

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: P243500

Luminaire Tested: **S124DR-H795D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243500  
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-H795D835-X4F0-XX-UDD-A-W  
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

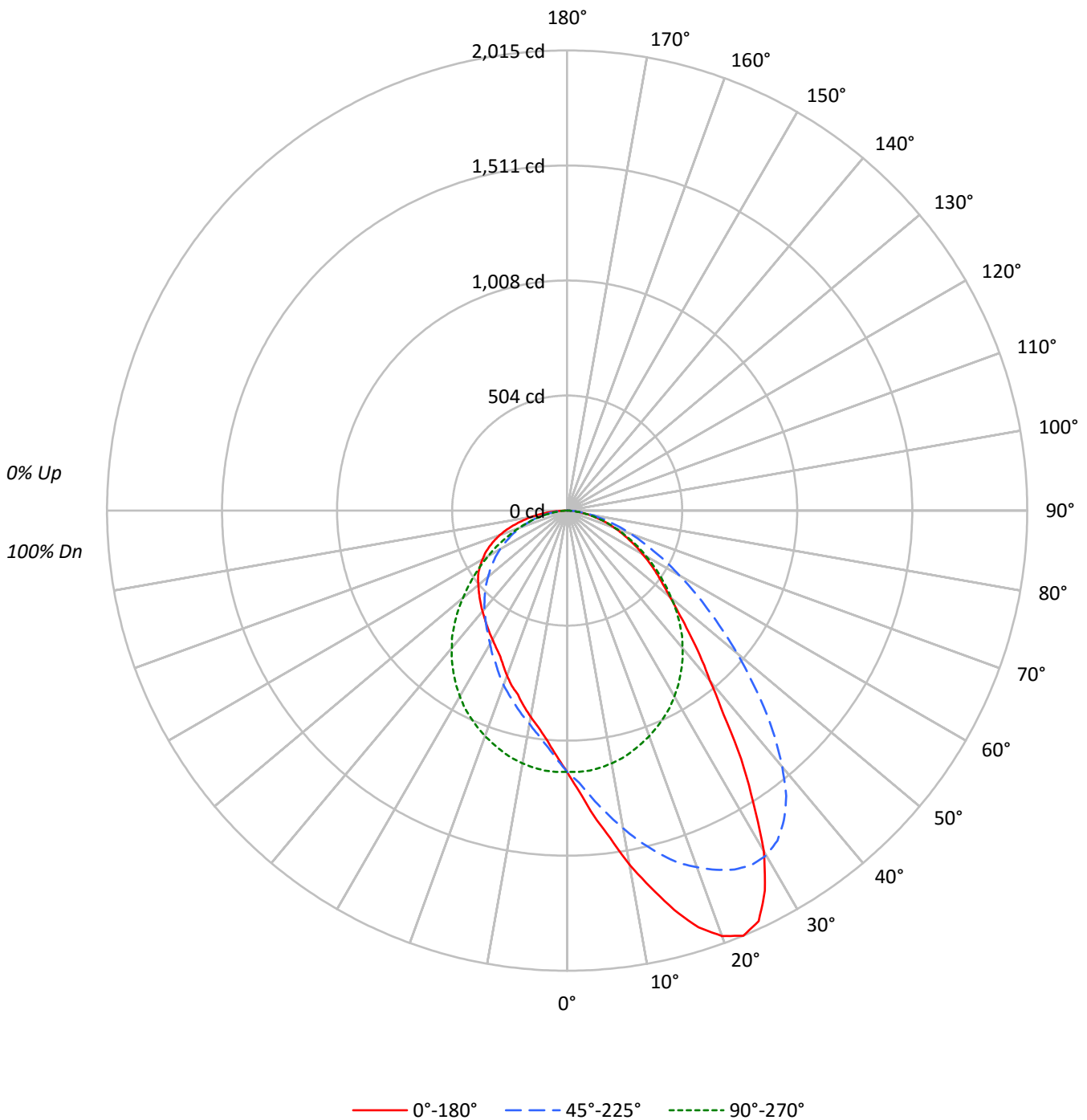
Lumens per Lamp: N/A  
Luminaire Lumens: 3279.6 lumens  
Efficiency: N/A  
Efficacy: 139.0 lumens/watt  
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 23.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85					85			
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72					72			
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61					61			
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53					53			
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46					46			
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41					41			
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36					36			
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32					32			
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29					29			
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26					26			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	10167	10167	10167
5°	11964	10193	8998
10°	14217	10147	8284
15°	16652	10057	7673
20°	18750	9941	7278
25°	19460	9808	6850
30°	17672	9641	6698
35°	14417	9412	6656
40°	11289	9117	6685
45°	9448	8751	6807
50°	8109	8238	7011
55°	7408	7684	7350
60°	6789	7113	7620
65°	6226	6510	7915
70°	5725	5874	8153
75°	5100	5162	8146
80°	4254	4228	8124
85°	3233	3192	7619



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	111.3	3.4
10°-20°	344.8	10.5
20°-30°	553.9	16.9
30°-40°	633.2	19.3
40°-50°	582.9	17.8
50°-60°	476.8	14.5
60°-70°	339.8	10.4
70°-80°	186.7	5.7
80°-90°	50.2	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°	1010.1	30.8
0°-40°	1643.3	50.1
0°-60°	2702.9	82.4
0°-90°	3279.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3279.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1144	1144	1144	1144	1144	
5°	1341	1264	1142	1033	1008	135
15°	1810	1555	1093	880	834	516
25°	1984	1734	1000	740	698	891
35°	1329	1655	867	617	613	826
45°	752	1220	696	508	542	587
55°	478	750	496	396	474	429
65°	296	416	310	278	376	296
75°	148	192	150	154	237	159
85°	32	39	31	43	75	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°	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8
2.5°	1231.5	1227.8	1225.9	1223.6	1223.1	1220.8	1216.1	1209.6	1201.2	1192.3	1192.3
5°	1340.8	1339.8	1332.8	1333.3	1324.4	1314.6	1307.2	1297.8	1279.6	1264.2	1253.5
7.5°	1445.3	1455.1	1452.8	1445.3	1432.3	1418.3	1403.3	1390.3	1356.6	1338.0	1322.6
10°	1575.1	1578.9	1572.3	1561.6	1549.9	1522.8	1503.2	1481.3	1444.9	1413.1	1385.1
12.5°	1689.0	1697.9	1686.2	1676.0	1648.4	1628.3	1608.7	1564.8	1526.6	1486.4	1445.8
15°	1809.5	1800.1	1806.2	1781.0	1761.4	1742.2	1692.3	1647.5	1604.1	1554.6	1512.1
17.5°	1914.0	1914.0	1902.8	1886.5	1866.0	1830.0	1780.1	1730.6	1682.5	1617.6	1557.4
20°	1982.2	1987.3	1974.3	1957.0	1932.3	1894.9	1855.2	1801.5	1737.6	1662.0	1593.8
22.5°	2014.9	2015.8	2011.1	1996.7	1976.6	1944.9	1904.2	1852.0	1784.3	1703.0	1631.6
25°	1984.1	1989.2	1987.8	1986.9	1976.6	1958.4	1925.7	1877.2	1815.5	1734.3	1657.3
27.5°	1875.8	1888.4	1899.1	1903.8	1915.0	1915.9	1906.1	1876.7	1826.3	1749.7	1663.8
30°	1721.7	1715.2	1744.1	1758.6	1796.9	1819.7	1836.1	1834.2	1805.3	1743.2	1661.5
32.5°	1516.3	1534.0	1554.6	1588.7	1633.9	1687.2	1727.3	1757.2	1754.4	1713.8	1645.6
35°	1328.6	1328.6	1354.8	1396.8	1444.9	1508.8	1576.1	1631.6	1665.7	1655.4	1607.3
37.5°	1125.1	1137.7	1167.6	1200.2	1259.1	1320.7	1409.4	1483.2	1554.6	1576.1	1551.3
40°	972.9	978.5	1010.2	1037.8	1098.0	1162.0	1236.2	1330.5	1412.7	1465.4	1468.7
42.5°	859.9	859.5	872.5	897.3	945.8	1002.8	1083.1	1175.5	1271.7	1346.4	1381.4
45°	751.6	750.7	764.2	789.4	824.0	874.4	944.0	1036.4	1134.9	1219.9	1274.9
47.5°	660.1	668.5	674.6	694.2	722.7	765.6	825.4	899.1	993.9	1089.1	1163.4
50°	586.4	590.1	603.2	612.5	644.2	674.1	722.2	788.5	869.7	969.6	1049.9
52.5°	527.5	529.9	537.8	549.9	568.1	594.3	632.6	693.7	767.0	853.9	936.9
55°	478.0	476.6	481.8	489.7	505.6	527.5	555.5	602.2	666.2	749.7	826.3
57.5°	429.5	429.5	434.2	439.8	448.6	466.8	494.4	531.3	582.6	656.8	724.5
60°	381.9	385.1	387.0	392.6	400.1	413.6	434.2	463.1	506.5	567.2	634.4
62.5°	339.9	339.9	343.1	345.0	354.8	364.6	379.5	404.3	438.4	492.5	544.8
65°	296.0	298.8	298.8	302.5	310.9	318.4	330.1	348.7	376.7	415.5	464.5
67.5°	258.6	258.6	261.0	262.8	267.5	272.6	282.9	297.4	321.2	352.0	396.3
70°	220.3	221.7	220.8	223.1	226.0	231.1	238.6	250.7	268.0	294.6	327.3
72.5°	185.8	183.9	184.9	187.2	188.6	191.9	196.5	205.9	219.9	241.4	265.2
75°	148.5	147.5	150.8	149.9	152.2	155.0	159.2	166.2	176.9	191.9	210.1
77.5°	115.8	114.4	115.8	116.7	117.6	120.0	123.2	127.4	134.9	144.7	161.1
80°	83.1	82.6	83.6	84.5	85.0	88.7	89.6	93.8	97.1	104.6	112.5
82.5°	55.1	56.0	56.5	57.4	57.0	58.8	59.8	62.6	65.4	69.1	75.2
85°	31.7	30.3	31.7	31.7	31.7	34.1	33.6	35.5	37.3	39.2	43.4
87.5°	11.2	11.2	11.7	12.1	12.1	13.5	13.1	14.0	15.9	15.9	17.3
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°	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8
2.5°	1189.5	1184.4	1180.6	1169.9	1163.4	1157.3	1151.7	1145.6	1139.1	1130.7	1125.6
5°	1242.3	1231.1	1214.7	1199.8	1183.0	1168.0	1155.9	1142.4	1127.4	1112.0	1098.5
7.5°	1300.6	1279.6	1254.4	1226.9	1200.7	1178.8	1155.9	1134.4	1113.4	1092.9	1073.7
10°	1359.0	1322.6	1289.4	1251.6	1217.1	1183.9	1154.0	1124.2	1098.0	1070.9	1046.7
12.5°	1413.1	1369.2	1320.7	1273.5	1227.3	1184.4	1147.5	1111.1	1077.5	1045.3	1016.8
15°	1454.7	1399.6	1342.2	1286.1	1232.9	1188.1	1140.0	1092.9	1057.9	1018.6	987.4
17.5°	1502.3	1436.9	1380.0	1312.8	1246.5	1174.1	1123.2	1071.9	1029.9	992.0	960.8
20°	1534.0	1462.1	1380.0	1303.9	1235.7	1170.8	1109.7	1050.9	1006.5	962.6	924.8
22.5°	1559.2	1485.0	1394.5	1315.1	1229.7	1151.2	1084.9	1027.0	974.8	933.2	897.3
25°	1572.3	1481.8	1395.4	1299.2	1213.8	1138.6	1063.9	1000.0	947.2	901.0	870.2
27.5°	1572.8	1479.9	1377.6	1282.4	1190.9	1109.7	1035.9	972.9	913.6	869.3	832.4
30°	1570.5	1467.7	1359.9	1255.8	1164.8	1081.7	1004.6	939.3	885.1	838.0	803.0
32.5°	1555.5	1450.9	1333.3	1224.1	1125.1	1041.5	970.6	905.7	847.8	804.8	768.0
35°	1521.9	1414.1	1295.9	1183.4	1089.6	1002.8	932.7	867.4	815.6	768.9	731.1
37.5°	1479.0	1378.1	1258.1	1140.5	1039.2	957.0	891.2	829.6	775.4	732.5	694.7
40°	1424.8	1330.0	1211.9	1089.6	988.3	905.2	843.1	785.7	739.5	695.6	658.7
42.5°	1350.6	1277.7	1156.4	1037.3	931.3	852.9	792.7	745.1	697.5	657.8	620.9
45°	1271.2	1204.9	1097.1	979.0	877.2	796.4	739.9	696.1	655.4	615.3	585.4
47.5°	1183.4	1129.3	1029.4	914.1	813.7	742.3	686.7	647.5	610.2	579.3	549.5
50°	1078.9	1050.4	957.0	852.5	754.9	681.6	635.8	595.7	568.1	538.3	510.3
52.5°	981.8	958.9	882.8	780.1	691.4	627.0	577.9	546.2	519.1	497.2	474.8
55°	876.3	864.6	800.2	711.5	631.2	566.7	524.7	495.8	474.3	453.8	437.4
57.5°	779.2	778.2	721.3	645.2	566.7	512.1	472.0	448.2	429.5	415.0	401.0
60°	679.7	687.7	641.0	571.4	509.3	458.0	421.6	400.1	387.5	373.9	362.3
62.5°	589.6	601.8	559.3	504.7	443.5	401.5	373.5	357.1	343.1	333.3	324.5
65°	503.3	518.7	484.1	435.1	388.4	348.7	324.9	309.5	298.8	293.2	287.1
67.5°	427.2	435.6	412.2	373.9	335.2	300.6	281.0	267.5	258.2	255.8	248.8
70°	351.1	360.9	344.5	309.5	279.6	254.4	236.7	226.0	220.3	217.1	212.4
72.5°	289.9	294.1	277.8	253.5	229.7	208.7	195.6	187.7	181.1	179.7	177.4
75°	226.9	233.0	219.9	201.2	181.6	166.7	156.9	150.3	147.1	144.7	144.7
77.5°	171.3	176.5	169.0	152.7	141.0	127.9	121.4	115.3	113.9	111.6	112.5
80°	121.8	124.2	120.0	108.8	98.5	91.5	85.9	82.6	82.2	80.3	82.2
82.5°	80.8	81.2	76.6	71.4	63.5	59.8	56.0	54.6	54.2	54.2	53.2
85°	44.8	45.8	42.5	39.2	36.4	33.1	32.2	31.3	30.3	31.7	32.7
87.5°	17.3	17.7	17.3	15.9	14.9	14.0	13.5	14.5	13.1	14.0	14.5
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8	1143.8
2.5°	1117.6	1113.9	1108.3	1098.9	1092.4	1085.4	1082.6	1083.5	1080.7	1077.0	1077.9
5°	1088.2	1077.5	1068.1	1055.1	1042.9	1032.7	1029.4	1025.2	1021.4	1019.1	1016.8
7.5°	1056.9	1042.0	1028.0	1014.9	1000.9	987.8	982.7	979.0	977.1	970.6	967.8
10°	1027.0	1009.8	993.0	977.6	963.1	948.6	943.5	938.8	932.3	929.5	926.2
12.5°	995.3	978.0	959.8	941.2	926.7	915.0	906.1	902.9	896.3	893.5	891.7
15°	964.5	943.5	929.0	914.5	892.6	879.5	875.8	864.1	860.4	854.8	851.1
17.5°	933.7	914.1	892.6	875.8	862.3	845.9	837.0	831.9	824.9	819.8	812.8
20°	903.3	880.5	863.7	842.6	827.7	812.8	801.6	796.9	790.8	783.8	774.0
22.5°	873.9	848.7	832.4	812.8	794.1	776.8	767.5	761.0	748.8	747.4	738.5
25°	839.4	817.0	795.5	775.0	756.7	739.5	733.4	723.1	718.9	710.5	709.1
27.5°	806.7	782.9	759.5	737.1	721.3	709.1	698.4	691.9	687.7	681.1	681.6
30°	772.6	746.5	724.5	704.0	686.7	675.1	668.0	664.8	658.7	657.8	654.5
32.5°	736.2	712.4	689.5	671.3	653.6	643.3	640.0	636.8	633.0	633.5	632.6
35°	699.8	678.8	654.5	637.7	623.2	617.2	612.0	611.1	609.7	610.6	610.6
37.5°	664.3	641.4	621.4	606.0	597.6	589.2	586.8	586.4	586.8	587.8	590.1
40°	629.8	608.8	589.2	576.5	567.2	563.5	560.2	561.6	563.5	566.7	569.5
42.5°	595.2	575.1	558.8	546.2	537.3	535.5	535.9	538.7	539.2	543.9	549.0
45°	558.8	541.5	526.1	516.3	510.7	508.4	509.3	512.1	515.4	521.9	528.5
47.5°	525.2	509.8	496.3	486.4	482.2	481.3	483.2	486.9	494.4	500.9	508.4
50°	491.1	477.1	464.5	455.6	455.2	451.9	456.1	460.8	469.6	478.5	489.7
52.5°	457.5	444.0	433.2	426.2	424.4	424.4	429.5	437.9	445.8	457.5	467.8
55°	422.5	410.4	400.1	397.7	394.9	396.3	401.9	410.4	421.6	434.6	445.8
57.5°	386.5	376.3	368.8	365.5	364.1	368.8	375.3	384.2	398.7	411.8	423.9
60°	352.5	343.6	335.7	334.7	333.8	339.9	347.8	357.1	371.6	384.7	399.6
62.5°	316.1	309.0	303.9	302.5	302.5	308.6	317.5	329.6	343.1	357.1	373.0
65°	279.2	273.1	271.7	269.8	274.0	277.8	286.6	298.3	312.8	328.2	345.0
67.5°	245.1	241.4	238.6	238.6	241.8	248.8	256.8	268.4	283.4	299.7	314.7
70°	211.0	207.3	204.9	207.3	209.1	217.5	226.0	237.2	251.2	267.0	282.9
72.5°	175.5	176.0	176.5	176.0	177.9	185.8	194.2	204.9	218.5	233.9	248.4
75°	144.3	141.9	142.4	143.3	149.4	153.6	162.0	172.3	186.7	200.7	212.9
77.5°	112.0	111.1	113.4	113.4	119.0	124.2	131.2	141.5	154.1	166.7	176.5
80°	82.2	82.6	84.5	85.0	89.6	95.2	102.7	109.7	120.9	129.8	139.1
82.5°	55.6	56.5	58.8	62.1	64.0	67.2	73.8	81.2	89.2	98.5	104.1
85°	32.2	33.6	35.5	37.8	39.7	42.9	47.6	53.7	59.3	64.4	69.1
87.5°	15.9	15.9	17.3	18.2	19.6	21.5	24.7	27.1	30.8	34.5	36.4
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: P243500

CATALOG NUMBER: S124DR-H795D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1143.8	1143.8	1143.8	1143.8
2.5°	1076.1	1075.6	1073.7	1074.7
5°	1015.4	1010.7	1010.2	1008.4
7.5°	963.1	961.7	961.7	958.0
10°	922.9	918.7	919.7	917.8
12.5°	884.7	882.3	879.5	876.7
15°	841.7	841.7	841.7	833.8
17.5°	808.1	807.6	805.3	804.8
20°	773.1	771.2	765.2	769.4
22.5°	737.6	736.2	731.1	732.0
25°	704.5	703.1	702.1	698.4
27.5°	676.0	676.5	677.4	675.1
30°	654.5	653.1	655.0	652.6
32.5°	634.4	634.4	632.6	633.0
35°	611.6	613.4	613.9	613.4
37.5°	591.5	593.8	595.7	593.8
40°	572.8	574.7	576.5	576.1
42.5°	553.2	556.5	557.9	559.3
45°	534.5	538.7	541.1	541.5
47.5°	515.4	520.5	525.2	524.7
50°	496.7	503.3	507.5	507.0
52.5°	478.0	484.6	489.7	492.0
55°	457.0	465.4	470.1	474.3
57.5°	436.0	445.4	450.0	451.9
60°	412.7	421.1	427.2	428.6
62.5°	386.5	395.4	403.4	405.2
65°	359.5	369.3	375.3	376.3
67.5°	328.2	337.5	343.6	346.4
70°	296.0	303.0	309.5	313.7
72.5°	260.0	268.4	274.5	277.3
75°	222.7	232.0	235.3	237.2
77.5°	183.9	189.5	194.7	195.1
80°	145.2	152.2	154.1	158.7
82.5°	106.9	113.4	112.0	113.9
85°	70.5	72.8	74.2	74.7
87.5°	37.3	38.7	39.7	40.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)