

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: P243329

Luminaire Tested: **S123DR-H1000D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243329
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-H1000D835-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3962.5 lumens
Efficiency: N/A
Efficacy: 125.8 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

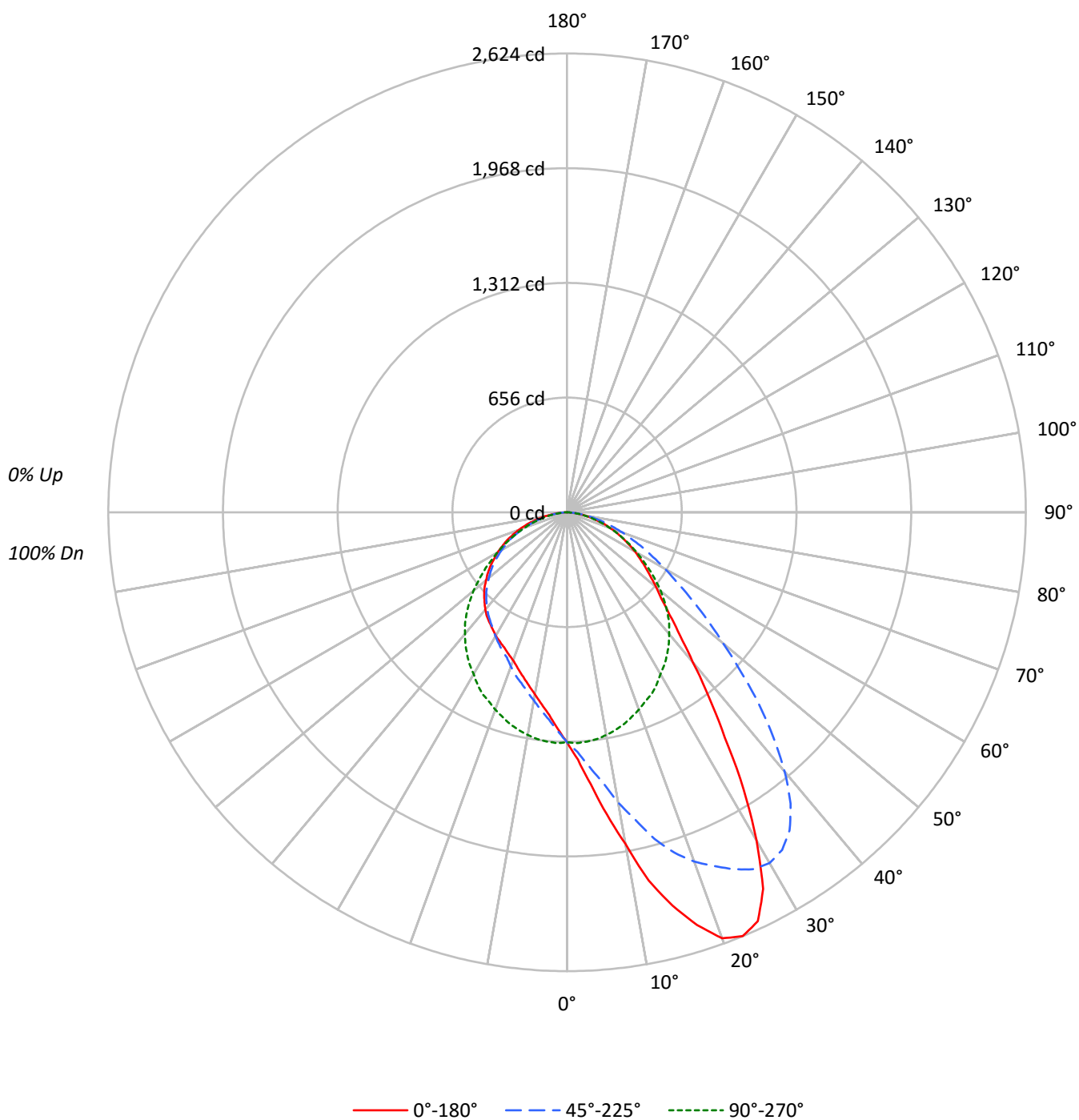
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72		
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	15937	15937	15937
5°	18986	16012	14152
10°	23711	15916	13011
15°	29221	15744	12207
20°	33437	15492	11617
25°	34508	15322	11400
30°	30316	14957	11408
35°	23267	14734	11421
40°	17698	14374	11507
45°	14242	13911	11495
50°	12533	13168	11397
55°	11551	12200	11323
60°	10887	11164	11091
65°	10119	10205	10879
70°	9260	9154	10412
75°	8233	7980	9699
80°	6890	6596	8488
85°	4854	4770	6370

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	129.4	3.3
10°-20°	415.3	10.5
20°-30°	685.9	17.3
30°-40°	785.1	19.8
40°-50°	711.4	18.0
50°-60°	574.8	14.5
60°-70°	400.5	10.1
70°-80°	210.0	5.3
80°-90°	50.1	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°	1230.6	31.1
0°-40°	2015.6	50.9
0°-60°	3301.9	83.3
0°-90°	3962.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3962.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1315	1315	1315	1315	1315	
5°	1560	1459	1316	1190	1163	161
15°	2329	1934	1255	1011	973	663
25°	2580	2252	1146	874	852	1153
35°	1572	2220	996	764	772	996
45°	831	1551	812	654	671	655
55°	547	870	577	513	536	491
65°	353	476	356	351	379	350
75°	176	217	170	177	207	188
85°	35	44	34	38	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°	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8
2.5°	1415.9	1418.9	1414.1	1417.1	1409.9	1405.7	1399.1	1396.1	1381.6	1371.4	1367.8
5°	1560.4	1560.4	1561.6	1554.4	1546.0	1530.9	1511.0	1498.4	1483.9	1459.3	1446.6
7.5°	1742.2	1733.2	1727.2	1713.9	1702.5	1677.8	1656.1	1630.2	1596.5	1555.6	1533.9
10°	1926.4	1936.1	1930.0	1916.2	1886.7	1846.4	1814.4	1777.1	1724.7	1685.0	1628.4
12.5°	2156.4	2143.7	2134.1	2113.0	2080.5	2037.8	1988.4	1933.0	1865.6	1800.0	1736.8
15°	2328.6	2330.4	2329.8	2302.1	2270.2	2212.4	2166.6	2074.5	1989.0	1933.6	1828.9
17.5°	2474.2	2482.1	2473.0	2431.5	2403.2	2368.9	2310.5	2208.2	2130.5	2040.8	1925.2
20°	2592.2	2593.4	2579.0	2548.3	2515.8	2477.3	2400.2	2321.9	2246.1	2125.7	2015.5
22.5°	2623.5	2626.6	2623.5	2610.3	2583.8	2542.9	2485.1	2412.8	2317.1	2188.9	2086.6
25°	2580.2	2578.4	2588.6	2580.8	2579.6	2566.4	2528.4	2470.0	2375.5	2252.1	2122.1
27.5°	2428.5	2415.9	2441.7	2475.5	2480.3	2501.3	2501.9	2474.9	2406.8	2301.5	2160.0
30°	2166.0	2178.1	2190.7	2261.1	2300.3	2355.1	2402.6	2420.1	2394.2	2316.5	2184.1
32.5°	1880.7	1919.2	1954.7	2003.5	2060.7	2153.4	2228.6	2294.9	2323.1	2288.8	2184.1
35°	1572.4	1592.9	1648.9	1710.9	1793.4	1865.6	2014.9	2111.2	2197.3	2219.6	2156.4
37.5°	1331.6	1350.3	1369.6	1417.7	1510.4	1630.8	1754.2	1880.7	2008.3	2099.8	2096.2
40°	1118.5	1122.7	1139.6	1181.1	1258.2	1365.4	1494.8	1647.1	1812.6	1937.3	1989.6
42.5°	954.8	954.8	975.9	1024.0	1068.6	1146.8	1272.0	1406.3	1587.5	1747.6	1859.6
45°	830.8	832.0	848.8	883.1	918.1	979.5	1072.2	1198.6	1385.2	1550.8	1706.7
47.5°	729.6	741.1	750.7	768.8	803.7	857.9	925.3	1033.0	1166.1	1346.7	1528.5
50°	664.6	667.0	674.2	685.1	712.2	747.7	806.1	888.0	1006.0	1166.1	1349.7
52.5°	600.8	600.8	608.0	621.3	636.9	665.8	708.0	776.0	864.5	1009.6	1174.5
55°	546.6	548.4	549.6	560.5	573.7	595.4	628.5	673.0	754.3	870.5	1014.4
57.5°	493.6	500.3	498.5	506.9	516.5	532.2	555.7	594.2	656.2	744.7	874.1
60°	449.1	447.9	450.9	454.5	461.1	472.0	493.6	521.9	573.7	647.8	753.7
62.5°	398.5	397.3	400.9	405.2	411.2	420.2	435.9	457.5	498.5	553.8	646.0
65°	352.8	351.6	353.4	355.8	362.4	369.6	381.7	399.7	426.8	475.6	546.0
67.5°	307.0	307.0	308.2	310.6	314.8	320.3	329.9	340.7	367.8	400.3	455.7
70°	261.3	261.9	261.9	264.3	267.9	272.1	279.9	289.6	306.4	335.3	379.9
72.5°	221.5	221.5	220.3	221.5	223.9	225.8	230.6	239.6	252.2	273.3	307.0
75°	175.8	178.8	178.2	177.6	179.4	182.4	186.6	193.8	201.7	216.7	242.0
77.5°	134.8	136.7	136.7	137.3	139.1	141.5	142.7	149.9	157.1	166.2	184.8
80°	98.7	99.9	98.7	99.3	100.5	102.9	105.4	106.6	112.0	119.8	128.8
82.5°	66.2	64.4	66.8	66.2	67.4	68.0	69.2	69.8	73.4	78.3	84.3
85°	34.9	37.9	37.3	38.5	37.3	37.9	38.5	40.9	41.5	44.5	48.2
87.5°	13.2	14.4	14.4	14.4	14.4	14.4	15.7	16.3	17.5	18.1	19.3
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°	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8
2.5°	1370.2	1364.7	1356.9	1348.5	1339.5	1330.4	1326.2	1320.8	1310.0	1299.1	1290.7
5°	1436.4	1421.3	1400.9	1385.8	1364.1	1343.7	1327.4	1316.0	1298.5	1277.5	1263.6
7.5°	1510.4	1483.3	1450.8	1417.7	1385.2	1354.5	1329.2	1307.6	1280.5	1254.6	1233.5
10°	1597.7	1545.4	1500.2	1452.0	1403.9	1360.5	1324.4	1293.1	1258.2	1226.9	1201.0
12.5°	1674.8	1614.0	1551.4	1483.3	1418.3	1362.3	1316.0	1275.1	1232.9	1196.8	1170.3
15°	1759.7	1674.2	1587.5	1510.4	1431.6	1362.9	1302.1	1254.6	1206.4	1165.5	1134.8
17.5°	1857.2	1742.8	1633.8	1523.1	1453.2	1364.7	1290.1	1227.5	1178.1	1137.2	1097.5
20°	1915.0	1801.2	1667.6	1553.8	1438.2	1347.3	1264.2	1201.0	1143.2	1096.3	1063.7
22.5°	1946.3	1826.5	1686.8	1570.0	1435.2	1333.4	1245.0	1170.3	1108.3	1061.3	1024.6
25°	1990.2	1826.5	1697.1	1556.8	1440.0	1317.2	1217.3	1145.6	1080.6	1026.4	987.9
27.5°	2010.1	1842.7	1698.3	1531.5	1411.1	1286.5	1185.4	1109.5	1037.3	984.3	951.2
30°	2026.4	1845.8	1674.2	1511.6	1377.4	1252.2	1153.4	1068.6	1001.1	950.6	915.7
32.5°	2027.6	1837.9	1641.7	1474.3	1332.2	1211.8	1115.5	1035.5	965.0	911.4	877.1
35°	2016.7	1818.7	1604.3	1417.1	1279.9	1170.3	1074.0	995.7	924.1	872.9	838.0
37.5°	1989.0	1797.0	1569.4	1363.5	1217.9	1111.3	1029.4	954.8	883.7	832.6	803.7
40°	1930.0	1762.1	1523.7	1306.4	1155.3	1048.7	977.1	908.4	845.2	792.2	763.3
42.5°	1851.8	1709.7	1468.3	1245.6	1085.4	982.5	919.3	863.9	799.5	753.7	724.2
45°	1741.0	1638.7	1412.9	1181.7	1016.2	915.1	857.3	811.5	756.1	710.4	684.5
47.5°	1615.8	1553.2	1341.3	1110.1	943.3	848.2	793.4	756.7	709.8	670.6	644.7
50°	1474.9	1451.4	1262.4	1037.9	875.3	777.8	727.2	698.3	658.6	627.3	605.0
52.5°	1322.0	1336.5	1179.3	964.4	809.7	711.0	662.8	636.3	611.0	584.5	563.5
55°	1166.7	1201.0	1078.8	884.3	734.4	648.4	601.4	577.3	558.7	536.4	521.3
57.5°	1021.0	1074.6	974.6	798.9	665.2	582.7	538.2	517.1	503.3	491.2	477.4
60°	879.5	941.5	867.5	718.8	596.0	520.7	481.0	460.5	453.9	444.9	431.6
62.5°	754.3	817.5	762.1	636.3	526.2	461.7	425.6	408.8	399.1	396.1	388.3
65°	636.9	695.9	653.8	550.2	459.9	402.7	370.8	355.8	350.4	349.8	343.7
67.5°	535.2	592.4	553.8	466.6	390.1	343.7	319.7	307.6	302.2	302.8	298.6
70°	441.3	481.6	458.7	390.1	331.1	290.2	271.5	258.3	254.0	254.0	252.8
72.5°	354.0	385.9	368.4	316.1	269.7	238.4	222.1	214.3	210.7	210.1	210.7
75°	276.9	304.6	289.0	248.0	213.1	189.6	175.8	170.4	168.6	167.4	168.0
77.5°	207.1	224.5	214.9	188.4	159.5	143.3	136.7	131.2	129.4	130.0	131.2
80°	146.3	155.9	150.5	133.6	114.4	103.5	98.7	94.5	92.7	94.5	94.5
82.5°	92.7	99.9	95.1	84.3	74.6	67.4	62.6	61.4	60.8	59.6	61.4
85°	50.6	54.2	51.8	48.2	41.5	38.5	34.9	34.3	34.3	34.3	34.3
87.5°	19.9	22.3	19.3	19.3	18.1	15.1	15.1	14.4	13.8	14.4	14.4
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°	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8	1314.8
2.5°	1287.1	1279.3	1274.4	1267.8	1260.0	1249.8	1245.6	1249.8	1247.4	1243.1	1245.0
5°	1251.6	1241.3	1228.1	1217.3	1205.2	1190.2	1185.4	1182.9	1179.3	1177.5	1174.5
7.5°	1216.7	1201.6	1185.4	1170.3	1152.8	1139.6	1133.6	1129.4	1128.2	1119.1	1115.5
10°	1180.5	1161.9	1145.6	1125.2	1110.1	1092.6	1085.4	1080.6	1075.2	1069.2	1065.0
12.5°	1142.6	1123.9	1103.5	1084.2	1069.2	1049.9	1040.3	1034.8	1030.6	1026.4	1021.6
15°	1109.5	1090.8	1062.5	1048.1	1030.0	1010.8	1004.7	992.7	993.9	986.7	981.9
17.5°	1074.6	1046.9	1027.0	1005.4	992.1	978.3	966.8	954.2	952.4	947.0	945.2
20°	1035.5	1006.6	992.7	970.4	952.4	938.5	928.3	927.1	923.5	915.7	912.6
22.5°	996.9	973.4	954.2	933.7	917.5	899.4	894.6	896.4	889.8	888.0	881.3
25°	962.0	941.5	917.5	898.2	885.0	873.5	866.9	864.5	862.1	860.3	857.3
27.5°	924.7	903.0	882.5	866.9	854.2	846.4	842.2	836.8	836.2	836.2	835.0
30°	887.4	868.1	854.2	834.4	822.9	818.1	814.5	812.7	814.5	814.5	815.1
32.5°	853.0	834.4	818.1	804.3	792.8	789.2	788.6	788.6	791.0	791.0	792.8
35°	817.5	798.9	783.8	774.2	764.5	763.9	764.5	765.8	768.8	769.4	771.8
37.5°	779.0	764.5	753.1	741.1	738.7	739.9	741.1	742.3	743.5	748.3	748.3
40°	743.5	732.6	721.2	713.4	709.2	712.2	714.0	714.6	718.2	721.2	723.6
42.5°	708.6	698.3	689.3	682.7	680.9	683.3	685.1	686.9	690.5	692.9	697.1
45°	669.4	662.8	655.0	649.6	650.2	653.8	653.8	659.8	662.2	663.4	666.4
47.5°	633.3	626.1	620.7	618.3	617.7	620.7	622.5	627.3	628.5	632.7	635.1
50°	594.8	589.4	585.2	582.1	582.7	583.9	588.2	593.0	594.2	599.0	603.2
52.5°	554.4	549.6	546.0	547.2	549.0	549.0	553.2	556.3	559.3	562.9	567.1
55°	514.7	508.1	508.7	506.9	508.7	512.9	514.7	519.5	521.9	523.7	529.8
57.5°	471.4	470.2	468.4	466.6	470.2	472.0	475.0	478.0	482.2	484.6	488.8
60°	426.8	425.0	425.0	427.4	428.6	432.2	437.1	438.9	440.1	444.9	450.3
62.5°	385.9	384.1	383.5	387.1	387.1	390.7	392.5	395.5	400.3	402.1	409.4
65°	341.9	340.7	340.7	343.7	344.3	351.0	351.0	351.0	354.0	360.6	364.2
67.5°	296.2	296.8	298.6	300.4	302.8	304.6	305.2	308.8	313.6	317.9	325.1
70°	250.4	253.4	257.1	256.5	258.3	261.3	261.9	265.5	269.7	275.1	283.5
72.5°	209.5	211.3	214.9	214.9	217.3	219.1	222.1	224.5	230.0	234.8	238.4
75°	168.6	169.2	172.2	174.0	175.8	177.0	180.0	184.2	187.2	191.4	196.9
77.5°	132.4	131.2	133.6	134.2	135.5	137.9	140.3	144.5	146.9	151.7	153.5
80°	93.9	96.3	96.9	97.5	98.7	101.7	103.5	105.4	107.8	112.0	113.8
82.5°	62.0	63.2	65.0	65.6	66.8	67.4	68.0	71.0	72.8	74.0	80.1
85°	36.1	37.9	36.7	36.7	37.9	38.5	40.9	40.9	43.3	42.1	45.2
87.5°	15.7	15.1	15.1	15.7	15.1	14.4	16.3	16.3	15.7	16.3	16.3
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: P243329

CATALOG NUMBER: S123DR-H1000D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1314.8	1314.8	1314.8	1314.8
2.5°	1241.9	1241.9	1237.1	1238.9
5°	1168.5	1170.9	1164.9	1163.1
7.5°	1114.3	1111.9	1107.7	1107.7
10°	1061.3	1058.9	1057.1	1057.1
12.5°	1015.6	1013.2	1009.6	1012.6
15°	974.6	975.3	972.8	972.8
17.5°	943.3	937.9	936.1	935.5
20°	906.0	907.2	904.8	900.6
22.5°	882.5	879.5	877.1	876.5
25°	858.5	855.5	854.8	852.4
27.5°	834.4	835.0	833.2	833.2
30°	814.5	816.3	814.5	815.1
32.5°	794.6	794.6	794.6	792.2
35°	773.0	773.6	773.0	771.8
37.5°	750.7	750.7	751.3	752.5
40°	726.0	726.0	727.2	727.2
42.5°	696.5	699.5	701.3	698.3
45°	670.0	670.6	671.2	670.6
47.5°	640.5	638.7	639.3	640.5
50°	603.8	608.0	608.0	604.4
52.5°	568.3	569.5	571.9	571.9
55°	533.4	534.0	534.6	535.8
57.5°	493.6	494.2	494.2	493.6
60°	453.9	457.5	456.9	457.5
62.5°	411.2	416.6	418.4	417.8
65°	370.8	372.0	375.1	379.3
67.5°	328.1	331.1	335.9	334.7
70°	286.0	290.2	291.4	293.8
72.5°	243.8	249.2	250.4	251.6
75°	202.9	205.3	207.7	207.1
77.5°	158.3	161.9	166.2	163.7
80°	118.6	119.2	122.8	121.6
82.5°	78.3	83.1	83.1	80.7
85°	45.8	45.8	45.8	45.8
87.5°	15.7	15.1	16.3	15.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)