

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: P242222

Luminaire Tested: **S121RDR-S685D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242222  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121RDR-S685D830-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2271.4 lumens  
Efficiency: N/A  
Efficacy: 86.0 lumens/watt  
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct

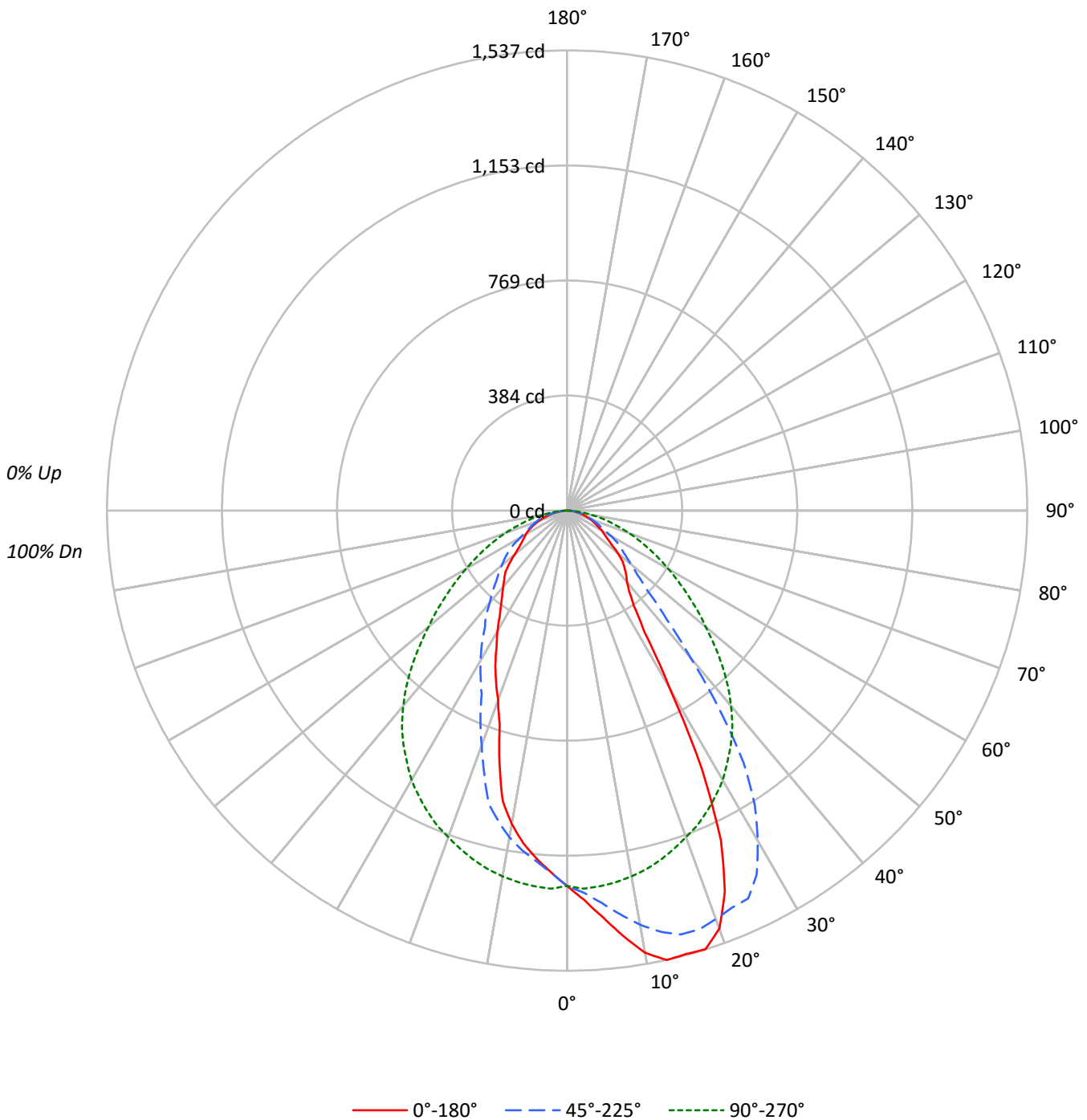
Input Watts (W): 26.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	100	100	100	100	100		
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87	87	87	87	87	87	87		
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76	76	76	76	76	76	76		
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	67	67	67	67	67	67	67		
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61	59	59	59	59	59	59	59		
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52	52		
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47	47	47	47	47	47	47		
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43	43	43	43	43	43	43		
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39	39	39	39	39	39	39		
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35	35	35	35	35	35	35		
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33	33	33	33	33	33	33		

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

	0°	90°	180°
0°	37147	37147	37147
5°	40540	37470	34707
10°	45121	37323	31988
15°	47043	37040	26773
20°	46840	36601	21252
25°	39722	36194	18550
30°	23381	35572	15930
35°	14045	34486	13911
40°	12033	32923	12834
45°	11377	30690	12206
50°	10169	27874	10561
55°	8472	25441	9541
60°	7876	23182	9493
65°	7270	21117	9184
70°	6861	19024	8654
75°	6480	16829	7876
80°	5784	14077	6911
85°	5439	11049	5439



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	120.2	5.3
10°-20°	342.4	15.1
20°-30°	467.7	20.6
30°-40°	435.7	19.2
40°-50°	360.2	15.9
50°-60°	265.6	11.7
60°-70°	169.8	7.5
70°-80°	87.4	3.8
80°-90°	22.5	1.0
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°	930.2	41.0
0°-40°	1365.9	60.1
0°-60°	1991.7	87.7
0°-90°	2271.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2271.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1254	1254	1254	1254	1254	
5°	1363	1315	1260	1176	1167	134
15°	1534	1466	1208	1013	873	432
25°	1215	1430	1107	676	567	527
35°	388	1027	953	479	385	264
45°	272	383	732	336	291	208
55°	164	220	492	240	185	151
65°	104	120	301	140	131	103
75°	57	62	147	77	69	59
85°	16	16	32	18	16	18
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°	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7
2.5°	1301.7	1300.8	1302.2	1301.3	1300.3	1298.0	1296.1	1290.4	1281.9	1277.2	1281.9
5°	1363.0	1366.8	1365.3	1363.5	1359.2	1355.5	1347.0	1341.8	1326.7	1314.9	1318.2
7.5°	1432.7	1437.5	1431.3	1427.1	1424.7	1413.9	1404.5	1389.9	1373.4	1360.2	1352.6
10°	1499.7	1501.1	1499.2	1495.4	1487.4	1475.6	1462.0	1445.5	1424.7	1404.5	1390.8
12.5°	1537.4	1539.7	1542.6	1536.0	1529.8	1520.4	1506.3	1489.8	1464.3	1440.8	1425.2
15°	1533.6	1535.5	1540.7	1538.3	1535.5	1531.2	1523.2	1509.6	1491.7	1465.7	1443.6
17.5°	1536.4	1537.8	1540.2	1531.7	1527.0	1521.8	1511.5	1502.0	1486.9	1466.7	1450.2
20°	1485.5	1508.6	1505.8	1517.1	1521.8	1521.3	1511.5	1493.5	1472.8	1452.1	1444.5
22.5°	1376.2	1394.6	1396.9	1414.4	1436.0	1453.5	1475.2	1483.2	1467.1	1436.0	1425.7
25°	1215.0	1228.2	1241.4	1266.4	1289.5	1338.0	1382.3	1415.8	1434.2	1429.9	1409.7
27.5°	976.5	962.4	1014.7	1043.5	1108.0	1178.7	1240.9	1302.2	1331.4	1370.5	1390.3
30°	683.4	682.0	721.6	771.5	868.1	933.2	1049.6	1148.1	1224.9	1273.0	1326.7
32.5°	479.8	486.9	516.1	546.7	600.0	706.0	795.1	930.8	1061.8	1166.9	1232.9
35°	388.3	389.3	395.9	414.3	446.8	505.7	575.0	706.9	884.6	1027.4	1125.9
37.5°	340.3	343.1	345.0	355.4	367.1	392.1	436.0	527.4	674.4	833.7	1004.8
40°	311.1	313.4	315.3	318.6	325.7	337.4	366.2	410.0	494.9	641.4	831.8
42.5°	291.3	290.3	294.6	296.0	299.7	306.3	319.1	342.6	391.6	491.1	655.1
45°	271.5	272.9	272.9	274.8	278.1	281.8	287.0	301.6	326.6	383.2	511.8
47.5°	250.7	250.3	253.1	254.5	257.8	261.1	264.9	272.4	287.0	320.0	394.5
50°	220.6	221.5	226.7	231.4	236.1	240.4	245.1	249.8	259.2	277.1	322.8
52.5°	188.5	188.5	194.2	197.5	204.1	214.4	222.5	229.5	235.6	244.6	271.9
55°	164.0	164.5	166.4	169.2	173.9	179.1	189.5	201.7	212.1	219.6	234.7
57.5°	147.0	147.5	148.0	150.3	152.7	154.6	160.7	170.1	183.8	197.5	206.4
60°	132.9	132.4	132.4	133.8	135.7	138.1	141.4	145.2	152.7	167.3	183.3
62.5°	116.9	117.8	117.8	119.2	120.7	123.0	124.4	128.2	132.4	139.0	155.5
65°	103.7	104.6	103.7	105.1	106.0	107.5	109.8	111.7	115.5	119.7	126.3
67.5°	90.5	91.0	91.9	92.4	93.3	93.8	95.7	98.0	100.4	103.2	108.4
70°	79.2	79.2	79.2	80.1	81.1	81.1	82.5	83.4	85.8	88.6	91.4
72.5°	66.9	67.4	67.4	66.9	68.8	69.3	69.8	70.7	72.6	74.9	77.3
75°	56.6	55.6	55.6	56.1	57.5	57.5	58.0	58.4	59.9	61.7	63.2
77.5°	44.3	44.3	44.8	45.2	45.7	45.7	46.7	46.7	48.5	49.5	50.4
80°	33.9	34.9	35.3	34.9	34.9	35.3	35.3	36.3	36.8	37.2	38.2
82.5°	25.5	25.9	25.0	25.0	25.5	25.5	25.9	25.9	26.4	26.9	26.9
85°	16.0	16.0	16.5	16.0	16.5	16.0	16.0	17.0	16.5	16.5	17.0
87.5°	7.5	8.0	7.5	8.0	7.5	8.0	8.0	8.0	8.0	8.0	7.5
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7
2.5°	1280.5	1280.0	1277.7	1272.5	1268.7	1261.7	1261.7	1264.0	1251.8	1243.3	1242.8
5°	1310.2	1305.5	1297.5	1287.6	1278.6	1266.4	1261.7	1259.8	1243.3	1230.6	1226.3
7.5°	1341.8	1330.0	1316.3	1300.3	1285.2	1267.8	1258.8	1251.8	1230.6	1215.0	1205.6
10°	1374.8	1355.9	1334.7	1311.6	1290.9	1267.3	1252.7	1240.5	1215.9	1194.3	1183.4
12.5°	1404.0	1377.6	1350.7	1320.6	1292.3	1262.6	1242.3	1226.3	1197.6	1171.6	1158.4
15°	1417.7	1389.4	1367.2	1325.8	1287.6	1257.4	1231.5	1207.5	1176.8	1148.1	1127.8
17.5°	1429.4	1398.3	1369.1	1330.0	1285.7	1246.6	1215.5	1184.8	1151.9	1121.7	1096.7
20°	1426.1	1399.8	1363.9	1322.5	1280.5	1235.3	1199.9	1160.8	1119.8	1089.2	1062.8
22.5°	1407.3	1385.6	1348.4	1308.8	1268.3	1219.7	1179.7	1137.2	1086.8	1053.4	1023.7
25°	1383.3	1362.5	1325.8	1284.8	1244.7	1197.6	1150.4	1107.1	1052.9	1012.8	974.6
27.5°	1364.4	1333.3	1296.5	1250.8	1212.2	1167.4	1117.9	1074.1	1015.6	971.3	927.0
30°	1342.7	1307.4	1262.1	1213.6	1172.6	1131.6	1083.5	1039.7	975.1	924.7	869.5
32.5°	1280.5	1281.0	1227.3	1173.1	1129.2	1085.4	1042.5	995.9	931.8	872.4	815.8
35°	1199.5	1231.0	1191.4	1129.2	1075.0	1034.5	999.2	953.4	882.3	821.0	756.9
37.5°	1091.1	1146.7	1151.4	1086.8	1027.0	979.4	944.5	906.3	834.7	768.7	705.1
40°	982.7	1056.2	1085.4	1040.6	975.6	920.9	886.0	851.2	783.8	712.6	653.7
42.5°	849.7	969.0	1005.3	992.1	922.3	863.4	826.7	795.1	729.6	659.8	601.4
45°	699.9	861.1	913.8	927.5	868.6	805.4	763.0	732.4	674.9	613.6	552.8
47.5°	562.3	739.5	826.7	840.8	809.7	748.4	699.9	667.8	622.1	569.3	509.0
50°	428.9	610.3	735.2	756.9	749.4	687.2	642.4	604.7	569.8	522.7	466.1
52.5°	341.2	487.8	636.3	676.8	679.1	630.1	583.0	548.6	514.7	477.4	426.1
55°	272.4	377.0	527.4	596.2	602.8	568.9	525.5	492.5	467.1	432.2	388.8
57.5°	229.5	291.7	422.3	515.1	518.0	508.5	467.1	439.7	418.5	388.3	350.2
60°	196.1	231.4	325.7	434.1	448.2	448.2	415.2	391.2	370.9	348.3	312.0
62.5°	169.7	189.0	247.0	345.0	381.3	386.9	366.2	345.0	329.9	307.3	273.8
65°	142.8	157.4	191.3	266.8	316.7	327.1	316.7	301.2	289.4	265.8	239.4
67.5°	117.4	131.5	152.7	202.2	256.9	269.6	267.7	259.7	247.4	230.0	202.2
70°	97.1	105.6	121.1	149.9	201.7	221.0	226.7	219.6	208.8	189.9	169.7
72.5°	80.1	86.7	94.3	115.0	150.8	176.3	185.7	181.9	173.9	156.0	139.0
75°	65.5	69.8	74.9	84.8	108.4	137.1	148.0	147.0	139.0	124.0	110.3
77.5°	52.8	54.2	58.0	64.1	75.9	101.8	110.3	113.1	107.0	94.3	83.4
80°	39.6	41.5	43.4	46.7	52.3	67.4	78.2	82.5	77.3	69.8	58.9
82.5°	27.8	28.3	30.2	32.0	34.9	41.0	52.3	57.0	52.3	44.3	41.0
85°	17.4	17.0	17.4	17.9	20.7	22.2	29.2	32.5	31.6	26.9	23.1
87.5°	8.0	8.0	7.5	8.0	7.5	9.0	10.4	15.1	11.3	9.9	9.0
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°	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7
2.5°	1239.0	1237.6	1232.9	1226.3	1220.7	1211.2	1211.2	1213.6	1213.1	1214.1	1213.1
5°	1219.2	1212.6	1205.6	1196.6	1188.1	1175.9	1174.5	1175.4	1174.9	1174.5	1171.6
7.5°	1193.8	1186.3	1177.3	1166.0	1156.6	1144.8	1141.5	1140.5	1136.8	1135.4	1131.6
10°	1169.3	1160.3	1148.6	1134.9	1122.2	1108.5	1100.0	1095.3	1089.2	1082.6	1076.9
12.5°	1142.0	1130.2	1115.1	1098.6	1077.4	1062.3	1049.6	1041.6	1033.1	1021.8	1013.8
15°	1112.7	1088.7	1070.8	1043.9	1018.0	1012.8	993.5	968.0	966.2	911.0	891.7
17.5°	1073.6	1053.8	1020.4	985.5	950.1	921.4	921.9	853.0	831.8	831.4	797.4
20°	1033.1	1005.7	967.1	931.8	894.5	835.1	788.0	765.4	731.0	717.8	698.5
22.5°	985.5	949.7	904.4	856.3	804.5	756.4	710.2	688.6	671.1	656.5	648.5
25°	928.9	892.6	838.4	778.6	720.6	675.8	650.4	640.5	610.8	600.4	590.5
27.5°	871.9	832.3	761.6	704.1	656.5	625.9	599.5	583.0	568.9	542.5	530.7
30°	817.7	754.1	695.6	642.9	607.0	578.3	559.0	525.5	505.7	493.4	488.3
32.5°	758.8	690.9	638.1	592.4	555.7	530.7	501.9	479.3	470.4	454.3	431.2
35°	698.5	636.7	581.6	544.8	513.2	479.3	461.4	439.7	417.1	404.8	403.0
37.5°	640.0	581.6	542.0	503.3	465.2	445.4	419.0	395.9	387.9	376.6	364.3
40°	587.2	537.3	500.5	456.2	433.1	402.5	382.2	370.4	351.1	346.9	343.1
42.5°	543.9	501.0	459.5	419.9	393.1	368.6	350.6	337.0	330.9	320.5	317.2
45°	500.0	460.5	418.0	386.9	356.3	335.6	323.3	311.5	304.5	301.6	296.0
47.5°	460.5	421.8	382.7	344.5	323.8	310.1	296.4	290.3	286.1	280.0	276.7
50°	422.8	379.9	343.1	319.1	296.9	284.7	275.7	270.1	263.5	256.9	247.4
52.5°	384.6	347.8	312.5	287.0	270.5	262.5	254.0	247.9	234.7	222.0	214.0
55°	345.9	308.2	279.5	260.2	248.4	239.9	230.0	212.1	199.8	192.8	189.0
57.5°	311.1	277.1	251.7	235.6	227.2	213.0	195.6	184.3	178.2	175.3	173.4
60°	273.8	244.6	223.4	211.1	197.9	179.1	169.7	164.0	162.1	161.2	159.8
62.5°	241.8	215.9	199.4	185.7	166.8	156.9	151.8	148.9	148.9	147.5	146.6
65°	207.8	187.6	173.4	153.6	143.7	139.5	137.6	136.2	134.8	134.3	132.4
67.5°	180.0	162.1	143.7	133.4	127.3	124.9	123.0	122.5	120.7	119.2	117.8
70°	151.8	134.3	119.2	114.5	111.2	110.3	108.4	106.5	105.1	103.2	102.3
72.5°	123.5	107.0	101.8	99.4	96.1	94.7	92.4	91.0	88.6	87.7	86.7
75°	94.3	87.7	84.8	82.9	80.6	77.3	76.4	74.9	74.0	72.6	71.2
77.5°	74.9	71.2	67.9	65.5	63.6	61.3	59.4	58.9	58.0	56.6	56.1
80°	56.1	53.3	51.8	49.5	47.1	45.7	44.8	44.3	42.9	42.4	41.9
82.5°	38.6	36.3	35.3	32.5	31.6	31.6	31.1	30.2	29.2	28.7	28.3
85°	21.7	20.7	19.3	19.8	18.4	18.4	17.9	17.4	17.0	16.5	16.0
87.5°	8.5	8.0	7.5	7.1	7.1	5.7	5.7	5.7	6.1	5.7	5.2
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: P242222

CATALOG NUMBER: S121RDR-S685D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1253.7	1253.7	1253.7	1253.7
2.5°	1214.5	1215.5	1212.2	1210.3
5°	1171.6	1170.2	1168.3	1166.9
7.5°	1127.8	1126.4	1126.4	1120.7
10°	1074.6	1070.8	1068.0	1063.2
12.5°	1006.7	1001.0	999.2	993.5
15°	878.5	866.7	858.7	872.8
17.5°	789.4	758.8	761.1	749.4
20°	698.0	685.7	691.9	674.0
22.5°	638.6	631.1	624.0	620.2
25°	583.5	574.5	563.7	567.4
27.5°	514.2	514.2	507.1	509.9
30°	478.8	475.1	463.3	465.6
32.5°	423.7	419.0	417.6	418.5
35°	397.3	389.8	387.4	384.6
37.5°	360.5	357.7	358.2	356.3
40°	336.0	333.7	330.9	331.8
42.5°	314.8	313.4	310.6	311.1
45°	294.1	292.7	291.3	291.3
47.5°	271.0	268.2	265.8	263.0
50°	240.8	235.2	230.9	229.1
52.5°	208.3	205.5	202.7	202.7
55°	187.6	186.2	185.2	184.7
57.5°	173.0	172.0	172.0	170.6
60°	159.8	159.8	159.3	160.2
62.5°	147.0	145.6	146.1	146.1
65°	132.4	132.0	131.5	131.0
67.5°	116.9	116.4	116.9	115.9
70°	101.3	101.3	100.9	99.9
72.5°	85.3	86.2	85.3	84.8
75°	70.2	69.8	70.2	68.8
77.5°	56.1	54.2	55.1	55.6
80°	41.5	41.5	41.0	40.5
82.5°	27.8	28.3	27.3	27.3
85°	16.0	16.0	15.1	16.0
87.5°	4.7	4.7	4.7	5.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)