

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: P243334

Luminaire Tested: **S123DR-H1000D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243334
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H1000D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4001.6 lumens
Efficiency: N/A
Efficacy: 127.0 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

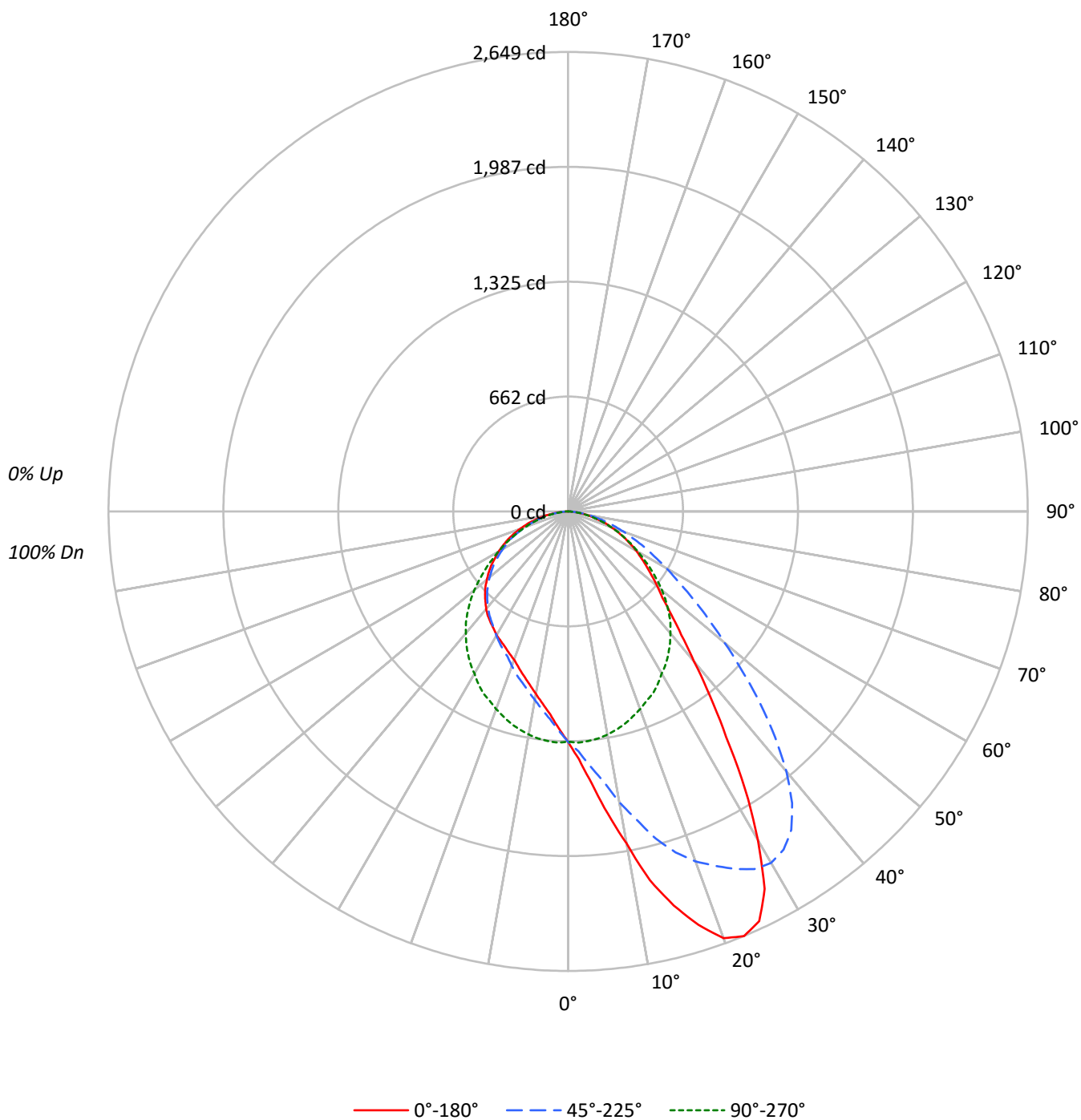
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	110	105	101	98	107	103	99	96		99	96	93		95	92	90		91	89	87
2	100	92	86	81	98	91	85	80		87	82	78		84	80	76		81	77	74
3	92	82	74	68	89	80	73	67		77	71	66		75	69	65		72	68	64
4	84	73	64	58	82	72	64	58		69	62	57		67	61	56		65	60	55
5	78	65	57	50	76	64	56	50		62	55	50		60	54	49		58	53	49
6	72	59	50	44	70	58	50	44		56	49	44		55	48	43		53	47	43
7	67	54	45	39	65	53	45	39		51	44	39		50	43	39		49	43	38
8	62	49	41	35	61	48	41	35		47	40	35		46	39	35		45	39	34
9	58	45	37	32	57	45	37	32		43	36	31		42	36	31		41	35	31
10	55	42	34	29	53	41	34	29		40	33	29		39	33	28		38	33	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16095	16095	16095
5°	19174	16171	14292
10°	23944	16073	13140
15°	29509	15899	12328
20°	33767	15645	11732
25°	34849	15473	11514
30°	30616	15103	11522
35°	23498	14879	11533
40°	17874	14516	11621
45°	14382	14048	11610
50°	12657	13298	11510
55°	11665	12320	11435
60°	10994	11275	11200
65°	10219	10305	10985
70°	9349	9243	10515
75°	8313	8055	9793
80°	6959	6659	8572
85°	4909	4826	6425

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	3.3
10°-20°	419.4	10.5
20°-30°	692.7	17.3
30°-40°	792.8	19.8
40°-50°	718.4	18.0
50°-60°	580.5	14.5
60°-70°	404.4	10.1
70°-80°	212.1	5.3
80°-90°	50.6	1.3
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°	1242.7	31.1
0°-40°	2035.5	50.9
0°-60°	3334.4	83.3
0°-90°	4001.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4001.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1328	1328	1328	1328	1328	
5°	1576	1474	1329	1202	1175	162
15°	2352	1953	1267	1021	982	669
25°	2606	2274	1157	882	861	1164
35°	1588	2242	1006	772	779	1006
45°	839	1566	820	660	677	661
55°	552	879	583	518	541	496
65°	356	480	359	354	383	353
75°	178	219	172	179	209	190
85°	35	45	35	39	46	45
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°	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8
2.5°	1429.9	1432.9	1428.1	1431.1	1423.8	1419.6	1412.9	1409.8	1395.2	1384.9	1381.3
5°	1575.8	1575.8	1577.0	1569.7	1561.2	1546.0	1525.9	1513.2	1498.6	1473.7	1460.9
7.5°	1759.4	1750.3	1744.2	1730.8	1719.3	1694.3	1672.5	1646.3	1612.3	1570.9	1549.0
10°	1945.4	1955.2	1949.1	1935.1	1905.3	1864.6	1832.3	1794.7	1741.8	1701.6	1644.5
12.5°	2177.7	2164.9	2155.2	2133.9	2101.1	2057.9	2008.0	1952.1	1884.0	1817.8	1753.9
15°	2351.5	2353.4	2352.7	2324.8	2292.6	2234.2	2188.0	2095.0	2008.7	1952.7	1846.9
17.5°	2498.7	2506.6	2497.4	2455.5	2426.9	2392.3	2333.3	2229.9	2151.5	2060.9	1944.2
20°	2617.8	2619.0	2604.4	2573.4	2540.6	2501.7	2423.9	2344.8	2268.2	2146.7	2035.4
22.5°	2649.4	2652.5	2649.4	2636.1	2609.3	2568.0	2509.6	2436.6	2340.0	2210.5	2107.1
25°	2605.7	2603.8	2614.2	2606.3	2605.0	2591.7	2553.4	2494.4	2399.0	2274.3	2143.0
27.5°	2452.5	2439.7	2465.8	2499.9	2504.7	2526.0	2526.6	2499.3	2430.6	2324.2	2181.3
30°	2187.4	2199.5	2212.3	2283.4	2323.0	2378.3	2426.3	2443.9	2417.8	2339.4	2205.6
32.5°	1899.2	1938.1	1974.0	2023.2	2081.0	2174.6	2250.6	2317.5	2346.1	2311.4	2205.6
35°	1588.0	1608.6	1665.2	1727.8	1811.1	1884.0	2034.8	2132.1	2219.0	2241.5	2177.7
37.5°	1344.8	1363.6	1383.1	1431.7	1525.3	1646.9	1771.6	1899.2	2028.1	2120.5	2116.9
40°	1129.6	1133.8	1150.8	1192.8	1270.6	1378.8	1509.5	1663.3	1830.5	1956.4	2009.3
42.5°	964.2	964.2	985.5	1034.1	1079.1	1158.1	1284.6	1420.2	1603.2	1764.9	1877.9
45°	839.0	840.2	857.2	891.9	927.1	989.1	1082.8	1210.4	1398.9	1566.1	1723.5
47.5°	736.8	748.4	758.1	776.3	811.6	866.3	934.4	1043.2	1177.6	1360.0	1543.6
50°	671.2	673.6	680.9	691.8	719.2	755.1	814.0	896.7	1015.9	1177.6	1363.0
52.5°	606.7	606.7	614.0	627.4	643.2	672.4	714.9	783.6	873.0	1019.5	1186.1
55°	552.0	553.8	555.1	566.0	579.4	601.3	634.7	679.7	761.8	879.1	1024.4
57.5°	498.5	505.2	503.4	511.9	521.6	537.4	561.1	600.0	662.7	752.0	882.7
60°	453.5	452.3	455.4	459.0	465.7	476.6	498.5	527.1	579.4	654.1	761.1
62.5°	402.5	401.2	404.9	409.1	415.2	424.3	440.2	462.0	503.4	559.3	652.3
65°	356.3	355.0	356.9	359.3	366.0	373.3	385.4	403.7	431.0	480.3	551.4
67.5°	310.1	310.1	311.3	313.7	318.0	323.4	333.2	344.1	371.5	404.3	460.2
70°	263.8	264.5	264.5	266.9	270.5	274.8	282.7	292.4	309.4	338.6	383.6
72.5°	223.7	223.7	222.5	223.7	226.2	228.0	232.8	242.0	254.7	276.0	310.1
75°	177.5	180.6	180.0	179.3	181.2	184.2	188.5	195.8	203.7	218.9	244.4
77.5°	136.2	138.0	138.0	138.6	140.4	142.9	144.1	151.4	158.7	167.8	186.6
80°	99.7	100.9	99.7	100.3	101.5	104.0	106.4	107.6	113.1	121.0	130.1
82.5°	66.9	65.1	67.5	66.9	68.1	68.7	69.9	70.5	74.2	79.0	85.1
85°	35.3	38.3	37.7	38.9	37.7	38.3	38.9	41.3	41.9	45.0	48.6
87.5°	13.4	14.6	14.6	14.6	14.6	14.6	15.8	16.4	17.6	18.2	19.5
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°	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8
2.5°	1383.7	1378.2	1370.3	1361.8	1352.7	1343.6	1339.3	1333.8	1322.9	1311.9	1303.4
5°	1450.6	1435.4	1414.7	1399.5	1377.6	1356.9	1340.5	1329.0	1311.3	1290.1	1276.1
7.5°	1525.3	1498.0	1465.1	1431.7	1398.9	1367.9	1342.3	1320.5	1293.1	1267.0	1245.7
10°	1613.5	1560.6	1515.0	1466.4	1417.7	1374.0	1337.5	1305.9	1270.6	1239.0	1212.9
12.5°	1691.3	1629.9	1566.7	1498.0	1432.3	1375.8	1329.0	1287.6	1245.1	1208.6	1181.8
15°	1777.0	1690.7	1603.2	1525.3	1445.7	1376.4	1315.0	1267.0	1218.3	1177.0	1146.0
17.5°	1875.5	1760.0	1650.0	1538.1	1467.6	1378.2	1302.8	1239.6	1189.7	1148.4	1108.3
20°	1933.9	1819.0	1684.0	1569.1	1452.4	1360.6	1276.7	1212.9	1154.5	1107.1	1074.2
22.5°	1965.5	1844.5	1703.5	1585.5	1449.3	1346.6	1257.2	1181.8	1119.2	1071.8	1034.7
25°	2009.9	1844.5	1713.8	1572.1	1454.2	1330.2	1229.3	1156.9	1091.3	1036.5	997.6
27.5°	2029.9	1860.9	1715.0	1546.6	1425.0	1299.2	1197.0	1120.4	1047.5	994.0	960.6
30°	2046.3	1864.0	1690.7	1526.6	1391.0	1264.5	1164.8	1079.1	1011.0	959.9	924.7
32.5°	2047.6	1856.1	1657.9	1488.9	1345.4	1223.8	1126.5	1045.7	974.5	920.4	885.8
35°	2036.6	1836.6	1620.2	1431.1	1292.5	1181.8	1084.6	1005.5	933.2	881.5	846.3
37.5°	2008.7	1814.7	1584.9	1377.0	1229.9	1122.3	1039.6	964.2	892.5	840.8	811.6
40°	1949.1	1779.5	1538.7	1319.2	1166.6	1059.0	986.7	917.4	853.6	800.1	770.9
42.5°	1870.0	1726.6	1482.8	1257.8	1096.1	992.2	928.3	872.4	807.4	761.1	731.4
45°	1758.2	1654.8	1426.8	1193.4	1026.2	924.1	865.7	819.5	763.6	717.4	691.2
47.5°	1631.7	1568.5	1354.5	1121.1	952.7	856.6	801.3	764.2	716.8	677.3	651.1
50°	1489.5	1465.8	1274.9	1048.1	884.0	785.5	734.4	705.2	665.1	633.5	611.0
52.5°	1335.0	1349.6	1191.0	973.9	817.7	718.0	669.3	642.6	617.1	590.3	569.0
55°	1178.2	1212.9	1089.4	893.1	741.7	654.8	607.3	583.0	564.2	541.7	526.5
57.5°	1031.1	1085.2	984.3	806.7	671.8	588.5	543.5	522.2	508.2	496.1	482.1
60°	888.2	950.8	876.0	725.9	601.9	525.9	485.7	465.1	458.4	449.3	435.9
62.5°	761.8	825.6	769.7	642.6	531.3	466.3	429.8	412.8	403.1	400.0	392.1
65°	643.2	702.8	660.2	555.7	464.5	406.7	374.5	359.3	353.8	353.2	347.1
67.5°	540.5	598.2	559.3	471.2	393.9	347.1	322.8	310.7	305.2	305.8	301.5
70°	445.6	486.4	463.3	393.9	334.4	293.0	274.2	260.8	256.6	256.6	255.3
72.5°	357.5	389.7	372.1	319.2	272.4	240.7	224.3	216.4	212.8	212.2	212.8
75°	279.7	307.6	291.8	250.5	215.2	191.5	177.5	172.0	170.2	169.0	169.6
77.5°	209.1	226.8	217.0	190.3	161.1	144.7	138.0	132.5	130.7	131.3	132.5
80°	147.7	157.5	152.0	135.0	115.5	104.6	99.7	95.4	93.6	95.4	95.4
82.5°	93.6	100.9	96.1	85.1	75.4	68.1	63.2	62.0	61.4	60.2	62.0
85°	51.1	54.7	52.3	48.6	41.9	38.9	35.3	34.7	34.7	34.7	34.7
87.5°	20.1	22.5	19.5	19.5	18.2	15.2	15.2	14.6	14.0	14.6	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8	1327.8
2.5°	1299.8	1291.9	1287.0	1280.3	1272.4	1262.1	1257.8	1262.1	1259.7	1255.4	1257.2
5°	1263.9	1253.6	1240.2	1229.3	1217.1	1201.9	1197.0	1194.6	1191.0	1189.1	1186.1
7.5°	1228.7	1213.5	1197.0	1181.8	1164.2	1150.8	1144.8	1140.5	1139.3	1130.2	1126.5
10°	1192.2	1173.3	1156.9	1136.3	1121.1	1103.4	1096.1	1091.3	1085.8	1079.7	1075.5
12.5°	1153.9	1135.0	1114.4	1094.9	1079.7	1060.3	1050.5	1045.1	1040.8	1036.5	1031.7
15°	1120.4	1101.6	1073.0	1058.4	1040.2	1020.7	1014.7	1002.5	1003.7	996.4	991.6
17.5°	1085.2	1057.2	1037.2	1015.3	1001.9	987.9	976.4	963.6	961.8	956.3	954.5
20°	1045.7	1016.5	1002.5	980.0	961.8	947.8	937.5	936.2	932.6	924.7	921.6
22.5°	1006.8	983.0	963.6	942.9	926.5	908.3	903.4	905.2	898.5	896.7	890.0
25°	971.5	950.8	926.5	907.1	893.7	882.1	875.4	873.0	870.6	868.8	865.7
27.5°	933.8	911.9	891.2	875.4	862.7	854.8	850.5	845.0	844.4	844.4	843.2
30°	896.1	876.7	862.7	842.6	831.1	826.2	822.6	820.7	822.6	822.6	823.2
32.5°	861.5	842.6	826.2	812.2	800.7	797.0	796.4	796.4	798.8	798.8	800.7
35°	825.6	806.7	791.5	781.8	772.1	771.5	772.1	773.3	776.3	777.0	779.4
37.5°	786.7	772.1	760.5	748.4	745.9	747.2	748.4	749.6	750.8	755.7	755.7
40°	750.8	739.9	728.3	720.4	716.2	719.2	721.0	721.6	725.3	728.3	730.8
42.5°	715.6	705.2	696.1	689.4	687.6	690.0	691.8	693.7	697.3	699.7	704.0
45°	676.0	669.3	661.4	656.0	656.6	660.2	660.2	666.3	668.7	670.0	673.0
47.5°	639.6	632.3	626.8	624.4	623.8	626.8	628.6	633.5	634.7	639.0	641.4
50°	600.7	595.2	590.9	587.9	588.5	589.7	594.0	598.8	600.0	604.9	609.2
52.5°	559.9	555.1	551.4	552.6	554.4	554.4	558.7	561.7	564.8	568.4	572.7
55°	519.8	513.1	513.7	511.9	513.7	518.0	519.8	524.7	527.1	528.9	535.0
57.5°	476.0	474.8	473.0	471.2	474.8	476.6	479.7	482.7	487.0	489.4	493.7
60°	431.0	429.2	429.2	431.6	432.9	436.5	441.4	443.2	444.4	449.3	454.7
62.5°	389.7	387.9	387.3	390.9	390.9	394.6	396.4	399.4	404.3	406.1	413.4
65°	345.3	344.1	344.1	347.1	347.7	354.4	354.4	354.4	357.5	364.2	367.8
67.5°	299.1	299.7	301.5	303.4	305.8	307.6	308.2	311.9	316.7	321.0	328.3
70°	252.9	255.9	259.6	259.0	260.8	263.8	264.5	268.1	272.4	277.8	286.3
72.5°	211.6	213.4	217.0	217.0	219.5	221.3	224.3	226.8	232.2	237.1	240.7
75°	170.2	170.8	173.9	175.7	177.5	178.7	181.8	186.0	189.1	193.3	198.8
77.5°	133.7	132.5	135.0	135.6	136.8	139.2	141.7	145.9	148.3	153.2	155.0
80°	94.8	97.3	97.9	98.5	99.7	102.7	104.6	106.4	108.8	113.1	114.9
82.5°	62.6	63.8	65.7	66.3	67.5	68.1	68.7	71.7	73.6	74.8	80.9
85°	36.5	38.3	37.1	37.1	38.3	38.9	41.3	41.3	43.8	42.6	45.6
87.5°	15.8	15.2	15.2	15.8	15.2	14.6	16.4	16.4	15.8	16.4	16.4
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: P243334

CATALOG NUMBER: S123DR-H1000D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1327.8	1327.8	1327.8	1327.8
2.5°	1254.2	1254.2	1249.3	1251.2
5°	1180.0	1182.5	1176.4	1174.6
7.5°	1125.3	1122.9	1118.6	1118.6
10°	1071.8	1069.4	1067.6	1067.6
12.5°	1025.6	1023.2	1019.5	1022.6
15°	984.3	984.9	982.4	982.4
17.5°	952.7	947.2	945.4	944.7
20°	915.0	916.2	913.7	909.5
22.5°	891.2	888.2	885.8	885.2
25°	866.9	863.9	863.3	860.9
27.5°	842.6	843.2	841.4	841.4
30°	822.6	824.4	822.6	823.2
32.5°	802.5	802.5	802.5	800.1
35°	780.6	781.2	780.6	779.4
37.5°	758.1	758.1	758.7	759.9
40°	733.2	733.2	734.4	734.4
42.5°	703.4	706.4	708.3	705.2
45°	676.6	677.3	677.9	677.3
47.5°	646.9	645.0	645.6	646.9
50°	609.8	614.0	614.0	610.4
52.5°	573.9	575.1	577.5	577.5
55°	538.6	539.2	539.9	541.1
57.5°	498.5	499.1	499.1	498.5
60°	458.4	462.0	461.4	462.0
62.5°	415.2	420.7	422.5	421.9
65°	374.5	375.7	378.8	383.0
67.5°	331.3	334.4	339.2	338.0
70°	288.8	293.0	294.2	296.7
72.5°	246.2	251.7	252.9	254.1
75°	204.9	207.3	209.7	209.1
77.5°	159.9	163.5	167.8	165.4
80°	119.8	120.4	124.0	122.8
82.5°	79.0	83.9	83.9	81.5
85°	46.2	46.2	46.2	46.2
87.5°	15.8	15.2	16.4	15.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)