

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: P243078

Luminaire Tested: **S121RDR-H880D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243078
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H880D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2230.0 lumens
Efficiency: N/A
Efficacy: 70.8 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

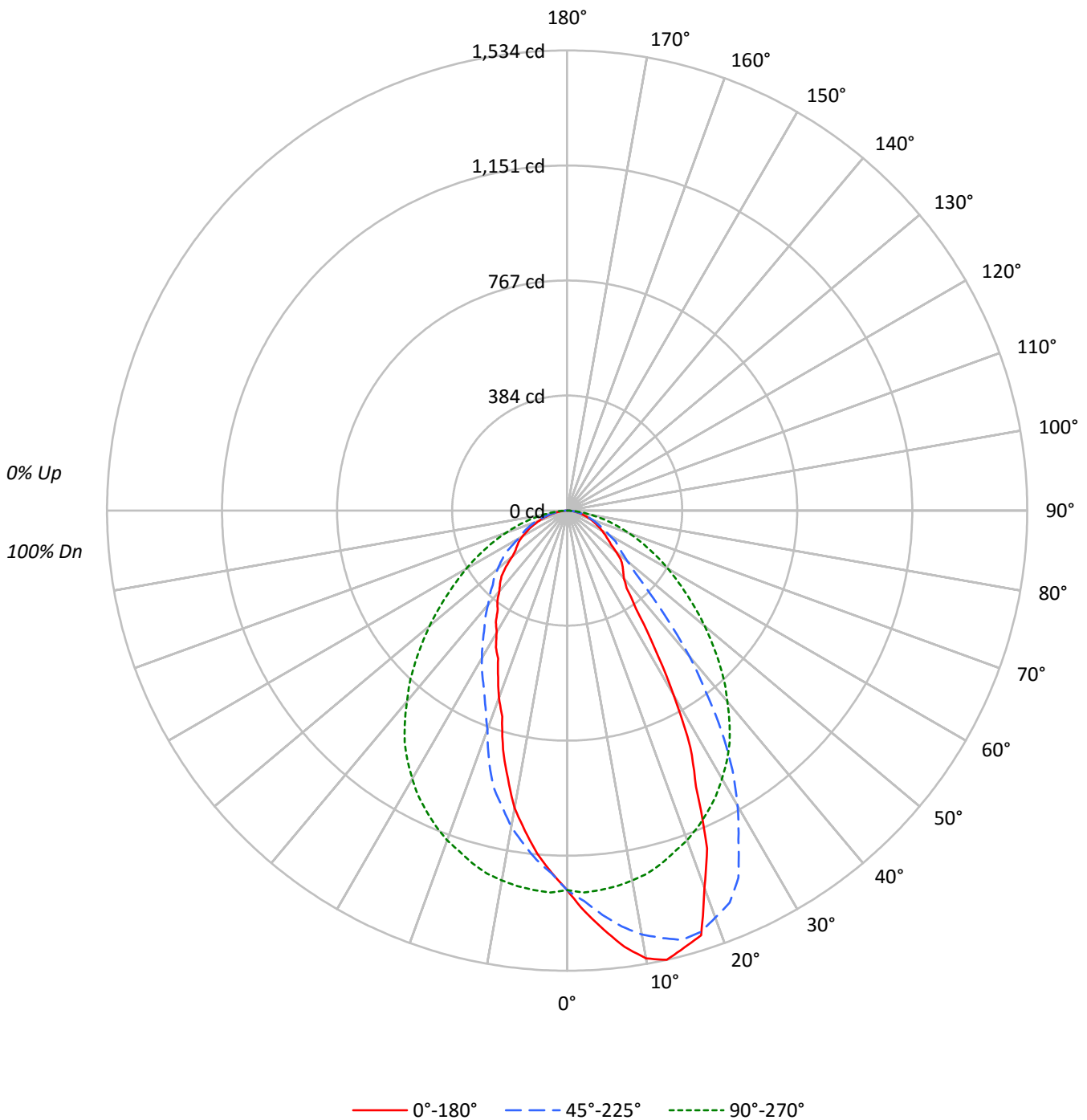
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37479	37479	37479
5°	41708	37776	34133
10°	45606	37669	30306
15°	46264	37353	25310
20°	42170	36876	20934
25°	33213	36207	17808
30°	24281	35329	16056
35°	14490	34160	14595
40°	11364	32138	13615
45°	10953	29998	12952
50°	9763	27593	10994
55°	8524	25106	10497
60°	7970	22981	10175
65°	7425	20900	9430
70°	7026	18842	8594
75°	6445	16760	7647
80°	5853	13599	6672
85°	5507	10369	4861



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.8	5.4
10°-20°	336.9	15.1
20°-30°	447.9	20.1
30°-40°	427.3	19.2
40°-50°	354.6	15.9
50°-60°	263.7	11.8
60°-70°	170.7	7.7
70°-80°	86.9	3.9
80°-90°	21.3	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°	905.5	40.6
0°-40°	1332.8	59.8
0°-60°	1951.0	87.5
0°-90°	2230.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2230.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1265	1265	1265	1265	1265	
5°	1402	1353	1270	1169	1148	137
15°	1508	1481	1218	952	825	420
25°	1016	1350	1108	655	545	471
35°	401	897	944	481	404	273
45°	261	387	716	351	309	199
55°	165	209	486	253	203	150
65°	106	120	298	153	134	106
75°	56	62	146	76	67	60
85°	16	16	30	16	14	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°	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9
2.5°	1337.4	1334.1	1337.9	1336.4	1330.2	1331.7	1324.0	1319.3	1307.8	1303.5	1303.5
5°	1402.3	1407.0	1404.2	1405.1	1398.9	1395.1	1387.0	1377.9	1363.6	1353.1	1349.3
7.5°	1467.1	1468.6	1470.0	1466.2	1459.0	1452.3	1440.9	1427.5	1411.8	1398.5	1388.0
10°	1515.8	1519.1	1517.2	1511.5	1506.2	1496.2	1483.8	1469.5	1452.3	1434.7	1421.8
12.5°	1533.9	1536.8	1541.1	1537.7	1537.2	1532.5	1520.1	1502.4	1481.4	1459.5	1444.7
15°	1508.2	1506.2	1517.7	1514.8	1513.9	1512.0	1515.3	1511.5	1500.5	1481.4	1463.3
17.5°	1484.3	1483.3	1494.8	1497.7	1493.4	1487.2	1483.3	1478.6	1473.3	1473.8	1471.4
20°	1337.4	1366.5	1372.2	1387.5	1419.9	1441.4	1462.8	1461.9	1446.6	1444.2	1443.3
22.5°	1219.1	1230.1	1224.8	1249.6	1267.3	1305.9	1343.6	1391.3	1423.3	1415.1	1409.9
25°	1015.9	1050.3	1066.0	1097.0	1141.8	1191.0	1212.4	1263.0	1312.1	1350.3	1379.4
27.5°	890.0	897.6	907.7	939.6	956.3	1001.1	1081.3	1150.0	1195.7	1237.2	1314.0
30°	709.7	713.1	747.9	765.5	814.6	858.5	928.2	983.5	1075.5	1137.1	1196.2
32.5°	541.8	539.0	577.1	597.6	646.3	705.4	783.2	834.7	924.8	1025.5	1096.1
35°	400.6	400.2	420.7	435.0	488.4	533.7	632.5	699.7	798.4	897.2	988.3
37.5°	326.2	325.8	330.1	342.5	364.9	415.9	463.6	563.3	659.6	756.9	870.9
40°	293.8	296.2	297.1	302.9	310.5	325.8	354.9	424.5	518.9	634.8	749.3
42.5°	276.6	276.6	277.6	279.0	282.8	287.1	304.8	331.5	407.3	499.9	628.2
45°	261.4	261.9	262.8	263.8	262.8	265.2	273.3	284.3	313.8	386.8	510.8
47.5°	243.3	242.8	245.2	246.6	248.5	251.4	251.8	257.6	270.4	308.6	398.7
50°	211.8	212.2	214.6	220.4	226.6	231.8	235.1	239.0	243.3	261.4	309.1
52.5°	183.2	183.6	185.1	189.4	195.1	201.8	212.2	220.8	224.2	229.9	256.6
55°	165.0	165.0	166.9	169.3	170.8	175.5	182.7	192.2	204.6	209.4	220.8
57.5°	149.8	149.8	150.7	150.7	152.6	155.0	159.8	164.6	175.0	190.3	197.5
60°	134.5	134.5	135.5	135.5	137.8	138.8	142.1	145.0	150.7	161.2	175.5
62.5°	120.2	119.2	120.2	120.7	122.1	123.5	125.9	129.3	132.6	138.8	149.3
65°	105.9	105.4	106.4	107.3	108.3	110.2	111.6	114.0	116.9	120.2	125.4
67.5°	93.5	93.0	93.5	94.9	94.4	95.4	97.8	98.7	101.6	104.9	109.2
70°	81.1	80.1	81.1	81.1	81.6	83.0	83.0	85.4	87.8	89.7	93.5
72.5°	67.7	68.2	67.7	68.2	69.2	69.6	70.6	72.0	73.5	75.4	77.7
75°	56.3	56.3	56.8	57.2	58.2	58.2	58.7	59.6	60.6	61.5	64.4
77.5°	44.8	45.3	45.8	46.3	46.3	46.7	47.2	47.7	49.1	49.6	51.0
80°	34.3	34.8	34.8	34.8	35.8	34.8	35.8	36.7	36.7	37.2	38.2
82.5°	24.8	25.3	24.8	25.3	25.8	25.8	25.3	25.8	25.8	26.7	26.7
85°	16.2	15.3	15.3	15.3	15.3	15.3	15.7	16.2	15.7	15.7	16.2
87.5°	6.7	6.7	6.7	6.7	7.2	6.7	7.2	7.2	7.2	6.7	7.2
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°	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9
2.5°	1305.9	1302.1	1298.8	1293.0	1285.9	1275.4	1274.0	1274.4	1261.6	1249.2	1247.3
5°	1341.2	1335.0	1324.5	1312.1	1300.7	1283.0	1275.4	1270.1	1250.6	1233.9	1227.2
7.5°	1378.9	1364.1	1349.8	1330.2	1311.2	1288.3	1274.0	1263.0	1237.2	1215.3	1203.9
10°	1408.5	1390.3	1369.8	1345.0	1318.8	1290.7	1269.2	1252.0	1221.0	1193.8	1179.5
12.5°	1429.5	1408.9	1384.6	1355.0	1325.0	1287.8	1261.6	1238.7	1201.0	1168.6	1151.4
15°	1440.4	1418.5	1388.4	1356.0	1325.0	1285.9	1251.1	1217.7	1180.5	1139.9	1118.5
17.5°	1450.4	1421.8	1388.0	1350.8	1319.3	1278.3	1235.3	1191.9	1150.0	1111.8	1077.0
20°	1443.3	1419.0	1381.3	1342.6	1307.4	1259.7	1214.3	1169.5	1117.0	1072.7	1037.9
22.5°	1409.9	1405.6	1365.1	1323.6	1283.0	1237.2	1184.8	1140.4	1084.1	1031.7	989.7
25°	1370.8	1365.5	1343.6	1299.2	1253.5	1205.8	1158.5	1107.5	1042.6	988.3	940.1
27.5°	1337.9	1326.0	1310.2	1268.7	1219.6	1171.9	1123.2	1073.6	1004.5	943.9	889.1
30°	1271.1	1282.5	1264.9	1236.3	1179.5	1133.3	1086.5	1032.6	963.9	894.3	838.0
32.5°	1165.2	1234.4	1216.7	1193.8	1138.0	1087.5	1043.1	990.2	914.3	845.7	787.5
35°	1071.7	1131.4	1171.4	1143.8	1094.6	1036.0	990.6	944.4	865.2	795.1	739.3
37.5°	981.1	1044.5	1111.3	1086.0	1045.5	982.5	934.8	889.1	815.6	745.0	689.2
40°	862.3	954.9	1019.3	1029.3	987.8	924.4	878.1	830.9	766.0	695.9	636.3
42.5°	748.4	867.1	919.1	970.6	928.2	868.5	817.0	777.0	714.5	653.0	588.1
45°	629.1	764.1	840.9	880.5	865.2	810.8	754.6	715.9	663.5	606.2	544.7
47.5°	525.6	653.9	763.6	786.0	800.8	747.4	694.9	655.8	610.5	563.3	504.6
50°	416.9	549.9	667.3	707.8	736.0	687.3	632.5	598.6	560.4	518.0	466.0
52.5°	324.3	448.8	571.9	641.0	650.6	625.3	574.7	541.4	510.8	472.7	425.4
55°	257.6	353.9	477.0	557.6	566.6	560.4	515.1	486.0	463.6	431.6	392.1
57.5°	213.7	275.2	386.3	479.3	492.7	498.4	461.2	435.0	415.0	389.7	353.9
60°	184.6	217.0	301.9	393.0	429.7	439.8	406.8	387.8	371.1	348.2	314.8
62.5°	163.1	177.9	230.8	318.6	365.8	374.4	357.7	343.4	329.6	307.6	278.1
65°	135.9	151.7	177.9	246.1	304.3	308.6	311.9	298.1	287.1	269.0	242.8
67.5°	114.0	126.4	143.6	188.9	244.2	256.6	265.2	259.0	248.5	230.4	208.0
70°	96.8	104.0	116.4	141.7	186.5	213.2	222.3	217.5	212.2	192.7	173.6
72.5°	80.6	86.3	93.5	108.7	140.7	169.3	182.7	180.3	174.6	159.8	144.0
75°	66.8	69.2	74.9	83.5	102.1	128.8	144.5	146.4	139.7	125.9	113.5
77.5°	52.5	54.9	58.2	63.4	75.4	93.5	106.4	111.1	106.8	96.8	84.4
80°	40.1	41.5	43.9	46.3	51.0	63.4	76.8	79.7	77.3	69.2	61.5
82.5°	26.7	27.7	29.6	31.5	33.9	39.6	51.0	52.9	52.5	45.3	40.1
85°	16.2	16.2	16.7	18.1	19.1	21.5	27.7	30.5	29.1	24.3	21.9
87.5°	6.7	7.2	6.7	6.7	6.7	7.2	9.1	12.4	9.5	7.2	6.7
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°	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9	1264.9
2.5°	1242.0	1240.1	1232.9	1226.3	1218.6	1209.6	1210.1	1211.5	1208.1	1207.2	1210.5
5°	1217.7	1211.0	1200.0	1189.1	1180.5	1169.0	1162.4	1165.7	1163.3	1159.0	1156.2
7.5°	1191.9	1182.4	1166.6	1152.8	1141.4	1119.9	1115.1	1109.4	1104.6	1095.1	1093.2
10°	1161.4	1147.6	1127.5	1108.0	1087.0	1070.3	1054.6	1047.9	1035.0	1026.4	1024.0
12.5°	1129.9	1107.0	1084.6	1056.0	1032.1	1007.8	994.0	984.4	971.6	950.6	940.6
15°	1097.5	1062.7	1032.6	1001.1	984.9	952.0	925.8	896.2	880.5	845.2	824.7
17.5°	1054.1	1014.0	973.5	947.7	913.9	868.1	824.2	808.9	785.1	762.2	739.3
20°	995.4	958.7	920.1	881.4	829.9	777.0	760.3	734.0	707.8	694.0	682.1
22.5°	941.5	901.9	856.1	805.1	752.2	710.7	688.7	669.7	653.4	641.0	627.2
25°	890.5	849.5	784.1	732.1	685.9	655.3	644.4	619.6	602.4	593.3	581.4
27.5°	834.2	777.9	725.5	671.6	630.5	613.4	588.1	568.5	550.4	532.8	528.5
30°	780.8	718.3	666.3	622.4	592.4	568.5	542.8	519.9	508.0	501.3	490.3
32.5°	727.8	664.4	615.8	581.4	549.0	523.7	499.4	487.5	469.3	454.5	445.0
35°	671.1	615.8	577.1	537.1	506.1	481.3	468.9	441.7	431.6	427.4	417.3
37.5°	621.0	571.9	532.8	502.2	468.4	448.3	424.0	417.8	404.5	393.0	389.7
40°	579.5	533.2	496.5	456.9	435.9	409.7	397.8	381.1	376.3	372.0	364.4
42.5°	534.2	494.6	452.6	425.9	394.9	383.0	364.4	359.6	348.2	343.9	341.0
45°	495.6	458.8	418.8	386.3	368.7	351.0	343.9	332.0	326.7	321.5	316.2
47.5°	457.9	419.7	387.8	357.2	337.7	329.6	316.7	308.1	302.4	297.1	291.9
50°	423.1	384.4	348.7	326.7	312.9	301.4	293.3	286.2	278.1	266.6	254.7
52.5°	385.4	350.6	321.5	300.0	287.6	276.6	269.5	257.1	241.3	228.9	223.2
55°	347.7	314.8	289.5	272.3	263.8	253.3	237.0	218.9	208.9	207.0	205.6
57.5°	315.7	284.7	261.4	248.0	238.0	219.4	202.2	195.6	192.7	191.7	190.8
60°	280.0	252.3	235.6	221.3	204.6	187.0	181.7	180.8	177.9	176.5	175.5
62.5°	247.1	223.2	208.0	190.8	173.1	169.8	166.0	163.6	162.2	158.8	157.4
65°	215.1	196.0	179.3	161.2	155.0	152.6	149.3	146.0	142.1	139.7	137.8
67.5°	184.6	166.0	148.3	141.7	138.3	134.5	130.2	125.4	123.5	120.2	119.7
70°	154.5	137.4	127.8	123.5	117.3	114.0	109.2	107.3	104.0	102.5	101.1
72.5°	125.9	113.5	109.7	103.5	99.2	94.0	91.6	89.7	87.8	85.4	85.4
75°	98.3	94.9	87.8	83.0	78.7	75.8	74.9	71.5	71.1	69.6	68.7
77.5°	78.2	71.5	69.2	63.9	61.1	59.6	58.7	56.8	54.9	54.4	53.9
80°	55.3	52.0	49.1	46.7	44.4	43.4	42.4	42.0	41.0	40.1	39.6
82.5°	36.2	34.3	32.4	31.0	30.5	29.1	28.1	27.7	26.7	26.7	26.7
85°	19.6	19.1	18.1	17.2	16.2	16.2	15.7	15.3	15.3	13.8	13.8
87.5°	6.2	6.2	5.7	5.7	4.8	5.2	4.8	4.8	4.3	4.8	4.8
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: P243078

CATALOG NUMBER: S121RDR-H880D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1264.9	1264.9	1264.9	1264.9
2.5°	1206.7	1206.7	1204.8	1206.7
5°	1154.2	1150.0	1148.5	1147.6
7.5°	1087.5	1083.7	1079.8	1076.0
10°	1019.3	1013.5	1010.2	1007.3
12.5°	930.6	923.4	910.0	913.9
15°	821.3	821.8	790.8	825.1
17.5°	732.1	734.5	722.1	720.2
20°	675.4	674.4	669.7	663.9
22.5°	617.2	612.9	611.0	601.9
25°	562.8	555.2	557.6	544.7
27.5°	523.2	517.0	515.1	514.2
30°	483.6	470.8	466.5	469.3
32.5°	443.6	442.6	441.2	441.7
35°	409.7	407.8	403.5	403.5
37.5°	386.3	386.8	384.4	382.5
40°	357.7	355.3	354.9	352.0
42.5°	337.2	332.4	330.5	331.0
45°	313.4	310.5	308.1	309.1
47.5°	285.2	282.4	277.1	275.7
50°	247.1	243.3	240.9	238.5
52.5°	218.4	218.0	217.0	216.5
55°	204.6	203.2	203.2	203.2
57.5°	190.3	189.4	188.9	189.8
60°	174.6	173.6	171.7	171.7
62.5°	155.0	154.1	153.6	151.7
65°	135.5	135.0	134.0	134.5
67.5°	117.3	116.9	116.9	115.4
70°	99.7	99.7	98.3	99.2
72.5°	83.5	83.0	83.0	83.0
75°	67.7	67.3	66.8	66.8
77.5°	53.4	53.4	52.5	52.5
80°	38.6	38.6	38.2	39.1
82.5°	25.8	26.7	25.8	25.8
85°	13.8	14.3	14.3	14.3
87.5°	4.3	3.8	3.8	3.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)