

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: P242247

Luminaire Tested: **S121RDR-S685D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242247  
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-S685D940-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2148.9 lumens  
Efficiency: N/A  
Efficacy: 81.4 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

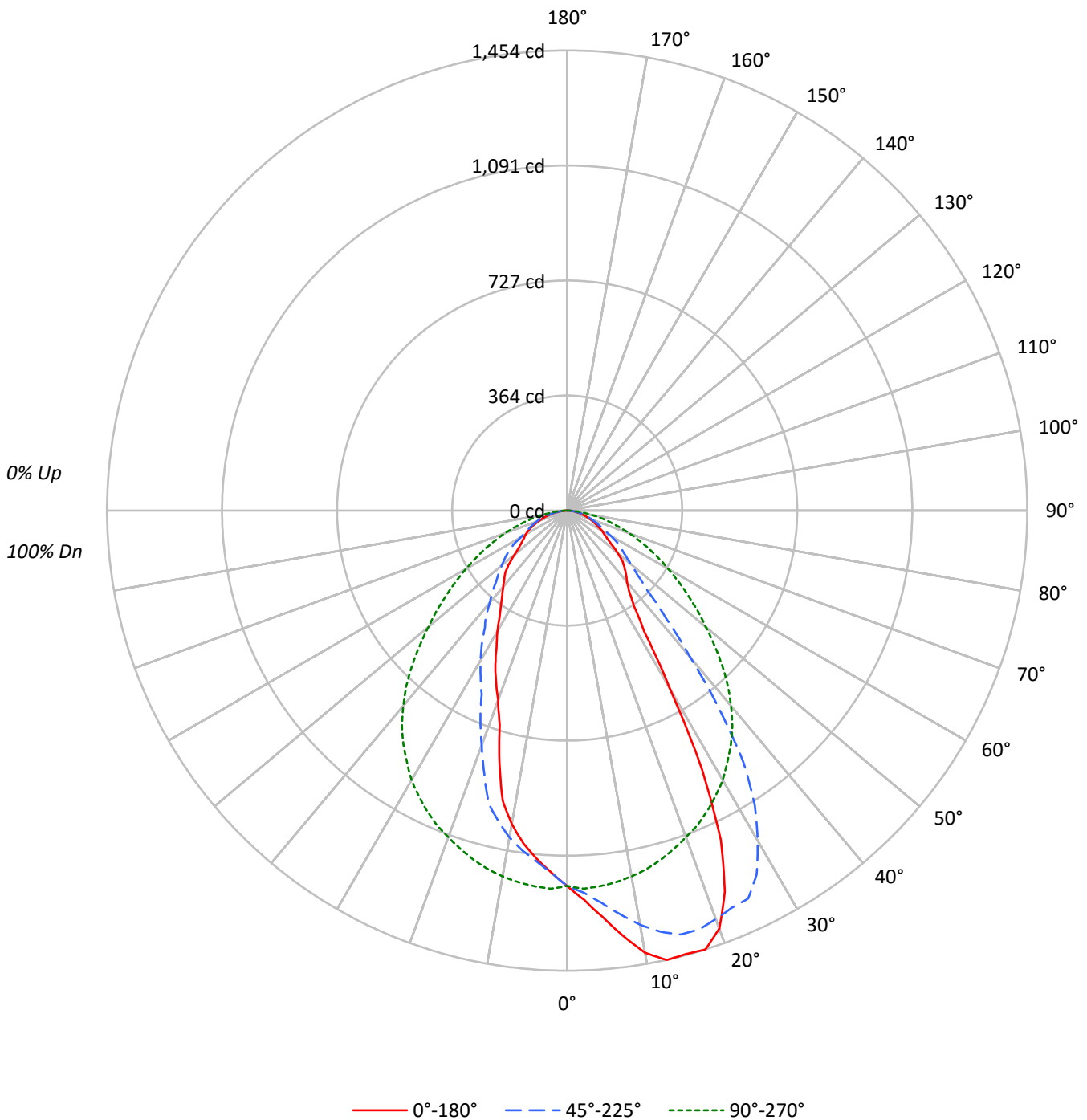
Input Watts (W): 26.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	35141	35141	35141
5°	38353	35448	32836
10°	42687	35310	30264
15°	44506	35040	25331
20°	44314	34628	20104
25°	37580	34242	17549
30°	22119	33652	15071
35°	13289	32626	13159
40°	11383	31148	12141
45°	10761	29034	11548
50°	9620	26371	9989
55°	8017	24067	9030
60°	7449	21932	8984
65°	6878	19974	8694
70°	6489	18002	8187
75°	6125	15924	7453
80°	5477	13309	6535
85°	5167	10471	5167



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	113.7	5.3
10°-20°	323.9	15.1
20°-30°	442.4	20.6
30°-40°	412.2	19.2
40°-50°	340.8	15.9
50°-60°	251.3	11.7
60°-70°	160.7	7.5
70°-80°	82.6	3.8
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°	880.1	41.0
0°-40°	1292.3	60.1
0°-60°	1884.3	87.7
0°-90°	2148.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2148.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1186	1186	1186	1186	1186	
5°	1290	1244	1192	1112	1104	127
15°	1451	1387	1142	958	826	409
25°	1150	1353	1047	639	537	499
35°	367	972	902	454	364	250
45°	257	362	693	318	276	197
55°	155	208	466	227	175	143
65°	98	113	285	132	124	98
75°	54	58	139	73	65	56
85°	15	16	31	17	15	17
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°	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0
2.5°	1231.5	1230.6	1232.0	1231.1	1230.2	1228.0	1226.2	1220.8	1212.8	1208.3	1212.8
5°	1289.5	1293.1	1291.7	1289.9	1285.9	1282.4	1274.3	1269.4	1255.2	1244.0	1247.1
7.5°	1355.5	1359.9	1354.1	1350.1	1347.9	1337.6	1328.7	1314.9	1299.3	1286.8	1279.7
10°	1418.8	1420.1	1418.3	1414.8	1407.2	1396.1	1383.1	1367.5	1347.9	1328.7	1315.8
12.5°	1454.5	1456.7	1459.4	1453.1	1447.3	1438.4	1425.0	1409.4	1385.4	1363.1	1348.3
15°	1450.9	1452.7	1457.6	1455.4	1452.7	1448.7	1441.1	1428.2	1411.2	1386.7	1365.7
17.5°	1453.6	1454.9	1457.1	1449.1	1444.7	1439.7	1429.9	1421.0	1406.8	1387.6	1372.0
20°	1405.4	1427.3	1424.6	1435.3	1439.7	1439.3	1429.9	1413.0	1393.4	1373.8	1366.6
22.5°	1302.0	1319.4	1321.6	1338.1	1358.6	1375.1	1395.6	1403.2	1388.0	1358.6	1348.8
25°	1149.5	1162.0	1174.4	1198.1	1219.9	1265.9	1307.8	1339.4	1356.8	1352.8	1333.6
27.5°	923.9	910.5	960.0	987.2	1048.3	1115.1	1174.0	1232.0	1259.6	1296.6	1315.3
30°	646.5	645.2	682.6	729.9	821.3	882.8	993.0	1086.2	1158.8	1204.3	1255.2
32.5°	453.9	460.6	488.2	517.2	567.6	667.9	752.2	880.6	1004.6	1104.0	1166.4
35°	367.4	368.3	374.5	391.9	422.7	478.4	544.0	668.8	836.9	972.0	1065.2
37.5°	321.9	324.6	326.4	336.2	347.3	371.0	412.4	498.9	638.1	788.8	950.6
40°	294.3	296.5	298.3	301.4	308.1	319.3	346.4	387.9	468.2	606.8	787.0
42.5°	275.6	274.7	278.7	280.0	283.6	289.8	301.9	324.2	370.5	464.6	619.8
45°	256.8	258.2	258.2	259.9	263.1	266.6	271.5	285.4	309.0	362.5	484.2
47.5°	237.2	236.8	239.4	240.8	243.9	247.0	250.6	257.7	271.5	302.8	373.2
50°	208.7	209.6	214.5	218.9	223.4	227.4	231.9	236.3	245.2	262.2	305.4
52.5°	178.4	178.4	183.7	186.8	193.1	202.9	210.5	217.1	222.9	231.4	257.3
55°	155.2	155.6	157.4	160.1	164.5	169.4	179.2	190.8	200.6	207.8	222.0
57.5°	139.1	139.6	140.0	142.2	144.5	146.2	152.0	161.0	173.9	186.8	195.3
60°	125.7	125.3	125.3	126.6	128.4	130.6	133.8	137.3	144.5	158.3	173.4
62.5°	110.6	111.5	111.5	112.8	114.1	116.4	117.7	121.3	125.3	131.5	147.1
65°	98.1	99.0	98.1	99.4	100.3	101.7	103.9	105.7	109.2	113.3	119.5
67.5°	85.6	86.1	86.9	87.4	88.3	88.7	90.5	92.7	95.0	97.6	102.6
70°	74.9	74.9	74.9	75.8	76.7	76.7	78.0	78.9	81.2	83.8	86.5
72.5°	63.3	63.8	63.8	63.3	65.1	65.5	66.0	66.9	68.7	70.9	73.1
75°	53.5	52.6	52.6	53.1	54.4	54.4	54.8	55.3	56.6	58.4	59.7
77.5°	41.9	41.9	42.4	42.8	43.3	43.3	44.1	44.1	45.9	46.8	47.7
80°	32.1	33.0	33.4	33.0	33.0	33.4	33.4	34.3	34.8	35.2	36.1
82.5°	24.1	24.5	23.6	23.6	24.1	24.1	24.5	24.5	25.0	25.4	25.4
85°	15.2	15.2	15.6	15.2	15.6	15.2	15.2	16.1	15.6	15.6	16.1
87.5°	7.1	7.6	7.1	7.6	7.1	7.6	7.6	7.6	7.6	7.6	7.1
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°	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0
2.5°	1211.5	1211.0	1208.8	1203.9	1200.3	1193.6	1193.6	1195.9	1184.3	1176.2	1175.8
5°	1239.5	1235.1	1227.5	1218.1	1209.7	1198.1	1193.6	1191.8	1176.2	1164.2	1160.2
7.5°	1269.4	1258.3	1245.3	1230.2	1215.9	1199.4	1190.9	1184.3	1164.2	1149.5	1140.6
10°	1300.6	1282.8	1262.7	1240.9	1221.3	1199.0	1185.2	1173.6	1150.4	1129.9	1119.6
12.5°	1328.3	1303.3	1277.9	1249.4	1222.6	1194.5	1175.3	1160.2	1133.0	1108.5	1096.0
15°	1341.2	1314.5	1293.5	1254.3	1218.1	1189.6	1165.1	1142.3	1113.4	1086.2	1067.0
17.5°	1352.4	1322.9	1295.3	1258.3	1216.4	1179.4	1149.9	1120.9	1089.7	1061.2	1037.6
20°	1349.2	1324.3	1290.4	1251.1	1211.5	1168.7	1135.2	1098.2	1059.4	1030.4	1005.5
22.5°	1331.4	1310.9	1275.7	1238.2	1199.9	1153.9	1116.0	1075.9	1028.2	996.5	968.5
25°	1308.7	1289.0	1254.3	1215.5	1177.6	1133.0	1088.4	1047.4	996.1	958.2	922.1
27.5°	1290.8	1261.4	1226.6	1183.4	1146.8	1104.4	1057.6	1016.2	960.9	919.0	877.0
30°	1270.3	1236.9	1194.1	1148.1	1109.4	1070.6	1025.1	983.6	922.5	874.8	822.6
32.5°	1211.5	1211.9	1161.1	1109.8	1068.3	1026.9	986.3	942.1	881.5	825.3	771.8
35°	1134.8	1164.6	1127.2	1068.3	1017.1	978.7	945.3	902.0	834.7	776.7	716.1
37.5°	1032.2	1084.8	1089.3	1028.2	971.6	926.5	893.5	857.4	789.7	727.2	667.0
40°	929.7	999.2	1026.9	984.5	923.0	871.3	838.3	805.3	741.5	674.2	618.4
42.5°	803.9	916.7	951.1	938.6	872.6	816.9	782.1	752.2	690.2	624.2	568.9
45°	662.1	814.6	864.6	877.5	821.8	762.0	721.9	692.9	638.5	580.5	523.0
47.5°	531.9	699.6	782.1	795.5	766.0	708.1	662.1	631.8	588.6	538.6	481.6
50°	405.8	577.4	695.6	716.1	708.9	650.1	607.7	572.1	539.1	494.5	441.0
52.5°	322.8	461.5	601.9	640.3	642.5	596.1	551.6	519.0	486.9	451.7	403.1
55°	257.7	356.7	498.9	564.0	570.3	538.2	497.2	465.9	441.9	408.9	367.9
57.5°	217.1	276.0	399.5	487.3	490.0	481.1	441.9	416.0	395.9	367.4	331.3
60°	185.5	218.9	308.1	410.7	424.0	424.0	392.8	370.1	350.9	329.5	295.2
62.5°	160.5	178.8	233.6	326.4	360.7	366.1	346.4	326.4	312.1	290.7	259.1
65°	135.1	148.9	181.0	252.4	299.6	309.4	299.6	284.9	273.8	251.5	226.5
67.5°	111.0	124.4	144.5	191.3	243.0	255.0	253.3	245.7	234.1	217.6	191.3
70°	91.9	99.9	114.6	141.8	190.8	209.1	214.5	207.8	197.5	179.7	160.5
72.5°	75.8	82.0	89.2	108.8	142.7	166.8	175.7	172.1	164.5	147.6	131.5
75°	62.0	66.0	70.9	80.3	102.6	129.8	140.0	139.1	131.5	117.3	104.3
77.5°	49.9	51.3	54.8	60.6	71.8	96.3	104.3	107.0	101.2	89.2	78.9
80°	37.5	39.2	41.0	44.1	49.5	63.8	74.0	78.0	73.1	66.0	55.7
82.5°	26.3	26.8	28.5	30.3	33.0	38.8	49.5	54.0	49.5	41.9	38.8
85°	16.5	16.1	16.5	16.9	19.6	21.0	27.6	30.8	29.9	25.4	21.8
87.5°	7.6	7.6	7.1	7.6	7.1	8.5	9.8	14.3	10.7	9.4	8.5
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°	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0	1186.0
2.5°	1172.2	1170.9	1166.4	1160.2	1154.8	1145.9	1145.9	1148.1	1147.7	1148.6	1147.7
5°	1153.5	1147.3	1140.6	1132.1	1124.1	1112.5	1111.1	1112.0	1111.6	1111.1	1108.5
7.5°	1129.4	1122.3	1113.8	1103.1	1094.2	1083.0	1079.9	1079.0	1075.5	1074.1	1070.6
10°	1106.2	1097.8	1086.6	1073.7	1061.6	1048.7	1040.7	1036.2	1030.4	1024.2	1018.8
12.5°	1080.4	1069.2	1055.0	1039.3	1019.3	1005.0	993.0	985.4	977.4	966.7	959.1
15°	1052.7	1030.0	1013.0	987.6	963.1	958.2	939.9	915.8	914.1	861.9	843.6
17.5°	1015.7	997.0	965.3	932.3	898.9	871.7	872.1	807.0	787.0	786.5	754.4
20°	977.4	951.5	914.9	881.5	846.3	790.1	745.5	724.1	691.6	679.1	660.8
22.5°	932.3	898.4	855.6	810.2	761.1	715.6	671.9	651.4	634.9	621.1	613.5
25°	878.8	844.5	793.2	736.6	681.8	639.4	615.3	606.0	577.9	568.1	558.7
27.5°	824.9	787.4	720.5	666.1	621.1	592.1	567.2	551.6	538.2	513.2	502.1
30°	773.6	713.4	658.1	608.2	574.3	547.1	528.8	497.2	478.4	466.8	461.9
32.5°	717.9	653.7	603.7	560.5	525.7	502.1	474.9	453.5	445.0	429.8	408.0
35°	660.8	602.4	550.2	515.4	485.6	453.5	436.5	416.0	394.6	383.0	381.2
37.5°	605.5	550.2	512.8	476.2	440.1	421.4	396.4	374.5	367.0	356.3	344.7
40°	555.6	508.3	473.5	431.6	409.8	380.8	361.6	350.5	332.2	328.2	324.6
42.5°	514.5	474.0	434.7	397.3	371.9	348.7	331.7	318.8	313.0	303.2	300.1
45°	473.1	435.6	395.5	366.1	337.1	317.5	305.9	294.7	288.0	285.4	280.0
47.5°	435.6	399.1	362.1	325.9	306.3	293.4	280.5	274.7	270.6	264.9	261.7
50°	400.0	359.4	324.6	301.9	280.9	269.3	260.8	255.5	249.2	243.0	234.1
52.5°	363.8	329.1	295.6	271.5	255.9	248.4	240.3	234.5	222.0	210.0	202.4
55°	327.3	291.6	264.4	246.1	235.0	227.0	217.6	200.6	189.1	182.4	178.8
57.5°	294.3	262.2	238.1	222.9	214.9	201.5	185.0	174.3	168.5	165.9	164.1
60°	259.1	231.4	211.3	199.8	187.3	169.4	160.5	155.2	153.4	152.5	151.2
62.5°	228.7	204.2	188.6	175.7	157.8	148.5	143.6	140.9	140.9	139.6	138.7
65°	196.6	177.5	164.1	145.4	136.0	132.0	130.2	128.9	127.5	127.1	125.3
67.5°	170.3	153.4	136.0	126.2	120.4	118.2	116.4	115.9	114.1	112.8	111.5
70°	143.6	127.1	112.8	108.3	105.2	104.3	102.6	100.8	99.4	97.6	96.8
72.5°	116.8	101.2	96.3	94.1	91.0	89.6	87.4	86.1	83.8	82.9	82.0
75°	89.2	82.9	80.3	78.5	76.2	73.1	72.2	70.9	70.0	68.7	67.3
77.5°	70.9	67.3	64.2	62.0	60.2	58.0	56.2	55.7	54.8	53.5	53.1
80°	53.1	50.4	49.0	46.8	44.6	43.3	42.4	41.9	40.6	40.1	39.7
82.5°	36.6	34.3	33.4	30.8	29.9	29.9	29.4	28.5	27.6	27.2	26.8
85°	20.5	19.6	18.3	18.7	17.4	17.4	16.9	16.5	16.1	15.6	15.2
87.5°	8.0	7.6	7.1	6.7	6.7	5.4	5.4	5.4	5.8	5.4	4.9
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: P242247

CATALOG NUMBER: S121RDR-S685D940-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1186.0	1186.0	1186.0	1186.0
2.5°	1149.0	1149.9	1146.8	1145.0
5°	1108.5	1107.1	1105.3	1104.0
7.5°	1067.0	1065.7	1065.7	1060.3
10°	1016.6	1013.0	1010.4	1005.9
12.5°	952.4	947.1	945.3	939.9
15°	831.1	820.0	812.4	825.8
17.5°	746.8	717.9	720.1	708.9
20°	660.3	648.8	654.6	637.6
22.5°	604.2	597.0	590.3	586.8
25°	552.0	543.5	533.3	536.8
27.5°	486.5	486.5	479.8	482.4
30°	453.0	449.4	438.3	440.5
32.5°	400.8	396.4	395.1	395.9
35°	375.9	368.7	366.5	363.8
37.5°	341.1	338.4	338.9	337.1
40°	317.9	315.7	313.0	313.9
42.5°	297.8	296.5	293.8	294.3
45°	278.2	276.9	275.6	275.6
47.5°	256.4	253.7	251.5	248.8
50°	227.8	222.5	218.5	216.7
52.5°	197.1	194.4	191.7	191.7
55°	177.5	176.1	175.2	174.8
57.5°	163.6	162.7	162.7	161.4
60°	151.2	151.2	150.7	151.6
62.5°	139.1	137.8	138.2	138.2
65°	125.3	124.8	124.4	124.0
67.5°	110.6	110.1	110.6	109.7
70°	95.9	95.9	95.4	94.5
72.5°	80.7	81.6	80.7	80.3
75°	66.4	66.0	66.4	65.1
77.5°	53.1	51.3	52.2	52.6
80°	39.2	39.2	38.8	38.3
82.5°	26.3	26.8	25.9	25.9
85°	15.2	15.2	14.3	15.2
87.5°	4.5	4.5	4.5	5.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)