

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: P242301

Luminaire Tested: **S122DR-S675D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242301  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DR-S675D840-X4F0-XX-UDD-A-W  
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2898.7 lumens  
Efficiency: N/A  
Efficacy: 109.8 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')  
CIE Type: Direct

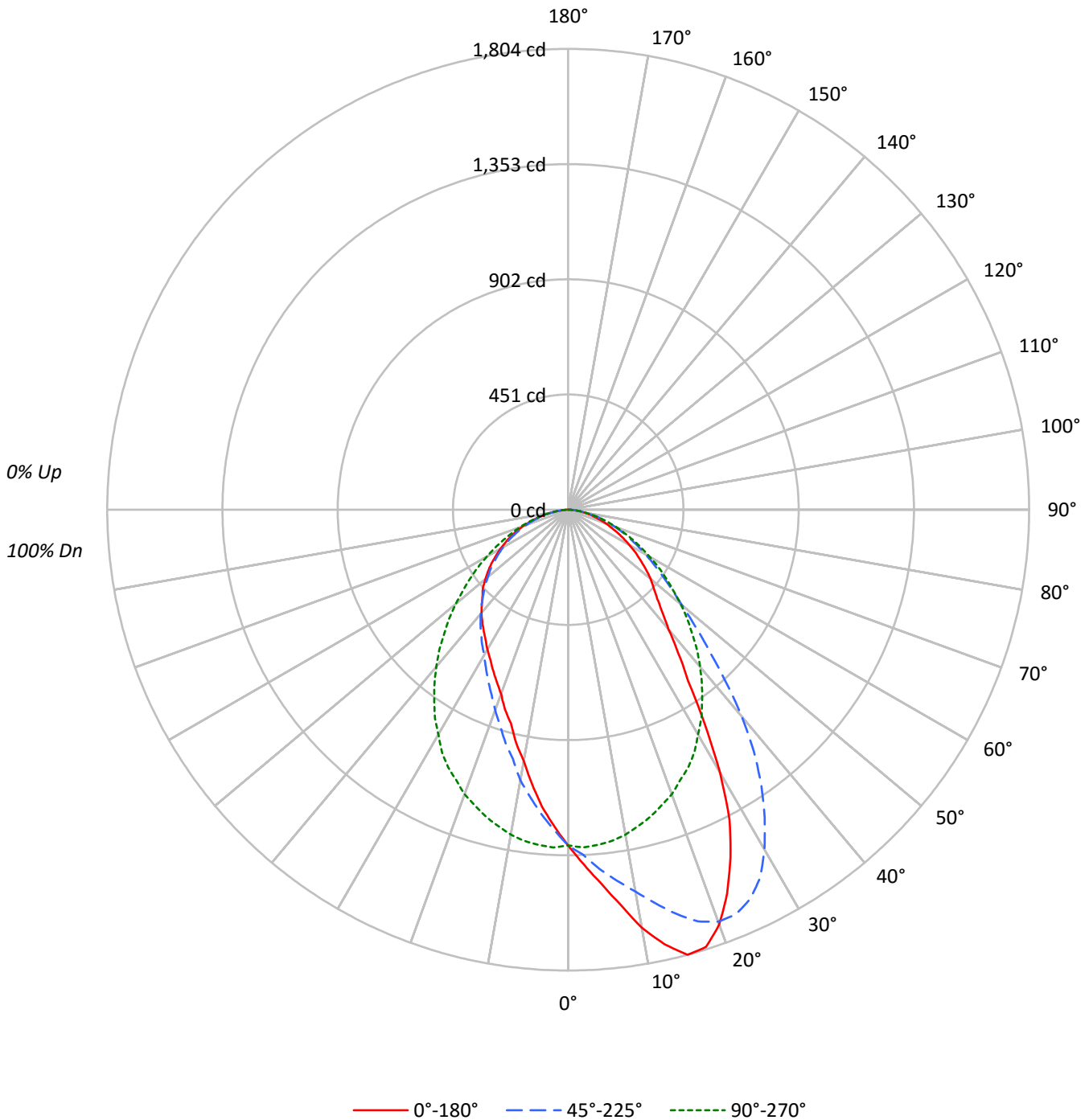
Input Watts (W): 26.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29

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

	0°	90°	180°
0°	25029	25029	25029
5°	28059	25191	22323
10°	32153	24985	19320
15°	35570	24527	17069
20°	35029	24034	15559
25°	31584	23381	14605
30°	26101	22335	13905
35°	19023	21242	13410
40°	15193	19952	13134
45°	13278	18460	12760
50°	12481	17015	12511
55°	11503	15545	12174
60°	10541	13985	11657
65°	9605	12588	11150
70°	8716	11222	10403
75°	7727	9700	9214
80°	6647	8029	7426
85°	5966	5966	4415



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	125.2	4.3
10°-20°	364.3	12.6
20°-30°	528.7	18.2
30°-40°	557.3	19.2
40°-50°	493.1	17.0
50°-60°	393.6	13.6
60°-70°	267.4	9.2
70°-80°	136.8	4.7
80°-90°	32.3	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1018.1	35.1
0°-40°	1575.4	54.3
0°-60°	2462.2	84.9
0°-90°	2898.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2898.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1314	1314	1314	1314	1314	
5°	1468	1412	1318	1197	1168	146
15°	1804	1639	1244	946	866	500
25°	1503	1683	1112	740	695	682
35°	818	1318	914	594	577	530
45°	493	780	685	470	474	386
55°	346	449	468	353	367	311
65°	213	266	279	233	247	212
75°	105	129	132	118	125	112
85°	27	30	27	23	20	31
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0
2.5°	1389.7	1390.2	1391.2	1383.2	1382.2	1382.2	1375.1	1369.0	1362.0	1352.4	1353.4
5°	1467.5	1473.1	1475.1	1469.0	1459.9	1458.9	1450.3	1436.2	1423.1	1412.5	1404.9
7.5°	1557.4	1559.4	1555.4	1548.3	1542.2	1530.6	1516.5	1502.8	1482.6	1464.5	1451.3
10°	1662.4	1665.5	1656.9	1645.3	1635.7	1621.5	1598.3	1574.6	1545.8	1518.0	1495.8
12.5°	1742.2	1750.8	1739.2	1740.2	1722.0	1701.3	1672.5	1663.4	1620.0	1578.6	1554.4
15°	1803.8	1803.3	1804.3	1794.7	1782.6	1779.6	1750.3	1718.5	1661.4	1638.7	1599.3
17.5°	1794.7	1801.8	1805.8	1802.8	1800.8	1796.2	1783.6	1759.9	1728.6	1690.2	1643.2
20°	1728.1	1738.2	1739.7	1751.3	1757.9	1766.5	1770.0	1764.4	1746.8	1716.0	1676.6
22.5°	1625.1	1626.1	1631.6	1651.3	1667.5	1692.2	1705.3	1730.1	1726.1	1714.9	1683.6
25°	1502.8	1497.8	1515.5	1524.6	1557.4	1591.7	1616.5	1643.7	1668.0	1682.6	1673.0
27.5°	1367.5	1356.9	1383.7	1407.4	1430.6	1464.0	1501.3	1545.8	1579.6	1625.6	1636.7
30°	1186.7	1191.3	1216.5	1242.3	1282.7	1335.2	1378.6	1428.6	1482.6	1535.7	1572.5
32.5°	991.8	1012.5	1026.1	1069.1	1103.4	1163.5	1232.2	1297.8	1368.5	1430.6	1492.7
35°	818.1	838.3	860.5	889.3	939.3	997.4	1059.5	1143.8	1235.7	1318.0	1385.7
37.5°	708.0	704.5	718.1	739.3	782.2	832.2	906.0	991.8	1101.9	1193.3	1284.2
40°	611.0	609.0	618.1	637.3	668.1	702.4	765.1	838.3	938.8	1056.9	1170.6
42.5°	544.4	546.4	550.4	562.6	581.2	608.0	650.9	710.5	800.4	910.0	1034.2
45°	492.9	496.4	502.0	508.5	520.6	543.9	570.1	614.6	687.3	780.2	900.4
47.5°	452.5	453.5	459.5	465.6	472.7	486.8	510.0	538.3	593.9	673.2	780.7
50°	421.2	417.6	421.7	426.2	433.8	442.9	457.0	483.3	517.6	578.7	665.1
52.5°	382.8	383.8	387.3	388.3	394.9	404.0	416.6	432.8	463.1	507.5	574.7
55°	346.4	348.9	351.0	354.0	360.1	366.6	376.7	388.8	413.1	448.9	501.5
57.5°	312.1	313.1	314.6	321.2	324.7	330.8	340.9	352.0	368.1	395.9	437.3
60°	276.7	276.7	280.8	283.3	288.3	294.4	302.0	312.6	326.7	348.4	380.3
62.5°	244.4	243.9	244.9	249.5	253.0	258.6	266.1	274.7	287.8	306.5	331.3
65°	213.1	212.1	215.1	216.1	220.2	225.7	231.8	241.4	252.0	266.1	289.4
67.5°	181.8	183.3	185.3	187.4	189.4	195.9	200.0	207.0	216.1	228.3	244.4
70°	156.5	156.5	156.5	158.1	161.1	164.1	168.2	173.7	182.3	192.4	206.5
72.5°	128.3	130.3	132.3	130.8	134.8	136.3	141.4	143.9	152.0	157.6	169.7
75°	105.0	105.0	105.0	107.6	109.1	110.6	113.6	116.7	120.7	128.8	135.3
77.5°	82.8	82.3	82.8	83.3	85.3	87.4	88.4	90.9	94.9	99.0	105.0
80°	60.6	61.6	62.1	63.1	63.1	64.1	64.6	68.2	70.7	73.2	76.8
82.5°	43.4	43.4	43.4	43.4	43.9	44.4	46.0	46.5	47.0	49.0	51.5
85°	27.3	26.8	26.8	27.8	27.3	27.3	28.3	29.3	29.3	29.8	31.3
87.5°	13.1	13.1	13.6	13.1	13.1	13.6	13.6	13.1	13.6	14.1	14.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0
2.5°	1356.9	1352.9	1350.3	1341.3	1333.2	1325.1	1322.6	1323.6	1312.5	1301.9	1297.3
5°	1400.8	1390.7	1381.1	1367.5	1351.4	1333.7	1324.6	1317.5	1299.8	1280.7	1269.5
7.5°	1440.7	1427.6	1410.4	1386.2	1364.0	1337.7	1321.6	1307.9	1283.2	1257.4	1241.8
10°	1476.6	1456.9	1433.2	1401.8	1373.1	1339.2	1315.5	1291.8	1261.5	1229.1	1208.9
12.5°	1507.4	1479.1	1455.9	1413.5	1378.1	1333.7	1304.4	1268.5	1236.2	1196.3	1176.6
15°	1559.9	1510.9	1466.5	1421.0	1379.1	1320.0	1288.7	1243.8	1201.9	1154.4	1131.7
17.5°	1598.8	1545.8	1477.1	1422.0	1375.6	1312.5	1267.5	1214.0	1166.5	1114.0	1083.7
20°	1631.1	1568.0	1492.7	1424.1	1365.5	1290.8	1240.8	1185.7	1127.6	1066.5	1033.2
22.5°	1650.3	1583.1	1508.9	1416.5	1345.3	1273.1	1206.9	1145.3	1086.2	1019.1	983.7
25°	1651.3	1590.7	1511.9	1413.0	1329.1	1246.8	1171.1	1112.5	1041.3	979.7	928.7
27.5°	1634.6	1586.7	1510.4	1405.9	1310.4	1216.0	1133.7	1069.6	994.3	927.7	876.7
30°	1597.8	1572.5	1498.8	1393.8	1287.2	1183.7	1090.8	1015.5	940.8	873.1	820.6
32.5°	1540.7	1540.2	1477.6	1376.6	1262.5	1142.8	1045.8	969.6	884.7	818.6	769.1
35°	1462.4	1486.7	1445.8	1349.3	1230.2	1104.4	1000.4	913.5	827.7	764.0	717.1
37.5°	1363.0	1419.0	1402.9	1313.0	1188.7	1063.5	950.4	859.5	777.2	711.5	665.6
40°	1259.4	1336.2	1347.3	1270.0	1144.3	1014.5	892.8	802.4	722.6	664.1	617.6
42.5°	1148.3	1241.3	1276.6	1218.5	1095.8	963.0	841.3	746.9	668.1	611.5	571.6
45°	1021.6	1140.3	1195.3	1160.0	1040.8	905.4	780.2	685.3	613.6	560.0	528.2
47.5°	907.0	1035.7	1105.9	1089.3	981.7	847.4	723.6	631.2	560.0	516.6	486.8
50°	783.7	917.1	1006.4	1010.5	917.1	784.2	660.0	574.2	510.0	470.1	446.9
52.5°	676.7	802.4	901.9	927.7	844.8	718.6	603.0	517.6	463.1	427.2	407.0
55°	586.3	693.9	801.9	841.3	773.1	651.9	543.4	468.1	415.1	389.9	371.7
57.5°	500.4	594.9	697.4	738.8	695.4	588.8	483.8	417.6	372.7	350.0	335.8
60°	435.3	506.0	594.9	646.9	610.5	518.1	429.2	367.1	331.8	312.1	299.0
62.5°	374.7	435.3	507.0	553.5	537.8	452.0	374.7	321.7	292.4	274.2	265.6
65°	319.2	368.6	426.7	470.6	457.5	391.4	326.2	279.3	255.0	240.4	232.8
67.5°	271.7	309.6	351.0	391.4	380.3	331.3	276.2	238.4	219.7	206.5	202.0
70°	227.2	254.5	290.4	321.2	312.6	274.2	232.8	201.5	185.8	175.2	170.7
72.5°	184.8	206.0	231.3	255.0	250.0	219.7	186.8	165.1	154.0	144.4	140.9
75°	145.9	163.1	179.8	196.4	194.9	170.2	150.0	131.8	122.2	114.6	113.1
77.5°	114.1	124.7	136.9	147.5	144.9	128.8	112.1	101.0	93.4	88.4	87.9
80°	82.3	87.9	95.9	103.0	99.5	93.4	80.8	73.2	68.2	63.1	61.1
82.5°	54.0	59.6	63.6	66.7	64.1	58.6	52.0	47.5	44.9	41.9	41.4
85°	31.3	34.3	36.4	37.4	36.4	32.8	29.3	27.3	24.7	23.2	22.7
87.5°	15.1	15.1	15.1	16.2	14.6	14.6	12.6	11.1	10.6	10.1	9.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0
2.5°	1292.3	1289.2	1278.6	1273.1	1264.0	1255.4	1249.8	1252.4	1254.4	1253.4	1251.9
5°	1259.4	1249.8	1235.2	1222.6	1213.5	1196.8	1189.8	1186.2	1183.2	1179.7	1176.1
7.5°	1223.1	1209.4	1188.7	1172.6	1156.4	1135.2	1124.6	1118.6	1112.0	1104.4	1097.3
10°	1183.7	1162.5	1140.3	1115.0	1094.8	1076.1	1059.5	1048.4	1038.3	1028.7	1021.6
12.5°	1142.3	1117.0	1088.3	1051.4	1028.7	999.9	1000.9	979.2	962.0	957.0	948.4
15°	1097.8	1063.5	1028.7	987.8	970.1	945.8	930.7	915.5	901.9	892.3	889.8
17.5°	1049.4	1003.4	969.6	939.3	910.5	885.8	872.6	860.5	848.9	834.7	834.2
20°	992.3	953.9	916.1	890.3	860.5	835.3	818.1	806.0	796.4	788.8	782.2
22.5°	938.3	895.3	861.5	832.7	803.4	784.2	771.6	760.0	752.4	743.8	737.8
25°	879.7	846.9	809.0	777.2	752.9	739.8	728.7	718.6	713.5	708.0	700.9
27.5°	829.7	793.3	756.0	731.2	709.0	697.4	688.8	681.2	676.7	673.2	668.6
30°	776.2	739.3	711.5	687.3	669.6	658.0	653.0	648.9	643.4	641.3	639.3
32.5°	724.7	692.3	669.6	649.4	632.8	626.2	621.6	618.1	614.1	612.0	607.5
35°	676.7	648.9	625.7	614.1	600.4	593.9	590.3	585.3	581.2	579.2	578.7
37.5°	630.7	605.5	589.8	574.2	567.6	564.1	559.0	555.5	554.0	553.5	553.0
40°	586.3	566.6	553.0	540.8	538.3	532.3	528.2	525.2	525.2	525.7	525.2
42.5°	545.9	528.7	517.1	507.0	504.0	500.9	496.9	497.4	498.4	500.4	498.4
45°	505.0	492.4	483.8	478.7	473.2	469.6	469.1	470.6	471.2	471.7	473.2
47.5°	466.6	458.5	450.5	444.4	441.9	441.4	440.4	442.9	445.4	445.9	448.4
50°	433.3	423.7	417.1	413.6	411.6	410.6	411.6	414.6	416.6	419.1	420.7
52.5°	395.9	389.9	385.8	383.3	382.8	383.8	383.8	387.3	390.9	391.4	391.9
55°	362.1	357.0	356.0	351.5	353.5	353.0	355.5	357.5	360.6	363.6	364.1
57.5°	327.7	323.2	320.2	320.7	321.2	323.2	325.2	328.7	332.3	335.8	335.8
60°	293.4	291.4	289.9	289.9	290.9	293.9	296.4	300.0	302.0	304.0	305.5
62.5°	262.1	260.1	258.6	259.6	262.6	264.1	267.1	268.7	270.7	272.7	273.2
65°	228.8	227.8	229.3	230.3	230.8	233.3	236.8	238.4	240.4	241.4	244.9
67.5°	198.5	198.5	198.0	199.5	202.5	203.0	206.5	210.6	210.6	212.6	215.1
70°	167.7	168.7	169.7	170.7	173.2	174.2	176.7	178.3	180.3	181.8	183.3
72.5°	139.4	139.4	140.4	139.9	141.9	144.4	146.4	148.0	150.0	152.0	153.5
75°	111.6	111.6	112.6	113.1	115.6	118.2	117.7	118.7	120.7	122.7	123.7
77.5°	86.4	85.3	86.4	86.9	87.9	89.9	90.4	91.9	94.4	93.9	94.9
80°	62.1	60.6	62.1	62.6	62.6	65.1	65.1	66.2	67.7	66.2	67.7
82.5°	39.9	39.4	40.4	40.4	41.4	40.9	41.9	41.9	43.4	42.9	43.4
85°	22.2	21.7	22.2	21.7	22.2	22.7	22.7	22.2	22.2	23.2	21.7
87.5°	8.6	8.1	7.6	7.6	7.1	6.6	6.1	6.1	6.1	5.0	5.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P242301

CATALOG NUMBER: S122DR-S675D840-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1314.0	1314.0	1314.0	1314.0
2.5°	1246.8	1245.8	1245.8	1241.3
5°	1169.0	1167.5	1165.0	1167.5
7.5°	1095.3	1088.8	1087.7	1082.7
10°	1013.0	1009.0	1008.5	998.9
12.5°	950.4	939.3	941.8	937.3
15°	876.2	876.2	874.1	865.6
17.5°	823.1	822.6	818.1	821.1
20°	776.7	773.6	767.6	767.6
22.5°	732.7	733.2	726.7	729.2
25°	700.4	696.4	693.4	694.9
27.5°	667.1	665.6	665.1	660.5
30°	638.8	633.8	634.8	632.2
32.5°	606.5	605.5	604.0	601.9
35°	577.7	578.2	575.7	576.7
37.5°	552.0	554.0	552.5	552.5
40°	526.7	526.7	526.7	528.2
42.5°	502.5	501.5	500.4	499.9
45°	474.2	475.7	476.2	473.7
47.5°	449.4	449.9	449.4	452.5
50°	423.2	422.2	423.2	422.2
52.5°	395.4	395.9	394.9	394.9
55°	366.1	367.1	366.6	366.6
57.5°	336.3	336.8	337.8	335.3
60°	305.0	307.5	307.0	306.0
62.5°	276.2	276.7	276.7	276.7
65°	246.4	247.4	245.9	247.4
67.5°	214.1	214.6	215.6	216.1
70°	184.3	183.8	185.3	186.8
72.5°	153.0	154.5	153.5	154.5
75°	122.7	124.2	123.7	125.2
77.5°	93.9	94.4	94.4	94.9
80°	67.7	66.7	65.6	67.7
82.5°	41.9	42.9	41.9	41.4
85°	21.7	21.2	20.2	20.2
87.5°	5.0	4.5	4.5	4.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)