

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: P332640-927

Luminaire Tested: **S124DIP-S1020D590U927-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332640-927  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D590U927-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5378.3 lumens  
Efficiency: N/A  
Efficacy: 110.2 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: Semi-Direct

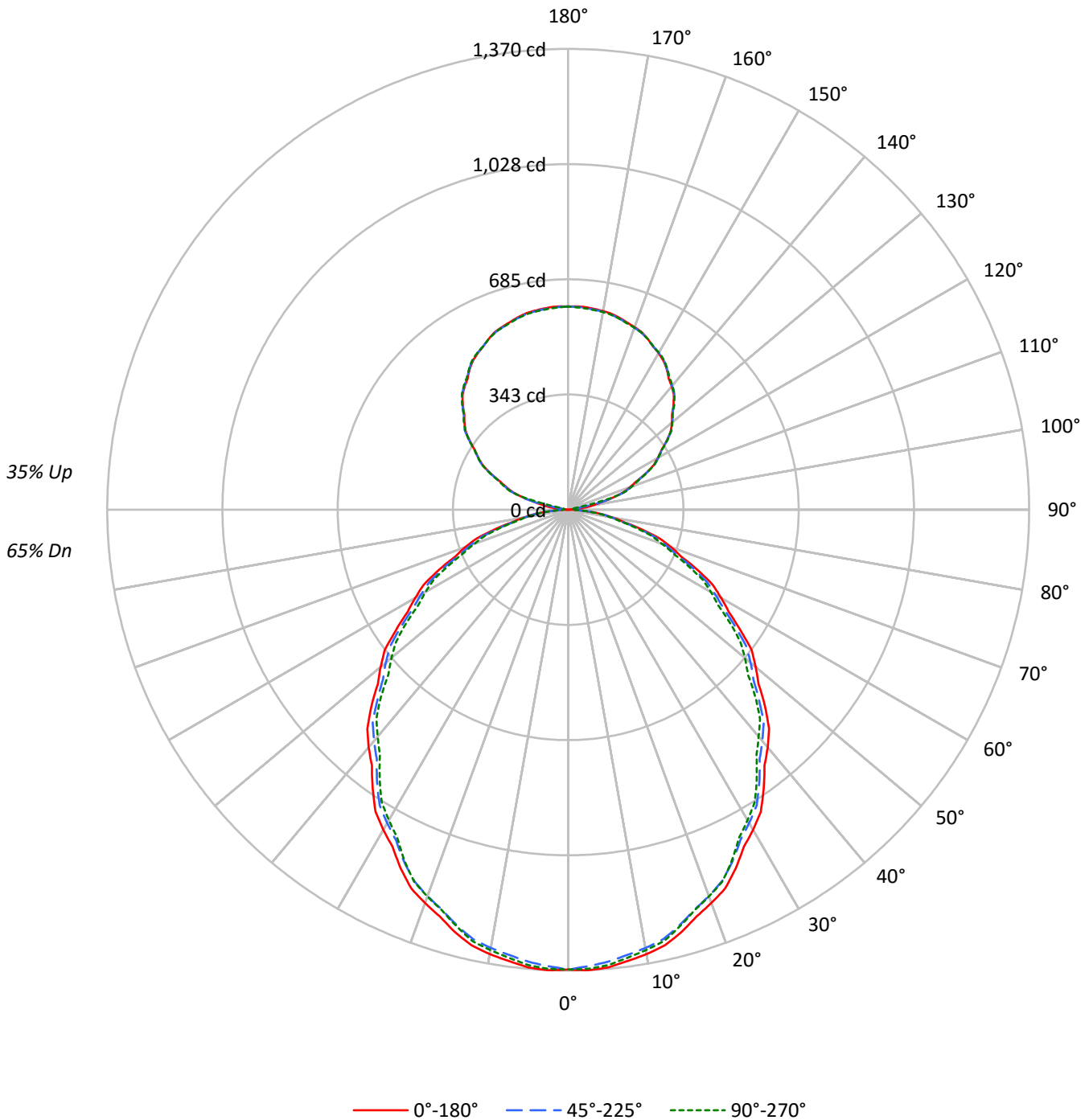
Input Watts (W): 48.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0	
RCR																						
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	70	70	70	65				
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	61	59	55				
2	92	84	78	73	86	80	74	69	71	66	62	62	59	56	54	52	50	46				
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42	39				
4	77	66	58	51	72	62	55	49	55	50	45	49	44	41	43	40	37	33				
5	71	59	50	44	66	56	48	42	50	43	39	44	39	35	39	35	32	29				
6	65	53	44	38	61	50	42	37	45	39	34	40	35	31	35	31	28	25				
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25	23				
8	56	43	35	30	53	41	34	29	37	31	27	33	28	25	30	26	22	20				
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20	18				
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	18	17				

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

	0°	45°	90°
0°	11035	11035	11035
5°	11068	10935	11015
10°	10999	10846	10900
15°	10866	10692	10719
20°	10689	10501	10510
25°	10488	10283	10253
30°	10241	10026	9934
35°	9984	9758	9629
40°	9720	9454	9280
45°	9442	9154	8978
50°	9134	8887	8611
55°	8802	8541	8263
60°	8472	8152	7905
65°	8097	7782	7469
70°	7678	7291	7006
75°	7037	6697	6525
80°	6267	6007	5858
85°	5483	5280	5169



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	128.7	2.4
10°-20°	362.7	6.7
20°-30°	533.8	9.9
30°-40°	620.6	11.5
40°-50°	620.6	11.5
50°-60°	542.9	10.1
60°-70°	403.2	7.5
70°-80°	229.1	4.3
80°-90°	67.9	1.3
90°-100°	20.7	0.4
100°-110°	131.7	2.4
110°-120°	252.0	4.7
120°-130°	319.9	5.9
130°-140°	342.3	6.4
140°-150°	320.1	6.0
150°-160°	258.1	4.8
160°-170°	166.5	3.1
170°-180°	57.4	1.1
0°-30°	1025.2	19.1
0°-40°	1645.9	30.6
0°-60°	2809.4	52.2
0°-90°	3509.5	65.3
90°-120°	404.5	7.5
90°-150°	1386.8	25.8
90°-180°	1869.0	34.8
0°-180°	5378.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1367	1367	1367	1367	1367	
5°	1366	1361	1349	1361	1359	129
15°	1300	1295	1279	1285	1282	366
25°	1177	1169	1154	1155	1151	541
35°	1013	1005	990	983	977	633
45°	827	819	802	790	786	637
55°	625	621	607	594	587	560
65°	424	418	407	397	391	420
75°	226	220	215	210	209	240
85°	59	59	57	57	56	65
90°	1	6	10	13	14	4
95°	25	10	10	13	13	32
105°	136	139	141	144	129	142
115°	254	255	255	256	256	250
125°	357	359	358	359	360	319
135°	443	442	444	445	446	341
145°	511	512	512	512	513	319
155°	560	560	559	561	559	258
165°	591	588	588	592	588	167
175°	604	602	602	605	601	58
180°	604	604	604	604	604	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9
2.5°	1370.4	1369.8	1369.2	1368.7	1368.1	1366.7	1364.5	1362.4	1360.3	1358.1	1360.1
5°	1365.8	1364.9	1363.9	1362.9	1361.9	1360.1	1357.4	1354.7	1352.1	1349.4	1352.1
7.5°	1353.1	1352.1	1351.1	1350.2	1349.2	1347.3	1344.3	1341.3	1338.3	1335.4	1337.5
10°	1341.7	1340.8	1339.7	1338.8	1337.8	1335.8	1332.6	1329.4	1326.3	1323.1	1325.0
12.5°	1326.8	1325.9	1324.8	1323.9	1322.9	1320.7	1317.4	1314.1	1310.7	1307.3	1309.5
15°	1300.1	1299.1	1298.1	1297.2	1296.2	1293.9	1290.2	1286.6	1282.9	1279.3	1280.7
17.5°	1267.9	1266.7	1265.4	1264.2	1263.1	1260.7	1257.2	1253.8	1250.3	1246.9	1247.8
20°	1244.2	1243.0	1241.8	1240.6	1239.4	1236.9	1233.3	1229.6	1226.0	1222.3	1223.1
22.5°	1218.9	1217.2	1215.6	1214.0	1212.4	1209.7	1206.1	1202.5	1198.8	1195.2	1196.5
25°	1177.4	1175.8	1174.0	1172.3	1170.6	1168.1	1164.7	1161.3	1157.9	1154.4	1154.7
27.5°	1130.1	1128.4	1126.6	1124.8	1123.1	1120.6	1117.5	1114.3	1111.1	1107.9	1107.4
30°	1098.6	1096.6	1094.6	1092.7	1090.8	1088.2	1085.1	1081.9	1078.7	1075.5	1074.6
32.5°	1065.2	1063.5	1061.8	1060.0	1058.3	1055.7	1052.3	1049.0	1045.6	1042.3	1041.1
35°	1013.1	1011.5	1009.7	1008.1	1006.3	1003.8	1000.4	997.0	993.6	990.1	988.4
37.5°	958.1	956.6	955.1	953.5	951.9	949.4	945.6	942.0	938.3	934.7	932.9
40°	922.3	920.3	918.3	916.4	914.4	911.6	908.0	904.4	900.7	897.1	894.6
42.5°	883.7	882.5	881.3	880.2	879.0	876.4	872.4	868.3	864.3	860.2	857.4
45°	827.0	825.2	823.6	821.8	820.1	817.3	813.4	809.5	805.6	801.8	799.1
47.5°	767.5	766.4	765.2	764.1	762.9	760.5	756.9	753.3	749.7	746.1	743.1
50°	727.3	726.3	725.3	724.4	723.3	721.2	717.8	714.4	711.0	707.6	704.2
52.5°	687.9	686.7	685.5	684.4	683.2	680.8	677.2	673.6	669.9	666.4	663.4
55°	625.4	624.6	623.9	623.2	622.5	620.4	617.0	613.6	610.2	606.8	603.9
57.5°	565.9	565.0	564.2	563.3	562.5	560.4	557.1	553.7	550.3	547.0	544.2
60°	524.7	523.4	522.2	521.0	519.8	517.6	514.4	511.3	508.1	504.9	502.7
62.5°	484.3	483.3	482.3	481.3	480.2	478.1	474.7	471.3	467.9	464.6	462.6
65°	423.9	422.6	421.4	420.3	419.0	417.2	414.7	412.3	409.9	407.4	405.0
67.5°	363.0	361.9	360.8	359.7	358.5	356.8	354.4	352.1	349.7	347.5	345.1
70°	325.3	323.6	321.9	320.2	318.5	316.6	314.7	312.8	310.9	308.9	306.9
72.5°	285.0	283.3	281.6	279.9	278.2	276.6	275.0	273.5	271.9	270.3	268.8
75°	225.6	224.4	223.2	222.0	220.8	219.5	218.3	217.1	215.9	214.7	213.7
77.5°	168.9	168.3	167.8	167.3	166.8	166.0	164.9	163.8	162.7	161.7	161.4
80°	134.8	134.0	133.2	132.5	131.8	131.2	130.7	130.2	129.8	129.2	128.7
82.5°	101.4	101.1	100.8	100.4	100.1	99.8	99.7	99.7	99.6	99.4	99.2
85°	59.2	59.2	59.2	59.2	59.2	58.9	58.4	57.9	57.4	57.0	57.0
87.5°	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
90°	1.3	2.5	3.6	4.7	5.8	6.7	7.5	8.3	9.1	9.9	10.5
92.5°	5.7	5.8	5.8	5.9	5.9	6.3	7.2	8.0	8.8	9.6	10.2
95°	24.9	21.5	18.1	14.6	11.2	9.5	9.7	9.7	9.8	9.9	10.5
97.5°	52.8	54.9	57.0	59.2	61.3	56.7	45.6	34.4	23.1	12.0	12.0
100°	74.1	75.9	77.7	79.5	81.4	75.3	61.5	47.6	33.7	19.9	18.1
102.5°	98.0	99.3	100.6	102.0	103.3	103.1	101.2	99.4	97.6	95.8	77.4
105°	136.0	136.7	137.2	137.8	138.4	138.9	139.5	140.0	140.5	141.0	141.9
107.5°	171.3	171.7	172.0	172.2	172.5	173.0	173.7	174.4	175.1	175.8	176.3
110°	195.2	195.5	195.8	196.1	196.4	196.9	197.5	198.0	198.7	199.3	199.5



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	218.3	218.9	219.4	220.0	220.5	220.9	221.2	221.5	221.8	222.0	222.0
115°	254.0	254.3	254.5	254.8	255.2	255.2	255.2	255.1	254.9	254.8	255.1
117.5°	286.1	286.5	286.8	287.2	287.6	288.0	288.2	288.4	288.6	288.8	288.8
120°	307.8	308.2	308.6	309.0	309.3	309.5	309.4	309.3	309.2	309.1	309.3
122.5°	328.0	328.2	328.4	328.7	328.9	329.2	329.3	329.4	329.5	329.7	329.8
125°	357.0	357.4	357.8	358.2	358.6	358.7	358.5	358.3	358.1	357.9	358.2
127.5°	384.4	384.5	384.7	384.8	384.8	385.2	385.6	386.0	386.5	387.0	386.9
130°	402.2	402.3	402.3	402.5	402.6	402.7	403.1	403.4	403.7	404.0	404.1
132.5°	418.4	418.6	418.8	419.0	419.1	419.5	419.9	420.2	420.6	421.0	421.0
135°	442.8	442.8	442.7	442.5	442.4	442.6	443.0	443.4	443.8	444.2	444.4
137.5°	464.5	464.5	464.5	464.5	464.6	464.9	465.2	465.7	466.2	466.6	466.8
140°	478.6	478.7	479.0	479.1	479.3	479.5	479.7	480.0	480.1	480.4	480.6
142.5°	491.2	491.5	491.9	492.3	492.7	492.9	493.0	493.1	493.2	493.4	493.6
145°	510.6	511.0	511.2	511.5	511.8	512.0	512.0	512.0	512.0	512.0	512.1
147.5°	526.1	526.6	527.2	527.8	528.3	528.5	528.5	528.4	528.2	528.1	528.2
150°	537.3	537.7	538.1	538.5	538.9	539.1	538.9	538.8	538.8	538.6	538.6
152.5°	546.7	547.0	547.3	547.6	548.0	548.0	547.9	547.7	547.5	547.3	547.5
155°	559.9	560.0	560.1	560.2	560.3	560.2	559.9	559.6	559.3	559.0	559.4
157.5°	571.0	570.9	570.8	570.8	570.8	570.5	570.2	569.9	569.5	569.2	569.7
160°	577.5	577.2	576.9	576.6	576.3	576.1	576.0	575.9	575.8	575.7	576.3
162.5°	583.3	582.9	582.5	582.2	581.8	581.5	581.4	581.3	581.2	581.1	581.7
165°	590.6	590.1	589.6	589.1	588.6	588.4	588.4	588.4	588.4	588.4	589.1
167.5°	596.4	595.9	595.3	594.8	594.3	594.0	594.0	593.9	593.8	593.7	594.7
170°	599.7	599.0	598.4	597.9	597.2	597.0	597.1	597.1	597.3	597.4	598.2
172.5°	601.8	601.2	600.6	600.0	599.4	599.1	599.3	599.4	599.4	599.5	600.4
175°	604.2	603.6	602.9	602.4	601.7	601.5	601.6	601.7	601.8	601.9	602.8
177.5°	605.2	604.7	604.1	603.6	603.0	602.8	602.9	603.1	603.2	603.4	604.1
180°	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9	1366.9
2.5°	1362.0	1364.0	1366.0	1366.8	1366.6	1366.4	1366.2	1366.0
5°	1354.7	1357.4	1360.1	1361.2	1360.7	1360.2	1359.7	1359.2
7.5°	1339.7	1341.8	1343.9	1344.9	1344.6	1344.3	1343.9	1343.7
10°	1327.0	1329.0	1330.9	1331.6	1331.1	1330.6	1330.2	1329.7
12.5°	1311.6	1313.8	1315.9	1316.6	1316.0	1315.3	1314.5	1313.9
15°	1282.2	1283.7	1285.2	1285.5	1284.8	1284.0	1283.3	1282.5
17.5°	1248.7	1249.7	1250.5	1250.8	1250.3	1249.8	1249.4	1248.8
20°	1223.8	1224.6	1225.3	1225.3	1224.9	1224.4	1223.9	1223.4
22.5°	1197.8	1199.1	1200.4	1200.6	1199.8	1198.9	1198.0	1197.1
25°	1154.9	1155.2	1155.4	1155.0	1154.1	1153.1	1152.1	1151.1
27.5°	1106.8	1106.2	1105.6	1104.8	1103.5	1102.3	1101.1	1099.9
30°	1073.6	1072.6	1071.7	1070.6	1069.4	1068.1	1066.9	1065.7
32.5°	1039.9	1038.8	1037.6	1036.4	1035.1	1034.0	1032.8	1031.5
35°	986.7	985.0	983.3	981.8	980.6	979.5	978.2	977.0
37.5°	931.0	929.2	927.3	925.6	924.0	922.3	920.8	919.2
40°	892.2	889.7	887.3	885.5	884.2	883.0	881.9	880.6
42.5°	854.6	851.8	848.9	847.1	846.3	845.4	844.6	843.8
45°	796.4	793.7	791.0	789.3	788.6	787.9	787.1	786.4
47.5°	740.1	737.0	734.0	731.6	729.8	727.9	726.0	724.2
50°	700.8	697.4	694.0	691.5	690.0	688.6	687.1	685.6
52.5°	660.4	657.3	654.3	651.9	650.0	648.2	646.3	644.4
55°	600.9	598.0	595.1	592.9	591.4	590.0	588.5	587.1
57.5°	541.5	538.7	535.9	533.8	532.3	531.0	529.6	528.1
60°	500.6	498.4	496.1	494.5	493.2	492.0	490.8	489.6
62.5°	460.7	458.6	456.6	455.0	453.8	452.6	451.4	450.2
65°	402.6	400.1	397.7	395.9	394.7	393.5	392.2	391.0
67.5°	342.8	340.4	338.1	336.8	336.4	336.0	335.7	335.4
70°	305.0	303.0	301.1	299.8	299.0	298.3	297.5	296.8
72.5°	267.2	265.6	264.1	262.9	262.2	261.5	260.8	260.0
75°	212.7	211.8	210.8	210.2	209.9	209.7	209.5	209.2
77.5°	161.1	160.8	160.5	160.0	159.4	158.8	158.1	157.5
80°	128.3	127.8	127.3	126.9	126.7	126.4	126.2	126.0
82.5°	98.9	98.5	98.3	98.0	97.8	97.5	97.3	97.0
85°	57.0	57.0	57.0	56.8	56.6	56.3	56.1	55.8
87.5°	23.3	23.4	23.5	23.6	23.6	23.7	23.7	23.8
90°	11.2	11.7	12.4	12.8	13.0	13.2	13.4	13.5
92.5°	10.8	11.4	12.0	12.3	12.4	12.4	12.4	12.4
95°	11.2	11.7	12.4	12.7	12.8	12.9	13.0	13.1
97.5°	12.0	12.1	12.2	12.3	12.4	12.4	12.5	12.7
100°	16.5	14.7	13.1	12.3	12.4	12.4	12.5	12.7
102.5°	58.9	40.6	22.1	12.9	13.0	13.0	13.0	13.0
105°	142.8	143.7	144.6	143.2	139.7	136.0	132.4	128.8
107.5°	176.7	177.1	177.5	177.9	178.3	178.7	179.1	179.5
110°	199.7	199.9	200.1	200.3	200.7	200.9	201.2	201.5





TEST NUMBER: P332640-927

CATALOG NUMBER: S124DIP-S1020D590U927-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	222.0	222.0	221.9	222.0	222.4	222.8	223.2	223.6
115°	255.2	255.5	255.6	255.8	255.8	255.8	255.8	255.8
117.5°	288.8	288.8	288.7	288.7	288.6	288.6	288.5	288.5
120°	309.5	309.7	309.9	309.9	309.7	309.5	309.3	309.1
122.5°	329.9	330.0	330.2	330.1	329.9	329.7	329.5	329.3
125°	358.5	358.8	359.1	359.3	359.4	359.5	359.6	359.7
127.5°	386.9	386.8	386.7	386.7	386.6	386.5	386.4	386.3
130°	404.2	404.3	404.4	404.4	404.4	404.4	404.4	404.4
132.5°	421.2	421.3	421.4	421.4	421.3	421.2	421.1	421.0
135°	444.6	444.8	445.0	445.2	445.4	445.6	445.8	446.0
137.5°	467.1	467.3	467.5	467.5	467.5	467.5	467.4	467.3
140°	480.9	481.3	481.6	481.7	481.9	482.0	482.0	482.1
142.5°	493.8	494.0	494.2	494.4	494.4	494.4	494.4	494.5
145°	512.1	512.3	512.4	512.5	512.7	512.9	513.2	513.3
147.5°	528.3	528.4	528.5	528.5	528.7	528.8	528.9	528.9
150°	538.6	538.6	538.6	538.7	538.8	538.9	539.0	539.1
152.5°	547.6	547.8	548.0	548.0	548.0	547.9	547.8	547.8
155°	559.8	560.2	560.5	560.6	560.3	560.0	559.8	559.4
157.5°	570.2	570.8	571.2	571.2	570.8	570.2	569.7	569.2
160°	576.9	577.5	578.1	578.1	577.5	576.9	576.3	575.7
162.5°	582.3	582.9	583.5	583.5	582.8	582.1	581.5	580.7
165°	589.9	590.7	591.6	591.5	590.6	589.7	588.8	587.9
167.5°	595.6	596.4	597.3	597.2	596.3	595.2	594.2	593.3
170°	599.0	599.8	600.6	600.5	599.5	598.5	597.5	596.5
172.5°	601.2	602.0	602.8	602.6	601.6	600.5	599.4	598.3
175°	603.7	604.6	605.5	605.4	604.2	602.9	601.7	600.6
177.5°	604.8	605.4	606.0	605.9	604.9	604.0	602.9	602.0
180°	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2

(END OF REPORT)