

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: P332815-935

Luminaire Tested: **S124DIW-S1020D770U935-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332815-935  
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: S124DIW-S1020D770U935-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 770 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6458.1 lumens  
Efficiency: N/A  
Efficacy: 120.5 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

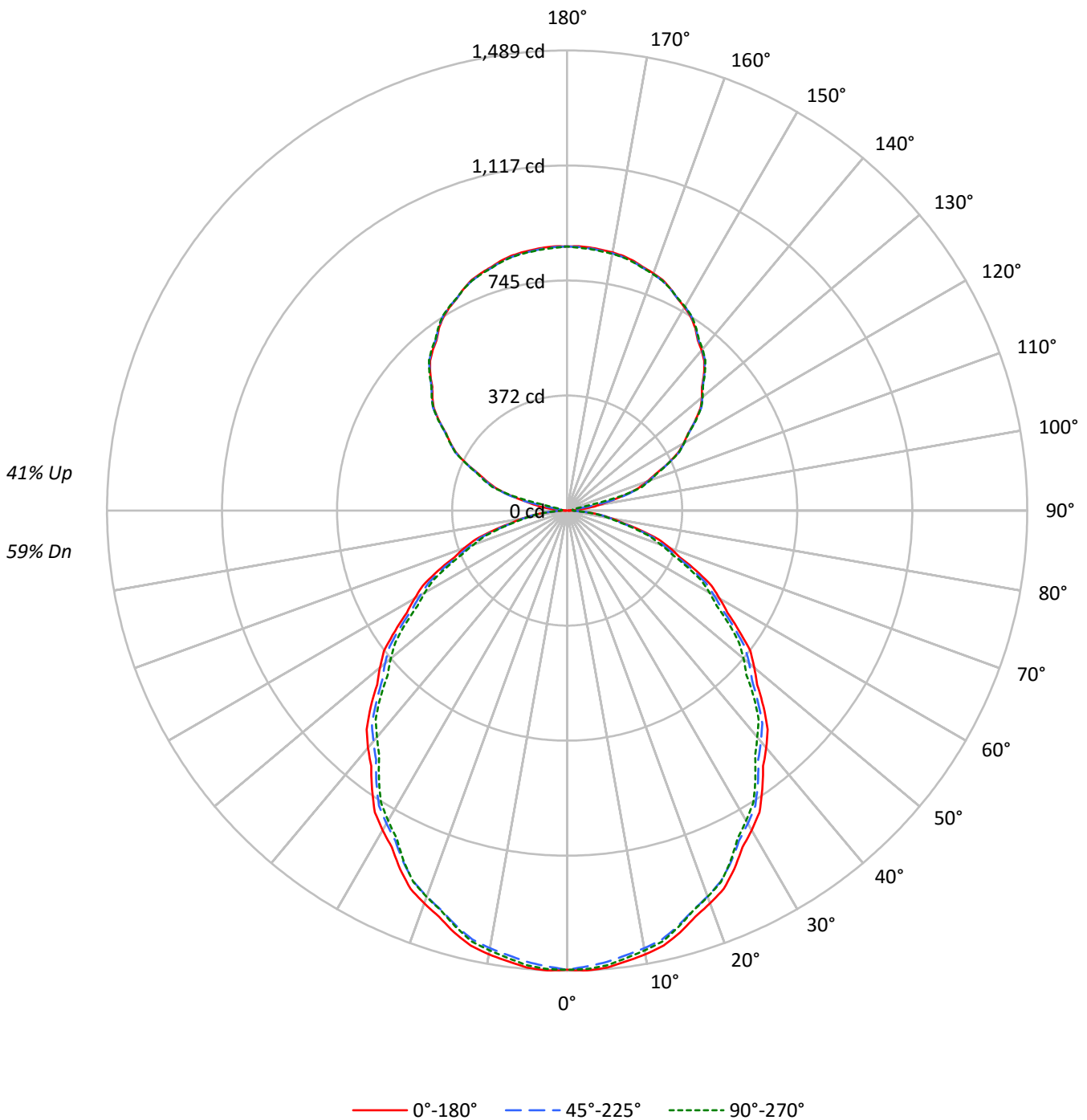
Input Watts (W): 53.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

### Luminous Intensity Polar Plot





TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

**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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59
1	100	95	91	88	93	89	86	83	77	75	73	67	65	63	57	56	54	50
2	91	83	77	72	85	78	72	68	68	64	60	59	56	53	50	48	46	42
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	41	39	35
4	76	65	57	51	70	61	54	48	53	48	43	46	42	38	40	36	34	30
5	70	58	50	43	65	54	47	41	48	42	37	42	37	33	36	32	29	26
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	32	29	26	23
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23	20
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21	18
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19	16
10	48	36	28	24	45	34	27	23	30	25	21	27	22	19	23	20	17	15

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

	0°	45°	90°
0°	11994	11994	11994
5°	12030	11885	11972
10°	11954	11788	11847
15°	11810	11621	11651
20°	11618	11413	11424
25°	11399	11176	11144
30°	11130	10897	10797
35°	10852	10606	10465
40°	10564	10275	10086
45°	10261	9949	9758
50°	9928	9658	9359
55°	9568	9282	8981
60°	9206	8861	8591
65°	8800	8458	8118
70°	8344	7924	7615
75°	7648	7277	7093
80°	6811	6527	6365
85°	5956	5734	5622



TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	139.9	2.2
10°-20°	394.2	6.1
20°-30°	580.2	9.0
30°-40°	674.5	10.4
40°-50°	674.5	10.4
50°-60°	590.0	9.1
60°-70°	438.2	6.8
70°-80°	248.9	3.9
80°-90°	74.3	1.2
90°-100°	29.2	0.5
100°-110°	186.3	2.9
110°-120°	356.5	5.5
120°-130°	452.5	7.0
130°-140°	484.2	7.5
140°-150°	452.7	7.0
150°-160°	365.1	5.7
160°-170°	235.5	3.6
170°-180°	81.2	1.3
0°-30°	1114.3	17.3
0°-40°	1788.8	27.7
0°-60°	3053.4	47.3
0°-90°	3814.9	59.1
90°-120°	572.0	8.9
90°-150°	1961.4	30.4
90°-180°	2643.0	40.9
0°-180°	6458.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1486	1486	1486	1486	1486	
5°	1484	1479	1467	1479	1477	141
15°	1413	1408	1390	1397	1394	398
25°	1280	1271	1255	1256	1251	588
35°	1101	1092	1076	1068	1062	688
45°	899	890	871	859	855	693
55°	680	675	660	646	638	609
65°	461	454	443	431	425	456
75°	245	239	233	229	227	261
85°	64	64	62	62	61	71
90°	2	9	14	18	19	5
95°	35	15	14	18	18	45
105°	192	196	199	204	182	201
115°	359	361	360	362	362	353
125°	505	507	506	508	509	451
135°	626	626	628	630	631	482
145°	722	724	724	725	726	451
155°	792	792	791	793	791	365
165°	835	832	832	837	832	236
175°	854	851	851	856	849	81
180°	854	854	854	854	854	



TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7
2.5°	1489.4	1488.8	1488.2	1487.5	1486.9	1485.4	1483.1	1480.7	1478.4	1476.1	1478.3
5°	1484.5	1483.4	1482.4	1481.3	1480.2	1478.3	1475.3	1472.4	1469.6	1466.6	1469.6
7.5°	1470.7	1469.6	1468.5	1467.5	1466.5	1464.3	1461.0	1457.8	1454.6	1451.4	1453.7
10°	1458.3	1457.2	1456.1	1455.1	1454.1	1451.8	1448.4	1444.9	1441.5	1438.0	1440.1
12.5°	1442.1	1441.1	1439.9	1438.9	1437.9	1435.5	1431.8	1428.2	1424.5	1420.9	1423.2
15°	1413.1	1412.0	1410.9	1409.9	1408.8	1406.3	1402.3	1398.4	1394.4	1390.4	1392.0
17.5°	1378.0	1376.7	1375.4	1374.1	1372.8	1370.2	1366.4	1362.7	1358.9	1355.2	1356.2
20°	1352.3	1351.0	1349.7	1348.3	1347.0	1344.4	1340.4	1336.4	1332.5	1328.5	1329.3
22.5°	1324.7	1322.9	1321.2	1319.5	1317.8	1314.8	1310.9	1306.9	1303.0	1299.0	1300.5
25°	1279.7	1277.9	1276.0	1274.1	1272.3	1269.5	1265.8	1262.1	1258.4	1254.7	1255.0
27.5°	1228.3	1226.4	1224.4	1222.5	1220.6	1218.0	1214.5	1211.1	1207.6	1204.2	1203.6
30°	1194.0	1191.9	1189.7	1187.7	1185.5	1182.8	1179.3	1175.9	1172.4	1169.0	1167.9
32.5°	1157.8	1155.9	1154.0	1152.1	1150.2	1147.4	1143.8	1140.1	1136.4	1132.8	1131.5
35°	1101.1	1099.3	1097.4	1095.6	1093.7	1091.0	1087.3	1083.6	1079.9	1076.2	1074.3
37.5°	1041.4	1039.7	1038.0	1036.3	1034.6	1031.8	1027.8	1023.8	1019.9	1015.9	1013.9
40°	1002.4	1000.2	998.1	996.0	993.9	990.8	986.9	982.9	979.0	975.0	972.3
42.5°	960.4	959.2	957.9	956.7	955.4	952.5	948.1	943.7	939.4	935.0	931.9
45°	898.8	896.9	895.1	893.2	891.4	888.3	884.1	879.9	875.6	871.4	868.5
47.5°	834.2	833.0	831.7	830.4	829.1	826.6	822.7	818.7	814.9	810.9	807.6
50°	790.5	789.4	788.3	787.3	786.2	783.9	780.2	776.4	772.7	769.0	765.3
52.5°	747.6	746.3	745.0	743.8	742.5	739.9	736.0	732.1	728.1	724.3	721.0
55°	679.8	678.9	678.1	677.3	676.6	674.3	670.6	666.9	663.2	659.5	656.3
57.5°	615.0	614.1	613.2	612.3	611.4	609.1	605.5	601.8	598.1	594.5	591.5
60°	570.2	568.9	567.6	566.3	564.9	562.6	559.1	555.7	552.2	548.8	546.4
62.5°	526.4	525.3	524.2	523.1	521.9	519.6	515.9	512.3	508.6	505.0	502.8
65°	460.7	459.3	458.1	456.8	455.4	453.4	450.7	448.2	445.5	442.8	440.2
67.5°	394.5	393.3	392.1	390.9	389.6	387.8	385.2	382.7	380.1	377.6	375.1
70°	353.5	351.7	349.8	348.0	346.1	344.1	342.1	339.9	337.9	335.7	333.6
72.5°	309.8	307.9	306.1	304.2	302.4	300.6	298.9	297.2	295.5	293.8	292.1
75°	245.2	243.9	242.5	241.3	240.0	238.6	237.3	236.0	234.6	233.3	232.3
77.5°	183.6	183.0	182.4	181.8	181.2	180.4	179.2	178.1	176.8	175.7	175.4
80°	146.5	145.6	144.8	144.0	143.3	142.6	142.1	141.5	141.0	140.4	139.9
82.5°	110.2	109.9	109.5	109.1	108.7	108.5	108.4	108.3	108.2	108.1	107.8
85°	64.3	64.3	64.3	64.3	64.3	64.1	63.5	62.9	62.4	61.9	61.9
87.5°	25.1	25.2	25.3	25.5	25.6	25.6	25.7	25.7	25.7	25.7	25.8
90°	1.9	3.4	5.1	6.6	8.2	9.6	10.7	11.8	12.9	14.0	14.9
92.5°	8.1	8.2	8.3	8.3	8.4	9.0	10.2	11.3	12.4	13.5	14.4
95°	35.1	30.3	25.5	20.7	15.8	13.5	13.6	13.8	13.9	14.0	14.9
97.5°	74.6	77.7	80.7	83.7	86.7	80.2	64.4	48.6	32.7	16.9	17.0
100°	104.8	107.4	109.9	112.4	115.0	106.5	87.0	67.3	47.7	28.2	25.7
102.5°	138.5	140.4	142.3	144.2	146.0	145.7	143.2	140.6	138.0	135.5	109.4
105°	192.3	193.2	194.1	194.9	195.8	196.6	197.3	197.9	198.7	199.4	200.7
107.5°	242.4	242.8	243.2	243.7	244.1	244.8	245.7	246.7	247.6	248.6	249.3
110°	276.1	276.6	277.0	277.4	277.8	278.4	279.3	280.2	281.0	281.8	282.1



TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	308.8	309.6	310.4	311.1	311.9	312.5	312.9	313.2	313.7	314.1	314.0
115°	359.2	359.6	360.1	360.4	360.8	361.0	360.8	360.8	360.6	360.4	360.8
117.5°	404.6	405.1	405.7	406.2	406.8	407.3	407.6	407.9	408.2	408.5	408.5
120°	435.2	435.8	436.4	437.0	437.5	437.7	437.6	437.5	437.3	437.1	437.5
122.5°	463.9	464.2	464.5	464.9	465.2	465.5	465.7	465.9	466.1	466.3	466.5
125°	504.9	505.5	506.0	506.6	507.1	507.3	507.0	506.8	506.4	506.2	506.6
127.5°	543.7	543.9	544.1	544.2	544.3	544.8	545.4	546.0	546.6	547.3	547.3
130°	568.8	568.9	569.1	569.2	569.4	569.6	570.1	570.5	570.9	571.4	571.5
132.5°	591.9	592.1	592.4	592.5	592.8	593.2	593.7	594.3	594.9	595.4	595.6
135°	626.3	626.2	626.0	625.9	625.8	625.9	626.5	627.1	627.7	628.3	628.5
137.5°	656.9	656.9	657.0	657.0	657.1	657.5	658.1	658.7	659.4	660.0	660.2
140°	676.8	677.1	677.3	677.7	678.0	678.2	678.6	678.8	679.1	679.4	679.8
142.5°	694.7	695.3	695.8	696.2	696.7	697.1	697.2	697.4	697.6	697.8	698.1
145°	722.2	722.6	723.1	723.5	723.9	724.1	724.1	724.1	724.1	724.1	724.3
147.5°	744.1	744.9	745.6	746.4	747.3	747.5	747.4	747.3	747.1	747.0	747.1
150°	759.9	760.4	761.0	761.6	762.2	762.4	762.2	762.1	762.0	761.8	761.8
152.5°	773.2	773.6	774.1	774.6	775.0	775.1	774.8	774.6	774.4	774.1	774.3
155°	791.9	792.0	792.1	792.3	792.5	792.3	791.9	791.4	791.0	790.6	791.2
157.5°	807.6	807.5	807.4	807.4	807.3	806.9	806.5	806.0	805.5	805.0	805.7
160°	816.7	816.3	816.0	815.5	815.1	814.8	814.7	814.5	814.3	814.2	815.1
162.5°	824.9	824.4	823.9	823.4	822.8	822.4	822.3	822.2	822.0	821.9	822.8
165°	835.3	834.6	833.9	833.2	832.5	832.2	832.2	832.2	832.2	832.2	833.3
167.5°	843.5	842.7	842.1	841.3	840.5	840.2	840.1	840.0	839.9	839.8	841.0
170°	848.1	847.2	846.4	845.5	844.7	844.3	844.5	844.6	844.7	844.9	846.0
172.5°	851.2	850.3	849.5	848.6	847.7	847.4	847.6	847.7	847.8	848.0	849.1
175°	854.5	853.6	852.8	852.0	851.1	850.8	850.8	851.0	851.2	851.3	852.6
177.5°	856.0	855.2	854.5	853.6	852.8	852.6	852.8	853.0	853.3	853.4	854.4
180°	854.5	854.5	854.5	854.5	854.5	854.5	854.5	854.5	854.5	854.5	854.5



TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7
2.5°	1480.3	1482.5	1484.6	1485.6	1485.3	1485.1	1484.9	1484.7
5°	1472.4	1475.3	1478.3	1479.5	1478.9	1478.3	1477.8	1477.3
7.5°	1456.0	1458.4	1460.7	1461.7	1461.4	1461.0	1460.7	1460.4
10°	1442.3	1444.4	1446.5	1447.3	1446.7	1446.2	1445.7	1445.2
12.5°	1425.6	1427.9	1430.2	1431.0	1430.3	1429.5	1428.7	1428.1
15°	1393.6	1395.2	1396.8	1397.1	1396.4	1395.6	1394.8	1394.0
17.5°	1357.2	1358.2	1359.2	1359.4	1358.9	1358.4	1357.9	1357.3
20°	1330.1	1330.9	1331.7	1331.8	1331.3	1330.8	1330.2	1329.7
22.5°	1301.8	1303.3	1304.7	1304.9	1304.0	1303.0	1302.1	1301.1
25°	1255.3	1255.5	1255.8	1255.3	1254.3	1253.3	1252.2	1251.1
27.5°	1203.0	1202.3	1201.7	1200.8	1199.4	1198.1	1196.7	1195.4
30°	1166.9	1165.8	1164.8	1163.6	1162.3	1160.9	1159.6	1158.3
32.5°	1130.2	1129.0	1127.7	1126.4	1125.1	1123.8	1122.5	1121.1
35°	1072.5	1070.6	1068.8	1067.1	1065.8	1064.5	1063.2	1061.9
37.5°	1011.8	1009.9	1007.9	1006.0	1004.3	1002.5	1000.7	999.0
40°	969.7	967.0	964.4	962.4	961.0	959.8	958.5	957.1
42.5°	928.8	925.7	922.6	920.7	919.8	918.9	918.0	917.1
45°	865.6	862.6	859.7	857.9	857.1	856.4	855.5	854.7
47.5°	804.3	801.1	797.8	795.1	793.2	791.1	789.1	787.1
50°	761.6	757.9	754.2	751.6	749.9	748.4	746.8	745.2
52.5°	717.7	714.4	711.1	708.5	706.5	704.5	702.5	700.4
55°	653.2	650.0	646.8	644.5	642.8	641.3	639.6	638.1
57.5°	588.5	585.5	582.5	580.1	578.6	577.1	575.6	574.0
60°	544.1	541.7	539.2	537.4	536.1	534.8	533.5	532.1
62.5°	500.7	498.4	496.3	494.6	493.3	491.9	490.6	489.3
65°	437.6	434.9	432.2	430.2	429.0	427.7	426.3	425.0
67.5°	372.6	370.0	367.5	366.0	365.6	365.2	364.9	364.5
70°	331.5	329.3	327.3	325.8	325.0	324.2	323.4	322.6
72.5°	290.4	288.7	287.1	285.8	285.0	284.2	283.4	282.6
75°	231.2	230.1	229.1	228.4	228.2	227.9	227.6	227.4
77.5°	175.0	174.8	174.4	173.9	173.2	172.5	171.9	171.2
80°	139.4	138.9	138.4	137.9	137.7	137.4	137.2	136.9
82.5°	107.5	107.1	106.9	106.5	106.2	106.0	105.7	105.5
85°	61.9	61.9	61.9	61.7	61.5	61.2	61.0	60.7
87.5°	26.0	26.2	26.3	26.4	26.5	26.6	26.6	26.7
90°	15.8	16.6	17.5	18.0	18.3	18.6	18.9	19.2
92.5°	15.2	16.1	17.0	17.4	17.5	17.6	17.6	17.7
95°	15.8	16.6	17.5	18.0	18.1	18.3	18.4	18.5
97.5°	17.0	17.1	17.2	17.3	17.5	17.7	17.7	17.9
100°	23.3	20.8	18.4	17.3	17.5	17.7	17.7	17.9
102.5°	83.4	57.3	31.3	18.3	18.3	18.3	18.3	18.4
105°	202.0	203.2	204.5	202.6	197.5	192.3	187.3	182.2
107.5°	249.9	250.5	251.2	251.7	252.3	252.8	253.3	253.8
110°	282.4	282.7	283.0	283.4	283.8	284.2	284.6	285.1





TEST NUMBER: P332815-935

CATALOG NUMBER: S124DIW-S1020D770U935-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	313.9	313.9	313.8	314.1	314.6	315.1	315.7	316.2
115°	361.0	361.3	361.6	361.7	361.7	361.7	361.7	361.7
117.5°	408.4	408.4	408.3	408.2	408.2	408.1	408.0	408.0
120°	437.7	438.0	438.2	438.2	438.0	437.7	437.5	437.1
122.5°	466.7	466.8	467.0	466.9	466.7	466.3	466.1	465.8
125°	507.0	507.5	507.9	508.2	508.3	508.4	508.6	508.8
127.5°	547.2	547.1	547.0	546.9	546.8	546.6	546.6	546.5
130°	571.6	571.8	572.0	572.0	572.0	572.0	572.0	572.0
132.5°	595.6	595.8	596.0	596.0	595.9	595.7	595.6	595.6
135°	628.8	629.1	629.4	629.6	629.9	630.3	630.5	630.8
137.5°	660.6	660.9	661.2	661.3	661.2	661.2	661.1	661.0
140°	680.2	680.6	681.1	681.4	681.5	681.7	681.8	681.9
142.5°	698.4	698.7	699.0	699.2	699.2	699.2	699.3	699.3
145°	724.4	724.5	724.7	724.9	725.1	725.5	725.7	726.0
147.5°	747.2	747.3	747.4	747.6	747.7	747.9	748.0	748.1
150°	761.8	761.8	761.8	761.9	762.1	762.2	762.3	762.4
152.5°	774.6	774.7	775.0	775.1	775.0	774.9	774.8	774.7
155°	791.7	792.3	792.8	792.9	792.5	792.0	791.6	791.3
157.5°	806.5	807.3	808.0	808.0	807.3	806.5	805.7	805.0
160°	816.0	816.7	817.6	817.6	816.7	816.0	815.1	814.2
162.5°	823.6	824.4	825.3	825.3	824.3	823.3	822.3	821.4
165°	834.4	835.5	836.6	836.6	835.3	834.1	832.8	831.5
167.5°	842.3	843.5	844.8	844.7	843.3	841.9	840.4	839.0
170°	847.1	848.3	849.5	849.3	847.9	846.4	845.1	843.6
172.5°	850.2	851.4	852.5	852.3	850.8	849.3	847.7	846.2
175°	853.9	855.1	856.4	856.2	854.5	852.8	851.1	849.4
177.5°	855.3	856.2	857.1	856.9	855.5	854.1	852.8	851.4
180°	854.5	854.5	854.5	854.5	854.5	854.5	854.5	854.5

(END OF REPORT)