

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: P332664-840

Luminaire Tested: **S124DIP-S1020D1205U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332664-840  
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-S1020D1205U840-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1205 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9107.8 lumens  
Efficiency: N/A  
Efficacy: 139.3 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

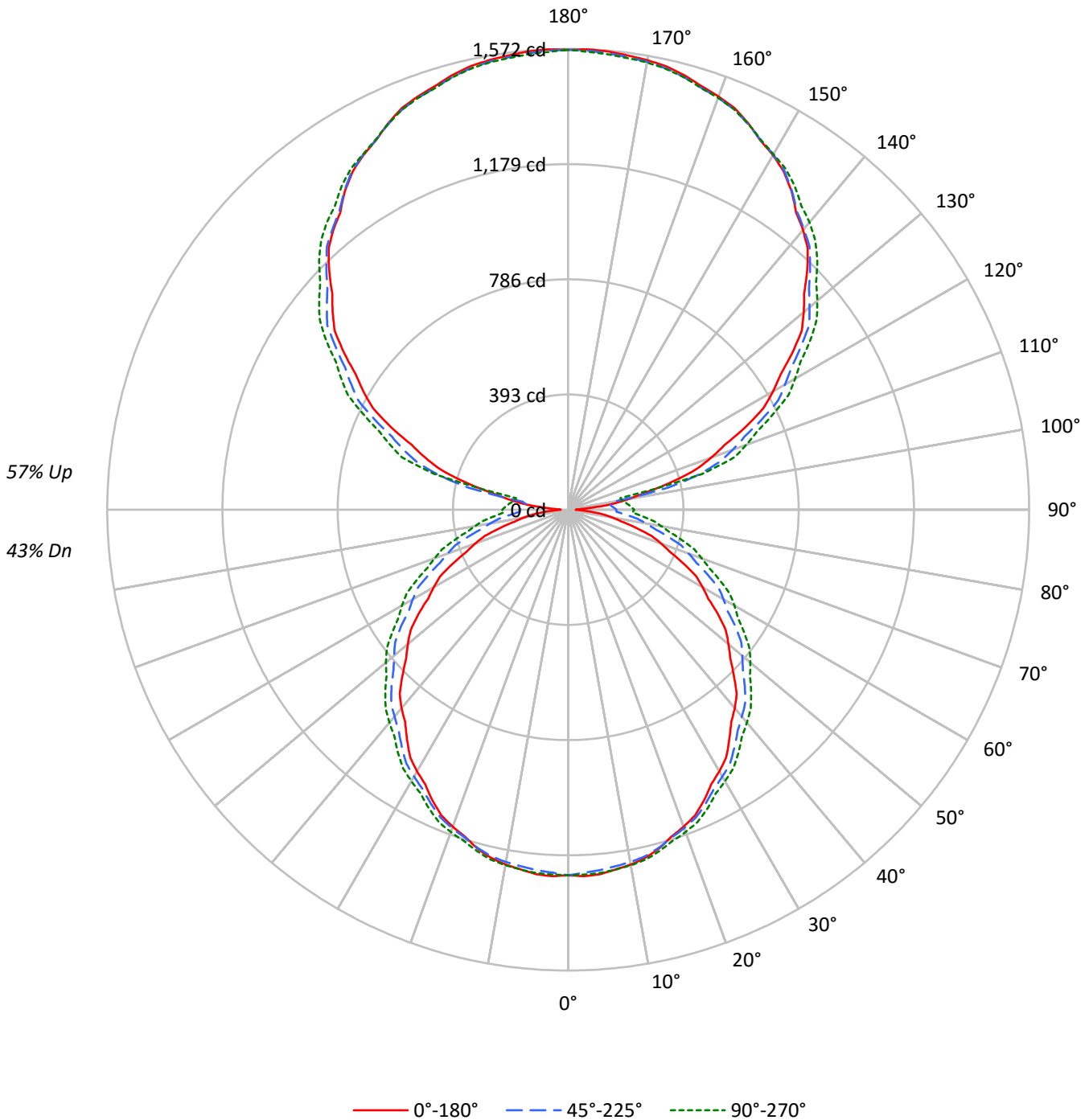
Input Watts (W): 65.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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CATALOG NUMBER: S124DIP-S1020D1205U840-4F0-1E-UDD-D

**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	106	106	106	106	96	96	96	96	80	80	80	64	64	64	50	50	50	43
1	95	91	87	83	87	83	79	76	68	66	63	55	53	52	43	41	40	35
2	86	79	72	67	79	72	66	62	59	55	52	48	45	42	37	35	33	28
3	79	69	61	55	71	63	56	51	52	47	43	42	38	35	32	30	28	23
4	72	61	53	46	65	56	48	43	46	41	36	37	33	30	29	26	24	20
5	66	54	46	39	60	49	42	37	41	35	31	33	29	26	26	23	21	17
6	60	48	40	34	55	44	37	32	37	31	27	30	26	22	23	20	18	15
7	56	43	35	30	51	40	33	28	33	28	24	27	23	20	21	18	16	13
8	52	39	31	26	47	36	29	24	30	25	21	25	21	17	19	16	14	12
9	48	36	28	23	44	33	26	22	28	22	19	23	19	16	18	15	13	10
10	45	33	25	21	41	30	24	19	25	20	17	21	17	14	17	14	11	9

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

	0°	45°	90°
0°	10066	10066	10066
5°	10097	9838	9866
10°	10035	9677	9669
15°	9945	9490	9439
20°	9810	9285	9213
25°	9657	9054	8967
30°	9492	8825	8712
35°	9305	8591	8490
40°	9154	8367	8259
45°	8931	8161	8059
50°	8744	7924	7849
55°	8549	7700	7603
60°	8247	7415	7378
65°	7914	7109	7102
70°	7513	6760	6779
75°	6949	6374	6488
80°	6328	6004	6203
85°	5536	5679	6037



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	118.1	1.3
10°-20°	338.3	3.7
20°-30°	511.5	5.6
30°-40°	618.9	6.8
40°-50°	654.3	7.2
50°-60°	615.8	6.8
60°-70°	510.9	5.6
70°-80°	358.9	3.9
80°-90°	207.4	2.3
90°-100°	174.1	1.9
100°-110°	431.3	4.7
110°-120°	714.3	7.8
120°-130°	864.6	9.5
130°-140°	903.5	9.9
140°-150°	834.2	9.2
150°-160°	670.4	7.4
160°-170°	432.4	4.7
170°-180°	149.0	1.6
0°-30°	967.9	10.6
0°-40°	1586.8	17.4
0°-60°	2856.9	31.4
0°-90°	3934.1	43.2
90°-120°	1319.7	14.5
90°-150°	3922.0	43.1
90°-180°	5174.0	56.8
0°-180°	9107.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1247	1247	1247	1247	1247	
5°	1248	1244	1234	1245	1244	118
15°	1197	1198	1194	1206	1205	337
25°	1095	1103	1107	1122	1124	504
35°	958	974	989	1007	1012	600
45°	799	825	852	875	882	617
55°	626	656	697	724	733	557
65°	433	478	525	559	571	429
75°	240	292	350	388	402	255
85°	74	133	196	236	251	79
90°	26	95	164	210	225	18
95°	83	92	147	190	206	97
105°	366	402	458	500	473	384
115°	668	685	727	759	770	658
125°	933	938	968	997	1008	833
135°	1153	1152	1166	1190	1201	888
145°	1327	1329	1330	1339	1347	829
155°	1454	1455	1452	1456	1453	670
165°	1534	1528	1528	1536	1527	433
175°	1569	1562	1563	1572	1559	149
180°	1569	1569	1569	1569	1569	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1251.3	1250.6	1249.8	1249.1	1248.3	1247.0	1245.0	1243.0	1241.0	1239.0	1240.7
5°	1248.2	1247.3	1246.4	1245.5	1244.6	1242.9	1240.8	1238.6	1236.5	1234.3	1236.8
7.5°	1237.6	1237.1	1236.5	1236.0	1235.4	1234.3	1232.4	1230.6	1228.8	1227.0	1229.8
10°	1228.7	1228.4	1228.1	1227.8	1227.5	1226.5	1225.0	1223.5	1221.8	1220.3	1223.1
12.5°	1216.4	1216.4	1216.3	1216.2	1216.2	1215.6	1214.6	1213.5	1212.4	1211.3	1214.0
15°	1196.6	1196.9	1197.2	1197.5	1197.8	1197.5	1196.6	1195.7	1194.7	1193.8	1196.6
17.5°	1169.5	1170.4	1171.3	1172.3	1173.3	1173.6	1173.4	1173.3	1173.1	1172.9	1175.7
20°	1150.5	1151.4	1152.4	1153.3	1154.3	1154.9	1155.2	1155.5	1155.8	1156.1	1159.2
22.5°	1129.2	1130.4	1131.7	1132.9	1134.0	1134.9	1135.4	1136.0	1136.5	1137.1	1140.2
25°	1094.7	1096.5	1098.3	1100.2	1102.1	1103.5	1104.4	1105.4	1106.3	1107.2	1110.6
27.5°	1056.1	1058.8	1061.6	1064.3	1067.0	1069.1	1070.6	1072.0	1073.4	1074.8	1078.0
30°	1030.5	1032.9	1035.4	1037.8	1040.4	1042.7	1044.8	1047.0	1049.1	1051.4	1054.8
32.5°	1002.5	1005.5	1008.5	1011.5	1014.4	1017.1	1019.6	1022.0	1024.4	1026.8	1030.7
35°	957.9	961.6	965.2	969.0	972.7	976.1	979.3	982.3	985.4	988.6	992.9
37.5°	912.8	917.2	921.4	925.7	930.0	934.0	937.9	941.7	945.6	949.5	953.8
40°	883.8	887.9	891.9	896.0	900.0	904.1	908.5	912.8	917.2	921.5	926.1
42.5°	850.3	854.9	859.4	863.9	868.4	873.2	878.3	883.4	888.5	893.6	898.8
45°	798.6	804.6	810.4	816.4	822.2	828.1	834.0	839.9	845.8	851.7	857.0
47.5°	749.2	755.3	761.3	767.5	773.6	780.0	786.8	793.7	800.5	807.3	812.7
50°	713.5	720.3	727.1	734.0	740.7	747.6	754.5	761.2	768.1	774.9	781.1
52.5°	677.7	684.6	691.4	698.2	705.1	712.4	720.1	728.0	735.8	743.7	749.8
55°	625.5	632.1	638.5	645.1	651.6	659.4	668.8	678.1	687.4	696.7	703.0
57.5°	567.1	575.2	583.3	591.4	599.5	608.0	617.3	626.6	635.8	645.1	652.5
60°	529.2	537.2	545.3	553.4	561.5	570.6	580.9	591.1	601.3	611.6	618.6
62.5°	492.3	501.1	510.0	518.8	527.6	537.0	547.3	557.5	567.8	578.0	585.2
65°	432.8	442.7	452.7	462.6	472.5	482.8	493.3	503.9	514.4	525.0	532.7
67.5°	375.6	386.2	396.7	407.3	417.8	428.7	440.0	451.3	462.6	473.9	481.8
70°	336.5	347.1	357.6	368.1	378.7	389.9	401.6	413.4	425.3	437.1	445.5
72.5°	298.5	309.3	320.1	330.9	341.7	353.4	365.9	378.4	391.0	403.5	411.6
75°	240.1	251.7	263.1	274.6	286.1	298.3	311.3	324.4	337.4	350.4	359.1
77.5°	185.7	197.8	210.1	222.2	234.4	247.2	260.9	274.6	288.2	301.8	310.6
80°	152.2	164.6	177.0	189.5	201.9	214.9	228.5	242.2	255.8	269.4	278.8
82.5°	118.7	131.6	144.5	157.4	170.3	183.6	197.2	210.9	224.6	238.2	247.7
85°	74.0	87.1	100.1	113.1	126.1	139.7	153.6	167.5	181.5	195.5	204.8
87.5°	42.0	55.2	68.5	81.7	94.9	108.6	122.6	136.6	150.6	164.6	173.9
90°	25.9	41.1	56.5	71.7	86.9	102.3	117.8	133.2	148.7	164.0	174.6
92.5°	36.1	47.4	58.7	70.0	81.3	94.7	110.1	125.5	141.0	156.4	166.7
95°	82.7	84.0	85.4	86.8	88.2	95.3	108.4	121.3	134.3	147.2	157.2
97.5°	153.5	167.8	182.2	196.5	210.9	209.8	193.3	176.8	160.3	143.8	152.1
100°	207.8	220.6	233.3	246.1	258.8	253.3	229.4	205.5	181.7	157.7	161.7
102.5°	269.7	280.2	290.7	301.3	311.8	320.6	327.8	335.0	342.1	349.3	309.6
105°	365.8	373.5	381.3	389.1	396.9	407.1	419.9	432.7	445.5	458.3	468.4
107.5°	457.3	463.1	469.0	474.8	480.7	490.0	502.6	515.2	527.9	540.5	549.3
110°	518.1	523.2	528.4	533.5	538.6	547.3	559.8	572.2	584.6	597.0	604.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	577.0	582.3	587.5	592.8	598.0	606.2	617.3	628.4	639.5	650.7	657.4
115°	667.8	671.5	675.0	678.5	682.2	688.7	698.4	708.1	717.8	727.4	734.8
117.5°	750.8	753.6	756.3	759.0	761.7	768.0	777.8	787.7	797.5	807.3	813.6
120°	806.1	808.1	810.0	812.0	814.0	819.3	828.1	836.8	845.6	854.2	861.0
122.5°	858.7	859.5	860.3	861.1	861.9	866.8	875.6	884.4	893.3	902.2	908.7
125°	932.6	933.3	934.0	934.8	935.5	939.5	946.7	954.0	961.2	968.5	975.1
127.5°	1003.6	1003.6	1003.5	1003.5	1003.4	1007.0	1014.2	1021.3	1028.4	1035.6	1041.1
130°	1048.5	1048.4	1048.4	1048.3	1048.3	1051.2	1056.9	1062.7	1068.4	1074.2	1080.1
132.5°	1090.8	1091.0	1091.1	1091.3	1091.4	1094.0	1098.9	1103.9	1108.8	1113.8	1119.4
135°	1152.8	1152.5	1152.3	1152.0	1151.7	1153.2	1156.4	1159.6	1162.9	1166.0	1171.5
137.5°	1208.8	1208.6	1208.4	1208.2	1208.0	1209.0	1211.2	1213.5	1215.6	1217.8	1222.9
140°	1245.5	1245.7	1245.9	1246.1	1246.3	1246.8	1247.7	1248.5	1249.3	1250.1	1255.0
142.5°	1277.2	1278.1	1278.9	1279.8	1280.7	1281.2	1281.3	1281.4	1281.5	1281.7	1285.8
145°	1327.4	1327.9	1328.3	1328.8	1329.3	1329.5	1329.5	1329.5	1329.5	1329.5	1331.6
147.5°	1367.5	1368.7	1369.8	1370.9	1372.1	1372.5	1372.3	1372.0	1371.7	1371.5	1371.9
150°	1396.5	1397.4	1398.1	1398.8	1399.5	1399.8	1399.5	1399.3	1399.0	1398.7	1398.7
152.5°	1419.9	1420.7	1421.4	1422.2	1423.0	1423.1	1422.7	1422.2	1421.7	1421.3	1421.7
155°	1453.9	1454.1	1454.4	1454.6	1454.9	1454.6	1453.9	1453.1	1452.3	1451.5	1452.6
157.5°	1482.7	1482.6	1482.4	1482.3	1482.1	1481.6	1480.7	1479.9	1478.9	1478.0	1479.4
160°	1499.6	1498.8	1498.0	1497.3	1496.5	1496.0	1495.7	1495.4	1495.2	1494.9	1496.5
162.5°	1514.6	1513.7	1512.7	1511.7	1510.7	1510.1	1509.7	1509.5	1509.2	1509.0	1510.6
165°	1533.7	1532.4	1531.1	1529.7	1528.4	1527.8	1527.8	1527.8	1527.8	1527.8	1529.8
167.5°	1548.6	1547.3	1546.0	1544.6	1543.3	1542.5	1542.4	1542.2	1542.1	1541.9	1544.2
170°	1557.1	1555.6	1554.0	1552.5	1550.8	1550.2	1550.4	1550.7	1551.0	1551.3	1553.4
172.5°	1562.8	1561.2	1559.6	1558.0	1556.5	1555.8	1556.1	1556.4	1556.6	1556.9	1558.9
175°	1568.8	1567.3	1565.7	1564.2	1562.6	1562.0	1562.2	1562.5	1562.8	1563.0	1565.3
177.5°	1571.7	1570.2	1568.7	1567.3	1565.8	1565.3	1565.7	1566.1	1566.6	1567.0	1568.6
180°	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1242.5	1244.3	1246.0	1246.7	1246.5	1246.2	1246.0	1245.8
5°	1239.2	1241.7	1244.3	1245.3	1245.0	1244.7	1244.4	1244.1
7.5°	1232.6	1235.4	1238.2	1239.4	1239.1	1238.8	1238.5	1238.2
10°	1225.9	1228.7	1231.5	1232.7	1232.4	1232.1	1231.8	1231.5
12.5°	1216.5	1219.0	1221.5	1222.8	1222.7	1222.6	1222.6	1222.5
15°	1199.4	1202.1	1205.0	1206.2	1205.9	1205.6	1205.3	1205.0
17.5°	1178.5	1181.4	1184.3	1185.6	1185.3	1185.1	1184.8	1184.6
20°	1162.3	1165.4	1168.5	1170.0	1170.0	1170.0	1170.0	1170.0
22.5°	1143.3	1146.4	1149.5	1151.3	1151.9	1152.3	1152.8	1153.3
25°	1114.1	1117.4	1120.8	1122.8	1123.1	1123.4	1123.7	1124.0
27.5°	1081.2	1084.3	1087.5	1089.2	1089.6	1090.0	1090.4	1090.8
30°	1058.2	1061.6	1065.0	1067.0	1067.6	1068.2	1068.9	1069.5
32.5°	1034.6	1038.5	1042.5	1044.7	1045.3	1045.9	1046.5	1047.2
35°	997.2	1001.6	1005.9	1008.6	1009.5	1010.4	1011.4	1012.3
37.5°	958.3	962.7	967.0	969.8	970.8	971.8	972.7	973.7
40°	930.8	935.4	940.2	943.1	944.3	945.5	946.8	948.1
42.5°	903.9	909.1	914.2	917.3	918.3	919.3	920.3	921.2
45°	862.2	867.6	872.8	876.3	877.8	879.3	880.9	882.4
47.5°	818.2	823.6	829.2	832.8	834.7	836.6	838.4	840.3
50°	787.3	793.6	799.7	803.8	805.7	807.5	809.3	811.2
52.5°	756.1	762.2	768.5	772.4	774.4	776.2	778.1	779.9
55°	709.1	715.4	721.5	725.6	727.4	729.3	731.1	733.1
57.5°	659.8	667.2	674.6	679.1	680.9	682.7	684.4	686.1
60°	625.8	633.0	640.1	644.9	647.4	649.8	652.4	654.8
62.5°	592.3	599.5	606.6	611.4	613.9	616.3	618.8	621.4
65°	540.5	548.3	556.0	561.2	563.6	566.1	568.6	571.1
67.5°	489.7	497.6	505.4	510.6	513.0	515.4	517.9	520.3
70°	453.7	462.1	470.5	475.8	478.0	480.2	482.3	484.5
72.5°	419.8	427.9	436.1	441.3	443.7	446.2	448.6	451.0
75°	367.8	376.5	385.2	390.9	393.7	396.6	399.3	402.1
77.5°	319.5	328.3	337.1	343.1	346.0	349.0	351.9	355.0
80°	288.1	297.4	306.7	312.6	315.1	317.6	320.0	322.6
82.5°	257.3	266.9	276.4	282.6	285.3	288.0	290.7	293.5
85°	214.1	223.4	232.7	238.9	242.1	245.1	248.2	251.4
87.5°	183.2	192.6	201.9	207.9	210.8	213.6	216.4	219.2
90°	185.2	195.7	206.3	213.1	216.1	219.0	222.1	225.1
92.5°	177.0	187.3	197.6	204.1	206.7	209.2	211.9	214.5
95°	167.1	177.1	187.0	193.6	196.6	199.7	202.7	205.8
97.5°	160.4	168.6	176.9	182.6	185.5	188.4	191.4	194.3
100°	165.6	169.6	173.5	176.7	179.2	181.6	184.0	186.4
102.5°	269.9	230.2	190.6	171.9	174.4	176.8	179.4	181.8
105°	478.5	488.6	498.7	500.3	493.3	486.5	479.6	472.6
107.5°	558.1	566.8	575.6	581.7	584.8	588.0	591.3	594.5
110°	612.4	620.1	627.7	633.2	636.4	639.6	643.0	646.2





TEST NUMBER: P332664-840

CATALOG NUMBER: S124DIP-S1020D1205U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	664.2	671.0	677.7	682.9	686.3	689.8	693.3	696.8
115°	742.1	749.5	756.8	761.5	763.8	765.9	768.1	770.2
117.5°	820.0	826.4	832.7	837.1	839.4	841.8	844.1	846.6
120°	867.8	874.4	881.2	885.6	887.5	889.5	891.4	893.3
122.5°	915.2	921.8	928.3	932.4	934.1	935.8	937.6	939.3
125°	981.8	988.5	995.1	999.6	1001.7	1003.8	1005.9	1008.0
127.5°	1046.5	1051.9	1057.3	1061.0	1062.9	1064.8	1066.7	1068.6
130°	1085.9	1091.7	1097.5	1101.4	1103.3	1105.1	1107.0	1108.8
132.5°	1125.0	1130.6	1136.2	1139.8	1141.5	1143.2	1144.8	1146.4
135°	1177.0	1182.5	1188.0	1191.9	1194.3	1196.7	1199.0	1201.4
137.5°	1228.0	1233.1	1238.2	1241.4	1242.8	1244.3	1245.7	1247.1
140°	1259.8	1264.6	1269.4	1272.7	1274.6	1276.4	1278.2	1280.0
142.5°	1289.9	1294.0	1298.2	1300.9	1302.2	1303.5	1304.9	1306.3
145°	1333.7	1335.8	1338.0	1339.9	1341.7	1343.4	1345.2	1347.0
147.5°	1372.4	1372.8	1373.3	1374.1	1375.4	1376.6	1378.0	1379.2
150°	1398.7	1398.7	1398.7	1398.9	1399.1	1399.4	1399.7	1399.9
152.5°	1422.1	1422.5	1422.9	1423.0	1422.9	1422.7	1422.6	1422.4
155°	1453.6	1454.6	1455.7	1455.8	1455.0	1454.2	1453.5	1452.7
157.5°	1480.8	1482.1	1483.5	1483.5	1482.1	1480.8	1479.4	1478.0
160°	1498.0	1499.6	1501.2	1501.2	1499.6	1498.0	1496.5	1494.9
162.5°	1512.2	1513.7	1515.3	1515.2	1513.4	1511.7	1509.8	1508.0
165°	1532.0	1534.1	1536.1	1536.0	1533.7	1531.3	1528.9	1526.6
167.5°	1546.5	1548.7	1551.1	1550.8	1548.3	1545.7	1543.1	1540.4
170°	1555.4	1557.5	1559.6	1559.3	1556.7	1554.1	1551.6	1548.9
172.5°	1561.0	1563.2	1565.2	1564.9	1562.1	1559.2	1556.4	1553.6
175°	1567.7	1570.0	1572.4	1572.0	1568.8	1565.7	1562.6	1559.4
177.5°	1570.3	1572.0	1573.7	1573.3	1570.7	1568.2	1565.7	1563.3
180°	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8	1568.8

(END OF REPORT)