541.7	542.0	542.3	542.2	541.7	541.2	540.6	540.1
162.5°	550.1	550.7	551.2	551.2	550.7	550.2	549.7	549.2
165°	561.3	561.9	562.5	562.6	562.2	561.8	561.4	561.0
167.5°	570.7	571.3	571.9	571.9	571.3	570.7	570.0	569.4
170°	575.8	576.4	577.0	576.9	576.2	575.5	574.8	574.1
172.5°	579.6	580.3	580.9	580.9	580.2	579.5	578.8	578.1
175°	583.7	584.4	585.1	585.1	584.4	583.7	583.0	582.3
177.5°	586.0	586.5	587.1	587.0	586.4	585.8	585.1	584.5
180°	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9

(END OF REPORT)