

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: P332809

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332809
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-S1020D470U835-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6304.0 lumens
Efficiency: N/A
Efficacy: 136.4 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

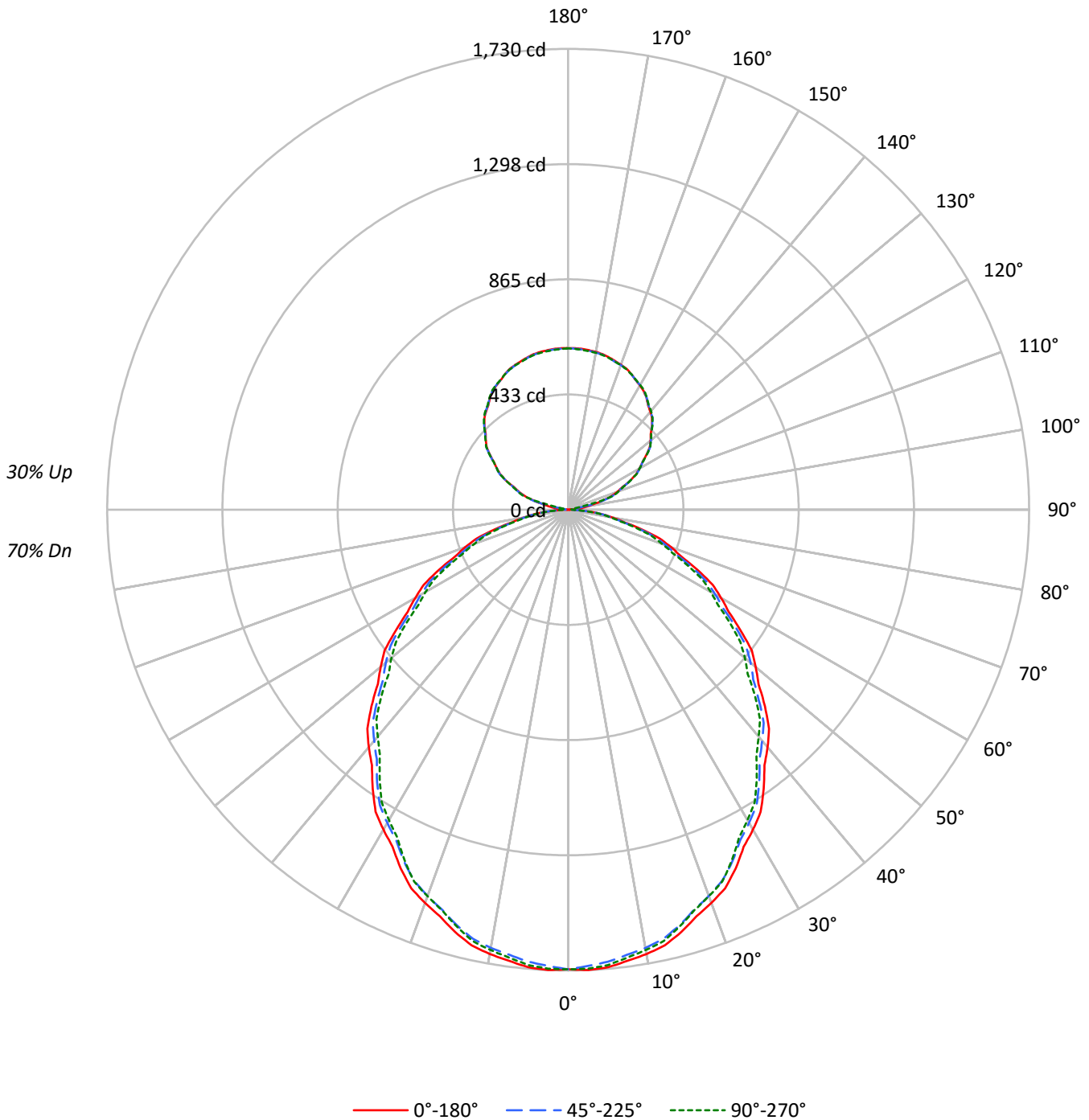
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75	70
1	102	98	94	90	97	93	89	86	83	80	78	74	72	70	66	64	63	59
2	93	85	79	74	88	81	75	70	73	68	64	65	62	59	58	55	53	49
3	85	75	67	61	80	71	64	59	64	59	54	58	53	50	51	48	45	42
4	78	67	58	52	73	63	56	50	57	51	46	51	47	43	46	42	39	36
5	72	59	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34	31
6	66	53	45	39	62	51	43	38	46	40	35	42	37	32	38	33	30	27
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	27	24
8	57	44	36	31	54	42	35	30	38	32	28	35	30	26	32	27	24	22
9	53	40	33	27	50	39	31	27	35	29	25	32	27	23	29	25	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20	18

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



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	2.6
10°-20°	457.8	7.3
20°-30°	673.9	10.7
30°-40°	783.4	12.4
40°-50°	783.4	12.4
50°-60°	685.3	10.9
60°-70°	508.9	8.1
70°-80°	289.1	4.6
80°-90°	85.2	1.4
90°-100°	20.7	0.3
100°-110°	132.1	2.1
110°-120°	252.8	4.0
120°-130°	320.9	5.1
130°-140°	343.3	5.4
140°-150°	321.0	5.1
150°-160°	258.9	4.1
160°-170°	167.0	2.6
170°-180°	57.6	0.9
0°-30°	1294.2	20.5
0°-40°	2077.6	33.0
0°-60°	3546.4	56.3
0°-90°	4429.6	70.3
90°-120°	405.6	6.4
90°-150°	1390.9	22.1
90°-180°	1874.0	29.7
0°-180°	6304.0	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	5
95°	25	10	10	13	13	32
105°	136	139	141	144	129	143
115°	255	256	256	256	256	251
125°	358	360	359	360	361	320
135°	444	444	446	446	447	342
145°	512	513	514	514	515	320
155°	562	562	561	562	561	259
165°	592	590	590	593	590	167
175°	606	603	604	607	602	58
180°	606	606	606	606	606	



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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°	5.7	5.8	5.8	5.9	6.0	6.4	7.2	8.0	8.8	9.6	10.2
95°	24.9	21.5	18.1	14.7	11.2	9.6	9.7	9.8	9.9	10.0	10.6
97.5°	52.9	55.1	57.2	59.3	61.5	56.9	45.7	34.4	23.2	12.0	12.0
100°	74.3	76.1	78.0	79.8	81.6	75.5	61.6	47.7	33.8	19.9	18.2
102.5°	98.3	99.6	100.9	102.2	103.6	103.3	101.5	99.7	97.9	96.1	77.6
105°	136.4	137.0	137.6	138.2	138.8	139.4	139.9	140.4	140.9	141.4	142.3
107.5°	171.9	172.2	172.5	172.8	173.1	173.6	174.2	174.9	175.6	176.3	176.7
110°	195.8	196.1	196.4	196.7	197.0	197.4	198.0	198.7	199.3	199.9	200.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	219.0	219.5	220.1	220.6	221.2	221.6	221.9	222.1	222.4	222.7	222.7
115°	254.7	255.0	255.3	255.6	255.9	256.0	255.9	255.8	255.7	255.6	255.8
117.5°	286.9	287.3	287.7	288.1	288.5	288.8	289.0	289.2	289.5	289.7	289.6
120°	308.6	309.0	309.4	309.8	310.2	310.4	310.3	310.2	310.1	310.0	310.2
122.5°	328.9	329.2	329.4	329.7	329.9	330.1	330.2	330.4	330.5	330.7	330.8
125°	358.0	358.4	358.8	359.2	359.6	359.7	359.5	359.3	359.1	358.9	359.2
127.5°	385.6	385.7	385.8	385.9	386.0	386.3	386.7	387.2	387.7	388.1	388.1
130°	403.3	403.4	403.6	403.7	403.8	404.0	404.3	404.6	404.9	405.2	405.3
132.5°	419.7	419.8	420.0	420.2	420.4	420.7	421.1	421.4	421.8	422.2	422.3
135°	444.1	444.0	443.9	443.8	443.7	443.9	444.3	444.7	445.1	445.5	445.7
137.5°	465.8	465.8	465.9	465.9	466.0	466.2	466.6	467.1	467.5	468.0	468.2
140°	479.9	480.1	480.3	480.5	480.7	480.9	481.1	481.4	481.6	481.8	482.1
142.5°	492.6	493.0	493.4	493.7	494.1	494.3	494.4	494.6	494.7	494.8	495.0
145°	512.1	512.4	512.7	513.0	513.3	513.5	513.5	513.5	513.5	513.5	513.6
147.5°	527.6	528.2	528.7	529.3	529.9	530.1	530.0	529.9	529.8	529.7	529.8
150°	538.9	539.3	539.7	540.1	540.5	540.6	540.5	540.4	540.3	540.2	540.2
152.5°	548.3	548.6	548.9	549.2	549.6	549.6	549.5	549.3	549.1	548.9	549.1
155°	561.5	561.6	561.7	561.8	561.9	561.8	561.5	561.2	560.9	560.6	561.0
157.5°	572.7	572.6	572.5	572.5	572.4	572.2	571.9	571.5	571.2	570.9	571.4
160°	579.2	578.9	578.6	578.3	578.0	577.8	577.7	577.6	577.5	577.4	578.0
162.5°	585.0	584.6	584.2	583.8	583.5	583.2	583.1	583.0	582.9	582.8	583.4
165°	592.3	591.8	591.3	590.8	590.3	590.1	590.1	590.1	590.1	590.1	590.9
167.5°	598.1	597.6	597.1	596.6	596.0	595.7	595.7	595.6	595.6	595.5	596.4
170°	601.4	600.8	600.2	599.6	599.0	598.7	598.8	598.9	599.0	599.1	599.9
172.5°	603.6	603.0	602.4	601.8	601.2	600.9	601.0	601.1	601.2	601.3	602.1
175°	605.9	605.3	604.7	604.1	603.5	603.3	603.4	603.5	603.6	603.7	604.6
177.5°	607.0	606.5	605.9	605.3	604.8	604.6	604.7	604.9	605.0	605.2	605.8
180°	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9



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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°	10.8	11.4	12.0	12.3	12.4	12.4	12.5	12.5
95°	11.2	11.8	12.4	12.7	12.8	12.9	13.0	13.1
97.5°	12.1	12.1	12.2	12.3	12.4	12.5	12.6	12.7
100°	16.5	14.8	13.1	12.3	12.4	12.5	12.6	12.7
102.5°	59.1	40.7	22.2	13.0	13.0	13.0	13.0	13.1
105°	143.2	144.1	145.0	143.7	140.0	136.4	132.8	129.2
107.5°	177.2	177.6	178.1	178.5	178.9	179.2	179.6	180.0
110°	200.3	200.5	200.7	200.9	201.2	201.5	201.8	202.1



TEST NUMBER: P332809

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	222.6	222.6	222.5	222.7	223.1	223.5	223.9	224.2
115°	256.0	256.2	256.4	256.5	256.5	256.5	256.5	256.5
117.5°	289.6	289.6	289.5	289.5	289.4	289.4	289.4	289.3
120°	310.4	310.6	310.8	310.8	310.6	310.4	310.2	310.0
122.5°	330.9	331.0	331.1	331.1	330.9	330.7	330.5	330.3
125°	359.5	359.8	360.1	360.3	360.4	360.5	360.6	360.7
127.5°	388.0	387.9	387.9	387.8	387.7	387.6	387.6	387.5
130°	405.4	405.5	405.6	405.6	405.6	405.6	405.6	405.6
132.5°	422.4	422.5	422.6	422.6	422.5	422.5	422.4	422.3
135°	445.9	446.1	446.3	446.5	446.7	446.9	447.1	447.3
137.5°	468.4	468.6	468.9	468.9	468.9	468.8	468.8	468.7
140°	482.4	482.7	483.0	483.2	483.3	483.4	483.5	483.6
142.5°	495.2	495.5	495.7	495.8	495.8	495.9	495.9	495.9
145°	513.7	513.8	513.9	514.0	514.2	514.4	514.6	514.8
147.5°	529.9	529.9	530.0	530.1	530.2	530.3	530.4	530.5
150°	540.2	540.2	540.2	540.3	540.4	540.5	540.6	540.7
152.5°	549.2	549.4	549.6	549.6	549.6	549.5	549.4	549.4
155°	561.4	561.8	562.2	562.3	562.0	561.7	561.4	561.1
157.5°	571.9	572.4	572.9	572.9	572.4	571.9	571.4	570.9
160°	578.6	579.2	579.8	579.8	579.2	578.6	578.0	577.4
162.5°	584.0	584.6	585.2	585.2	584.5	583.8	583.1	582.5
165°	591.7	592.5	593.3	593.2	592.3	591.4	590.5	589.6
167.5°	597.3	598.2	599.1	599.0	598.0	597.0	596.0	595.0
170°	600.7	601.5	602.4	602.3	601.2	600.2	599.2	598.2
172.5°	602.9	603.7	604.5	604.4	603.3	602.2	601.1	600.0
175°	605.5	606.4	607.3	607.1	605.9	604.7	603.5	602.3
177.5°	606.5	607.1	607.8	607.6	606.7	605.7	604.7	603.8
180°	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9

(END OF REPORT)