

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: P243512

Luminaire Tested: **S124DR-H1195D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243512
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H1195D930-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4028.3 lumens
Efficiency: N/A
Efficacy: 106.9 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

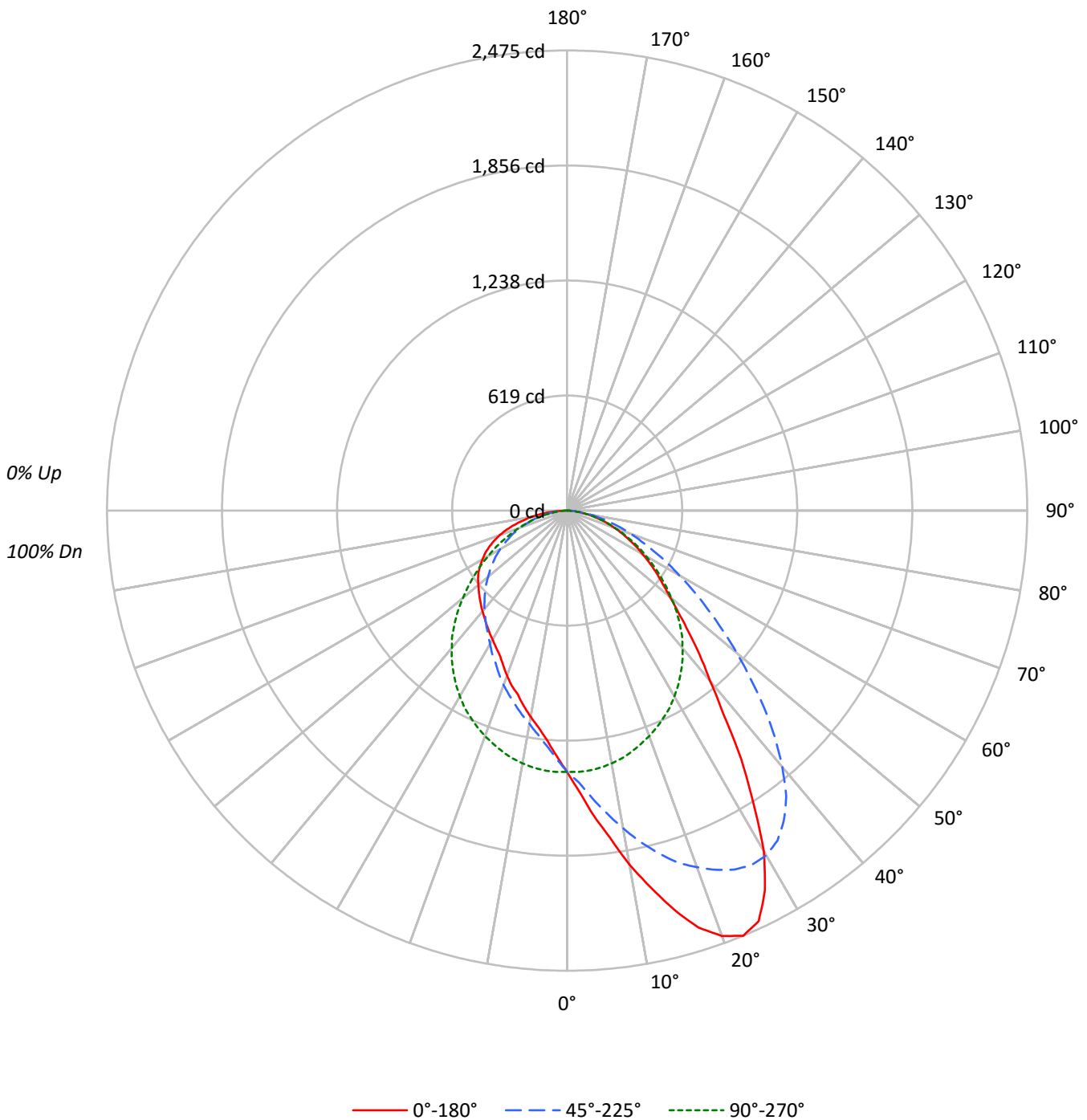
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93		94	92	90		91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77		83	79	76		80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66		74	69	64		72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56		66	60	56		64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49		60	54	49		58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43		54	48	43		53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38		50	43	38		48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35		46	39	34		44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31		42	36	31		41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28		39	33	28		38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12487	12487	12487
5°	14694	12520	11052
10°	17463	12463	10175
15°	20453	12352	9424
20°	23031	12209	8939
25°	23902	12046	8413
30°	21705	11842	8228
35°	17708	11561	8176
40°	13866	11198	8211
45°	11605	10748	8362
50°	9959	10118	8611
55°	9100	9438	9029
60°	8338	8736	9358
65°	7645	7997	9721
70°	7033	7212	10014
75°	6261	6340	10004
80°	5226	5196	9982
85°	3978	3916	9352



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	136.8	3.4
10°-20°	423.5	10.5
20°-30°	680.4	16.9
30°-40°	777.8	19.3
40°-50°	715.9	17.8
50°-60°	585.6	14.5
60°-70°	417.4	10.4
70°-80°	229.3	5.7
80°-90°	61.6	1.5
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°	1240.6	30.8
0°-40°	2018.4	50.1
0°-60°	3319.9	82.4
0°-90°	4028.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4028.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1405	1405	1405	1405	1405	
5°	1647	1553	1403	1268	1239	165
15°	2222	1909	1342	1080	1024	633
25°	2437	2130	1228	908	858	1094
35°	1632	2033	1065	758	754	1014
45°	923	1498	855	624	665	721
55°	587	921	609	487	583	527
65°	364	510	380	341	462	363
75°	182	236	185	189	291	195
85°	39	48	38	53	92	47
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°	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8
2.5°	1512.6	1508.1	1505.8	1502.9	1502.3	1499.5	1493.7	1485.7	1475.4	1464.5	1464.5
5°	1646.8	1645.7	1637.1	1637.7	1626.8	1614.7	1605.5	1594.1	1571.7	1552.8	1539.6
7.5°	1775.3	1787.3	1784.4	1775.3	1759.2	1742.0	1723.7	1707.6	1666.3	1643.4	1624.5
10°	1934.7	1939.3	1931.2	1918.0	1903.7	1870.5	1846.4	1819.4	1774.7	1735.7	1701.3
12.5°	2074.6	2085.5	2071.1	2058.5	2024.7	2000.0	1976.0	1922.1	1875.0	1825.7	1775.8
15°	2222.5	2211.1	2218.5	2187.5	2163.5	2140.0	2078.6	2023.6	1970.2	1909.4	1857.3
17.5°	2351.0	2351.0	2337.2	2317.1	2291.9	2247.8	2186.4	2125.6	2066.6	1986.9	1912.9
20°	2434.7	2441.0	2424.9	2403.7	2373.3	2327.5	2278.7	2212.8	2134.2	2041.3	1957.6
22.5°	2474.8	2476.0	2470.2	2452.5	2427.8	2388.8	2338.9	2274.7	2191.6	2091.8	2004.1
25°	2437.0	2443.3	2441.6	2440.4	2427.8	2405.4	2365.3	2305.7	2230.0	2130.2	2035.6
27.5°	2304.0	2319.4	2332.6	2338.4	2352.1	2353.3	2341.2	2305.1	2243.2	2149.1	2043.6
30°	2114.7	2106.7	2142.3	2160.0	2207.0	2235.1	2255.2	2252.9	2217.4	2141.1	2040.8
32.5°	1862.4	1884.2	1909.4	1951.3	2006.9	2072.3	2121.6	2158.3	2154.9	2105.0	2021.3
35°	1631.9	1631.9	1664.0	1715.6	1774.7	1853.3	1935.8	2004.1	2045.9	2033.3	1974.2
37.5°	1381.9	1397.4	1434.1	1474.2	1546.5	1622.2	1731.1	1821.7	1909.4	1935.8	1905.4
40°	1195.0	1201.9	1240.9	1274.7	1348.7	1427.2	1518.4	1634.2	1735.1	1799.9	1803.9
42.5°	1056.2	1055.6	1071.7	1102.1	1161.7	1231.7	1330.3	1443.8	1562.0	1653.7	1696.7
45°	923.2	922.0	938.7	969.6	1012.1	1074.0	1159.4	1273.0	1394.0	1498.3	1566.0
47.5°	810.8	821.1	828.6	852.7	887.6	940.4	1013.8	1104.4	1220.8	1337.8	1428.9
50°	720.2	724.8	740.8	752.3	791.3	828.0	887.1	968.5	1068.3	1191.0	1289.6
52.5°	648.0	650.8	660.6	675.5	697.8	729.9	777.0	852.1	942.1	1048.8	1150.8
55°	587.2	585.4	591.8	601.5	621.0	648.0	682.4	739.7	818.3	920.9	1014.9
57.5°	527.5	527.5	533.3	540.1	551.0	573.4	607.2	652.5	715.6	806.8	889.9
60°	469.0	473.1	475.4	482.2	491.4	508.0	533.3	568.8	622.1	696.7	779.3
62.5°	417.4	417.4	421.5	423.7	435.8	447.8	466.2	496.6	538.4	604.9	669.2
65°	363.5	367.0	367.0	371.6	381.9	391.1	405.4	428.3	462.7	510.3	570.5
67.5°	317.7	317.7	320.5	322.8	328.6	334.9	347.5	365.3	394.5	432.3	486.8
70°	270.6	272.4	271.2	274.1	277.5	283.8	293.0	307.9	329.1	361.8	402.0
72.5°	228.2	225.9	227.1	229.9	231.7	235.7	241.4	252.9	270.1	296.5	325.7
75°	182.3	181.2	185.2	184.1	186.9	190.4	195.5	204.1	217.3	235.7	258.0
77.5°	142.2	140.5	142.2	143.4	144.5	147.4	151.4	156.5	165.7	177.8	197.8
80°	102.1	101.5	102.6	103.8	104.4	108.9	110.1	115.3	119.3	128.4	138.2
82.5°	67.7	68.8	69.4	70.5	70.0	72.2	73.4	76.8	80.3	84.9	92.3
85°	39.0	37.3	39.0	39.0	39.0	41.9	41.3	43.6	45.9	48.2	53.3
87.5°	13.8	13.8	14.3	14.9	14.9	16.6	16.1	17.2	19.5	19.5	21.2
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°	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8
2.5°	1461.0	1454.7	1450.1	1437.0	1428.9	1421.5	1414.6	1407.1	1399.1	1388.8	1382.5
5°	1525.8	1512.1	1492.0	1473.7	1453.0	1434.7	1419.8	1403.1	1384.8	1365.9	1349.2
7.5°	1597.5	1571.7	1540.7	1506.9	1474.8	1447.9	1419.8	1393.4	1367.6	1342.3	1318.8
10°	1669.2	1624.5	1583.8	1537.3	1494.9	1454.2	1417.5	1380.8	1348.7	1315.4	1285.6
12.5°	1735.7	1681.8	1622.2	1564.3	1507.5	1454.7	1409.4	1364.7	1323.4	1283.9	1248.9
15°	1786.7	1719.1	1648.5	1579.7	1514.4	1459.3	1400.3	1342.3	1299.3	1251.2	1212.8
17.5°	1845.2	1764.9	1695.0	1612.4	1531.0	1442.1	1379.6	1316.5	1264.9	1218.5	1180.1
20°	1884.2	1795.9	1695.0	1601.5	1517.8	1438.1	1363.0	1290.7	1236.3	1182.4	1135.9
22.5°	1915.2	1824.0	1712.8	1615.3	1510.4	1414.0	1332.6	1261.5	1197.3	1146.2	1102.1
25°	1931.2	1820.0	1713.9	1595.8	1490.9	1398.5	1306.8	1228.2	1163.4	1106.7	1068.8
27.5°	1931.8	1817.7	1692.1	1575.2	1462.8	1363.0	1272.4	1195.0	1122.2	1067.7	1022.4
30°	1928.9	1802.8	1670.3	1542.5	1430.7	1328.6	1234.0	1153.7	1087.2	1029.3	986.3
32.5°	1910.6	1782.2	1637.7	1503.5	1381.9	1279.3	1192.1	1112.4	1041.3	988.6	943.3
35°	1869.3	1736.9	1591.8	1453.6	1338.3	1231.7	1145.7	1065.4	1001.7	944.4	898.0
37.5°	1816.6	1692.7	1545.3	1400.8	1276.4	1175.5	1094.6	1018.9	952.4	899.7	853.2
40°	1750.0	1633.6	1488.6	1338.3	1213.9	1111.8	1035.6	965.0	908.3	854.4	809.1
42.5°	1658.9	1569.4	1420.3	1274.1	1143.9	1047.6	973.6	915.2	856.7	807.9	762.6
45°	1561.4	1480.0	1347.5	1202.4	1077.4	978.2	908.9	855.0	805.1	755.8	719.1
47.5°	1453.6	1387.1	1264.4	1122.7	999.4	911.7	843.5	795.3	749.4	711.6	674.9
50°	1325.1	1290.2	1175.5	1047.0	927.2	837.2	781.0	731.7	697.8	661.1	626.7
52.5°	1205.9	1177.8	1084.3	958.2	849.2	770.1	709.9	670.9	637.6	610.7	583.2
55°	1076.3	1062.0	982.8	873.9	775.2	696.1	644.5	609.0	582.6	557.4	537.3
57.5°	957.0	955.9	885.9	792.4	696.1	629.0	579.7	550.5	527.5	509.8	492.6
60°	834.9	844.6	787.3	701.9	625.6	562.5	517.8	491.4	475.9	459.3	445.0
62.5°	724.2	739.1	686.9	619.9	544.7	493.1	458.7	438.7	421.5	409.4	398.5
65°	618.1	637.1	594.6	534.4	477.1	428.3	399.1	380.2	367.0	360.1	352.6
67.5°	524.7	535.0	506.3	459.3	411.7	369.3	345.2	328.6	317.1	314.2	305.6
70°	431.2	443.2	423.2	380.2	343.5	312.5	290.7	277.5	270.6	266.6	260.9
72.5°	356.1	361.2	341.2	311.4	282.1	256.3	240.3	230.5	222.5	220.8	217.9
75°	278.7	286.1	270.1	247.1	223.1	204.7	192.7	184.6	180.6	177.8	177.8
77.5°	210.4	216.7	207.6	187.5	173.2	157.1	149.1	141.6	139.9	137.0	138.2
80°	149.7	152.5	147.4	133.6	121.0	112.4	105.5	101.5	100.9	98.6	100.9
82.5°	99.2	99.8	94.0	87.7	78.0	73.4	68.8	67.1	66.5	66.5	65.4
85°	55.0	56.2	52.2	48.2	44.7	40.7	39.6	38.4	37.3	39.0	40.1
87.5°	21.2	21.8	21.2	19.5	18.3	17.2	16.6	17.8	16.1	17.2	17.8
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°	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8	1404.8
2.5°	1372.7	1368.2	1361.3	1349.8	1341.8	1333.2	1329.7	1330.9	1327.4	1322.9	1324.0
5°	1336.6	1323.4	1312.0	1295.9	1281.0	1268.4	1264.4	1259.2	1254.6	1251.7	1248.9
7.5°	1298.2	1279.8	1262.6	1246.6	1229.4	1213.3	1207.0	1202.4	1200.1	1192.1	1188.7
10°	1261.5	1240.3	1219.6	1200.7	1182.9	1165.2	1158.9	1153.1	1145.1	1141.7	1137.6
12.5°	1222.5	1201.3	1178.9	1156.0	1138.2	1123.9	1113.0	1109.0	1100.9	1097.5	1095.2
15°	1184.7	1158.9	1141.1	1123.3	1096.4	1080.3	1075.7	1061.4	1056.8	1049.9	1045.3
17.5°	1146.8	1122.7	1096.4	1075.7	1059.1	1039.0	1028.1	1021.8	1013.2	1006.9	998.3
20°	1109.5	1081.4	1060.8	1035.0	1016.7	998.3	984.5	978.8	971.4	962.8	950.7
22.5°	1073.4	1042.5	1022.4	998.3	975.4	954.2	942.7	934.7	919.7	918.0	907.1
25°	1031.0	1003.5	977.1	951.9	929.5	908.3	900.8	888.2	883.0	872.7	871.0
27.5°	990.8	961.6	932.9	905.4	885.9	871.0	857.8	849.8	844.6	836.6	837.2
30°	949.0	916.9	889.9	864.7	843.5	829.1	820.5	816.5	809.1	807.9	803.9
32.5°	904.3	875.0	846.9	824.6	802.8	790.2	786.1	782.1	777.5	778.1	777.0
35°	859.5	833.7	803.9	783.3	765.5	758.0	751.7	750.6	748.9	750.0	750.0
37.5°	816.0	787.9	763.2	744.3	734.0	723.6	720.8	720.2	720.8	721.9	724.8
40°	773.5	747.7	723.6	708.2	696.7	692.1	688.1	689.8	692.1	696.1	699.6
42.5°	731.1	706.4	686.4	670.9	660.0	657.7	658.3	661.7	662.3	668.0	674.3
45°	686.4	665.2	646.2	634.2	627.3	624.4	625.6	629.0	633.0	641.1	649.1
47.5°	645.1	626.2	609.5	597.5	592.3	591.2	593.5	598.1	607.2	615.3	624.4
50°	603.2	586.0	570.5	559.6	559.1	555.1	560.2	566.0	576.8	587.7	601.5
52.5°	561.9	545.3	532.1	523.5	521.2	521.2	527.5	537.9	547.6	561.9	574.6
55°	518.9	504.0	491.4	488.5	485.1	486.8	493.7	504.0	517.8	533.8	547.6
57.5°	474.8	462.2	453.0	449.0	447.3	453.0	461.0	471.9	489.7	505.7	520.7
60°	432.9	422.0	412.3	411.1	410.0	417.4	427.2	438.7	456.4	472.5	490.8
62.5°	388.2	379.6	373.3	371.6	371.6	379.0	389.9	404.8	421.5	438.7	458.2
65°	342.9	335.4	333.7	331.4	336.6	341.2	352.1	366.4	384.2	403.1	423.7
67.5°	301.0	296.5	293.0	293.0	297.0	305.6	315.4	329.7	348.1	368.1	386.5
70°	259.2	254.6	251.7	254.6	256.9	267.2	277.5	291.3	308.5	328.0	347.5
72.5°	215.6	216.2	216.7	216.2	218.5	228.2	238.5	251.7	268.4	287.3	305.1
75°	177.2	174.3	174.9	176.0	183.5	188.7	199.0	211.6	229.4	246.6	261.5
77.5°	137.6	136.5	139.3	139.3	146.2	152.5	161.1	173.7	189.2	204.7	216.7
80°	100.9	101.5	103.8	104.4	110.1	117.0	126.1	134.8	148.5	159.4	170.9
82.5°	68.2	69.4	72.2	76.3	78.6	82.6	90.6	99.8	109.5	121.0	127.9
85°	39.6	41.3	43.6	46.4	48.7	52.8	58.5	65.9	72.8	79.1	84.9
87.5°	19.5	19.5	21.2	22.4	24.1	26.4	30.4	33.3	37.8	42.4	44.7
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: P243512

CATALOG NUMBER: S124DR-H1195D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1404.8	1404.8	1404.8	1404.8
2.5°	1321.7	1321.1	1318.8	1320.0
5°	1247.2	1241.4	1240.9	1238.6
7.5°	1182.9	1181.2	1181.2	1176.6
10°	1133.6	1128.5	1129.6	1127.3
12.5°	1086.6	1083.7	1080.3	1076.9
15°	1033.9	1033.9	1033.9	1024.1
17.5°	992.6	992.0	989.1	988.6
20°	949.6	947.3	939.8	945.0
22.5°	906.0	904.3	898.0	899.1
25°	865.3	863.6	862.4	857.8
27.5°	830.3	830.9	832.0	829.1
30°	803.9	802.2	804.5	801.6
32.5°	779.3	779.3	777.0	777.5
35°	751.2	753.5	754.0	753.5
37.5°	726.5	729.4	731.7	729.4
40°	703.6	705.9	708.2	707.6
42.5°	679.5	683.5	685.2	686.9
45°	656.6	661.7	664.6	665.2
47.5°	633.0	639.3	645.1	644.5
50°	610.1	618.1	623.3	622.7
52.5°	587.2	595.2	601.5	604.4
55°	561.4	571.7	577.4	582.6
57.5°	535.6	547.0	552.8	555.1
60°	506.9	517.2	524.7	526.4
62.5°	474.8	485.7	495.4	497.7
65°	441.5	453.6	461.0	462.2
67.5°	403.1	414.6	422.0	425.5
70°	363.5	372.1	380.2	385.3
72.5°	319.4	329.7	337.2	340.6
75°	273.5	285.0	289.0	291.3
77.5°	225.9	232.8	239.1	239.7
80°	178.3	186.9	189.2	195.0
82.5°	131.3	139.3	137.6	139.9
85°	86.6	89.5	91.2	91.7
87.5°	45.9	47.6	48.7	49.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)