

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: P332660-930

Luminaire Tested: **S124DIP-S1020D1035U930-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332660-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D1035U930-4F0-1E-UDD-F4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1035 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6625.4 lumens  
Efficiency: N/A  
Efficacy: 109.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse

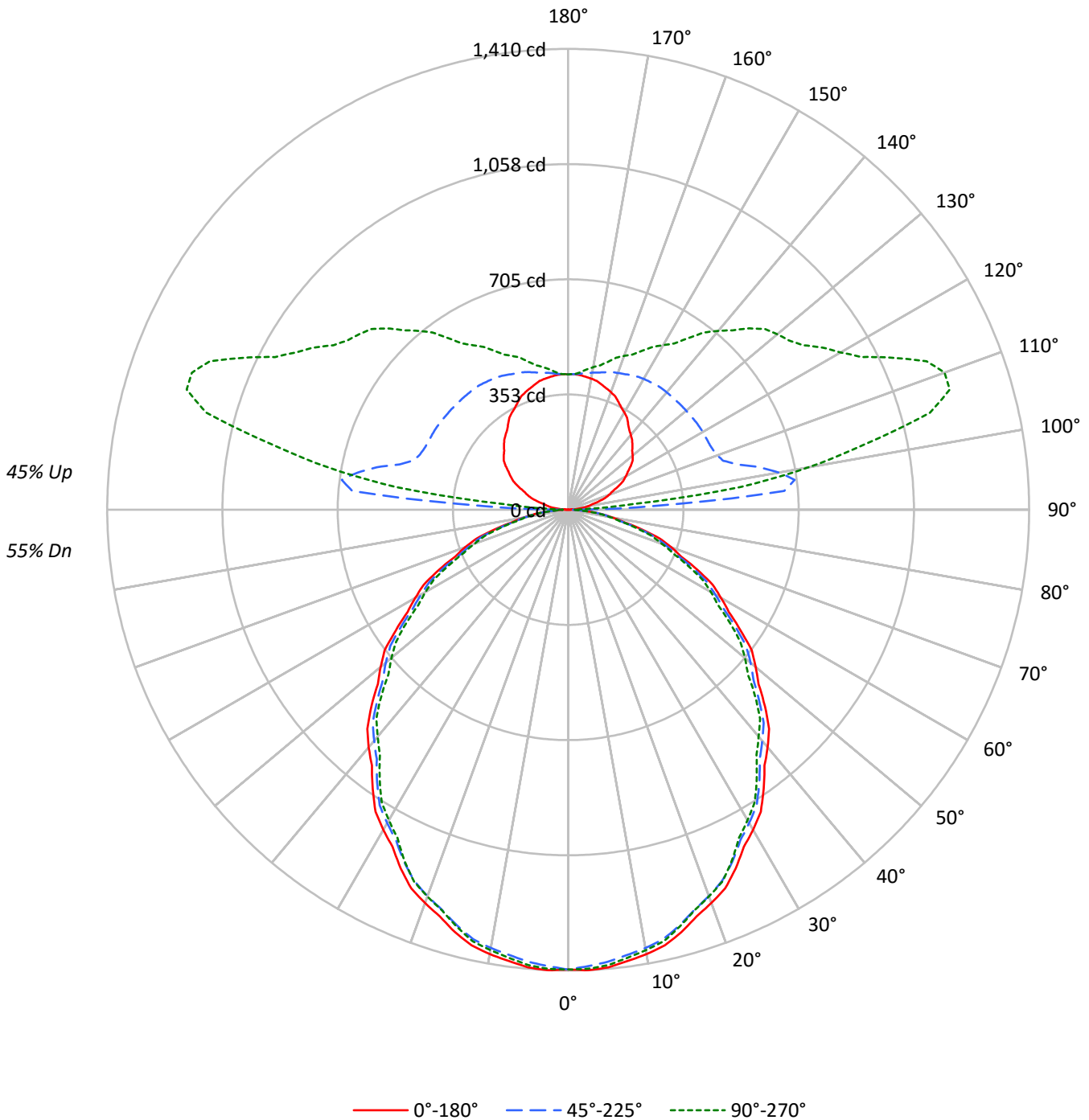
Input Watts (W): 60.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60	55
1	99	94	90	87	91	88	84	81	75	73	70	64	62	60	53	52	51	46
2	90	82	76	71	83	77	71	67	66	62	58	56	53	50	47	45	43	38
3	82	72	65	59	76	67	61	56	58	53	49	50	46	43	41	39	36	32
4	75	64	56	50	69	60	53	47	52	46	42	44	40	37	37	34	31	28
5	69	57	49	43	64	53	46	41	46	40	36	40	35	32	33	30	27	24
6	64	51	43	37	59	48	41	35	42	36	31	36	31	28	30	27	24	21
7	59	46	38	33	54	43	36	31	38	32	28	33	28	25	28	24	21	19
8	55	42	34	29	51	39	32	28	35	29	25	30	25	22	25	22	19	17
9	51	38	31	26	47	36	29	25	32	26	22	27	23	20	24	20	17	15
10	47	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16	14

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

	0°	45°	90°
0°	11357	11357	11357
5°	11391	11255	11336
10°	11320	11163	11218
15°	11183	11004	11032
20°	11001	10808	10817
25°	10794	10583	10553
30°	10540	10318	10224
35°	10276	10042	9909
40°	10003	9729	9551
45°	9717	9421	9240
50°	9401	9146	8862
55°	9060	8790	8504
60°	8719	8391	8136
65°	8334	8010	7687
70°	7903	7504	7211
75°	7243	6890	6716
80°	6448	6183	6025
85°	5641	5428	5326



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	132.5	2.0
10°-20°	373.3	5.6
20°-30°	549.4	8.3
30°-40°	638.7	9.6
40°-50°	638.7	9.6
50°-60°	558.7	8.4
60°-70°	414.9	6.3
70°-80°	235.7	3.6
80°-90°	70.3	1.1
90°-100°	299.2	4.5
100°-110°	622.8	9.4
110°-120°	557.8	8.4
120°-130°	469.2	7.1
130°-140°	391.2	5.9
140°-150°	298.9	4.5
150°-160°	210.1	3.2
160°-170°	123.6	1.9
170°-180°	40.2	0.6
0°-30°	1055.2	15.9
0°-40°	1693.9	25.6
0°-60°	2891.3	43.6
0°-90°	3612.3	54.5
90°-120°	1479.8	22.3
90°-150°	2639.2	39.8
90°-180°	3013.0	45.5
0°-180°	6625.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1407	1407	1407	1407	1407	
5°	1406	1401	1389	1400	1399	133
15°	1338	1333	1317	1323	1320	377
25°	1212	1204	1188	1189	1185	557
35°	1043	1034	1019	1011	1006	652
45°	851	843	825	813	809	656
55°	644	640	624	611	604	576
65°	436	430	419	408	402	432
75°	232	227	221	217	215	247
85°	61	61	59	59	58	67
90°	1	6	15	16	17	5
95°	27	85	663	328	199	30
105°	95	138	534	1150	1145	102
115°	168	210	476	915	1100	166
125°	234	278	474	778	877	208
135°	278	330	470	691	785	214
145°	320	366	467	583	641	201
155°	364	393	454	514	536	168
165°	396	409	436	461	468	112
175°	413	414	418	423	422	39
180°	414	414	414	414	414	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8
2.5°	1410.4	1409.8	1409.2	1408.6	1408.0	1406.6	1404.4	1402.2	1400.0	1397.7	1399.8
5°	1405.7	1404.7	1403.7	1402.6	1401.7	1399.8	1397.0	1394.2	1391.6	1388.8	1391.6
7.5°	1392.6	1391.6	1390.6	1389.6	1388.6	1386.6	1383.5	1380.5	1377.4	1374.4	1376.6
10°	1380.9	1379.9	1378.8	1377.9	1376.9	1374.8	1371.5	1368.2	1365.0	1361.7	1363.7
12.5°	1365.5	1364.6	1363.5	1362.5	1361.5	1359.3	1355.8	1352.4	1348.9	1345.5	1347.7
15°	1338.1	1337.0	1336.0	1335.1	1334.0	1331.6	1327.9	1324.1	1320.4	1316.6	1318.1
17.5°	1304.9	1303.7	1302.4	1301.1	1299.9	1297.5	1293.9	1290.4	1286.8	1283.3	1284.2
20°	1280.5	1279.3	1278.1	1276.8	1275.5	1273.0	1269.3	1265.5	1261.8	1258.0	1258.7
22.5°	1254.4	1252.7	1251.1	1249.4	1247.8	1245.0	1241.3	1237.5	1233.8	1230.0	1231.4
25°	1211.8	1210.1	1208.3	1206.5	1204.8	1202.2	1198.7	1195.1	1191.6	1188.1	1188.4
27.5°	1163.1	1161.3	1159.4	1157.6	1155.8	1153.3	1150.1	1146.8	1143.5	1140.3	1139.7
30°	1130.7	1128.6	1126.6	1124.6	1122.6	1120.0	1116.7	1113.5	1110.2	1106.9	1106.0
32.5°	1096.3	1094.5	1092.7	1091.0	1089.2	1086.5	1083.0	1079.6	1076.1	1072.7	1071.5
35°	1042.7	1041.0	1039.2	1037.5	1035.7	1033.1	1029.6	1026.1	1022.5	1019.0	1017.2
37.5°	986.1	984.5	982.9	981.3	979.7	977.1	973.2	969.5	965.7	962.0	960.1
40°	949.2	947.1	945.1	943.1	941.1	938.2	934.5	930.7	927.0	923.2	920.7
42.5°	909.5	908.2	907.0	905.9	904.7	902.0	897.8	893.6	889.5	885.3	882.4
45°	851.1	849.3	847.6	845.8	844.1	841.1	837.1	833.2	829.2	825.2	822.4
47.5°	789.9	788.8	787.6	786.4	785.1	782.7	779.0	775.3	771.6	767.8	764.8
50°	748.5	747.5	746.5	745.5	744.4	742.2	738.7	735.2	731.7	728.2	724.7
52.5°	707.9	706.7	705.5	704.3	703.1	700.7	696.9	693.2	689.5	685.8	682.7
55°	643.7	642.9	642.1	641.4	640.7	638.5	635.0	631.5	628.0	624.5	621.5
57.5°	582.4	581.5	580.7	579.8	578.9	576.7	573.3	569.9	566.4	563.0	560.1
60°	540.0	538.7	537.4	536.2	534.9	532.7	529.5	526.2	522.9	519.7	517.4
62.5°	498.5	497.4	496.4	495.3	494.2	492.0	488.5	485.1	481.6	478.2	476.1
65°	436.3	435.0	433.7	432.5	431.2	429.3	426.8	424.4	421.8	419.3	416.9
67.5°	373.6	372.4	371.3	370.1	368.9	367.2	364.8	362.4	360.0	357.6	355.1
70°	334.8	333.0	331.3	329.5	327.8	325.9	323.9	321.9	319.9	317.9	315.8
72.5°	293.3	291.6	289.8	288.0	286.3	284.6	283.0	281.4	279.8	278.2	276.6
75°	232.2	231.0	229.7	228.4	227.2	225.9	224.7	223.5	222.2	220.9	220.0
77.5°	173.8	173.3	172.7	172.2	171.6	170.8	169.7	168.6	167.5	166.4	166.1
80°	138.7	137.9	137.1	136.4	135.7	135.0	134.5	134.0	133.5	133.0	132.5
82.5°	104.4	104.0	103.7	103.3	103.0	102.7	102.6	102.6	102.5	102.3	102.1
85°	60.9	60.9	60.9	60.9	60.9	60.7	60.1	59.6	59.1	58.6	58.6
87.5°	23.6	23.7	24.1	24.0	24.0	23.7	24.5	24.3	24.5	24.5	24.4
90°	0.8	2.4	4.9	5.7	6.5	6.5	11.4	11.4	13.0	14.7	13.9
92.5°	9.3	13.5	21.2	31.1	43.0	59.9	101.3	164.4	225.9	258.2	215.1
95°	26.8	29.3	37.4	48.0	67.6	101.7	172.5	306.1	500.6	663.3	682.1
97.5°	48.2	48.2	55.2	65.0	81.7	110.4	164.9	275.1	468.5	698.6	856.9
100°	61.9	61.9	67.6	77.3	92.8	118.9	166.9	258.9	424.9	654.4	862.7
102.5°	74.8	76.1	81.2	90.3	105.2	129.9	173.3	254.3	395.6	599.1	813.9
105°	95.2	97.7	101.7	111.5	126.1	149.8	188.8	256.4	370.3	533.9	725.2
107.5°	117.7	119.4	123.4	133.8	147.8	171.0	206.9	268.4	365.7	497.5	653.5
110°	132.6	134.3	138.4	148.1	162.8	184.7	220.5	277.5	367.0	485.1	617.8



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	147.0	148.6	153.4	162.5	177.1	199.1	233.6	287.3	371.0	479.2	597.6
115°	167.7	170.1	175.8	183.9	199.4	221.4	254.0	302.8	378.5	476.1	578.7
117.5°	189.1	191.4	196.5	205.5	219.9	242.7	273.6	318.5	386.5	475.3	570.2
120°	203.5	205.1	210.8	219.7	233.6	256.4	287.3	329.6	392.3	475.3	565.7
122.5°	216.5	218.1	223.8	232.1	247.3	269.4	300.4	340.1	398.2	474.7	560.4
125°	233.6	236.8	241.7	250.7	266.1	288.9	318.2	355.7	407.0	473.7	551.9
127.5°	248.7	251.4	257.2	267.4	283.6	306.6	334.8	369.2	413.9	471.9	540.3
130°	257.2	260.5	266.9	279.2	294.6	318.2	345.9	377.6	419.1	471.2	533.1
132.5°	265.6	268.2	276.7	288.3	305.1	327.3	355.1	386.1	423.7	470.6	526.6
135°	277.5	280.8	288.9	302.8	319.8	341.0	367.9	397.2	430.6	469.6	516.8
137.5°	289.4	292.5	301.5	314.6	332.4	352.6	377.6	405.0	434.6	469.4	508.3
140°	297.9	300.4	309.3	323.1	340.2	359.8	384.2	410.2	437.9	468.8	503.9
142.5°	307.0	309.5	317.7	330.9	347.4	366.2	390.0	414.1	440.5	468.8	499.9
145°	319.8	322.3	330.4	341.9	357.3	375.2	396.4	418.3	442.0	467.2	493.3
147.5°	334.4	335.2	342.3	354.1	366.9	383.0	402.9	422.1	442.8	464.2	487.2
150°	343.5	344.3	350.8	360.6	372.8	388.2	406.2	424.0	442.8	462.3	482.7
152.5°	352.0	352.1	358.7	367.7	378.6	392.8	408.8	425.3	441.5	459.0	477.4
155°	363.8	364.6	369.5	377.6	386.6	398.8	412.6	426.5	439.5	454.2	469.6
157.5°	375.4	375.4	379.9	386.3	394.1	403.7	415.4	426.5	437.4	449.1	461.6
160°	382.5	382.5	385.8	391.5	398.0	407.0	416.7	426.5	435.5	445.2	455.8
162.5°	389.1	388.4	391.0	396.1	401.9	409.0	418.0	426.5	433.5	441.3	450.6
165°	396.4	396.4	398.0	402.1	406.2	411.0	418.3	424.9	429.7	435.5	442.0
167.5°	403.7	402.9	403.7	406.8	409.1	412.8	418.2	422.9	425.8	429.6	434.1
170°	407.0	406.2	407.0	409.4	411.0	413.4	417.5	421.6	423.2	425.7	428.9
172.5°	410.2	409.4	409.5	411.3	412.3	414.1	416.9	420.3	420.6	421.8	424.4
175°	413.4	412.6	412.6	413.4	414.3	414.3	415.9	418.3	417.5	417.5	419.1
177.5°	414.9	414.3	413.6	414.3	414.3	414.3	414.9	416.2	414.9	414.9	415.6
180°	414.3	414.3	414.3	414.3	414.3	414.3	414.3	414.3	414.3	414.3	414.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8	1406.8
2.5°	1401.7	1403.8	1405.8	1406.7	1406.5	1406.3	1406.1	1405.9
5°	1394.2	1397.0	1399.8	1400.9	1400.4	1399.9	1399.4	1398.9
7.5°	1378.8	1381.0	1383.2	1384.1	1383.8	1383.5	1383.2	1382.9
10°	1365.7	1367.7	1369.7	1370.4	1369.9	1369.5	1369.0	1368.5
12.5°	1349.9	1352.1	1354.3	1355.0	1354.4	1353.6	1352.9	1352.3
15°	1319.6	1321.1	1322.7	1323.0	1322.3	1321.5	1320.8	1320.0
17.5°	1285.2	1286.1	1287.0	1287.3	1286.8	1286.3	1285.8	1285.2
20°	1259.5	1260.3	1261.0	1261.1	1260.6	1260.1	1259.6	1259.1
22.5°	1232.7	1234.1	1235.4	1235.7	1234.8	1233.9	1233.0	1232.1
25°	1188.6	1188.9	1189.1	1188.7	1187.7	1186.7	1185.7	1184.7
27.5°	1139.1	1138.5	1137.9	1137.0	1135.7	1134.5	1133.2	1132.0
30°	1105.0	1103.9	1102.9	1101.8	1100.6	1099.3	1098.0	1096.8
32.5°	1070.2	1069.1	1067.9	1066.7	1065.4	1064.1	1062.9	1061.6
35°	1015.5	1013.7	1012.0	1010.5	1009.3	1008.0	1006.7	1005.5
37.5°	958.1	956.3	954.4	952.6	951.0	949.3	947.6	946.0
40°	918.2	915.7	913.2	911.3	910.0	908.8	907.6	906.3
42.5°	879.5	876.6	873.7	871.8	871.0	870.1	869.3	868.5
45°	819.6	816.8	814.1	812.4	811.6	810.9	810.1	809.3
47.5°	761.7	758.6	755.5	752.9	751.1	749.1	747.2	745.3
50°	721.2	717.7	714.2	711.7	710.1	708.7	707.2	705.6
52.5°	679.6	676.5	673.4	670.9	669.0	667.1	665.2	663.2
55°	618.5	615.5	612.5	610.3	608.7	607.2	605.7	604.2
57.5°	557.3	554.4	551.5	549.3	547.9	546.5	545.0	543.6
60°	515.2	512.9	510.6	508.9	507.6	506.4	505.2	503.9
62.5°	474.1	472.0	469.9	468.3	467.1	465.8	464.6	463.3
65°	414.3	411.8	409.3	407.4	406.2	405.0	403.7	402.4
67.5°	352.8	350.3	348.0	346.6	346.2	345.8	345.5	345.2
70°	313.9	311.9	309.9	308.5	307.8	307.0	306.2	305.5
72.5°	275.0	273.4	271.8	270.6	269.9	269.1	268.4	267.6
75°	218.9	217.9	217.0	216.3	216.1	215.8	215.6	215.3
77.5°	165.8	165.5	165.2	164.7	164.0	163.4	162.7	162.1
80°	132.0	131.5	131.0	130.6	130.4	130.1	129.9	129.6
82.5°	101.7	101.4	101.2	100.9	100.6	100.4	100.1	99.9
85°	58.6	58.6	58.6	58.5	58.2	58.0	57.7	57.5
87.5°	24.5	24.7	24.9	24.9	25.0	25.2	25.0	25.0
90°	14.7	15.5	16.3	16.3	17.1	17.9	17.1	17.1
92.5°	159.9	120.3	95.7	79.4	69.9	65.5	62.7	62.7
95°	603.1	477.0	367.9	288.9	249.1	223.8	209.2	198.6
97.5°	891.1	844.2	764.6	679.6	621.2	572.2	547.8	530.8
100°	981.6	997.8	958.0	897.7	827.0	777.3	752.8	746.4
102.5°	977.1	1057.8	1069.3	1044.2	1000.8	964.8	939.1	933.9
105°	911.6	1052.4	1132.9	1166.4	1168.0	1161.5	1150.1	1145.2
107.5°	818.6	968.6	1082.1	1154.6	1194.8	1213.4	1221.6	1223.7
110°	762.6	903.4	1021.5	1111.0	1168.8	1203.0	1217.6	1225.0





TEST NUMBER: P332660-930

CATALOG NUMBER: S124DIP-S1020D1035U930-4F0-1E-UDD-F4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	721.6	846.1	957.7	1047.2	1112.8	1154.1	1174.7	1186.5
115°	680.4	780.6	875.8	953.9	1018.2	1067.1	1093.1	1099.6
117.5°	660.2	743.1	818.0	884.3	939.1	980.2	1006.5	1011.5
120°	651.1	726.8	792.0	849.7	896.1	932.0	953.1	962.1
122.5°	643.4	716.4	775.7	826.3	865.5	896.1	914.0	923.0
125°	630.0	699.9	756.1	800.9	833.5	857.0	872.5	877.4
127.5°	613.7	680.6	736.6	779.1	811.8	832.8	845.8	850.7
130°	600.7	665.0	720.3	763.4	796.8	817.2	830.2	835.1
132.5°	587.0	647.4	701.4	744.6	777.3	800.2	812.6	817.5
135°	568.1	621.0	670.7	711.3	744.0	766.7	779.8	784.6
137.5°	551.1	595.8	637.6	674.4	704.8	727.3	738.1	744.0
140°	541.3	579.5	616.1	650.3	678.8	696.8	708.1	714.6
142.5°	532.1	565.8	597.3	626.9	652.1	668.7	678.8	683.4
145°	519.3	547.0	571.4	594.2	614.5	628.4	636.5	640.6
147.5°	508.7	530.7	550.2	568.1	583.1	595.0	601.2	602.6
150°	502.2	520.9	537.2	551.9	564.8	575.4	580.3	581.1
152.5°	495.0	511.1	526.1	538.2	549.3	557.8	560.8	561.6
155°	484.3	497.3	509.5	519.3	527.4	533.9	536.4	536.4
157.5°	472.7	483.6	493.9	501.7	507.8	512.7	514.2	514.2
160°	465.5	474.5	483.5	490.0	494.9	499.8	500.6	500.6
162.5°	458.4	466.0	473.0	478.9	482.5	487.4	488.2	487.5
165°	448.5	453.4	459.0	463.1	466.4	469.6	468.8	468.0
167.5°	438.9	442.6	447.2	449.6	451.3	453.4	453.2	452.6
170°	433.0	435.5	438.7	441.2	442.8	443.6	442.8	442.8
172.5°	427.8	429.6	431.5	433.3	434.3	435.1	434.3	433.0
175°	420.8	421.6	423.2	423.2	423.2	424.9	423.2	421.6
177.5°	416.2	416.9	416.9	417.5	416.9	417.5	416.2	414.9
180°	414.3	414.3	414.3	414.3	414.3	414.3	414.3	414.3

(END OF REPORT)