

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: P243330

Luminaire Tested: **S123DR-H1165D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243330
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-H1165D835-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: 4628.9 lumens
Efficiency: N/A
Efficacy: 122.8 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

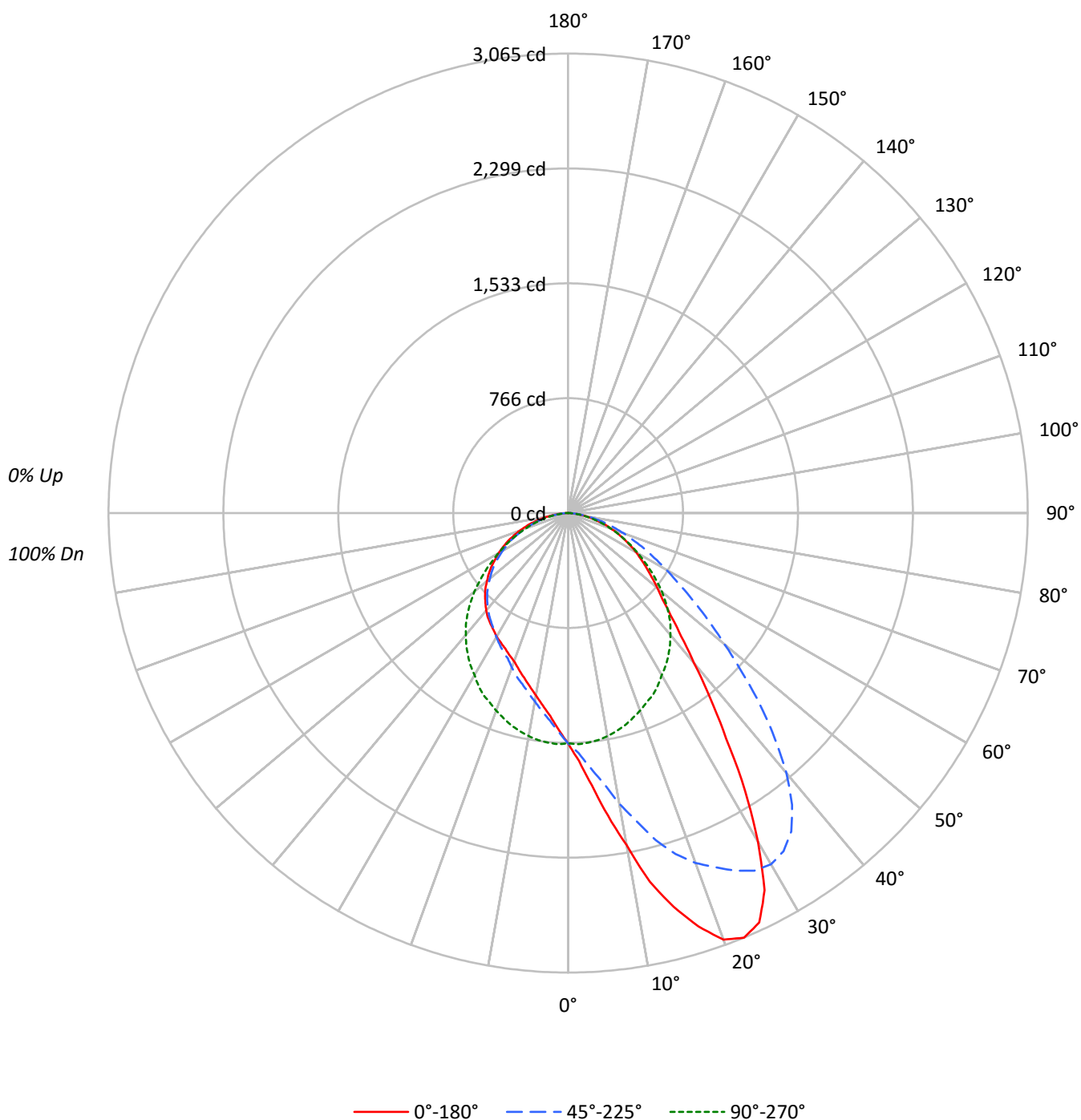
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	18617	18617	18617
5°	22179	18705	16532
10°	27698	18593	15199
15°	34135	18392	14262
20°	39061	18097	13571
25°	40313	17899	13318
30°	35415	17472	13327
35°	27181	17212	13341
40°	20676	16792	13442
45°	16636	16251	13429
50°	14641	15384	13315
55°	13495	14252	13227
60°	12718	13042	12958
65°	11820	11920	12709
70°	10816	10692	12163
75°	9619	9320	11329
80°	8048	7706	9919
85°	5674	5577	7427

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	151.1	3.3
10°-20°	485.2	10.5
20°-30°	801.3	17.3
30°-40°	917.1	19.8
40°-50°	831.1	18.0
50°-60°	671.5	14.5
60°-70°	467.9	10.1
70°-80°	245.4	5.3
80°-90°	58.5	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°	1437.6	31.1
0°-40°	2354.7	50.9
0°-60°	3857.2	83.3
0°-90°	4628.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4628.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1536	1536	1536	1536	1536	
5°	1823	1705	1537	1390	1359	188
15°	2720	2259	1466	1181	1136	774
25°	3014	2631	1338	1020	996	1347
35°	1837	2593	1163	892	902	1164
45°	970	1812	948	764	783	765
55°	639	1017	674	599	626	574
65°	412	556	416	410	443	408
75°	205	253	199	207	242	219
85°	41	52	40	45	53	52
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°	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9
2.5°	1654.1	1657.6	1652.0	1655.5	1647.0	1642.1	1634.4	1630.9	1614.0	1602.0	1597.8
5°	1822.8	1822.8	1824.3	1815.8	1806.0	1788.4	1765.2	1750.4	1733.5	1704.7	1689.9
7.5°	2035.2	2024.7	2017.6	2002.2	1988.8	1960.0	1934.7	1904.4	1865.0	1817.2	1791.9
10°	2250.4	2261.7	2254.6	2238.5	2204.0	2156.9	2119.6	2076.0	2014.8	1968.4	1902.3
12.5°	2519.1	2504.3	2493.1	2468.4	2430.5	2380.5	2322.9	2258.2	2179.4	2102.7	2028.9
15°	2720.2	2722.3	2721.6	2689.3	2652.0	2584.5	2531.0	2423.4	2323.6	2258.9	2136.5
17.5°	2890.4	2899.5	2889.0	2840.5	2807.4	2767.3	2699.1	2579.6	2488.8	2384.0	2249.0
20°	3028.2	3029.6	3012.8	2976.9	2938.9	2893.9	2803.9	2712.5	2623.9	2483.2	2354.5
22.5°	3064.8	3068.3	3064.8	3049.3	3018.4	2970.6	2903.1	2818.7	2706.8	2557.0	2437.5
25°	3014.2	3012.1	3024.0	3014.9	3013.5	2998.0	2953.7	2885.5	2775.1	2630.9	2479.0
27.5°	2836.9	2822.2	2852.4	2891.8	2897.4	2922.0	2922.7	2891.1	2811.6	2688.6	2523.3
30°	2530.3	2544.4	2559.2	2641.4	2687.2	2751.1	2806.7	2827.1	2796.9	2706.1	2551.4
32.5°	2197.0	2242.0	2283.5	2340.4	2407.3	2515.6	2603.5	2680.8	2713.9	2673.8	2551.4
35°	1836.9	1860.8	1926.2	1998.7	2095.0	2179.4	2353.8	2466.3	2566.9	2592.9	2519.1
37.5°	1555.6	1577.4	1599.9	1656.2	1764.5	1905.1	2049.3	2197.0	2346.1	2453.0	2448.7
40°	1306.7	1311.6	1331.3	1379.8	1469.8	1595.0	1746.2	1924.1	2117.5	2263.1	2324.3
42.5°	1115.4	1115.4	1140.0	1196.2	1248.3	1339.7	1486.0	1642.8	1854.5	2041.6	2172.4
45°	970.5	971.9	991.6	1031.7	1072.5	1144.2	1252.5	1400.2	1618.2	1811.6	1993.7
47.5°	852.3	865.7	877.0	898.1	938.9	1002.1	1080.9	1206.8	1362.2	1573.2	1785.6
50°	776.4	779.2	787.6	800.3	832.0	873.4	941.7	1037.3	1175.1	1362.2	1576.7
52.5°	701.9	701.9	710.3	725.8	744.0	777.8	827.0	906.5	1009.9	1179.4	1372.1
55°	638.6	640.7	642.1	654.7	670.2	695.5	734.2	786.2	881.2	1016.9	1185.0
57.5°	576.7	584.4	582.3	592.1	603.4	621.7	649.1	694.1	766.6	869.9	1021.1
60°	524.6	523.2	526.7	531.0	538.7	551.4	576.7	609.7	670.2	756.7	880.5
62.5°	465.6	464.2	468.4	473.3	480.3	490.9	509.2	534.5	582.3	647.0	754.6
65°	412.1	410.7	412.8	415.6	423.4	431.8	445.9	467.0	498.6	555.6	637.9
67.5°	358.7	358.7	360.1	362.9	367.8	374.1	385.4	398.0	429.7	467.7	532.4
70°	305.2	305.9	305.9	308.7	313.0	317.9	327.0	338.3	358.0	391.7	443.8
72.5°	258.8	258.8	257.4	258.8	261.6	263.7	269.3	279.9	294.7	319.3	358.7
75°	205.4	208.9	208.2	207.5	209.6	213.1	218.0	226.4	235.6	253.2	282.7
77.5°	157.5	159.6	159.6	160.3	162.5	165.3	166.7	175.1	183.6	194.1	215.9
80°	115.3	116.7	115.3	116.0	117.4	120.3	123.1	124.5	130.8	139.9	150.5
82.5°	77.4	75.2	78.1	77.4	78.8	79.5	80.9	81.6	85.8	91.4	98.5
85°	40.8	44.3	43.6	45.0	43.6	44.3	45.0	47.8	48.5	52.0	56.3
87.5°	15.5	16.9	16.9	16.9	16.9	16.9	18.3	19.0	20.4	21.1	22.5
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°	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9
2.5°	1600.6	1594.3	1585.1	1575.3	1564.8	1554.2	1549.3	1542.9	1530.3	1517.6	1507.8
5°	1678.0	1660.4	1636.5	1618.9	1593.6	1569.7	1550.7	1537.3	1516.9	1492.3	1476.1
7.5°	1764.5	1732.8	1694.9	1656.2	1618.2	1582.3	1552.8	1527.5	1495.8	1465.6	1441.0
10°	1866.4	1805.3	1752.5	1696.3	1640.0	1589.4	1547.2	1510.6	1469.8	1433.2	1403.0
12.5°	1956.5	1885.4	1812.3	1732.8	1656.9	1591.5	1537.3	1489.5	1440.3	1398.1	1367.1
15°	2055.6	1955.8	1854.5	1764.5	1672.3	1592.2	1521.1	1465.6	1409.3	1361.5	1325.6
17.5°	2169.6	2035.9	1908.6	1779.2	1697.7	1594.3	1507.1	1433.9	1376.3	1328.5	1282.0
20°	2237.1	2104.1	1948.0	1815.1	1680.1	1573.9	1476.8	1403.0	1335.5	1280.6	1242.7
22.5°	2273.6	2133.7	1970.5	1834.1	1676.6	1557.7	1454.3	1367.1	1294.7	1239.8	1196.9
25°	2325.0	2133.7	1982.5	1818.6	1682.2	1538.7	1422.0	1338.3	1262.3	1199.1	1154.0
27.5°	2348.2	2152.7	1983.9	1789.1	1648.4	1502.9	1384.7	1296.1	1211.7	1149.8	1111.1
30°	2367.2	2156.2	1955.8	1765.9	1609.1	1462.8	1347.4	1248.3	1169.5	1110.4	1069.7
32.5°	2368.6	2147.0	1917.8	1722.3	1556.3	1415.7	1303.1	1209.6	1127.3	1064.7	1024.6
35°	2355.9	2124.5	1874.2	1655.5	1495.1	1367.1	1254.6	1163.2	1079.5	1019.7	978.9
37.5°	2323.6	2099.2	1833.4	1592.9	1422.7	1298.2	1202.6	1115.4	1032.4	972.6	938.9
40°	2254.6	2058.4	1779.9	1526.1	1349.6	1225.1	1141.4	1061.2	987.4	925.5	891.7
42.5°	2163.2	1997.3	1715.2	1455.0	1268.0	1147.7	1073.9	1009.2	933.9	880.5	846.0
45°	2033.8	1914.3	1650.5	1380.5	1187.1	1069.0	1001.4	948.0	883.3	829.8	799.6
47.5°	1887.5	1814.4	1566.9	1296.8	1102.0	990.9	926.9	884.0	829.1	783.4	753.2
50°	1723.0	1695.6	1474.7	1212.4	1022.5	908.6	849.5	815.8	769.4	732.8	706.8
52.5°	1544.4	1561.2	1377.7	1126.6	945.9	830.5	774.3	743.3	713.8	682.9	658.3
55°	1362.9	1403.0	1260.2	1033.1	858.0	757.4	702.6	674.4	652.6	626.6	609.0
57.5°	1192.7	1255.3	1138.6	933.2	777.1	680.8	628.7	604.1	587.9	573.9	557.7
60°	1027.5	1099.9	1013.4	839.7	696.2	608.3	561.9	538.0	530.3	519.7	504.2
62.5°	881.2	955.0	890.3	743.3	614.6	539.4	497.2	477.5	466.3	462.7	453.6
65°	744.0	813.0	763.7	642.8	537.3	470.5	433.2	415.6	409.3	408.6	401.6
67.5°	625.2	692.0	647.0	545.0	455.7	401.6	373.4	359.4	353.0	353.7	348.8
70°	515.5	562.6	535.9	455.7	386.8	339.0	317.2	301.7	296.8	296.8	295.4
72.5°	413.5	450.8	430.4	369.2	315.1	278.5	259.5	250.4	246.1	245.4	246.1
75°	323.5	355.8	337.6	289.7	249.0	221.5	205.4	199.0	196.9	195.5	196.2
77.5°	241.9	262.3	251.1	220.1	186.4	167.4	159.6	153.3	151.2	151.9	153.3
80°	170.9	182.1	175.8	156.1	133.6	121.0	115.3	110.4	108.3	110.4	110.4
82.5°	108.3	116.7	111.1	98.5	87.2	78.8	73.1	71.7	71.0	69.6	71.7
85°	59.1	63.3	60.5	56.3	48.5	45.0	40.8	40.1	40.1	40.1	40.1
87.5°	23.2	26.0	22.5	22.5	21.1	17.6	17.6	16.9	16.2	16.9	16.9
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°	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9	1535.9
2.5°	1503.6	1494.4	1488.8	1481.1	1471.9	1460.0	1455.0	1460.0	1457.2	1452.2	1454.3
5°	1462.1	1450.1	1434.6	1422.0	1407.9	1390.3	1384.7	1381.9	1377.7	1375.6	1372.1
7.5°	1421.3	1403.7	1384.7	1367.1	1346.7	1331.3	1324.2	1319.3	1317.9	1307.4	1303.1
10°	1379.1	1357.3	1338.3	1314.4	1296.8	1276.4	1268.0	1262.3	1256.0	1249.0	1244.1
12.5°	1334.8	1313.0	1289.1	1266.6	1249.0	1226.5	1215.2	1208.9	1204.0	1199.1	1193.4
15°	1296.1	1274.3	1241.3	1224.4	1203.3	1180.8	1173.7	1159.7	1161.1	1152.6	1147.0
17.5°	1255.3	1223.0	1199.8	1174.4	1159.0	1142.8	1129.4	1114.7	1112.6	1106.2	1104.1
20°	1209.6	1175.8	1159.7	1133.7	1112.6	1096.4	1084.4	1083.0	1078.8	1069.7	1066.1
22.5°	1164.6	1137.2	1114.7	1090.8	1071.8	1050.7	1045.0	1047.2	1039.4	1037.3	1029.6
25°	1123.8	1099.9	1071.8	1049.3	1033.8	1020.4	1012.7	1009.9	1007.1	1005.0	1001.4
27.5°	1080.2	1054.9	1031.0	1012.7	997.9	988.8	983.9	977.5	976.8	976.8	975.4
30°	1036.6	1014.1	997.9	974.7	961.4	955.7	951.5	949.4	951.5	951.5	952.2
32.5°	996.5	974.7	955.7	939.6	926.2	922.0	921.3	921.3	924.1	924.1	926.2
35°	955.0	933.2	915.6	904.4	893.1	892.4	893.1	894.5	898.1	898.8	901.6
37.5°	910.0	893.1	879.8	865.7	862.9	864.3	865.7	867.1	868.5	874.2	874.2
40°	868.5	855.9	842.5	833.4	828.4	832.0	834.1	834.8	839.0	842.5	845.3
42.5°	827.7	815.8	805.2	797.5	795.4	798.2	800.3	802.4	806.6	809.5	814.4
45°	782.0	774.3	765.1	758.8	759.5	763.7	763.7	770.8	773.6	775.0	778.5
47.5°	739.8	731.4	725.1	722.2	721.5	725.1	727.2	732.8	734.2	739.1	741.9
50°	694.8	688.5	683.6	680.1	680.8	682.2	687.1	692.7	694.1	699.7	704.7
52.5°	647.7	642.1	637.9	639.3	641.4	641.4	646.3	649.8	653.3	657.5	662.5
55°	601.3	593.6	594.3	592.1	594.3	599.2	601.3	606.9	609.7	611.8	618.9
57.5°	550.7	549.2	547.1	545.0	549.2	551.4	554.9	558.4	563.3	566.1	571.0
60°	498.6	496.5	496.5	499.3	500.7	504.9	510.6	512.7	514.1	519.7	526.0
62.5°	450.8	448.7	448.0	452.2	452.2	456.4	458.5	462.0	467.7	469.8	478.2
65°	399.5	398.0	398.0	401.6	402.3	410.0	410.0	410.0	413.5	421.3	425.5
67.5°	346.0	346.7	348.8	350.9	353.7	355.8	356.6	360.8	366.4	371.3	379.8
70°	292.6	296.1	300.3	299.6	301.7	305.2	305.9	310.1	315.1	321.4	331.2
72.5°	244.7	246.8	251.1	251.1	253.9	256.0	259.5	262.3	268.6	274.3	278.5
75°	196.9	197.6	201.1	203.2	205.4	206.8	210.3	215.2	218.7	223.6	230.0
77.5°	154.7	153.3	156.1	156.8	158.2	161.0	163.9	168.8	171.6	177.2	179.3
80°	109.7	112.5	113.2	113.9	115.3	118.9	121.0	123.1	125.9	130.8	132.9
82.5°	72.4	73.8	76.0	76.7	78.1	78.8	79.5	83.0	85.1	86.5	93.5
85°	42.2	44.3	42.9	42.9	44.3	45.0	47.8	47.8	50.6	49.2	52.7
87.5°	18.3	17.6	17.6	18.3	17.6	16.9	19.0	19.0	18.3	19.0	19.0
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: P243330

CATALOG NUMBER: S123DR-H1165D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1535.9	1535.9	1535.9	1535.9
2.5°	1450.8	1450.8	1445.2	1447.3
5°	1365.0	1367.8	1360.8	1358.7
7.5°	1301.7	1298.9	1294.0	1294.0
10°	1239.8	1237.0	1234.9	1234.9
12.5°	1186.4	1183.6	1179.4	1182.9
15°	1138.6	1139.3	1136.5	1136.5
17.5°	1102.0	1095.7	1093.6	1092.9
20°	1058.4	1059.8	1057.0	1052.1
22.5°	1031.0	1027.5	1024.6	1023.9
25°	1002.8	999.3	998.6	995.8
27.5°	974.7	975.4	973.3	973.3
30°	951.5	953.6	951.5	952.2
32.5°	928.3	928.3	928.3	925.5
35°	903.0	903.7	903.0	901.6
37.5°	877.0	877.0	877.7	879.1
40°	848.1	848.1	849.5	849.5
42.5°	813.7	817.2	819.3	815.8
45°	782.7	783.4	784.1	783.4
47.5°	748.3	746.2	746.9	748.3
50°	705.4	710.3	710.3	706.1
52.5°	663.9	665.3	668.1	668.1
55°	623.1	623.8	624.5	625.9
57.5°	576.7	577.4	577.4	576.7
60°	530.3	534.5	533.8	534.5
62.5°	480.3	486.7	488.8	488.1
65°	433.2	434.6	438.1	443.1
67.5°	383.3	386.8	392.4	391.0
70°	334.0	339.0	340.4	343.2
72.5°	284.8	291.1	292.6	294.0
75°	237.0	239.8	242.6	241.9
77.5°	185.0	189.2	194.1	191.3
80°	138.5	139.2	143.5	142.1
82.5°	91.4	97.0	97.0	94.2
85°	53.4	53.4	53.4	53.4
87.5°	18.3	17.6	19.0	18.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)