

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: P331417-840

Luminaire Tested: **SA2XXDIP-C865D1080U840-4F0-1E-UDD-F**

Issue Date: 10/7/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P331417-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-2,  
Test Lab: INNOVATION CENTER  
Issue Date: 10/7/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: SA2XXDIP-C865D1080U840-4F0-1E-UDD-F  
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 865 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1080 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7897.1 lumens  
Efficiency: N/A  
Efficacy: 120.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.3  
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')  
CIE Type: General Diffuse

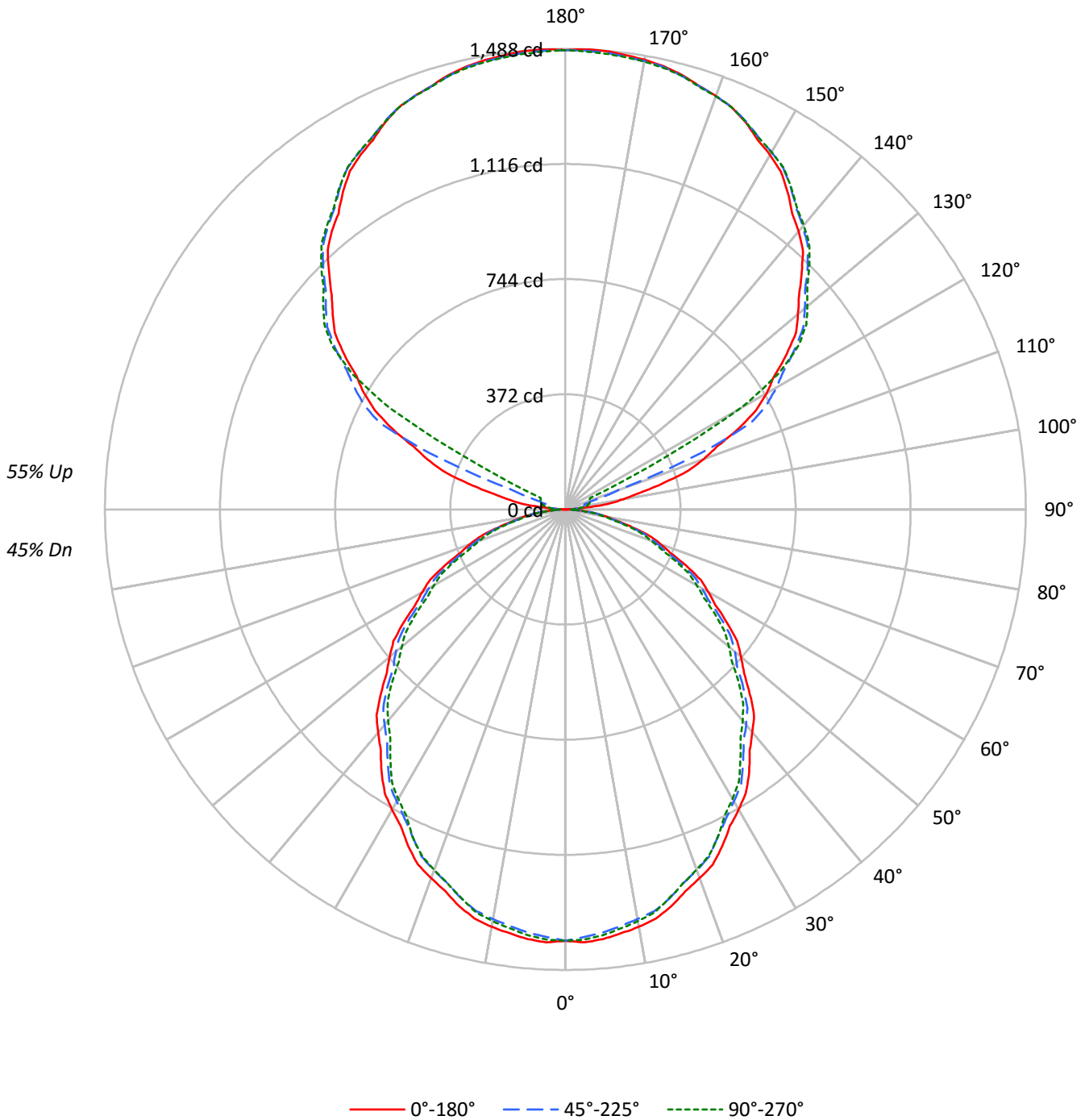
Input Watts (W): 65.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51	45				
1	97	92	88	85	88	85	81	78	71	68	66	57	56	54	45	44	43	38				
2	88	81	75	69	80	74	69	64	62	58	55	50	48	45	40	38	37	32				
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	35	33	31	27				
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23				
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23	20				
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21	18				
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16				
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14				
9	49	37	30	25	45	35	28	23	29	24	21	25	21	18	20	17	15	13				
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11				

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

	0°	45°	90°
0°	22501	22501	22501
5°	22587	22261	22392
10°	22453	22035	22146
15°	22176	21750	21727
20°	21782	21321	21297
25°	21389	20794	20794
30°	20885	20310	20137
35°	20416	19730	19438
40°	19827	19150	18782
45°	19244	18573	18114
50°	18613	17975	17334
55°	17954	17275	16636
60°	17221	16443	15839
65°	16435	15614	14896
70°	15437	14611	13917
75°	14042	13456	13125
80°	12459	12087	11464
85°	10170	9689	8688



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	131.0	1.7
10°-20°	368.7	4.7
20°-30°	542.0	6.9
30°-40°	629.6	8.0
40°-50°	628.9	8.0
50°-60°	548.4	6.9
60°-70°	405.5	5.1
70°-80°	229.7	2.9
80°-90°	65.4	0.8
90°-100°	49.5	0.6
100°-110°	181.5	2.3
110°-120°	485.1	6.1
120°-130°	800.8	10.1
130°-140°	851.6	10.8
140°-150°	791.6	10.0
150°-160°	636.4	8.1
160°-170°	410.1	5.2
170°-180°	141.2	1.8
0°-30°	1041.8	13.2
0°-40°	1671.3	21.2
0°-60°	2848.6	36.1
0°-90°	3549.3	44.9
90°-120°	716.1	9.1
90°-150°	3160.1	40.0
90°-180°	4348.0	55.1
0°-180°	7897.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1394	1394	1394	1394	1394	
5°	1394	1388	1374	1384	1382	132
15°	1327	1318	1301	1306	1300	373
25°	1201	1189	1167	1170	1167	552
35°	1036	1022	1001	993	986	646
45°	843	833	813	799	793	650
55°	638	629	614	598	591	570
65°	430	422	409	397	390	425
75°	225	222	216	208	210	240
85°	55	54	52	48	47	63
90°	1	13	22	27	29	6
95°	70	37	42	47	46	85
105°	326	340	65	77	82	349
115°	617	636	662	189	88	608
125°	873	887	907	914	918	778
135°	1080	1097	1107	1117	1115	834
145°	1253	1253	1270	1277	1272	783
155°	1380	1371	1383	1388	1381	635
165°	1454	1448	1450	1457	1450	410
175°	1487	1480	1482	1488	1478	141
180°	1484	1484	1484	1484	1484	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6
2.5°	1400.1	1398.9	1397.7	1396.5	1395.3	1393.4	1390.8	1388.2	1385.5	1382.9	1385.3
5°	1393.6	1392.4	1391.3	1390.1	1388.9	1386.6	1383.4	1380.1	1376.8	1373.5	1375.9
7.5°	1381.3	1379.5	1377.7	1375.7	1373.9	1371.3	1368.0	1364.6	1361.3	1358.0	1360.4
10°	1369.5	1367.5	1365.3	1363.2	1361.2	1358.4	1354.7	1351.2	1347.7	1344.0	1346.5
12.5°	1353.4	1351.6	1349.8	1347.9	1346.0	1343.3	1339.8	1336.2	1332.6	1329.1	1330.7
15°	1326.7	1324.8	1323.0	1321.3	1319.5	1316.7	1312.8	1308.9	1305.0	1301.2	1302.3
17.5°	1292.3	1290.5	1288.8	1287.0	1285.2	1282.3	1278.4	1274.4	1270.5	1266.6	1268.0
20°	1267.7	1265.9	1264.1	1262.3	1260.5	1257.6	1253.3	1249.2	1245.1	1240.9	1241.7
22.5°	1243.0	1240.5	1238.0	1235.5	1233.0	1229.8	1225.9	1221.9	1218.0	1214.1	1214.3
25°	1200.6	1198.3	1195.9	1193.6	1191.1	1187.4	1182.3	1177.3	1172.3	1167.2	1167.8
27.5°	1152.5	1150.3	1148.1	1146.0	1143.9	1140.7	1136.8	1132.8	1128.8	1124.8	1124.0
30°	1120.2	1117.9	1115.5	1113.2	1110.8	1107.3	1102.9	1098.4	1093.9	1089.4	1088.5
32.5°	1086.0	1084.1	1082.2	1080.3	1078.3	1075.0	1070.4	1065.6	1061.0	1056.2	1054.6
35°	1035.8	1032.9	1029.9	1026.9	1023.9	1020.1	1015.3	1010.6	1005.7	1001.0	999.3
37.5°	979.3	976.6	974.0	971.4	968.9	965.1	960.4	955.6	950.8	946.0	943.8
40°	940.7	938.4	935.9	933.5	931.2	927.6	922.8	918.1	913.3	908.6	905.8
42.5°	903.2	900.8	898.4	896.1	893.6	890.1	885.3	880.6	875.8	871.0	868.1
45°	842.8	840.8	838.7	836.7	834.6	831.2	826.8	822.3	817.9	813.4	810.1
47.5°	782.8	780.9	778.9	777.0	775.0	771.6	767.0	762.3	757.7	753.1	749.6
50°	741.0	739.5	738.1	736.6	735.1	732.3	728.1	723.9	719.7	715.6	711.4
52.5°	700.3	698.3	696.4	694.4	692.5	689.5	685.6	681.7	677.7	673.8	670.3
55°	637.8	636.1	634.3	632.5	630.7	628.0	624.5	620.9	617.3	613.7	610.2
57.5°	575.1	573.7	572.3	570.9	569.5	566.7	562.8	558.9	554.9	551.0	547.5
60°	533.3	532.1	531.0	529.8	528.6	525.9	521.7	517.6	513.4	509.2	505.9
62.5°	492.6	490.7	488.8	486.9	484.9	482.4	479.2	475.9	472.7	469.6	466.6
65°	430.2	428.4	426.6	424.7	423.0	420.6	417.7	414.7	411.7	408.7	406.1
67.5°	366.7	365.2	363.8	362.3	360.9	358.9	356.2	353.5	350.8	348.1	346.1
70°	327.0	325.8	324.6	323.4	322.2	320.2	317.6	314.9	312.3	309.5	307.5
72.5°	286.2	285.1	283.9	282.7	281.4	280.0	278.3	276.6	274.8	273.1	271.0
75°	225.1	224.5	223.9	223.4	222.8	221.7	220.3	218.7	217.2	215.7	214.0
77.5°	170.5	169.5	168.4	167.4	166.4	165.6	165.0	164.4	163.8	163.2	162.3
80°	134.0	133.7	133.4	133.1	132.8	132.4	131.8	131.2	130.6	130.0	129.1
82.5°	99.7	99.7	99.6	99.5	99.5	99.3	98.9	98.6	98.2	97.9	96.6
85°	54.9	54.6	54.3	54.0	53.7	53.4	53.1	52.8	52.5	52.3	51.4
87.5°	19.5	19.6	19.6	19.7	19.7	19.7	19.6	19.5	19.4	19.3	18.8
90°	1.1	3.7	6.4	9.0	11.6	13.8	15.8	17.7	19.6	21.5	22.6
92.5°	21.7	21.4	21.2	21.0	20.7	21.1	22.0	23.0	23.9	24.9	25.5
95°	69.8	61.9	54.0	46.2	38.3	35.1	36.9	38.6	40.2	41.9	43.0
97.5°	138.5	116.3	94.1	71.9	49.8	40.6	44.4	48.3	52.2	56.0	57.0
100°	190.1	157.3	124.6	92.0	59.3	44.9	49.0	53.1	57.2	61.2	63.1
102.5°	246.7	239.7	232.9	225.9	219.0	198.6	164.7	130.8	96.8	62.9	65.4
105°	326.4	333.6	340.6	347.8	355.0	326.0	260.8	195.7	130.6	65.4	68.1
107.5°	417.2	422.9	428.7	434.4	440.3	404.1	326.0	247.9	169.8	91.7	89.0
110°	475.5	480.6	485.6	490.6	495.6	463.6	394.7	325.8	256.8	187.8	164.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	530.6	535.0	539.4	543.8	548.3	542.0	524.9	508.0	490.9	473.8	386.9
115°	617.3	621.4	625.4	629.4	633.5	638.5	644.5	650.5	656.4	662.4	551.9
117.5°	694.8	699.3	703.9	708.4	713.0	717.2	721.3	725.5	729.5	733.7	706.9
120°	751.4	755.1	758.6	762.2	765.8	769.7	774.1	778.3	782.6	786.9	789.7
122.5°	799.6	803.3	807.1	810.9	814.7	818.9	823.5	828.2	832.9	837.6	839.3
125°	872.8	875.9	879.0	882.1	885.1	889.0	893.5	898.1	902.6	907.2	908.8
127.5°	939.2	942.6	946.0	949.5	952.9	956.2	959.7	963.0	966.4	969.9	972.3
130°	981.2	985.0	988.9	992.7	996.4	999.7	1002.3	1004.9	1007.5	1010.2	1012.8
132.5°	1024.1	1027.4	1030.7	1033.9	1037.1	1040.1	1042.7	1045.3	1047.9	1050.6	1052.8
135°	1079.9	1083.8	1087.6	1091.5	1095.2	1098.2	1100.3	1102.5	1104.7	1106.8	1109.2
137.5°	1136.4	1139.1	1141.8	1144.5	1147.1	1149.6	1152.2	1154.6	1157.0	1159.4	1161.7
140°	1173.4	1175.3	1177.2	1179.1	1181.0	1183.3	1185.9	1188.5	1191.1	1193.8	1195.9
142.5°	1204.3	1206.0	1207.7	1209.4	1211.1	1213.6	1216.5	1219.5	1222.5	1225.6	1227.5
145°	1252.8	1252.5	1252.3	1252.1	1251.8	1253.7	1257.8	1261.8	1266.0	1270.0	1271.6
147.5°	1295.2	1294.2	1293.3	1292.4	1291.5	1293.0	1297.1	1301.0	1305.0	1309.1	1310.3
150°	1322.6	1320.9	1319.3	1317.6	1316.0	1317.0	1320.8	1324.6	1328.5	1332.2	1333.7
152.5°	1345.7	1343.9	1342.0	1340.2	1338.4	1339.2	1342.8	1346.5	1350.1	1353.7	1355.1
155°	1379.5	1377.4	1375.2	1373.0	1370.9	1371.3	1374.1	1377.0	1379.9	1382.7	1384.1
157.5°	1405.9	1404.1	1402.3	1400.5	1398.7	1398.8	1400.8	1402.7	1404.7	1406.7	1408.4
160°	1421.4	1420.0	1418.5	1417.0	1415.6	1415.6	1417.0	1418.5	1420.0	1421.4	1422.8
162.5°	1435.1	1433.7	1432.2	1430.8	1429.4	1429.3	1430.5	1431.8	1433.0	1434.2	1435.8
165°	1453.6	1452.1	1450.7	1449.3	1447.8	1447.4	1448.1	1449.0	1449.7	1450.4	1452.0
167.5°	1467.3	1465.9	1464.4	1463.0	1461.6	1461.2	1461.9	1462.5	1463.2	1463.9	1465.5
170°	1475.0	1473.6	1472.2	1470.8	1469.4	1468.8	1469.4	1469.8	1470.3	1470.8	1472.4
172.5°	1480.2	1478.7	1477.3	1475.9	1474.5	1474.0	1474.5	1474.9	1475.4	1475.9	1477.5
175°	1486.8	1485.2	1483.5	1481.9	1480.2	1479.6	1480.1	1480.6	1481.0	1481.5	1483.2
177.5°	1487.9	1486.6	1485.2	1483.9	1482.6	1482.0	1482.2	1482.4	1482.6	1482.8	1484.1
180°	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6
2.5°	1387.7	1390.1	1392.4	1393.4	1392.9	1392.4	1392.0	1391.5
5°	1378.3	1380.7	1383.1	1383.9	1383.4	1382.8	1382.2	1381.6
7.5°	1362.7	1365.1	1367.6	1368.4	1367.8	1367.1	1366.4	1365.7
10°	1348.8	1351.2	1353.6	1354.3	1353.4	1352.5	1351.6	1350.8
12.5°	1332.4	1334.0	1335.7	1336.3	1335.5	1334.9	1334.2	1333.6
15°	1303.5	1304.7	1306.0	1305.8	1304.3	1302.8	1301.3	1299.8
17.5°	1269.3	1270.7	1272.1	1272.0	1270.6	1269.2	1267.8	1266.4
20°	1242.6	1243.5	1244.5	1244.3	1243.1	1241.9	1240.7	1239.5
22.5°	1214.5	1214.6	1214.8	1214.6	1213.8	1213.0	1212.3	1211.6
25°	1168.4	1168.9	1169.5	1169.5	1168.9	1168.4	1167.8	1167.2
27.5°	1123.1	1122.2	1121.3	1120.1	1118.6	1117.2	1115.8	1114.4
30°	1087.6	1086.8	1085.9	1084.8	1083.7	1082.5	1081.3	1080.1
32.5°	1053.0	1051.4	1049.8	1048.3	1047.2	1046.0	1044.8	1043.6
35°	997.4	995.6	993.9	992.2	990.8	989.3	987.7	986.2
37.5°	941.7	939.5	937.3	935.4	934.0	932.6	931.2	929.7
40°	903.2	900.5	897.9	895.9	894.7	893.5	892.3	891.1
42.5°	865.2	862.2	859.4	857.1	855.4	853.7	852.0	850.4
45°	806.9	803.5	800.3	798.1	796.9	795.7	794.5	793.3
47.5°	746.2	742.8	739.3	736.7	735.0	733.3	731.5	729.8
50°	707.2	703.1	698.9	696.1	694.6	693.1	691.7	690.1
52.5°	666.8	663.4	659.9	657.2	655.3	653.3	651.4	649.3
55°	606.6	603.0	599.5	596.9	595.4	593.9	592.5	591.0
57.5°	544.0	540.5	536.9	534.6	533.5	532.4	531.3	530.1
60°	502.7	499.4	496.1	494.0	493.1	492.2	491.3	490.5
62.5°	463.4	460.4	457.4	455.3	454.1	453.0	451.9	450.8
65°	403.3	400.7	398.0	395.9	394.5	392.9	391.4	389.9
67.5°	344.0	341.8	339.8	338.2	337.0	335.8	334.6	333.4
70°	305.4	303.3	301.2	299.5	298.4	297.2	296.0	294.8
72.5°	268.9	266.8	264.8	263.3	262.3	261.4	260.3	259.4
75°	212.2	210.4	208.6	208.0	208.6	209.2	209.7	210.4
77.5°	161.5	160.6	159.7	158.8	157.9	157.1	156.3	155.4
80°	128.2	127.3	126.4	125.6	125.0	124.5	123.9	123.3
82.5°	95.5	94.4	93.3	92.7	92.5	92.4	92.3	92.2
85°	50.5	49.6	48.7	48.1	47.8	47.5	47.2	46.9
87.5°	18.4	17.9	17.4	17.1	17.0	16.8	16.7	16.6
90°	23.8	25.0	26.3	27.1	27.6	28.1	28.5	29.0
92.5°	26.2	26.8	27.4	27.9	28.2	28.4	28.7	29.0
95°	44.2	45.4	46.7	47.2	46.9	46.7	46.4	46.2
97.5°	58.0	58.9	59.9	60.5	60.8	61.1	61.3	61.6
100°	65.0	67.0	68.9	70.0	70.5	71.0	71.5	71.9
102.5°	67.9	70.4	72.8	74.4	75.0	75.7	76.4	77.1
105°	70.7	73.3	75.9	77.8	78.8	79.7	80.6	81.6
107.5°	86.3	83.6	81.0	80.2	81.1	82.0	83.0	83.9
110°	140.2	116.3	92.4	81.0	81.9	82.9	83.8	84.8





TEST NUMBER: P331417-840

CATALOG NUMBER: SA2XXDIP-C865D1080U840-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	299.8	212.8	125.7	82.6	83.4	84.1	84.9	85.6
115°	441.4	331.0	220.6	156.7	139.6	122.4	105.2	88.1
117.5°	680.2	653.5	626.8	585.2	528.8	472.3	415.9	359.4
120°	792.6	795.5	798.4	783.7	751.4	719.2	687.0	654.9
122.5°	841.0	842.7	844.4	842.1	836.0	829.7	823.4	817.2
125°	910.5	912.1	913.8	915.0	915.7	916.5	917.2	917.9
127.5°	974.7	977.1	979.6	980.9	981.0	981.2	981.3	981.4
130°	1015.4	1018.0	1020.7	1021.9	1021.7	1021.4	1021.2	1021.0
132.5°	1055.0	1057.3	1059.6	1060.6	1060.3	1060.1	1059.9	1059.6
135°	1111.6	1114.0	1116.3	1117.3	1116.8	1116.3	1115.9	1115.4
137.5°	1164.1	1166.4	1168.7	1169.5	1168.7	1167.9	1167.1	1166.3
140°	1198.1	1200.2	1202.3	1202.9	1201.6	1200.4	1199.2	1198.1
142.5°	1229.4	1231.4	1233.3	1233.8	1232.5	1231.3	1230.2	1229.0
145°	1273.3	1275.0	1276.7	1276.9	1275.8	1274.6	1273.3	1272.1
147.5°	1311.5	1312.8	1314.0	1314.1	1313.1	1312.1	1311.1	1310.1
150°	1335.1	1336.6	1338.0	1338.1	1336.9	1335.7	1334.5	1333.3
152.5°	1356.6	1358.1	1359.5	1359.4	1357.8	1356.2	1354.6	1353.1
155°	1385.5	1387.0	1388.5	1388.2	1386.2	1384.4	1382.5	1380.6
157.5°	1410.0	1411.6	1413.2	1413.1	1411.3	1409.4	1407.5	1405.6
160°	1424.2	1425.6	1427.0	1426.9	1425.3	1423.6	1422.0	1420.3
162.5°	1437.4	1439.1	1440.8	1440.5	1438.5	1436.4	1434.3	1432.3
165°	1453.7	1455.3	1457.0	1457.0	1455.3	1453.7	1452.0	1450.4
167.5°	1467.2	1468.8	1470.6	1470.3	1468.1	1466.0	1463.9	1461.7
170°	1474.1	1475.7	1477.4	1477.1	1475.0	1472.9	1470.8	1468.5
172.5°	1479.3	1480.9	1482.6	1482.4	1480.2	1478.0	1475.9	1473.7
175°	1484.8	1486.5	1488.1	1487.8	1485.4	1483.0	1480.7	1478.2
177.5°	1485.4	1486.7	1488.1	1487.9	1486.2	1484.5	1482.8	1481.1
180°	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6

(END OF REPORT)