

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: P333919

Luminaire Tested: **S123DS-S1165D830-4F0-1E-UDD-A**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333919
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DS-S1165D830-4F0-1E-UDD-A
Description: DEFINE 3 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER
PENDANT/SURFACE/WALL MOUNT, 1165 LUMENS PER FOOT
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4351.1 lumens
Efficiency: N/A
Efficacy: 105.9 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 4' x L: 0.5' x H: 0')
CIE Type: Direct

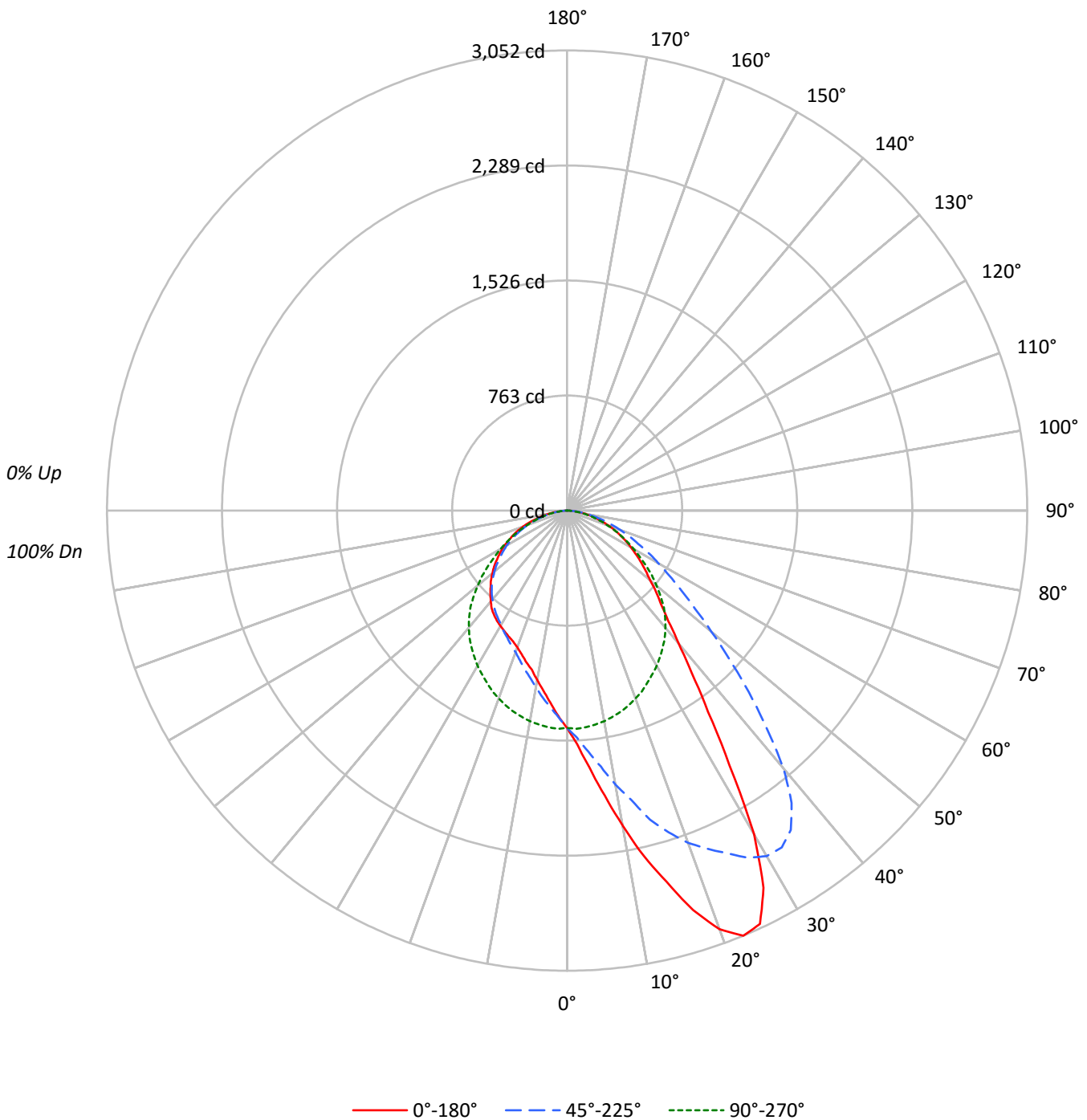
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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				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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7759	7759	7759
5°	9252	7792	6905
10°	11580	7752	6237
15°	14204	7690	5806
20°	16921	7592	5528
25°	17967	7474	5466
30°	15400	7387	5495
35°	10710	7264	5552
40°	8067	7120	5535
45°	6698	6906	5465
50°	6000	6468	5415
55°	5610	5997	5347
60°	5262	5504	5293
65°	4945	5016	5123
70°	4637	4463	4880
75°	4155	3907	4473
80°	3636	3205	3852
85°	2847	2328	2587



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	141.8	3.3
10°-20°	455.4	10.5
20°-30°	766.2	17.6
30°-40°	865.9	19.9
40°-50°	775.6	17.8
50°-60°	626.1	14.4
60°-70°	436.2	10.0
70°-80°	229.0	5.3
80°-90°	54.9	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°	1363.3	31.3
0°-40°	2229.3	51.2
0°-60°	3631.0	83.5
0°-90°	4351.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4351.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1442	1442	1442	1442	1442	
5°	1713	1605	1442	1306	1278	176
15°	2549	2122	1380	1088	1042	736
25°	3026	2507	1259	935	920	1338
35°	1630	2586	1106	826	845	1052
45°	880	1704	907	707	718	694
55°	598	925	639	546	570	536
65°	388	519	394	371	402	387
75°	200	246	188	186	215	213
85°	46	53	38	37	42	56
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°	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6
2.5°	1551.9	1550.5	1547.0	1549.8	1544.2	1536.6	1535.9	1528.9	1508.6	1507.2	1501.6
5°	1712.6	1707.0	1706.3	1705.6	1695.8	1682.5	1657.4	1655.3	1621.8	1605.0	1584.7
7.5°	1906.7	1904.6	1899.0	1892.8	1859.9	1843.9	1820.1	1789.4	1750.3	1712.6	1688.8
10°	2119.0	2142.1	2113.5	2093.9	2075.7	2041.5	2001.7	1952.1	1902.5	1844.6	1800.6
12.5°	2346.7	2355.1	2355.1	2337.0	2306.2	2249.6	2171.4	2115.6	2070.9	1964.7	1927.0
15°	2549.3	2591.9	2564.6	2501.8	2503.2	2453.6	2361.4	2260.1	2206.3	2121.8	2006.6
17.5°	2778.4	2786.0	2777.7	2719.0	2690.4	2618.4	2535.3	2441.0	2339.7	2237.1	2117.6
20°	2954.4	2950.2	2925.7	2898.5	2838.4	2785.3	2692.5	2584.2	2444.5	2343.9	2210.5
22.5°	3052.1	3044.5	3036.1	3014.4	2966.9	2909.0	2828.0	2707.1	2575.8	2427.7	2268.5
25°	3025.6	3034.7	3036.1	3029.8	3012.3	2978.1	2912.5	2818.2	2685.5	2507.4	2346.7
27.5°	2820.3	2843.3	2872.7	2892.2	2923.6	2944.6	2923.6	2864.3	2755.3	2596.1	2398.4
30°	2478.0	2450.1	2519.2	2606.5	2665.9	2770.7	2829.3	2832.8	2777.7	2645.7	2454.3
32.5°	2003.1	2048.5	2069.5	2181.9	2329.3	2450.1	2581.4	2698.0	2725.3	2648.5	2487.1
35°	1630.1	1668.6	1724.4	1780.3	1920.0	2040.1	2245.5	2424.3	2566.7	2585.6	2482.9
37.5°	1355.0	1377.3	1411.5	1470.9	1566.6	1715.3	1878.1	2110.7	2306.9	2445.2	2431.2
40°	1148.2	1153.8	1193.6	1236.2	1310.3	1427.6	1570.8	1770.5	2017.8	2232.2	2321.6
42.5°	993.2	1007.1	1018.3	1058.8	1114.0	1195.0	1325.6	1482.1	1703.5	1958.4	2154.7
45°	880.0	894.0	904.5	931.7	973.6	1033.0	1125.9	1276.7	1449.2	1704.2	1939.5
47.5°	801.8	800.4	809.5	831.1	861.2	908.7	977.1	1077.7	1243.2	1456.2	1702.8
50°	716.6	727.8	730.6	746.6	769.0	801.8	856.3	938.7	1068.6	1250.2	1472.3
52.5°	656.5	657.9	667.0	677.5	696.3	720.1	765.5	825.5	920.5	1068.6	1268.4
55°	597.9	597.9	605.5	614.6	625.8	648.8	680.3	727.8	805.3	925.4	1094.4
57.5°	543.4	546.2	553.2	555.3	565.0	581.1	608.3	646.0	705.4	802.5	942.2
60°	488.9	495.2	494.5	500.1	508.5	520.3	542.7	572.0	623.7	697.7	810.9
62.5°	441.4	439.3	439.3	446.3	454.7	465.9	478.4	502.9	544.8	608.3	700.5
65°	388.3	386.9	391.8	396.0	398.8	407.2	418.4	440.7	470.0	518.9	593.7
67.5°	342.2	338.0	341.5	342.9	347.8	354.8	366.0	379.9	403.7	444.9	505.0
70°	294.7	291.2	290.5	291.9	296.1	301.0	308.7	322.0	343.6	375.1	416.3
72.5°	245.8	243.8	243.8	247.2	248.6	251.4	256.3	268.2	284.3	305.9	343.6
75°	199.8	199.8	199.8	200.5	202.5	205.3	209.5	215.8	229.1	245.8	271.7
77.5°	157.8	158.5	157.1	156.4	159.9	161.3	162.0	169.0	176.7	189.3	209.5
80°	117.3	113.8	115.2	117.3	118.7	119.4	121.5	122.9	129.2	135.5	148.8
82.5°	79.6	76.8	76.8	80.3	80.3	81.0	83.1	85.2	86.6	92.2	97.8
85°	46.1	46.1	46.8	46.8	47.5	46.8	48.9	49.6	49.6	53.1	57.3
87.5°	21.0	19.6	20.3	21.0	20.3	21.0	21.7	22.3	23.0	23.7	24.4
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6
2.5°	1497.4	1491.9	1486.3	1476.5	1468.1	1456.2	1452.7	1448.5	1436.0	1424.8	1416.4
5°	1577.1	1560.3	1535.9	1513.5	1495.3	1470.9	1456.9	1442.3	1421.3	1402.5	1387.1
7.5°	1653.2	1623.9	1589.6	1552.6	1517.0	1482.8	1455.5	1431.1	1403.8	1377.3	1357.1
10°	1747.5	1700.0	1646.9	1589.6	1540.7	1493.2	1453.4	1418.5	1380.8	1348.0	1320.7
12.5°	1855.0	1778.9	1700.7	1628.0	1568.0	1497.4	1447.2	1400.4	1356.4	1315.1	1283.7
15°	1935.4	1846.0	1759.4	1663.7	1575.7	1493.2	1436.0	1380.1	1330.5	1290.0	1250.9
17.5°	2015.0	1917.2	1806.8	1691.6	1588.2	1493.2	1415.0	1355.0	1294.2	1245.3	1207.6
20°	2080.6	1965.4	1836.2	1715.3	1598.0	1489.1	1401.1	1325.6	1258.6	1206.2	1162.2
22.5°	2137.2	1997.5	1862.7	1731.4	1597.3	1477.9	1375.2	1297.0	1223.0	1172.0	1124.5
25°	2172.8	2011.5	1877.4	1725.8	1579.9	1458.3	1346.6	1258.6	1185.9	1125.9	1077.7
27.5°	2206.3	2009.4	1857.8	1694.4	1558.9	1438.1	1317.9	1223.7	1147.5	1082.6	1033.0
30°	2239.9	2012.9	1823.6	1662.3	1525.4	1399.7	1283.7	1188.7	1107.7	1041.4	995.3
32.5°	2260.8	2010.8	1792.2	1617.6	1472.3	1364.7	1246.7	1147.5	1063.7	998.8	954.8
35°	2266.4	1998.9	1755.2	1552.6	1414.3	1306.1	1207.6	1105.6	1018.3	957.6	907.3
37.5°	2254.5	1977.3	1714.7	1493.9	1344.5	1236.9	1151.0	1063.7	979.9	912.2	868.2
40°	2216.1	1956.3	1665.8	1431.1	1271.8	1169.2	1098.6	1013.4	931.0	867.5	826.9
42.5°	2142.8	1913.7	1612.0	1361.2	1196.4	1093.7	1030.2	962.4	885.6	826.9	786.4
45°	2014.3	1848.1	1558.2	1291.4	1122.4	1016.2	958.9	907.3	836.7	778.8	743.8
47.5°	1850.1	1759.4	1480.7	1218.1	1044.9	942.2	882.1	839.5	784.3	737.5	703.3
50°	1677.6	1644.8	1401.8	1142.6	967.3	867.5	810.2	772.5	735.4	688.7	657.9
52.5°	1478.6	1512.1	1309.6	1064.4	888.4	790.6	737.5	709.6	676.8	640.5	614.6
55°	1294.2	1367.5	1200.6	975.0	810.2	716.6	665.6	639.1	619.5	590.9	567.8
57.5°	1115.4	1209.0	1087.5	884.9	733.4	651.6	601.4	571.3	558.7	542.7	523.8
60°	959.6	1051.8	964.5	794.1	655.8	579.0	535.7	511.3	498.7	488.2	472.8
62.5°	820.7	914.2	844.4	701.9	579.7	509.9	473.5	449.8	440.7	436.5	423.9
65°	695.6	776.0	727.1	605.5	507.8	444.9	410.7	393.9	384.8	382.7	374.4
67.5°	587.4	649.5	611.8	520.3	440.7	383.4	353.4	338.7	331.1	330.4	323.4
70°	481.2	538.5	511.3	430.2	363.9	321.3	296.1	283.6	279.4	278.7	275.2
72.5°	398.8	434.4	414.2	349.9	302.4	264.7	247.9	234.7	229.8	231.2	229.1
75°	307.3	337.3	324.8	278.0	236.8	211.6	196.3	187.9	183.7	185.8	183.0
77.5°	234.7	255.6	243.1	207.4	180.9	162.0	150.2	144.6	140.4	140.4	139.0
80°	166.9	178.1	171.8	152.3	131.3	115.9	106.9	103.4	101.3	100.6	99.9
82.5°	106.9	115.9	108.3	96.4	83.8	76.1	71.9	67.0	65.7	66.4	65.7
85°	60.1	63.6	60.8	52.4	46.8	42.6	39.8	37.7	36.3	37.0	35.6
87.5°	25.8	26.5	24.4	21.7	20.3	18.2	18.2	16.8	15.4	15.4	14.7
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°	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6	1441.6
2.5°	1411.5	1406.6	1399.7	1389.2	1380.8	1367.5	1367.5	1369.6	1369.6	1368.9	1367.5
5°	1374.5	1364.0	1351.5	1336.8	1321.4	1306.1	1303.3	1297.7	1293.5	1290.7	1287.2
7.5°	1336.8	1319.3	1301.9	1281.6	1264.2	1249.5	1239.0	1229.9	1224.4	1218.1	1213.2
10°	1298.4	1275.3	1253.7	1232.0	1208.3	1189.4	1177.6	1169.2	1162.9	1157.3	1154.5
12.5°	1253.0	1225.7	1201.3	1181.0	1154.5	1135.0	1123.8	1121.0	1113.3	1100.0	1093.0
15°	1209.0	1184.5	1155.9	1124.5	1111.9	1088.2	1074.9	1068.6	1064.4	1055.3	1052.5
17.5°	1172.7	1139.8	1107.0	1084.0	1060.9	1042.1	1034.4	1026.0	1020.4	1012.0	1009.9
20°	1127.3	1098.6	1069.3	1044.2	1019.7	998.8	992.5	986.9	981.3	977.8	975.0
22.5°	1081.2	1052.5	1029.5	1006.4	979.9	968.0	961.0	954.8	951.3	949.2	946.4
25°	1038.6	1013.4	986.2	965.2	944.3	935.2	931.0	927.5	924.7	921.2	920.5
27.5°	1000.9	972.9	949.9	929.6	914.2	906.6	901.7	899.6	899.6	901.0	901.7
30°	957.6	932.4	914.2	897.5	883.5	876.5	875.8	875.8	878.6	879.3	880.7
32.5°	917.7	898.2	880.0	864.0	854.2	850.0	853.5	853.5	855.6	857.7	860.5
35°	879.3	861.2	847.2	833.2	824.1	826.2	827.6	829.0	832.5	836.7	839.5
37.5°	843.0	826.2	811.6	800.4	794.8	799.0	802.5	805.3	809.5	813.0	815.8
40°	803.2	791.3	777.4	767.6	769.0	771.1	773.9	777.4	780.8	782.9	785.7
42.5°	766.2	753.6	743.8	736.1	738.2	741.0	742.4	743.8	748.0	752.2	753.6
45°	728.5	718.7	708.9	704.0	705.4	706.8	708.2	710.3	713.8	716.6	717.3
47.5°	685.9	678.9	672.6	667.0	669.8	669.1	671.2	675.4	676.8	678.2	682.4
50°	645.4	639.1	631.4	630.0	630.0	630.0	630.7	636.3	636.3	639.1	641.9
52.5°	600.7	597.2	593.0	590.2	588.8	588.8	592.3	594.4	595.8	600.0	602.7
55°	556.7	552.5	548.3	546.2	544.8	546.2	551.8	553.2	556.7	558.7	560.8
57.5°	510.6	507.8	504.3	502.9	502.9	503.6	507.8	511.3	512.0	518.9	521.7
60°	465.2	460.3	457.5	457.5	456.1	462.4	461.0	467.9	469.3	473.5	478.4
62.5°	418.4	411.4	410.7	410.7	413.5	414.2	417.0	419.1	423.2	428.8	432.3
65°	367.4	363.9	368.8	368.1	366.7	370.9	370.9	374.4	378.6	383.4	391.1
67.5°	319.9	317.1	318.5	317.8	319.9	322.7	324.8	327.6	332.5	338.0	342.9
70°	271.7	273.8	270.3	273.1	275.2	275.9	277.3	281.5	287.1	290.5	296.1
72.5°	224.9	224.2	225.6	226.3	228.4	229.8	231.2	236.1	242.4	245.1	249.3
75°	180.2	179.5	181.6	181.6	185.1	186.5	187.9	190.0	195.6	199.8	203.2
77.5°	139.7	140.4	139.7	142.5	141.1	141.8	146.0	148.1	148.8	157.8	159.2
80°	99.2	100.6	101.3	102.0	102.7	101.3	106.2	108.3	108.3	113.1	116.6
82.5°	64.3	65.0	67.0	67.7	67.7	69.8	69.1	70.5	72.6	74.0	78.9
85°	35.6	37.7	38.4	37.7	38.4	37.0	39.1	39.8	40.5	40.5	40.5
87.5°	14.0	14.7	14.0	14.7	14.0	14.7	14.7	13.3	13.3	15.4	12.6
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: P333919

CATALOG NUMBER: S123DS-S1165D830-4F0-1E-UDD-A

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1441.6	1441.6	1441.6	1441.6
2.5°	1362.6	1361.9	1366.8	1363.3
5°	1283.0	1285.1	1278.1	1278.1
7.5°	1211.1	1208.3	1209.0	1204.1
10°	1146.1	1141.9	1140.5	1141.2
12.5°	1092.3	1092.3	1081.2	1081.2
15°	1052.5	1039.3	1037.9	1042.1
17.5°	1008.5	1000.9	1001.6	1000.2
20°	975.0	970.8	970.1	965.2
22.5°	944.3	943.6	944.3	938.7
25°	919.8	923.3	920.5	920.5
27.5°	903.1	903.1	901.0	901.0
30°	883.5	882.8	884.2	884.2
32.5°	864.0	865.4	865.4	866.1
35°	843.7	844.4	846.5	845.1
37.5°	817.2	820.7	820.0	821.4
40°	786.4	788.5	787.8	787.8
42.5°	755.0	756.4	754.3	752.9
45°	720.1	718.7	720.8	718.0
47.5°	681.7	682.4	683.1	685.9
50°	643.3	647.4	647.4	646.7
52.5°	605.5	606.9	610.4	610.4
55°	566.4	567.8	569.2	569.9
57.5°	526.6	525.9	528.7	529.4
60°	484.0	484.0	489.6	491.7
62.5°	438.6	441.4	447.0	442.8
65°	394.6	400.2	399.5	402.3
67.5°	348.5	352.0	357.6	357.6
70°	301.7	305.2	308.0	310.1
72.5°	256.3	257.7	265.4	261.2
75°	208.1	213.0	217.2	215.1
77.5°	162.0	168.3	169.7	167.6
80°	121.5	120.8	125.0	124.3
82.5°	81.0	80.3	81.7	82.4
85°	43.3	45.4	42.6	41.9
87.5°	12.6	12.6	11.9	11.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)