

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: P242131

Luminaire Tested: **S121DR-S1025D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242131
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-S1025D840-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4285.8 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.37
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

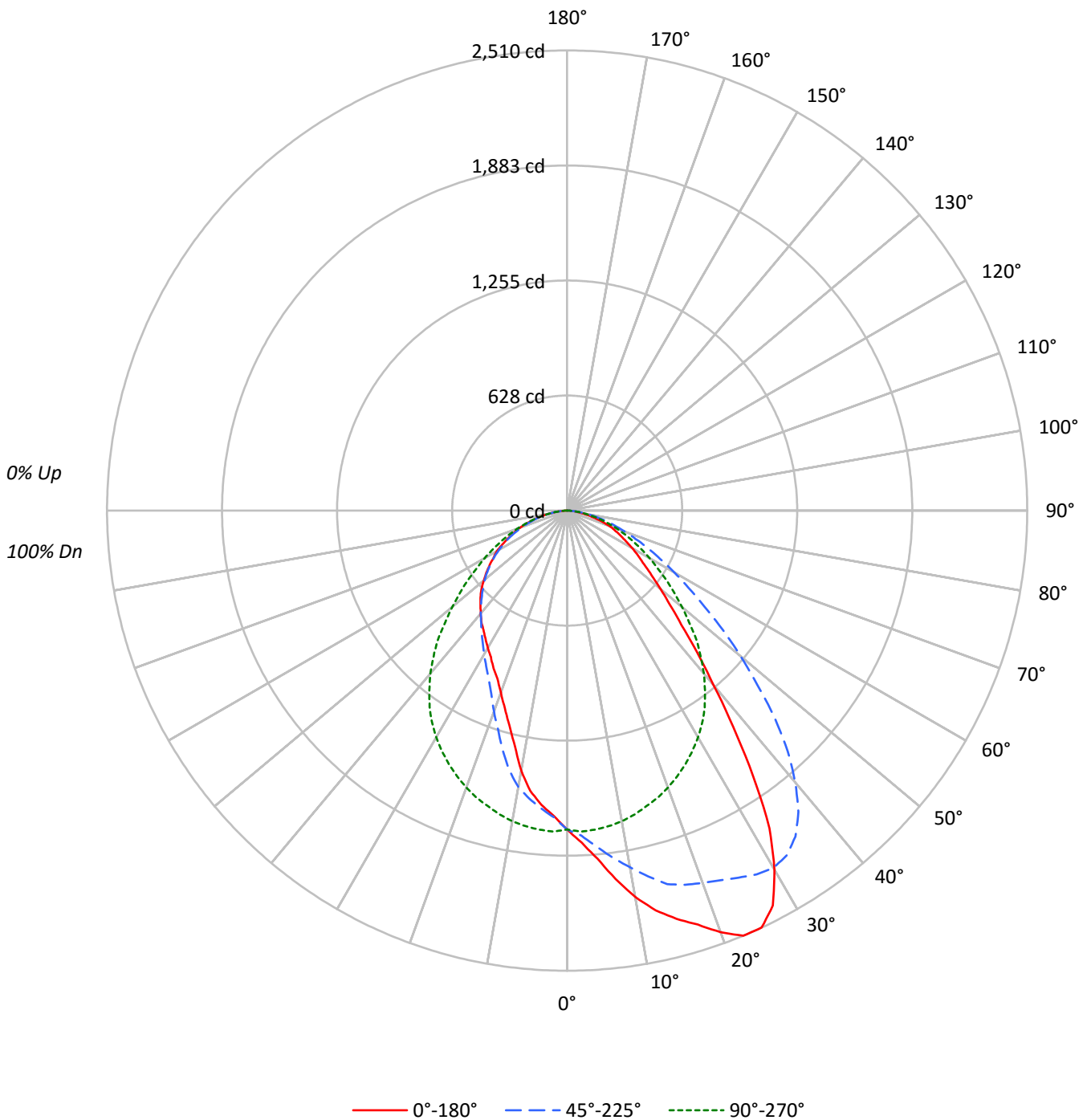
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	52	45	40	51	45	40	50	44	40					38				
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	44	38	33	43	37	33	42	37	32					31				
10	56	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	51532	51532	51532
5°	56717	51952	47901
10°	64395	51764	43322
15°	70706	51193	37236
20°	77163	50687	33319
25°	82059	49886	31022
30°	77377	48853	29598
35°	63940	47319	28749
40°	47935	44867	28367
45°	36941	41831	28033
50°	30635	37637	27390
55°	26444	34177	26599
60°	24302	30821	26252
65°	22456	27862	24763
70°	21268	25028	23728
75°	17481	22106	21076
80°	13787	18002	17370
85°	10675	13225	11695



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.2	3.9
10°-20°	487.8	11.4
20°-30°	747.0	17.4
30°-40°	852.3	19.9
40°-50°	764.8	17.8
50°-60°	599.9	14.0
60°-70°	408.1	9.5
70°-80°	210.2	4.9
80°-90°	48.4	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°	1402.0	32.7
0°-40°	2254.3	52.6
0°-60°	3619.1	84.4
0°-90°	4285.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4285.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1739	1739	1739	1739	1739	
5°	1907	1840	1747	1630	1610	190
15°	2305	2110	1669	1355	1214	656
25°	2510	2209	1526	1012	949	1132
35°	1768	2170	1308	812	795	1096
45°	882	1602	998	658	669	699
55°	512	914	662	509	515	466
65°	320	486	397	347	353	319
75°	153	214	193	177	184	165
85°	31	42	39	37	34	38
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°	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2
2.5°	1812.6	1812.6	1815.6	1814.8	1811.8	1806.6	1802.1	1796.8	1783.4	1774.4	1782.6
5°	1906.9	1910.6	1914.3	1913.6	1902.4	1892.6	1878.4	1874.7	1850.7	1839.5	1835.8
7.5°	2026.6	2025.8	2027.3	2014.6	2004.9	1995.2	1976.5	1953.3	1924.8	1909.1	1894.1
10°	2140.3	2147.1	2144.1	2128.4	2113.4	2102.9	2073.0	2044.6	2009.4	1975.7	1957.0
12.5°	2233.1	2229.4	2242.1	2227.2	2209.2	2189.7	2160.6	2135.1	2089.5	2043.8	2005.6
15°	2305.0	2301.2	2302.7	2291.5	2272.8	2255.6	2225.7	2198.7	2155.3	2109.7	2069.2
17.5°	2367.8	2371.6	2364.9	2351.4	2325.9	2305.7	2268.3	2231.6	2186.0	2140.3	2100.7
20°	2447.2	2450.9	2438.2	2418.7	2394.0	2359.6	2320.7	2268.3	2217.4	2161.3	2111.9
22.5°	2510.0	2507.8	2503.3	2484.6	2458.4	2426.2	2370.1	2312.5	2251.9	2182.3	2118.6
25°	2510.0	2513.0	2515.3	2505.5	2488.3	2461.4	2423.2	2362.6	2294.5	2209.2	2120.1
27.5°	2429.2	2442.7	2452.4	2452.4	2448.7	2447.9	2425.5	2387.3	2323.7	2237.6	2138.8
30°	2261.6	2279.5	2294.5	2317.7	2345.4	2363.4	2370.1	2355.1	2322.2	2249.6	2147.1
32.5°	2055.0	2053.5	2084.2	2121.6	2176.3	2214.4	2252.6	2275.1	2273.6	2230.1	2144.8
35°	1767.7	1788.6	1825.3	1877.7	1948.0	2010.9	2093.9	2137.4	2171.8	2170.3	2115.6
37.5°	1487.8	1490.8	1531.9	1603.8	1665.9	1763.2	1871.7	1962.2	2045.3	2072.2	2054.3
40°	1239.3	1260.3	1287.9	1347.8	1409.9	1495.2	1632.9	1754.2	1856.7	1936.0	1957.7
42.5°	1047.7	1058.9	1085.9	1138.3	1193.7	1295.4	1396.5	1525.9	1655.4	1781.9	1847.0
45°	881.6	892.1	916.8	953.4	1005.1	1085.1	1189.2	1314.9	1453.3	1601.5	1694.3
47.5°	760.3	764.1	782.8	810.5	859.1	917.5	1001.3	1123.3	1263.3	1407.7	1543.9
50°	664.6	670.5	683.3	705.0	740.9	795.5	862.1	954.2	1083.6	1233.3	1371.8
52.5°	580.7	585.2	600.2	612.2	639.9	686.3	743.9	827.7	937.0	1071.7	1214.6
55°	511.9	516.4	523.9	537.3	559.0	590.5	639.9	706.5	800.0	913.8	1047.7
57.5°	459.5	461.7	463.2	472.2	489.4	514.9	556.8	609.2	681.8	785.8	904.8
60°	410.1	409.4	415.3	422.1	432.6	448.3	479.0	526.1	591.2	675.8	786.5
62.5°	360.7	364.5	368.2	373.4	380.2	389.2	413.8	449.0	500.7	573.3	664.6
65°	320.3	321.1	324.0	324.8	333.0	342.0	360.7	384.7	427.3	486.4	562.0
67.5°	281.4	282.1	281.4	283.6	287.4	294.9	304.6	324.0	357.0	404.9	470.7
70°	245.5	243.2	240.2	244.0	247.7	251.5	258.2	273.2	297.9	333.8	388.4
72.5°	197.6	199.1	200.6	202.1	202.8	208.0	214.0	224.5	244.0	271.7	313.6
75°	152.7	152.7	154.9	156.4	163.1	164.6	171.4	178.9	194.6	214.0	247.0
77.5°	112.3	111.5	115.2	116.0	119.7	124.2	128.0	135.5	147.4	163.9	185.6
80°	80.8	81.6	80.8	80.8	83.1	86.1	91.3	95.0	103.3	113.8	129.5
82.5°	53.9	53.9	54.6	54.6	56.9	56.9	59.9	62.9	68.1	74.8	86.1
85°	31.4	31.4	30.7	30.7	31.4	31.4	34.4	36.7	37.4	41.9	45.7
87.5°	13.5	13.5	12.7	13.5	12.7	13.5	12.7	14.2	15.0	15.7	17.2
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2
2.5°	1780.4	1778.1	1777.4	1769.2	1760.9	1751.2	1749.7	1752.7	1740.0	1724.2	1723.5
5°	1826.8	1818.5	1806.6	1790.9	1777.4	1759.4	1750.4	1746.7	1727.2	1704.8	1700.3
7.5°	1878.4	1858.2	1836.5	1812.6	1788.6	1762.4	1746.0	1736.2	1709.3	1681.6	1670.4
10°	1927.8	1901.6	1868.7	1832.0	1798.3	1762.4	1737.7	1720.5	1687.6	1653.2	1635.9
12.5°	1984.7	1941.3	1894.9	1849.2	1808.1	1761.7	1724.2	1698.1	1659.9	1623.2	1597.8
15°	2025.8	1963.0	1927.1	1861.9	1810.3	1754.2	1708.5	1668.9	1627.0	1586.5	1561.1
17.5°	2058.0	2008.6	1945.8	1873.9	1804.3	1743.7	1686.8	1642.7	1587.3	1543.1	1515.5
20°	2068.5	2018.4	1954.0	1875.4	1805.8	1728.0	1660.6	1607.5	1548.4	1494.5	1456.3
22.5°	2064.8	2007.9	1942.0	1864.9	1794.6	1702.5	1632.2	1568.6	1502.7	1445.1	1392.7
25°	2056.5	1990.7	1918.1	1845.5	1766.9	1676.4	1595.5	1525.9	1446.6	1383.7	1320.9
27.5°	2052.0	1966.0	1884.4	1805.8	1731.0	1643.4	1556.6	1478.8	1391.2	1314.9	1234.1
30°	2050.5	1948.0	1845.5	1754.2	1685.3	1596.3	1510.2	1427.9	1325.4	1239.3	1157.0
32.5°	2047.5	1933.0	1812.6	1703.3	1624.7	1544.6	1453.3	1371.8	1255.8	1166.0	1077.7
35°	2027.3	1906.9	1774.4	1650.2	1558.1	1475.0	1393.5	1308.2	1187.7	1091.1	1006.6
37.5°	1983.9	1878.4	1737.0	1597.0	1487.0	1402.4	1326.9	1234.1	1117.3	1011.8	933.2
40°	1919.6	1833.5	1696.6	1544.6	1415.2	1322.4	1242.3	1160.0	1039.5	938.5	867.4
42.5°	1835.8	1769.2	1640.4	1483.3	1345.6	1241.5	1160.0	1078.4	967.6	870.4	806.7
45°	1725.7	1684.6	1571.6	1416.7	1278.2	1157.7	1069.4	998.3	895.8	806.7	748.4
47.5°	1603.8	1585.8	1491.5	1342.6	1196.6	1079.9	976.6	901.8	821.7	746.1	694.5
50°	1456.3	1470.6	1396.5	1259.5	1118.1	998.3	897.3	816.5	746.9	688.5	642.9
52.5°	1318.6	1352.3	1292.4	1162.2	1035.7	911.5	809.7	735.6	681.0	633.1	593.5
55°	1165.2	1213.9	1177.9	1065.7	940.0	829.9	728.2	661.6	614.4	577.7	544.1
57.5°	1017.8	1086.6	1060.4	959.4	852.4	745.4	649.6	583.7	550.1	523.1	494.7
60°	886.8	949.7	945.9	859.9	752.9	657.8	579.2	520.1	490.2	472.2	447.5
62.5°	769.3	832.9	827.0	749.1	664.6	576.2	509.6	455.8	434.1	414.6	398.9
65°	649.6	704.2	707.2	649.6	568.0	496.9	440.0	397.4	377.9	366.0	354.7
67.5°	541.1	594.2	599.4	553.8	482.0	420.6	377.9	342.0	324.8	314.3	306.1
70°	446.0	489.4	499.2	461.0	400.4	352.5	316.6	288.9	277.6	267.2	264.2
72.5°	361.5	396.6	403.4	368.2	323.3	287.4	259.7	238.7	230.5	220.0	217.8
75°	287.4	312.1	312.8	289.6	255.9	228.3	205.8	193.1	184.1	176.6	175.1
77.5°	208.8	230.5	237.2	220.0	192.3	169.1	156.4	146.7	140.7	137.0	136.2
80°	151.2	165.4	168.4	153.4	137.0	122.7	113.8	105.5	101.8	98.0	96.5
82.5°	94.3	107.0	107.8	97.3	89.1	79.3	71.8	68.9	66.6	64.4	64.4
85°	50.9	57.6	56.9	52.4	48.6	43.4	40.4	38.9	37.4	35.9	35.9
87.5°	19.5	21.7	21.7	22.5	19.5	17.2	15.7	16.5	15.7	15.7	15.7
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°	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2	1739.2
2.5°	1718.3	1715.3	1707.8	1695.8	1689.1	1674.1	1674.9	1677.9	1678.6	1676.4	1675.6
5°	1687.6	1678.6	1666.6	1651.7	1641.2	1630.0	1622.5	1627.0	1624.7	1624.0	1620.2
7.5°	1653.9	1641.9	1627.0	1612.0	1600.0	1585.1	1579.1	1573.8	1567.8	1567.1	1564.1
10°	1620.2	1605.3	1588.0	1566.3	1549.9	1531.2	1513.2	1503.5	1492.3	1484.0	1466.8
12.5°	1580.6	1555.1	1535.7	1513.2	1483.3	1453.3	1433.1	1405.4	1390.5	1375.5	1355.3
15°	1534.9	1502.0	1468.3	1423.4	1397.2	1355.3	1325.4	1305.2	1282.0	1267.0	1249.8
17.5°	1469.8	1435.4	1392.7	1341.8	1295.4	1252.8	1231.1	1204.9	1195.2	1162.2	1159.2
20°	1405.4	1353.8	1300.7	1249.0	1197.4	1166.7	1139.0	1121.8	1103.8	1082.9	1076.2
22.5°	1332.9	1265.5	1209.4	1161.5	1114.3	1080.6	1067.2	1047.7	1030.5	1018.5	1007.3
25°	1244.5	1182.4	1125.6	1080.6	1038.0	1012.5	995.3	981.1	973.6	960.2	955.7
27.5°	1163.0	1100.9	1055.2	1013.3	978.9	956.4	941.5	928.7	919.0	916.8	911.5
30°	1079.9	1026.8	983.4	947.4	916.8	904.8	890.6	884.6	878.6	875.6	869.6
32.5°	1005.1	957.9	919.7	885.3	867.4	856.1	848.7	842.7	838.2	836.7	835.2
35°	937.0	893.6	862.1	837.4	824.0	812.0	808.2	803.0	800.8	800.0	799.3
37.5°	877.1	836.7	812.7	791.0	781.3	770.1	770.8	768.6	767.1	762.6	765.6
40°	816.5	785.0	760.3	743.1	736.4	732.7	731.2	729.7	730.4	730.4	729.7
42.5°	761.1	733.4	717.7	701.2	698.2	695.2	695.2	693.0	693.7	697.5	699.0
45°	711.0	689.3	675.0	661.6	661.6	657.8	660.8	660.1	662.3	664.6	666.1
47.5°	660.8	641.4	630.9	624.1	621.1	621.1	623.4	627.1	628.6	629.4	630.9
50°	610.7	596.5	587.5	583.7	583.0	586.7	589.0	588.2	590.5	593.5	595.7
52.5°	566.5	553.8	547.8	546.3	546.3	549.3	550.1	552.3	553.8	553.8	556.8
55°	520.9	511.9	507.4	506.6	507.4	508.9	511.9	513.4	512.6	514.1	514.1
57.5°	475.2	468.5	466.2	468.5	468.5	471.5	471.5	471.5	470.7	473.7	473.0
60°	432.6	425.1	427.3	426.6	428.8	428.8	431.1	431.1	428.8	431.8	433.3
62.5°	389.9	388.4	385.4	385.4	387.7	388.4	386.2	388.4	389.2	391.4	392.9
65°	345.0	339.8	342.0	341.3	343.5	347.2	344.3	344.3	346.5	349.5	351.0
67.5°	302.3	297.9	300.1	300.8	300.8	302.3	300.1	301.6	304.6	308.3	310.6
70°	258.9	257.4	258.2	257.4	257.4	261.2	261.9	261.2	264.2	267.9	268.7
72.5°	214.8	216.3	214.8	216.3	217.8	215.5	216.3	218.5	221.5	223.8	227.5
75°	174.4	172.1	172.9	176.6	175.9	177.4	176.6	178.9	184.1	182.6	183.4
77.5°	134.7	134.0	134.7	135.5	136.2	138.4	137.7	141.4	142.2	142.9	144.4
80°	95.8	96.5	97.3	98.8	101.0	100.3	101.8	102.5	105.5	102.5	104.8
82.5°	65.1	64.4	65.9	65.9	68.1	69.6	67.4	67.4	67.4	66.6	66.6
85°	35.9	38.2	38.2	38.2	36.7	36.7	37.4	36.7	36.7	36.7	35.9
87.5°	15.7	15.7	15.0	14.2	15.0	14.2	14.2	13.5	12.7	12.7	12.0
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: P242131

CATALOG NUMBER: S121DR-S1025D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1739.2	1739.2	1739.2	1739.2
2.5°	1671.1	1674.9	1670.4	1667.4
5°	1616.5	1616.5	1612.0	1610.5
7.5°	1555.1	1555.9	1547.6	1541.6
10°	1463.1	1458.6	1446.6	1439.9
12.5°	1340.3	1347.1	1329.1	1315.6
15°	1233.3	1214.6	1222.1	1213.9
17.5°	1143.5	1137.5	1129.3	1130.0
20°	1064.9	1060.4	1056.0	1056.7
22.5°	1002.8	999.1	997.6	992.3
25°	951.2	952.7	948.9	948.9
27.5°	908.5	906.3	904.0	901.0
30°	868.1	868.9	866.6	865.1
32.5°	832.2	832.9	831.4	829.2
35°	797.0	796.3	797.0	794.8
37.5°	764.8	764.1	764.8	767.8
40°	731.9	732.7	730.4	733.4
42.5°	699.7	700.5	700.5	699.0
45°	664.6	666.8	667.5	669.0
47.5°	630.1	633.9	632.4	633.1
50°	595.7	595.0	595.0	594.2
52.5°	557.5	555.3	554.5	555.3
55°	511.9	514.9	514.9	514.9
57.5°	474.5	475.2	477.5	474.5
60°	436.3	436.3	437.0	443.0
62.5°	393.6	394.4	395.9	396.6
65°	352.5	354.7	354.0	353.2
67.5°	312.1	312.1	312.8	311.3
70°	270.2	270.2	270.2	273.9
72.5°	226.8	226.8	227.5	229.0
75°	186.3	186.3	186.3	184.1
77.5°	142.2	142.9	142.9	143.7
80°	103.3	102.5	102.5	101.8
82.5°	65.1	65.9	65.1	64.4
85°	35.9	36.7	34.4	34.4
87.5°	12.7	12.7	12.0	13.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)