

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: P242242

Luminaire Tested: **S121RDR-S685D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242242
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-S685D935-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2074.9 lumens
Efficiency: N/A
Efficacy: 78.6 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

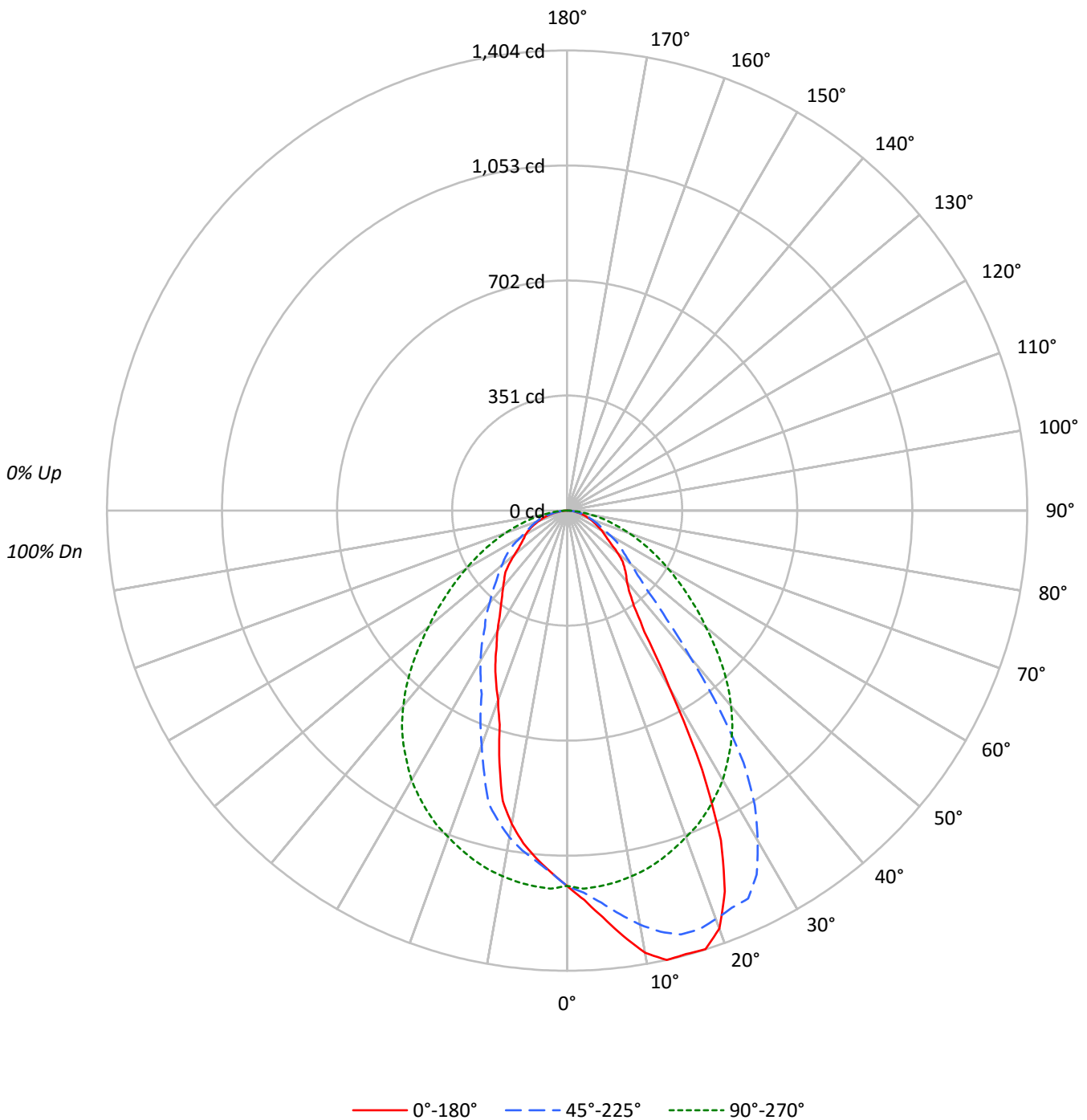
Input Watts (W): 26.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	82	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68					67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61					59				
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54					52				
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49					47				
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44					43				
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40					39				
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37					35				
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34					33				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	33932	33932	33932
5°	37033	34228	31706
10°	41216	34091	29223
15°	42973	33834	24457
20°	42788	33436	19411
25°	36286	33062	16948
30°	21359	32492	14554
35°	12834	31505	12707
40°	10989	30073	11724
45°	10392	28033	11150
50°	9288	25463	9643
55°	7738	23241	8720
60°	7194	21173	8676
65°	6639	19287	8392
70°	6263	17378	7909
75°	5919	15375	7201
80°	5290	12848	6313
85°	4963	10097	4963



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.8	5.3
10°-20°	312.8	15.1
20°-30°	427.2	20.6
30°-40°	398.0	19.2
40°-50°	329.0	15.9
50°-60°	242.6	11.7
60°-70°	155.1	7.5
70°-80°	79.8	3.8
80°-90°	20.5	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°	849.8	41.0
0°-40°	1247.8	60.1
0°-60°	1819.4	87.7
0°-90°	2074.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2074.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1145	1145	1145	1145	1145	
5°	1245	1201	1151	1074	1066	123
15°	1401	1339	1103	925	797	395
25°	1110	1306	1011	617	518	482
35°	355	938	871	438	351	241
45°	248	350	669	306	266	190
55°	150	201	450	219	169	138
65°	95	109	275	127	120	94
75°	52	56	134	71	63	54
85°	15	15	30	17	15	16
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°	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2
2.5°	1189.1	1188.2	1189.5	1188.7	1187.8	1185.7	1183.9	1178.8	1171.0	1166.7	1171.0
5°	1245.1	1248.5	1247.2	1245.5	1241.6	1238.2	1230.4	1225.7	1211.9	1201.2	1204.2
7.5°	1308.8	1313.1	1307.5	1303.6	1301.5	1291.6	1283.0	1269.6	1254.5	1242.5	1235.6
10°	1369.9	1371.2	1369.5	1366.1	1358.7	1348.0	1335.5	1320.4	1301.5	1283.0	1270.5
12.5°	1404.4	1406.5	1409.1	1403.1	1397.5	1388.9	1376.0	1360.9	1337.6	1316.1	1301.9
15°	1400.9	1402.6	1407.4	1405.2	1402.6	1398.8	1391.5	1379.0	1362.6	1338.9	1318.7
17.5°	1403.5	1404.8	1407.0	1399.2	1394.9	1390.2	1380.7	1372.1	1358.3	1339.8	1324.7
20°	1357.0	1378.1	1375.5	1385.9	1390.2	1389.7	1380.7	1364.3	1345.4	1326.4	1319.6
22.5°	1257.1	1273.9	1276.1	1292.0	1311.8	1327.7	1347.5	1354.9	1340.2	1311.8	1302.3
25°	1109.9	1121.9	1134.0	1156.8	1177.9	1222.3	1262.7	1293.3	1310.1	1306.2	1287.7
27.5°	892.0	879.1	926.9	953.2	1012.2	1076.7	1133.6	1189.5	1216.2	1252.0	1270.0
30°	624.3	623.0	659.1	704.8	793.0	852.4	958.8	1048.8	1118.9	1162.8	1211.9
32.5°	438.3	444.7	471.4	499.4	548.1	644.9	726.3	850.3	970.0	1066.0	1126.3
35°	354.8	355.6	361.6	378.4	408.1	462.0	525.2	645.8	808.1	938.5	1028.5
37.5°	310.8	313.4	315.1	324.6	335.4	358.2	398.2	481.8	616.1	761.6	917.9
40°	284.1	286.3	288.0	291.0	297.5	308.3	334.5	374.6	452.1	585.9	759.9
42.5°	266.1	265.2	269.1	270.4	273.8	279.8	291.5	313.0	357.8	448.6	598.4
45°	248.0	249.3	249.3	251.0	254.0	257.5	262.2	275.5	298.4	350.0	467.5
47.5°	229.0	228.6	231.2	232.5	235.5	238.5	242.0	248.8	262.2	292.3	360.3
50°	201.5	202.3	207.1	211.4	215.7	219.6	223.9	228.2	236.8	253.1	294.9
52.5°	172.2	172.2	177.4	180.4	186.4	195.9	203.2	209.7	215.3	223.4	248.4
55°	149.8	150.3	152.0	154.6	158.9	163.6	173.1	184.3	193.7	200.6	214.4
57.5°	134.3	134.8	135.2	137.3	139.5	141.2	146.8	155.4	167.9	180.4	188.6
60°	121.4	121.0	121.0	122.3	124.0	126.1	129.2	132.6	139.5	152.8	167.5
62.5°	106.8	107.6	107.6	108.9	110.2	112.4	113.7	117.1	121.0	127.0	142.1
65°	94.7	95.6	94.7	96.0	96.9	98.2	100.3	102.0	105.5	109.4	115.4
67.5°	82.7	83.1	84.0	84.4	85.2	85.7	87.4	89.5	91.7	94.3	99.0
70°	72.3	72.3	72.3	73.2	74.1	74.1	75.3	76.2	78.4	80.9	83.5
72.5°	61.1	61.6	61.6	61.1	62.9	63.3	63.7	64.6	66.3	68.5	70.6
75°	51.7	50.8	50.8	51.2	52.5	52.5	53.0	53.4	54.7	56.4	57.7
77.5°	40.5	40.5	40.9	41.3	41.8	41.8	42.6	42.6	44.3	45.2	46.1
80°	31.0	31.9	32.3	31.9	31.9	32.3	32.3	33.2	33.6	34.0	34.9
82.5°	23.2	23.7	22.8	22.8	23.2	23.2	23.7	23.7	24.1	24.5	24.5
85°	14.6	14.6	15.1	14.6	15.1	14.6	14.6	15.5	15.1	15.1	15.5
87.5°	6.9	7.3	6.9	7.3	6.9	7.3	7.3	7.3	7.3	7.3	6.9
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2
2.5°	1169.7	1169.3	1167.2	1162.4	1159.0	1152.5	1152.5	1154.7	1143.5	1135.7	1135.3
5°	1196.9	1192.6	1185.2	1176.2	1168.0	1156.8	1152.5	1150.8	1135.7	1124.1	1120.2
7.5°	1225.7	1214.9	1202.5	1187.8	1174.0	1158.1	1149.9	1143.5	1124.1	1109.9	1101.3
10°	1255.8	1238.6	1219.2	1198.1	1179.2	1157.7	1144.3	1133.1	1110.8	1090.9	1081.0
12.5°	1282.5	1258.4	1233.9	1206.3	1180.5	1153.4	1134.9	1120.2	1094.0	1070.3	1058.2
15°	1295.0	1269.2	1249.0	1211.1	1176.2	1148.6	1125.0	1103.0	1075.0	1048.8	1030.2
17.5°	1305.8	1277.4	1250.7	1214.9	1174.5	1138.7	1110.3	1082.3	1052.2	1024.6	1001.8
20°	1302.8	1278.7	1245.9	1208.1	1169.7	1128.4	1096.1	1060.4	1022.9	994.9	970.8
22.5°	1285.5	1265.7	1231.7	1195.6	1158.5	1114.2	1077.6	1038.9	992.8	962.2	935.1
25°	1263.6	1244.6	1211.1	1173.6	1137.0	1094.0	1050.9	1011.3	961.8	925.2	890.3
27.5°	1246.4	1218.0	1184.4	1142.6	1107.3	1066.4	1021.2	981.2	927.8	887.3	846.8
30°	1226.6	1194.3	1152.9	1108.6	1071.1	1033.7	989.8	949.7	890.8	844.7	794.3
32.5°	1169.7	1170.2	1121.1	1071.6	1031.5	991.5	952.3	909.7	851.1	796.9	745.2
35°	1095.7	1124.5	1088.4	1031.5	982.0	945.0	912.7	871.0	805.9	750.0	691.4
37.5°	996.7	1047.5	1051.8	992.8	938.1	894.6	862.8	827.9	762.5	702.2	644.1
40°	897.6	964.8	991.5	950.6	891.2	841.2	809.4	777.5	716.0	651.0	597.1
42.5°	776.2	885.2	918.3	906.3	842.5	788.7	755.1	726.3	666.5	602.7	549.3
45°	639.3	786.6	834.8	847.3	793.5	735.8	697.0	669.0	616.5	560.5	505.0
47.5°	513.6	675.5	755.1	768.1	739.6	683.7	639.3	610.1	568.3	520.1	465.0
50°	391.8	557.5	671.6	691.4	684.5	627.7	586.8	552.4	520.5	477.5	425.8
52.5°	311.7	445.6	581.2	618.2	620.4	575.6	532.6	501.1	470.1	436.1	389.2
55°	248.8	344.4	481.8	544.6	550.6	519.6	480.0	449.9	426.6	394.8	355.2
57.5°	209.7	266.5	385.7	470.6	473.1	464.5	426.6	401.7	382.3	354.8	319.9
60°	179.1	211.4	297.5	396.5	409.4	409.4	379.3	357.3	338.8	318.2	285.0
62.5°	155.0	172.6	225.6	315.1	348.3	353.5	334.5	315.1	301.4	280.7	250.1
65°	130.4	143.8	174.8	243.7	289.3	298.8	289.3	275.1	264.3	242.8	218.7
67.5°	107.2	120.1	139.5	184.7	234.6	246.3	244.5	237.2	226.0	210.1	184.7
70°	88.7	96.4	110.6	136.9	184.3	201.9	207.1	200.6	190.7	173.5	155.0
72.5°	73.2	79.2	86.1	105.0	137.8	161.0	169.6	166.2	158.9	142.5	127.0
75°	59.8	63.7	68.5	77.5	99.0	125.3	135.2	134.3	127.0	113.2	100.7
77.5°	48.2	49.5	53.0	58.6	69.3	93.0	100.7	103.3	97.7	86.1	76.2
80°	36.2	37.9	39.6	42.6	47.8	61.6	71.5	75.3	70.6	63.7	53.8
82.5°	25.4	25.8	27.6	29.3	31.9	37.5	47.8	52.1	47.8	40.5	37.5
85°	15.9	15.5	15.9	16.4	18.9	20.2	26.7	29.7	28.8	24.5	21.1
87.5°	7.3	7.3	6.9	7.3	6.9	8.2	9.5	13.8	10.3	9.0	8.2
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2	1145.2
2.5°	1131.8	1130.6	1126.3	1120.2	1115.1	1106.4	1106.4	1108.6	1108.2	1109.0	1108.2
5°	1113.8	1107.7	1101.3	1093.1	1085.4	1074.2	1072.9	1073.7	1073.3	1072.9	1070.3
7.5°	1090.5	1083.6	1075.4	1065.1	1056.5	1045.7	1042.7	1041.9	1038.4	1037.1	1033.7
10°	1068.1	1060.0	1049.2	1036.7	1025.1	1012.6	1004.8	1000.5	994.9	988.9	983.7
12.5°	1043.2	1032.4	1018.6	1003.6	984.2	970.4	958.8	951.5	943.7	933.4	926.1
15°	1016.5	994.5	978.2	953.6	929.9	925.2	907.5	884.3	882.6	832.2	814.6
17.5°	980.7	962.7	932.1	900.2	867.9	841.7	842.1	779.2	759.9	759.4	728.4
20°	943.7	918.7	883.4	851.1	817.1	762.9	719.8	699.2	667.7	655.7	638.0
22.5°	900.2	867.5	826.2	782.3	734.9	691.0	648.8	629.0	613.1	599.7	592.4
25°	848.6	815.4	765.9	711.2	658.3	617.4	594.1	585.1	558.0	548.5	539.4
27.5°	796.5	760.3	695.7	643.2	599.7	571.7	547.6	532.6	519.6	495.5	484.8
30°	747.0	688.8	635.5	587.2	554.5	528.3	510.6	480.0	462.0	450.8	446.0
32.5°	693.1	631.1	582.9	541.2	507.6	484.8	458.5	437.8	429.7	415.0	393.9
35°	638.0	581.6	531.3	497.7	468.8	437.8	421.5	401.7	381.0	369.8	368.1
37.5°	584.7	531.3	495.1	459.8	424.9	406.8	382.7	361.6	354.3	344.0	332.8
40°	536.4	490.8	457.2	416.7	395.7	367.7	349.2	338.4	320.7	316.9	313.4
42.5°	496.8	457.6	419.8	383.6	359.1	336.7	320.3	307.8	302.2	292.8	289.7
45°	456.8	420.6	381.9	353.5	325.5	306.5	295.3	284.6	278.1	275.5	270.4
47.5°	420.6	385.3	349.6	314.7	295.8	283.3	270.8	265.2	261.3	255.7	252.7
50°	386.2	347.0	313.4	291.5	271.2	260.0	251.9	246.7	240.7	234.6	226.0
52.5°	351.3	317.7	285.4	262.2	247.1	239.8	232.1	226.5	214.4	202.8	195.5
55°	316.0	281.6	255.3	237.6	226.9	219.1	210.1	193.7	182.5	176.1	172.6
57.5°	284.1	253.1	229.9	215.3	207.5	194.6	178.7	168.3	162.7	160.2	158.4
60°	250.1	223.4	204.1	192.9	180.8	163.6	155.0	149.8	148.1	147.2	145.9
62.5°	220.9	197.2	182.1	169.6	152.4	143.4	138.6	136.0	136.0	134.8	133.9
65°	189.9	171.3	158.4	140.4	131.3	127.4	125.7	124.4	123.1	122.7	121.0
67.5°	164.5	148.1	131.3	121.8	116.2	114.1	112.4	111.9	110.2	108.9	107.6
70°	138.6	122.7	108.9	104.6	101.6	100.7	99.0	97.3	96.0	94.3	93.4
72.5°	112.8	97.7	93.0	90.8	87.8	86.5	84.4	83.1	80.9	80.1	79.2
75°	86.1	80.1	77.5	75.8	73.6	70.6	69.7	68.5	67.6	66.3	65.0
77.5°	68.5	65.0	62.0	59.8	58.1	56.0	54.2	53.8	53.0	51.7	51.2
80°	51.2	48.6	47.4	45.2	43.1	41.8	40.9	40.5	39.2	38.7	38.3
82.5°	35.3	33.2	32.3	29.7	28.8	28.8	28.4	27.6	26.7	26.3	25.8
85°	19.8	18.9	17.7	18.1	16.8	16.8	16.4	15.9	15.5	15.1	14.6
87.5°	7.7	7.3	6.9	6.5	6.5	5.2	5.2	5.2	5.6	5.2	4.7
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: P242242

CATALOG NUMBER: S121RDR-S685D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1145.2	1145.2	1145.2	1145.2
2.5°	1109.5	1110.3	1107.3	1105.6
5°	1070.3	1069.0	1067.3	1066.0
7.5°	1030.2	1029.0	1029.0	1023.8
10°	981.6	978.2	975.6	971.3
12.5°	919.6	914.4	912.7	907.5
15°	802.5	791.7	784.4	797.3
17.5°	721.1	693.1	695.3	684.5
20°	637.6	626.4	632.0	615.6
22.5°	583.4	576.5	570.0	566.6
25°	533.0	524.8	514.9	518.4
27.5°	469.7	469.7	463.2	465.8
30°	437.4	434.0	423.2	425.4
32.5°	387.0	382.7	381.4	382.3
35°	362.9	356.0	353.9	351.3
37.5°	329.4	326.8	327.2	325.5
40°	307.0	304.8	302.2	303.1
42.5°	287.6	286.3	283.7	284.1
45°	268.6	267.4	266.1	266.1
47.5°	247.6	245.0	242.8	240.2
50°	220.0	214.8	211.0	209.2
52.5°	190.3	187.7	185.1	185.1
55°	171.3	170.1	169.2	168.8
57.5°	158.0	157.1	157.1	155.8
60°	145.9	145.9	145.5	146.4
62.5°	134.3	133.0	133.5	133.5
65°	121.0	120.5	120.1	119.7
67.5°	106.8	106.3	106.8	105.9
70°	92.6	92.6	92.1	91.3
72.5°	77.9	78.8	77.9	77.5
75°	64.1	63.7	64.1	62.9
77.5°	51.2	49.5	50.4	50.8
80°	37.9	37.9	37.5	37.0
82.5°	25.4	25.8	25.0	25.0
85°	14.6	14.6	13.8	14.6
87.5°	4.3	4.3	4.3	5.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)