

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: P243177

Luminaire Tested: **S122DR-H865D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243177
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H865D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3219.2 lumens
Efficiency: N/A
Efficacy: 102.2 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

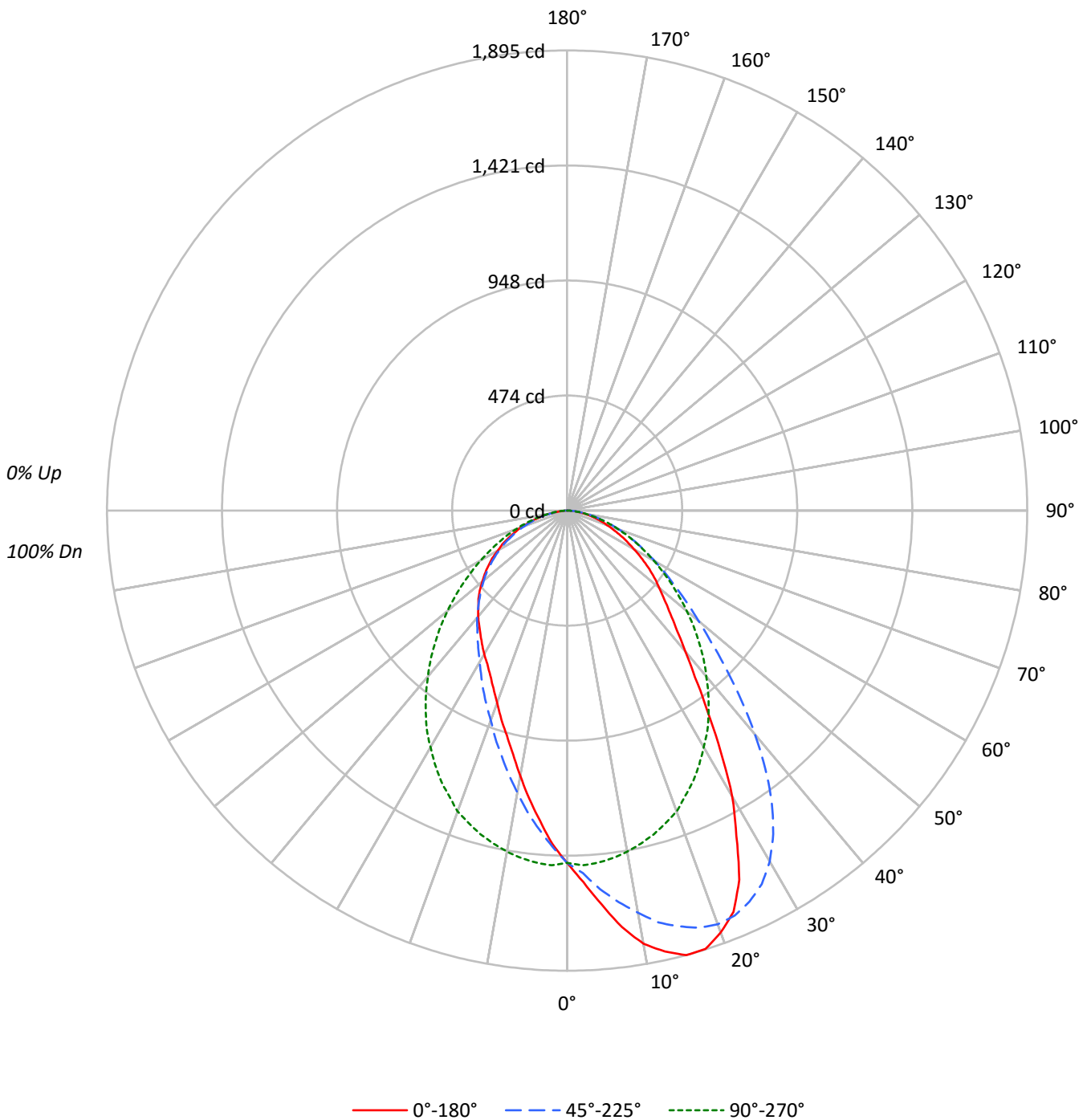
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					100			
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76					74				
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66					63				
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57					55				
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51					49				
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45					43				
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40					39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37					35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	27634	27634	27634
5°	31128	27832	24516
10°	35039	27583	21456
15°	37375	27211	18909
20°	37484	26720	17065
25°	35254	25830	15731
30°	29926	24752	15022
35°	23397	23597	14459
40°	18798	22175	14178
45°	16171	20712	13913
50°	14668	19060	13524
55°	13516	17368	13161
60°	12149	15646	12560
65°	10939	14062	11953
70°	9746	12497	11183
75°	8772	10745	9803
80°	7656	8655	7656
85°	6578	6447	4218



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	4.3
10°-20°	397.3	12.3
20°-30°	577.7	17.9
30°-40°	619.7	19.3
40°-50°	555.4	17.3
50°-60°	442.8	13.8
60°-70°	299.5	9.3
70°-80°	152.8	4.7
80°-90°	35.8	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°	1113.2	34.6
0°-40°	1732.9	53.8
0°-60°	2731.2	84.8
0°-90°	3219.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3219.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1451	1451	1451	1451	1451	
5°	1628	1566	1456	1318	1282	161
15°	1895	1772	1380	1044	959	531
25°	1677	1777	1229	816	748	755
35°	1006	1470	1015	643	622	637
45°	600	930	769	510	516	470
55°	407	541	523	384	396	363
65°	243	314	312	253	265	241
75°	119	149	146	126	133	127
85°	30	34	30	23	19	35
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°	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8
2.5°	1531.3	1536.1	1531.9	1530.2	1527.0	1525.9	1517.4	1510.4	1506.1	1494.3	1495.3
5°	1628.0	1638.7	1632.8	1632.3	1620.4	1612.9	1605.4	1594.7	1578.6	1565.7	1555.5
7.5°	1730.0	1724.6	1723.0	1717.1	1708.5	1697.8	1681.1	1665.5	1645.1	1626.3	1612.4
10°	1811.6	1810.0	1812.7	1797.6	1792.3	1775.6	1761.1	1737.0	1710.6	1681.1	1662.9
12.5°	1859.9	1864.7	1868.5	1862.6	1849.7	1844.9	1820.7	1786.9	1777.8	1737.5	1715.5
15°	1895.3	1897.5	1898.0	1891.6	1885.1	1872.8	1858.3	1836.8	1807.3	1772.4	1755.7
17.5°	1893.2	1892.7	1895.9	1892.1	1888.4	1884.6	1873.3	1856.7	1833.6	1800.9	1772.9
20°	1849.2	1858.8	1866.4	1868.0	1867.4	1869.6	1864.2	1853.5	1836.8	1813.2	1781.5
22.5°	1789.0	1785.3	1801.4	1800.3	1807.3	1823.4	1830.4	1826.1	1819.6	1804.6	1779.4
25°	1677.4	1681.1	1692.4	1704.2	1731.6	1741.3	1762.2	1778.3	1780.4	1776.7	1761.1
27.5°	1509.8	1536.7	1542.6	1558.2	1596.3	1628.0	1670.4	1695.6	1731.6	1734.8	1727.8
30°	1360.6	1359.5	1368.6	1396.5	1431.4	1479.2	1534.0	1599.0	1640.3	1668.8	1679.0
32.5°	1176.9	1181.2	1204.9	1239.2	1274.7	1322.4	1385.8	1465.3	1520.6	1579.6	1612.9
35°	1006.2	1019.6	1042.2	1065.8	1104.5	1170.0	1240.3	1306.3	1391.2	1470.1	1523.8
37.5°	865.5	883.8	901.0	923.5	961.1	1011.6	1074.9	1162.4	1246.7	1341.8	1420.7
40°	756.0	763.0	774.8	796.8	822.0	872.5	936.4	1001.9	1093.2	1202.2	1305.8
42.5°	670.1	668.5	681.4	695.3	718.4	756.0	811.8	877.3	968.1	1064.7	1169.4
45°	600.3	600.8	606.2	620.7	638.9	660.4	703.4	765.1	833.8	930.0	1041.1
47.5°	543.4	545.0	553.0	563.2	574.0	593.8	622.3	662.6	727.0	807.5	911.7
50°	495.0	497.7	503.1	510.6	518.7	532.6	554.1	585.8	636.8	705.0	799.5
52.5°	452.1	453.2	454.8	461.8	468.2	481.1	497.2	521.9	562.2	619.1	692.6
55°	407.0	405.9	409.7	415.6	421.5	430.6	447.3	467.1	495.6	540.7	601.4
57.5°	360.8	362.4	365.1	368.3	379.1	388.7	401.1	419.3	441.9	477.3	527.8
60°	318.9	318.9	322.2	326.5	333.4	339.9	351.7	368.3	388.2	415.6	458.0
62.5°	278.1	280.3	283.5	285.6	292.1	300.1	309.3	322.2	340.4	362.4	394.1
65°	242.7	241.6	244.8	249.1	254.0	259.3	269.5	280.3	294.2	314.1	340.4
67.5°	206.2	209.4	210.5	212.6	216.4	223.4	228.2	239.5	250.7	268.5	290.5
70°	175.0	177.2	178.8	181.5	184.7	187.9	192.8	201.9	213.2	225.5	241.1
72.5°	147.1	148.7	147.1	149.8	151.4	154.6	161.1	165.4	174.0	184.7	198.7
75°	119.2	120.3	119.7	122.4	123.0	126.2	129.4	133.2	142.8	148.7	158.4
77.5°	93.4	94.5	95.0	96.1	97.2	98.8	100.4	104.2	109.5	114.9	122.4
80°	69.8	69.8	71.4	71.9	72.5	73.6	76.2	77.3	81.1	82.7	88.6
82.5°	48.3	48.9	49.4	49.4	49.9	51.0	51.5	53.7	54.8	57.5	60.1
85°	30.1	30.6	30.6	30.6	32.2	31.7	31.7	32.8	34.4	34.4	35.4
87.5°	15.0	15.6	15.6	15.6	16.1	16.1	16.1	16.1	16.1	17.2	16.6
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°	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8
2.5°	1494.8	1494.3	1492.1	1482.5	1474.9	1465.3	1463.7	1462.0	1448.6	1434.1	1429.8
5°	1547.4	1537.8	1524.3	1508.2	1492.1	1474.4	1464.2	1455.6	1435.2	1412.7	1399.8
7.5°	1599.0	1580.2	1559.2	1534.0	1507.2	1478.7	1460.4	1443.3	1415.3	1385.8	1368.1
10°	1643.0	1617.8	1588.8	1555.5	1518.4	1479.8	1452.9	1426.1	1390.6	1354.7	1331.0
12.5°	1679.5	1647.3	1609.2	1564.1	1530.2	1477.1	1439.5	1404.1	1364.9	1318.2	1292.4
15°	1707.4	1675.7	1624.2	1578.6	1534.0	1463.1	1417.5	1379.9	1327.3	1281.6	1240.8
17.5°	1741.3	1696.1	1645.1	1579.6	1530.2	1449.2	1397.6	1348.8	1291.8	1238.2	1193.0
20°	1756.3	1709.0	1654.3	1581.2	1518.4	1434.1	1365.4	1318.2	1249.4	1187.7	1136.7
22.5°	1758.4	1713.3	1653.7	1576.4	1498.0	1412.1	1333.2	1271.4	1202.7	1137.2	1079.8
25°	1749.3	1706.4	1644.6	1567.8	1475.5	1388.5	1300.4	1229.0	1149.6	1081.9	1023.4
27.5°	1724.6	1689.7	1631.2	1549.0	1452.4	1352.0	1255.9	1178.0	1099.6	1022.8	967.0
30°	1684.9	1661.8	1611.3	1524.3	1422.9	1312.2	1216.1	1125.4	1040.6	968.6	908.5
32.5°	1633.9	1622.6	1580.7	1494.8	1392.8	1268.8	1168.4	1074.9	982.6	914.4	852.6
35°	1568.9	1574.8	1539.4	1461.5	1354.7	1224.7	1112.5	1014.8	924.6	852.1	795.2
37.5°	1484.6	1513.6	1491.0	1418.0	1305.8	1180.2	1054.0	955.7	861.2	791.4	741.5
40°	1390.1	1441.1	1430.4	1369.2	1253.2	1128.1	997.6	891.8	799.5	733.4	685.7
42.5°	1279.0	1353.1	1364.9	1309.6	1201.1	1063.1	934.3	832.2	743.1	678.1	632.5
45°	1154.4	1246.2	1285.9	1242.4	1140.4	1000.3	869.3	768.9	680.8	625.5	587.4
47.5°	1029.3	1139.9	1193.6	1172.6	1069.6	933.2	804.9	706.6	623.4	575.0	539.1
50°	905.8	1024.5	1102.8	1088.9	999.8	869.3	739.9	643.2	567.0	522.4	491.8
52.5°	797.3	909.6	994.9	1001.9	921.9	796.3	671.2	581.5	516.5	476.3	450.5
55°	690.5	794.7	888.1	905.3	840.3	719.5	607.8	523.0	463.9	430.6	409.7
57.5°	594.9	689.4	782.3	812.4	759.8	650.8	539.6	465.0	414.0	388.2	369.9
60°	513.8	599.2	679.2	709.8	673.8	574.5	477.3	410.7	368.3	345.2	330.7
62.5°	443.0	509.0	579.9	613.7	589.5	503.1	418.3	359.2	324.8	305.0	293.7
65°	379.1	430.1	485.9	525.1	498.3	433.8	363.0	312.0	283.0	264.7	256.7
67.5°	320.0	362.4	407.0	438.1	424.7	366.2	306.6	266.9	242.7	228.7	221.2
70°	266.3	298.0	334.0	358.1	348.5	303.4	256.1	224.4	204.0	194.4	187.9
72.5°	218.5	238.9	266.3	286.2	276.0	244.3	210.5	185.2	170.2	158.9	154.1
75°	173.4	191.1	210.5	223.9	215.8	192.2	165.4	146.0	135.8	128.9	125.6
77.5°	131.5	145.5	158.9	165.4	161.6	144.4	126.2	111.1	102.6	98.3	94.5
80°	94.5	102.6	111.7	117.6	115.4	103.6	90.7	78.9	75.2	69.8	68.7
82.5°	63.4	69.8	71.9	74.6	73.0	67.7	58.5	51.5	48.3	45.6	45.1
85°	37.6	39.2	41.9	41.9	40.3	36.5	31.7	29.5	26.3	25.8	24.2
87.5°	16.6	16.6	16.6	16.6	16.6	15.6	13.4	12.3	11.3	10.7	10.2
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°	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8	1450.8
2.5°	1426.1	1420.7	1413.2	1404.6	1397.1	1385.3	1381.5	1381.5	1384.2	1381.0	1378.3
5°	1389.0	1378.3	1367.6	1350.9	1336.9	1318.2	1312.8	1307.4	1306.9	1301.5	1294.5
7.5°	1349.3	1333.2	1311.2	1287.5	1272.5	1252.1	1240.8	1237.6	1227.4	1217.7	1206.5
10°	1303.1	1278.4	1252.1	1229.6	1205.9	1179.6	1166.2	1157.1	1146.9	1135.1	1127.0
12.5°	1247.3	1219.4	1195.2	1168.9	1149.0	1112.0	1107.7	1095.9	1075.5	1057.7	1051.3
15°	1212.9	1164.1	1136.7	1112.5	1082.4	1044.3	1030.4	1017.5	998.1	986.9	977.7
17.5°	1152.2	1108.2	1073.9	1041.6	1012.6	983.1	962.2	951.4	935.9	926.2	917.1
20°	1096.9	1049.2	1013.2	975.6	945.5	918.7	901.0	887.5	879.5	869.8	860.7
22.5°	1041.1	991.2	956.8	918.7	883.2	867.1	846.2	834.9	824.2	816.7	807.0
25°	976.1	936.4	893.4	863.9	832.8	816.1	796.3	785.5	776.9	768.3	763.5
27.5°	918.1	877.9	838.1	808.6	782.3	766.2	753.8	743.6	732.9	726.5	722.7
30°	858.0	821.0	786.1	757.6	737.2	719.5	712.0	702.3	694.2	691.6	685.7
32.5°	804.3	763.0	735.1	709.3	692.1	679.7	674.4	664.2	662.6	659.9	656.7
35°	750.6	715.2	688.3	666.3	651.8	642.7	635.7	633.0	630.4	627.7	625.0
37.5°	697.5	669.5	644.3	626.6	614.8	607.8	606.2	600.8	600.3	596.5	596.5
40°	649.7	621.2	603.5	589.5	579.9	576.7	572.4	571.3	569.7	568.6	570.8
42.5°	601.9	582.6	567.5	553.0	545.5	542.8	541.8	540.1	539.1	542.3	543.4
45°	557.3	540.7	527.8	517.6	513.3	510.1	510.1	511.7	511.2	512.8	512.8
47.5°	516.0	501.0	490.2	486.5	481.1	480.0	480.5	480.0	482.7	484.8	487.0
50°	476.8	463.4	454.8	451.0	449.9	448.3	450.5	451.6	453.2	455.3	456.4
52.5°	433.3	426.9	421.5	417.7	417.2	417.7	417.2	421.0	422.6	425.8	425.2
55°	396.3	391.4	387.7	383.4	382.8	384.4	385.5	388.7	390.9	393.6	393.0
57.5°	361.4	357.6	353.3	352.2	351.7	352.2	357.1	356.5	359.7	361.9	363.0
60°	323.2	320.5	316.8	316.8	318.4	319.5	321.1	323.8	327.0	326.5	330.2
62.5°	288.3	285.1	284.0	285.6	285.1	287.8	289.4	289.4	293.7	295.3	296.4
65°	253.4	252.4	250.7	250.7	252.4	252.9	255.6	257.2	258.8	262.0	264.7
67.5°	220.7	218.0	218.0	216.9	219.1	220.7	222.3	224.4	225.5	229.3	230.9
70°	186.3	185.2	184.7	185.8	185.8	187.4	190.1	192.8	194.9	195.4	198.7
72.5°	153.0	153.0	153.0	154.6	155.7	157.3	157.9	160.0	163.2	163.8	165.4
75°	123.0	123.5	123.0	123.5	124.0	125.6	126.7	128.9	131.0	131.5	132.6
77.5°	95.0	94.0	92.9	94.5	95.6	98.8	98.3	99.3	101.5	100.4	101.5
80°	66.6	68.2	66.0	69.3	69.3	68.7	69.8	71.4	70.9	71.9	70.9
82.5°	45.1	43.5	43.5	45.1	45.6	44.0	45.1	45.6	46.2	45.1	44.6
85°	24.7	24.2	25.2	23.6	24.2	23.1	23.1	22.0	23.1	22.0	20.9
87.5°	9.1	8.6	9.1	7.5	7.0	6.4	5.9	5.9	4.8	4.8	4.8
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: P243177

CATALOG NUMBER: S122DR-H865D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1450.8	1450.8	1450.8	1450.8
2.5°	1382.0	1376.1	1373.5	1375.6
5°	1287.0	1288.6	1279.0	1282.2
7.5°	1204.9	1197.9	1200.0	1196.3
10°	1117.9	1114.1	1108.2	1109.3
12.5°	1059.4	1034.1	1032.5	1027.7
15°	977.2	963.2	960.0	958.9
17.5°	911.7	899.9	904.2	901.0
20°	852.6	853.2	846.2	841.9
22.5°	800.6	799.5	796.8	792.5
25°	756.5	756.5	750.1	748.5
27.5°	716.3	717.3	712.0	712.0
30°	686.2	682.4	681.9	683.0
32.5°	656.1	651.8	652.4	651.8
35°	623.9	625.0	623.4	621.8
37.5°	596.5	596.5	596.5	594.9
40°	569.7	570.8	569.1	570.2
42.5°	542.8	543.4	543.4	541.2
45°	516.0	515.4	514.4	516.5
47.5°	488.1	488.1	487.5	488.6
50°	457.5	458.5	456.9	456.4
52.5°	426.3	426.9	426.3	427.4
55°	394.6	394.6	395.2	396.3
57.5°	361.9	365.6	363.0	365.1
60°	329.7	330.2	330.7	329.7
62.5°	299.1	298.5	299.1	300.7
65°	265.8	266.9	266.3	265.2
67.5°	233.0	232.0	233.6	232.0
70°	198.1	200.3	198.7	200.8
72.5°	166.4	165.9	167.0	164.3
75°	133.2	133.2	133.7	133.2
77.5°	102.0	100.9	100.4	98.8
80°	70.3	70.3	68.2	69.8
82.5°	43.0	43.5	44.0	40.8
85°	20.4	20.4	19.9	19.3
87.5°	4.3	4.3	4.8	5.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)