

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: P243520

Luminaire Tested: **S124DR-H795D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243520
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-H795D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2924.5 lumens
Efficiency: N/A
Efficacy: 123.9 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

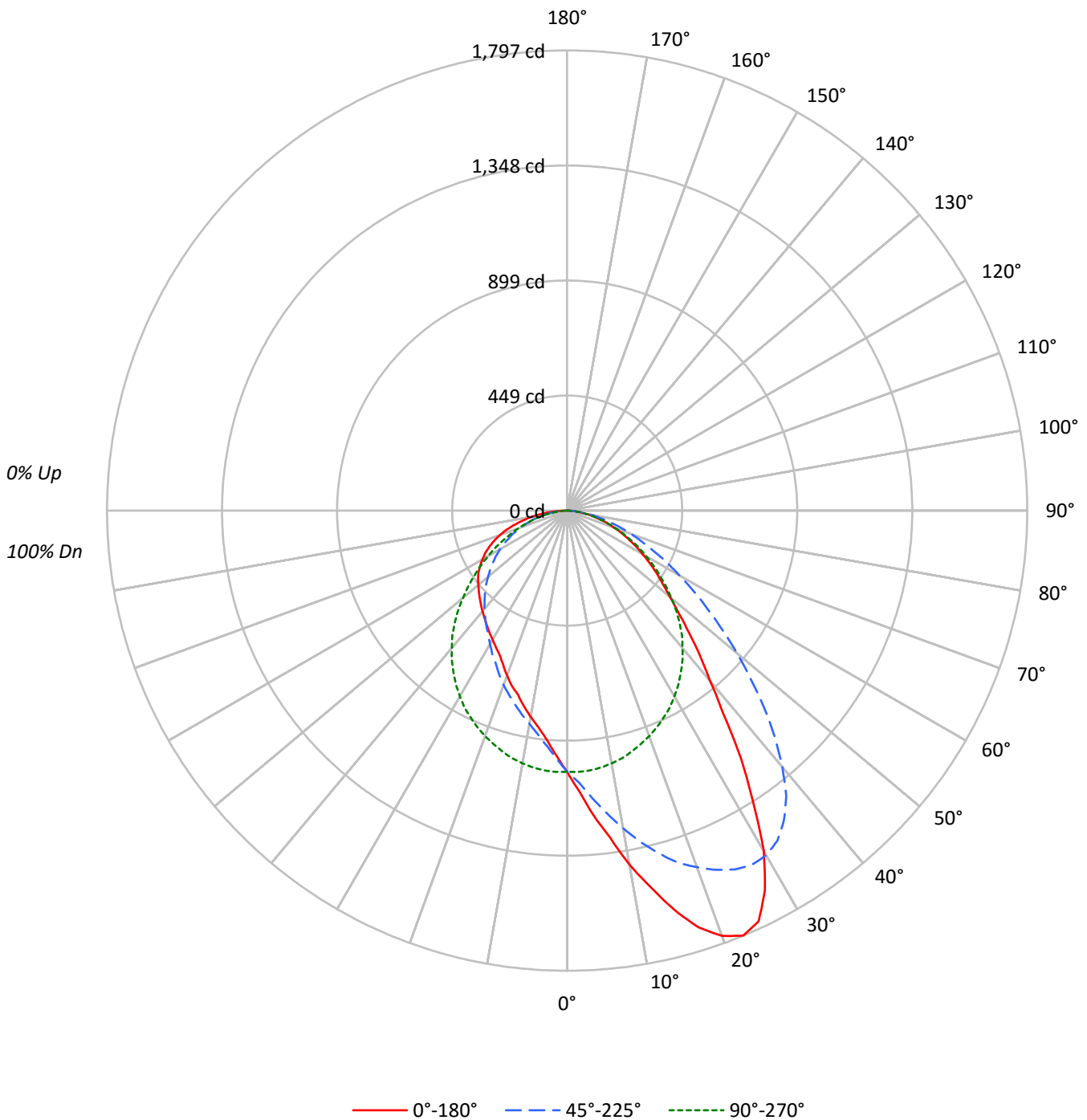
Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	9066	9066	9066
5°	10668	9090	8023
10°	12678	9048	7387
15°	14848	8968	6842
20°	16720	8864	6489
25°	17352	8746	6108
30°	15758	8597	5974
35°	12857	8394	5936
40°	10066	8130	5961
45°	8425	7803	6070
50°	7231	7346	6252
55°	6607	6851	6554
60°	6053	6343	6795
65°	5551	5805	7057
70°	5107	5237	7269
75°	4547	4602	7264
80°	3793	3773	7243
85°	2886	2845	6792



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	99.3	3.4
10°-20°	307.5	10.5
20°-30°	493.9	16.9
30°-40°	564.6	19.3
40°-50°	519.8	17.8
50°-60°	425.2	14.5
60°-70°	303.0	10.4
70°-80°	166.5	5.7
80°-90°	44.7	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°	900.7	30.8
0°-40°	1465.3	50.1
0°-60°	2410.2	82.4
0°-90°	2924.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2924.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1020	1020	1020	1020	1020	
5°	1196	1127	1019	921	899	120
15°	1614	1386	974	784	744	460
25°	1769	1546	892	659	623	794
35°	1185	1476	774	550	547	736
45°	670	1088	621	453	483	523
55°	426	669	442	353	423	382
65°	264	370	276	248	336	264
75°	132	171	134	137	212	141
85°	28	35	28	38	67	34
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°	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9
2.5°	1098.2	1094.8	1093.2	1091.1	1090.7	1088.6	1084.4	1078.6	1071.1	1063.2	1063.2
5°	1195.6	1194.7	1188.5	1188.9	1181.0	1172.3	1165.6	1157.3	1141.0	1127.3	1117.7
7.5°	1288.8	1297.6	1295.5	1288.8	1277.2	1264.7	1251.4	1239.7	1209.7	1193.1	1179.3
10°	1404.6	1407.9	1402.1	1392.5	1382.1	1357.9	1340.4	1320.9	1288.4	1260.1	1235.1
12.5°	1506.1	1514.0	1503.6	1494.5	1469.9	1452.0	1434.5	1395.4	1361.3	1325.5	1289.2
15°	1613.5	1605.2	1610.6	1588.1	1570.6	1553.6	1509.0	1469.1	1430.4	1386.2	1348.4
17.5°	1706.8	1706.8	1696.8	1682.2	1663.9	1631.8	1587.3	1543.2	1500.3	1442.4	1388.7
20°	1767.6	1772.1	1760.5	1745.1	1723.0	1689.7	1654.3	1606.5	1549.4	1482.0	1421.2
22.5°	1796.7	1797.5	1793.4	1780.5	1762.6	1734.3	1698.0	1651.4	1591.0	1518.6	1454.9
25°	1769.2	1773.8	1772.5	1771.7	1762.6	1746.3	1717.2	1673.9	1618.9	1546.5	1477.8
27.5°	1672.6	1683.9	1693.5	1697.6	1707.6	1708.4	1699.7	1673.5	1628.5	1560.2	1483.6
30°	1535.3	1529.4	1555.2	1568.2	1602.3	1622.7	1637.3	1635.6	1609.8	1554.4	1481.6
32.5°	1352.1	1367.9	1386.2	1416.6	1457.0	1504.5	1540.3	1566.9	1564.4	1528.2	1467.4
35°	1184.8	1184.8	1208.1	1245.5	1288.4	1345.4	1405.4	1454.9	1485.3	1476.2	1433.3
37.5°	1003.3	1014.5	1041.1	1070.3	1122.7	1177.7	1256.8	1322.5	1386.2	1405.4	1383.3
40°	867.5	872.5	900.8	925.4	979.1	1036.1	1102.3	1186.4	1259.7	1306.7	1309.6
42.5°	766.8	766.4	778.0	800.1	843.4	894.2	965.8	1048.2	1134.0	1200.6	1231.8
45°	670.2	669.4	681.5	703.9	734.7	779.7	841.7	924.2	1012.0	1087.8	1136.9
47.5°	588.6	596.1	601.5	619.0	644.4	682.7	736.0	801.8	886.3	971.2	1037.4
50°	522.9	526.2	537.8	546.2	574.5	601.1	644.0	703.1	775.5	864.6	936.2
52.5°	470.4	472.5	479.6	490.4	506.6	529.9	564.1	618.6	684.0	761.4	835.5
55°	426.3	425.0	429.6	436.7	450.8	470.4	495.4	537.0	594.0	668.6	736.8
57.5°	383.0	383.0	387.1	392.1	400.1	416.3	440.8	473.7	519.5	585.7	646.1
60°	340.5	343.4	345.1	350.1	356.8	368.8	387.1	413.0	451.7	505.8	565.7
62.5°	303.1	303.1	306.0	307.6	316.4	325.1	338.4	360.5	390.9	439.2	485.8
65°	263.9	266.4	266.4	269.8	277.2	283.9	294.3	311.0	335.9	370.5	414.2
67.5°	230.6	230.6	232.7	234.4	238.5	243.1	252.3	265.2	286.4	313.9	353.4
70°	196.5	197.7	196.9	199.0	201.5	206.1	212.7	223.5	238.9	262.7	291.8
72.5°	165.7	164.0	164.8	166.9	168.2	171.1	175.3	183.6	196.1	215.2	236.5
75°	132.4	131.5	134.5	133.6	135.7	138.2	142.0	148.2	157.8	171.1	187.3
77.5°	103.2	102.0	103.2	104.1	104.9	107.0	109.9	113.6	120.3	129.0	143.6
80°	74.1	73.7	74.5	75.3	75.8	79.1	79.9	83.7	86.6	93.2	100.3
82.5°	49.1	50.0	50.4	51.2	50.8	52.5	53.3	55.8	58.3	61.6	67.0
85°	28.3	27.1	28.3	28.3	28.3	30.4	30.0	31.6	33.3	35.0	38.7
87.5°	10.0	10.0	10.4	10.8	10.8	12.1	11.7	12.5	14.2	14.2	15.4
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°	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9
2.5°	1060.7	1056.1	1052.8	1043.2	1037.4	1032.0	1027.0	1021.6	1015.7	1008.2	1003.7
5°	1107.7	1097.7	1083.2	1069.9	1054.9	1041.5	1030.7	1018.7	1005.3	991.6	979.5
7.5°	1159.8	1141.0	1118.6	1094.0	1070.7	1051.1	1030.7	1011.6	992.8	974.5	957.5
10°	1211.8	1179.3	1149.8	1116.1	1085.3	1055.7	1029.1	1002.4	979.1	955.0	933.3
12.5°	1260.1	1221.0	1177.7	1135.6	1094.4	1056.1	1023.2	990.8	960.8	932.1	906.7
15°	1297.1	1248.0	1196.8	1146.9	1099.4	1059.4	1016.6	974.5	943.3	908.3	880.4
17.5°	1339.6	1281.3	1230.5	1170.6	1111.5	1047.0	1001.6	955.8	918.3	884.6	856.7
20°	1367.9	1303.8	1230.5	1162.7	1101.9	1044.0	989.5	937.1	897.5	858.4	824.7
22.5°	1390.4	1324.2	1243.4	1172.7	1096.5	1026.6	967.5	915.8	869.2	832.2	800.1
25°	1402.1	1321.3	1244.3	1158.5	1082.3	1015.3	948.7	891.7	844.6	803.4	776.0
27.5°	1402.5	1319.6	1228.5	1143.5	1061.9	989.5	923.7	867.5	814.7	775.1	742.2
30°	1400.4	1308.8	1212.6	1119.8	1038.6	964.5	895.8	837.6	789.3	747.2	716.0
32.5°	1387.1	1293.8	1188.9	1091.5	1003.3	928.7	865.5	807.6	756.0	717.7	684.8
35°	1357.1	1260.9	1155.6	1055.3	971.6	894.2	831.7	773.5	727.3	685.6	651.9
37.5°	1318.8	1228.9	1121.9	1017.0	926.7	853.4	794.7	739.7	691.5	653.2	619.4
40°	1270.5	1186.0	1080.7	971.6	881.3	807.2	751.8	700.6	659.4	620.3	587.4
42.5°	1204.3	1139.4	1031.1	925.0	830.5	760.6	706.9	664.4	621.9	586.5	553.7
45°	1133.5	1074.4	978.3	873.0	782.2	710.2	659.8	620.7	584.5	548.7	522.0
47.5°	1055.3	1007.0	917.9	815.1	725.6	661.9	612.4	577.4	544.1	516.6	490.0
50°	962.0	936.6	853.4	760.1	673.1	607.8	567.0	531.2	506.6	480.0	455.0
52.5°	875.5	855.1	787.2	695.6	616.5	559.1	515.4	487.1	462.9	443.3	423.4
55°	781.4	771.0	713.5	634.4	562.8	505.4	467.9	442.1	422.9	404.6	390.1
57.5°	694.8	693.9	643.2	575.3	505.4	456.7	420.9	399.6	383.0	370.1	357.6
60°	606.1	613.2	571.6	509.5	454.2	408.4	375.9	356.8	345.5	333.4	323.0
62.5°	525.8	536.6	498.7	450.0	395.5	358.0	333.0	318.5	306.0	297.2	289.3
65°	448.8	462.5	431.7	388.0	346.4	311.0	289.7	276.0	266.4	261.4	256.0
67.5°	380.9	388.4	367.6	333.4	298.9	268.1	250.6	238.5	230.2	228.1	221.9
70°	313.0	321.8	307.2	276.0	249.4	226.9	211.1	201.5	196.5	193.6	189.4
72.5°	258.5	262.3	247.7	226.0	204.8	186.1	174.4	167.3	161.5	160.3	158.2
75°	202.3	207.7	196.1	179.4	161.9	148.6	139.9	134.0	131.1	129.0	129.0
77.5°	152.8	157.4	150.7	136.1	125.7	114.1	108.2	102.8	101.6	99.5	100.3
80°	108.7	110.7	107.0	97.0	87.8	81.6	76.6	73.7	73.3	71.6	73.3
82.5°	72.0	72.4	68.3	63.7	56.6	53.3	50.0	48.7	48.3	48.3	47.5
85°	40.0	40.8	37.9	35.0	32.5	29.6	28.7	27.9	27.1	28.3	29.1
87.5°	15.4	15.8	15.4	14.2	13.3	12.5	12.1	12.9	11.7	12.5	12.9
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°	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9	1019.9
2.5°	996.6	993.3	988.3	979.9	974.1	967.9	965.4	966.2	963.7	960.4	961.2
5°	970.4	960.8	952.5	940.8	930.0	920.8	917.9	914.2	910.8	908.8	906.7
7.5°	942.5	929.2	916.7	905.0	892.5	880.9	876.3	873.0	871.3	865.5	863.0
10°	915.8	900.4	885.4	871.7	858.8	845.9	841.3	837.2	831.3	828.8	825.9
12.5°	887.5	872.1	855.9	839.2	826.3	815.9	808.0	805.1	799.3	796.8	795.1
15°	860.0	841.3	828.4	815.5	795.9	784.3	781.0	770.5	767.2	762.2	758.9
17.5°	832.6	815.1	795.9	781.0	768.9	754.3	746.4	741.8	735.6	731.0	724.8
20°	805.5	785.1	770.1	751.4	738.1	724.8	714.8	710.6	705.2	698.9	690.2
22.5°	779.3	756.8	742.2	724.8	708.1	692.7	684.4	678.5	667.7	666.5	658.6
25°	748.5	728.5	709.4	691.0	674.8	659.4	654.0	644.8	641.1	633.6	632.3
27.5°	719.3	698.1	677.3	657.3	643.2	632.3	622.8	616.9	613.2	607.4	607.8
30°	689.0	665.6	646.1	627.8	612.4	602.0	595.7	592.8	587.4	586.5	583.6
32.5°	656.5	635.3	614.9	598.6	582.8	573.6	570.7	567.8	564.5	564.9	564.1
35°	624.0	605.3	583.6	568.6	555.7	550.3	545.8	544.9	543.7	544.5	544.5
37.5°	592.4	572.0	554.1	540.3	532.8	525.4	523.3	522.9	523.3	524.1	526.2
40°	561.6	542.8	525.4	514.1	505.8	502.5	499.5	500.8	502.5	505.4	507.9
42.5°	530.8	512.9	498.3	487.1	479.1	477.5	477.9	480.4	480.8	485.0	489.6
45°	498.3	482.9	469.2	460.4	455.4	453.3	454.2	456.7	459.6	465.4	471.2
47.5°	468.3	454.6	442.5	433.8	430.0	429.2	430.9	434.2	440.8	446.7	453.3
50°	437.9	425.4	414.2	406.3	405.9	403.0	406.7	410.9	418.8	426.7	436.7
52.5°	408.0	395.9	386.3	380.1	378.4	378.4	383.0	390.5	397.6	408.0	417.1
55°	376.7	365.9	356.8	354.7	352.2	353.4	358.4	365.9	375.9	387.6	397.6
57.5°	344.7	335.5	328.9	326.0	324.7	328.9	334.7	342.6	355.5	367.2	378.0
60°	314.3	306.4	299.3	298.5	297.6	303.1	310.1	318.5	331.4	343.0	356.3
62.5°	281.8	275.6	271.0	269.8	269.8	275.2	283.1	293.9	306.0	318.5	332.6
65°	248.9	243.5	242.3	240.6	244.4	247.7	255.6	266.0	278.9	292.6	307.6
67.5°	218.6	215.2	212.7	212.7	215.6	221.9	229.0	239.4	252.7	267.3	280.6
70°	188.2	184.8	182.7	184.8	186.5	194.0	201.5	211.5	224.0	238.1	252.3
72.5°	156.5	156.9	157.4	156.9	158.6	165.7	173.2	182.7	194.8	208.6	221.5
75°	128.6	126.6	127.0	127.8	133.2	137.0	144.5	153.6	166.5	179.0	189.8
77.5°	99.9	99.1	101.2	101.2	106.2	110.7	117.0	126.1	137.4	148.6	157.4
80°	73.3	73.7	75.3	75.8	79.9	84.9	91.6	97.8	107.8	115.7	124.1
82.5°	49.5	50.4	52.5	55.4	57.0	59.9	65.8	72.4	79.5	87.8	92.8
85°	28.7	30.0	31.6	33.7	35.4	38.3	42.5	47.9	52.9	57.4	61.6
87.5°	14.2	14.2	15.4	16.2	17.5	19.1	22.1	24.1	27.5	30.8	32.5
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: P243520

CATALOG NUMBER: S124DR-H795D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1019.9	1019.9	1019.9	1019.9
2.5°	959.5	959.1	957.5	958.3
5°	905.4	901.3	900.8	899.2
7.5°	858.8	857.6	857.6	854.2
10°	823.0	819.3	820.1	818.4
12.5°	788.9	786.8	784.3	781.8
15°	750.6	750.6	750.6	743.5
17.5°	720.6	720.2	718.1	717.7
20°	689.4	687.7	682.3	686.0
22.5°	657.7	656.5	651.9	652.7
25°	628.2	626.9	626.1	622.8
27.5°	602.8	603.2	604.0	602.0
30°	583.6	582.4	584.1	582.0
32.5°	565.7	565.7	564.1	564.5
35°	545.3	547.0	547.4	547.0
37.5°	527.4	529.5	531.2	529.5
40°	510.8	512.4	514.1	513.7
42.5°	493.3	496.2	497.5	498.7
45°	476.6	480.4	482.5	482.9
47.5°	459.6	464.2	468.3	467.9
50°	442.9	448.8	452.5	452.1
52.5°	426.3	432.1	436.7	438.8
55°	407.5	415.0	419.2	422.9
57.5°	388.8	397.1	401.3	403.0
60°	368.0	375.5	380.9	382.2
62.5°	344.7	352.6	359.7	361.3
65°	320.5	329.3	334.7	335.5
67.5°	292.6	301.0	306.4	308.9
70°	263.9	270.2	276.0	279.7
72.5°	231.9	239.4	244.8	247.3
75°	198.6	206.9	209.8	211.5
77.5°	164.0	169.0	173.6	174.0
80°	129.5	135.7	137.4	141.5
82.5°	95.3	101.2	99.9	101.6
85°	62.9	64.9	66.2	66.6
87.5°	33.3	34.6	35.4	35.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)