

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: P332826-830

Luminaire Tested: **S124DIW-S1020D1340U830-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332826-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S1020D1340U830-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8356.8 lumens  
Efficiency: N/A  
Efficacy: 119.7 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

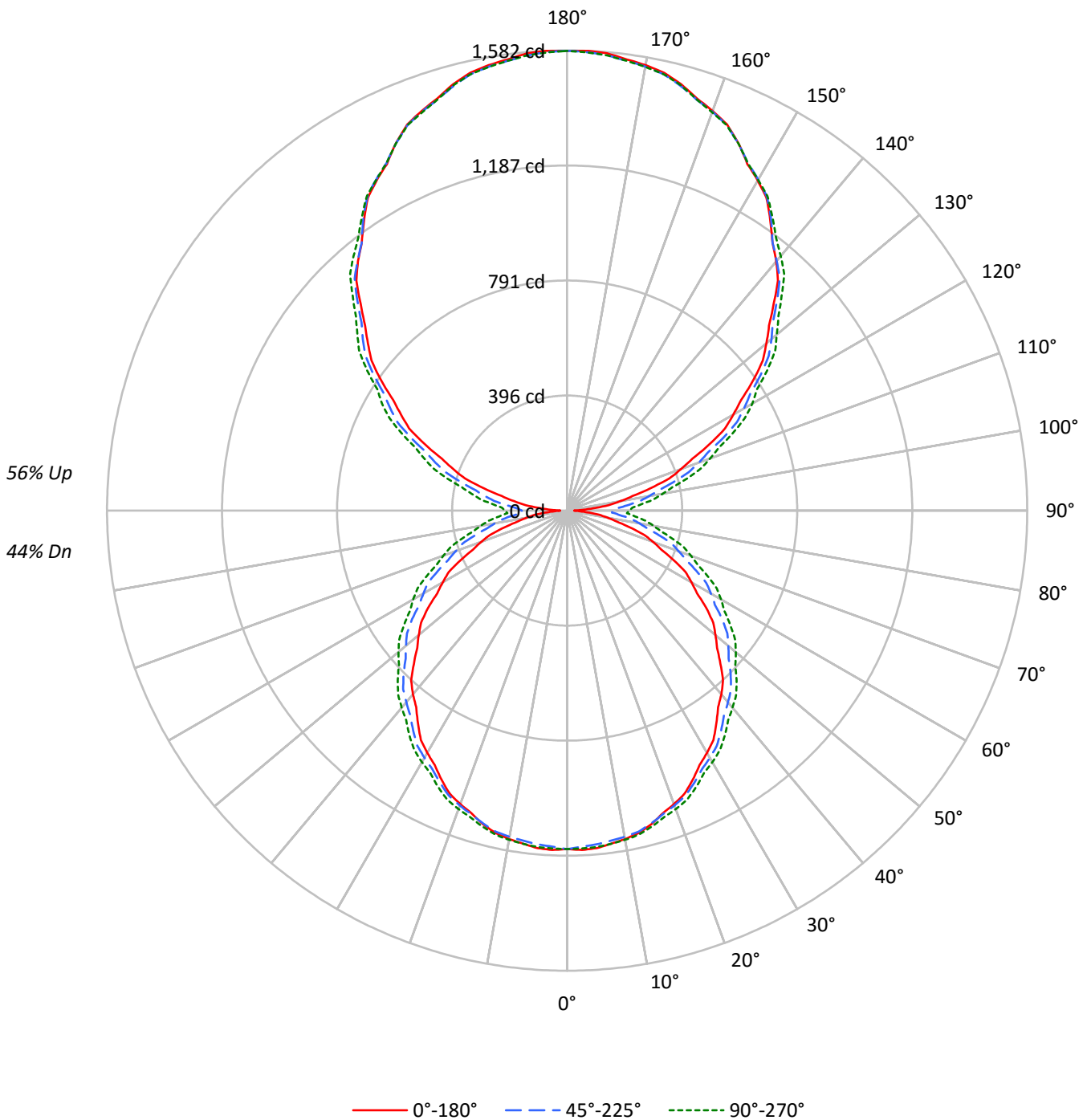
Input Watts (W): 69.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44
1	96	91	87	83	87	83	80	76	69	66	64	55	54	52	43	42	41	35
2	87	79	72	67	79	72	67	62	60	56	52	48	45	43	38	36	34	29
3	79	69	61	55	72	63	57	51	52	47	43	42	39	36	33	30	28	24
4	72	61	53	46	65	56	49	43	46	41	37	37	33	30	29	26	24	20
5	66	54	46	39	60	50	42	37	41	36	31	33	29	26	26	23	21	17
6	61	48	40	34	55	44	37	32	37	31	27	30	26	23	24	21	18	15
7	56	43	35	30	51	40	33	28	33	28	24	27	23	20	22	18	16	13
8	52	39	31	26	47	36	29	24	30	25	21	25	21	18	20	17	14	12
9	48	36	28	23	44	33	26	22	28	22	19	23	19	16	18	15	13	11
10	45	33	25	21	41	30	24	19	26	20	17	21	17	14	17	14	12	10

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

	0°	45°	90°
0°	9395	9395	9395
5°	9424	9182	9208
10°	9366	9032	9024
15°	9282	8858	8809
20°	9156	8666	8599
25°	9013	8450	8368
30°	8859	8237	8131
35°	8684	8018	7924
40°	8544	7809	7708
45°	8336	7617	7522
50°	8161	7395	7326
55°	7979	7187	7096
60°	7697	6921	6885
65°	7387	6635	6628
70°	7013	6309	6327
75°	6486	5950	6056
80°	5904	5605	5788
85°	5170	5301	5633



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	110.2	1.3
10°-20°	315.7	3.8
20°-30°	477.4	5.7
30°-40°	577.6	6.9
40°-50°	610.7	7.3
50°-60°	574.7	6.9
60°-70°	476.8	5.7
70°-80°	334.9	4.0
80°-90°	194.1	2.3
90°-100°	216.7	2.6
100°-110°	392.0	4.7
110°-120°	580.0	6.9
120°-130°	722.6	8.6
130°-140°	789.8	9.5
140°-150°	765.5	9.2
150°-160°	641.5	7.7
160°-170°	426.8	5.1
170°-180°	149.5	1.8
0°-30°	903.4	10.8
0°-40°	1481.0	17.7
0°-60°	2666.4	31.9
0°-90°	3672.3	43.9
90°-120°	1188.7	14.2
90°-150°	3466.7	41.5
90°-180°	4684.0	56.1
0°-180°	8356.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1164	1164	1164	1164	1164	
5°	1165	1161	1152	1162	1161	111
15°	1117	1118	1114	1125	1125	315
25°	1022	1029	1033	1047	1049	470
35°	894	910	923	940	945	560
45°	745	770	795	816	824	576
55°	584	612	650	675	684	520
65°	404	446	490	521	533	400
75°	224	273	327	362	375	238
85°	69	124	182	220	235	74
90°	24	90	156	199	214	18
95°	90	145	206	244	257	95
105°	296	325	377	412	427	315
115°	541	554	592	618	627	534
125°	782	782	811	833	839	697
135°	1004	1011	1020	1038	1043	777
145°	1218	1221	1222	1229	1230	762
155°	1394	1393	1392	1397	1392	641
165°	1517	1513	1511	1518	1513	427
175°	1578	1572	1571	1578	1571	150
180°	1580	1580	1580	1580	1580	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8
2.5°	1167.9	1167.2	1166.5	1165.8	1165.1	1163.9	1162.0	1160.2	1158.3	1156.4	1158.0
5°	1165.0	1164.1	1163.3	1162.4	1161.6	1160.1	1158.1	1156.0	1154.0	1152.0	1154.3
7.5°	1155.1	1154.6	1154.0	1153.6	1153.0	1152.0	1150.3	1148.6	1146.9	1145.2	1147.8
10°	1146.8	1146.5	1146.2	1145.9	1145.7	1144.7	1143.3	1141.9	1140.4	1139.0	1141.6
12.5°	1135.3	1135.3	1135.2	1135.1	1135.1	1134.5	1133.6	1132.6	1131.6	1130.6	1133.0
15°	1116.8	1117.1	1117.4	1117.7	1117.9	1117.7	1116.8	1116.0	1115.0	1114.2	1116.8
17.5°	1091.6	1092.4	1093.3	1094.1	1095.0	1095.3	1095.1	1095.0	1094.9	1094.7	1097.3
20°	1073.8	1074.7	1075.5	1076.4	1077.3	1077.9	1078.2	1078.5	1078.7	1079.0	1081.9
22.5°	1054.0	1055.1	1056.2	1057.3	1058.4	1059.2	1059.7	1060.3	1060.7	1061.3	1064.2
25°	1021.7	1023.4	1025.1	1026.9	1028.6	1029.9	1030.8	1031.7	1032.6	1033.4	1036.6
27.5°	985.7	988.3	990.8	993.3	995.9	997.9	999.2	1000.5	1001.8	1003.1	1006.2
30°	961.8	964.0	966.4	968.7	971.0	973.2	975.2	977.2	979.2	981.3	984.5
32.5°	935.7	938.5	941.2	944.1	946.8	949.3	951.6	953.9	956.1	958.4	962.0
35°	894.0	897.5	900.9	904.4	907.9	911.1	914.0	916.8	919.7	922.7	926.7
37.5°	852.0	856.0	860.0	864.0	868.0	871.8	875.3	878.9	882.6	886.2	890.2
40°	824.9	828.7	832.5	836.2	840.0	843.9	847.9	852.0	856.0	860.1	864.4
42.5°	793.6	797.9	802.1	806.3	810.5	815.0	819.7	824.5	829.2	834.1	838.9
45°	745.4	750.9	756.4	762.0	767.4	772.9	778.4	783.9	789.4	794.9	799.8
47.5°	699.3	704.9	710.6	716.3	722.0	728.0	734.3	740.7	747.2	753.5	758.6
50°	665.9	672.3	678.6	685.0	691.4	697.8	704.2	710.5	716.9	723.2	729.1
52.5°	632.5	638.9	645.3	651.7	658.1	664.9	672.1	679.5	686.7	694.1	699.8
55°	583.8	589.9	596.0	602.1	608.1	615.5	624.2	632.9	641.6	650.3	656.1
57.5°	529.3	536.9	544.4	552.0	559.5	567.5	576.2	584.8	593.4	602.1	609.0
60°	493.9	501.4	509.0	516.5	524.1	532.5	542.2	551.7	561.2	570.8	577.4
62.5°	459.5	467.7	476.0	484.2	492.4	501.2	510.9	520.4	530.0	539.5	546.2
65°	404.0	413.2	422.5	431.8	441.0	450.6	460.4	470.3	480.1	490.0	497.2
67.5°	350.5	360.4	370.2	380.1	389.9	400.1	410.7	421.2	431.8	442.3	449.7
70°	314.1	324.0	333.8	343.6	353.5	363.9	374.8	385.9	396.9	407.9	415.8
72.5°	278.6	288.7	298.8	308.9	319.0	329.8	341.5	353.2	365.0	376.6	384.2
75°	224.1	234.9	245.5	256.3	267.0	278.4	290.6	302.7	314.9	327.1	335.2
77.5°	173.3	184.6	196.0	207.4	218.8	230.7	243.6	256.3	269.0	281.7	289.9
80°	142.0	153.6	165.2	176.8	188.4	200.6	213.3	226.0	238.7	251.5	260.2
82.5°	110.7	122.8	134.9	146.9	158.9	171.4	184.1	196.8	209.6	222.3	231.2
85°	69.1	81.2	93.4	105.6	117.7	130.4	143.4	156.4	169.4	182.5	191.1
87.5°	39.3	51.7	64.1	76.5	89.0	101.7	114.8	128.0	141.1	154.2	163.0
90°	24.5	39.1	53.6	68.2	82.8	97.4	112.1	126.7	141.3	155.9	165.9
92.5°	46.0	59.9	73.7	87.5	101.3	115.3	129.2	143.2	157.2	171.2	180.3
95°	90.3	102.3	114.3	126.3	138.3	151.2	164.9	178.7	192.5	206.2	214.9
97.5°	143.5	153.6	163.8	174.0	184.2	196.3	210.3	224.2	238.3	252.2	260.8
100°	185.5	194.1	202.7	211.3	219.9	231.1	244.9	258.5	272.3	286.1	294.5
102.5°	230.5	237.5	244.5	251.6	258.6	268.7	282.0	295.3	308.6	321.9	330.3
105°	296.5	302.7	308.7	314.7	320.7	329.7	341.5	353.4	365.1	376.9	385.0
107.5°	368.4	373.4	378.5	383.6	388.7	396.4	406.7	417.0	427.3	437.6	445.4
110°	416.2	420.8	425.5	430.1	434.6	441.9	451.8	461.6	471.5	481.4	487.5



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	466.1	469.8	473.4	477.1	480.9	487.3	496.4	505.7	514.8	524.1	530.4
115°	540.7	543.4	546.0	548.6	551.2	556.9	565.6	574.3	583.1	591.7	597.9
117.5°	612.4	614.2	616.0	617.7	619.5	624.5	632.7	641.0	649.3	657.5	662.6
120°	659.2	661.2	663.2	665.2	667.0	671.8	679.5	687.0	694.6	702.2	706.6
122.5°	709.2	709.7	710.4	711.0	711.5	715.7	723.2	730.8	738.3	745.8	750.7
125°	781.5	781.1	780.8	780.5	780.2	783.6	790.6	797.6	804.5	811.4	816.4
127.5°	847.9	848.4	848.9	849.5	850.0	852.8	857.9	863.1	868.2	873.4	878.0
130°	893.8	894.3	894.8	895.4	895.9	898.4	903.1	907.8	912.4	917.0	921.7
132.5°	941.7	942.0	942.4	942.6	942.9	944.8	948.3	951.8	955.3	958.8	963.3
135°	1003.7	1005.3	1007.0	1008.6	1010.2	1012.1	1014.1	1016.2	1018.1	1020.2	1024.3
137.5°	1072.7	1073.2	1073.7	1074.1	1074.6	1075.5	1076.9	1078.4	1079.8	1081.2	1084.7
140°	1118.6	1118.9	1119.2	1119.4	1119.6	1119.9	1120.2	1120.5	1120.8	1121.1	1124.5
142.5°	1159.6	1160.1	1160.6	1161.1	1161.6	1161.6	1161.2	1160.8	1160.5	1160.1	1163.3
145°	1217.6	1218.3	1219.2	1219.9	1220.8	1221.3	1221.5	1221.8	1222.1	1222.4	1223.8
147.5°	1275.3	1276.3	1277.2	1278.3	1279.3	1279.7	1279.5	1279.3	1279.0	1278.8	1278.8
150°	1310.4	1311.3	1312.0	1312.9	1313.6	1314.0	1314.0	1314.0	1314.0	1314.0	1314.0
152.5°	1342.7	1343.2	1343.9	1344.4	1345.0	1345.5	1345.7	1345.9	1346.1	1346.3	1347.0
155°	1393.5	1393.5	1393.5	1393.5	1393.5	1393.4	1393.1	1392.8	1392.5	1392.3	1393.4
157.5°	1436.5	1436.1	1435.6	1435.0	1434.5	1434.3	1434.3	1434.2	1434.2	1434.1	1434.9
160°	1462.0	1461.7	1461.4	1461.1	1460.8	1460.6	1460.3	1460.1	1459.8	1459.5	1460.3
162.5°	1485.4	1484.7	1484.0	1483.3	1482.6	1482.1	1481.9	1481.6	1481.3	1481.0	1482.5
165°	1516.9	1516.2	1515.3	1514.5	1513.7	1513.1	1512.5	1511.9	1511.4	1510.8	1512.5
167.5°	1541.2	1540.0	1538.9	1537.8	1536.6	1536.1	1536.2	1536.2	1536.3	1536.3	1537.9
170°	1554.8	1553.5	1552.2	1550.8	1549.4	1548.9	1549.2	1549.4	1549.7	1549.9	1551.6
172.5°	1564.6	1563.5	1562.4	1561.2	1560.1	1559.5	1559.6	1559.6	1559.7	1559.7	1561.6
175°	1578.1	1576.7	1575.4	1574.0	1572.6	1571.8	1571.6	1571.3	1571.0	1570.7	1572.6
177.5°	1582.4	1581.4	1580.3	1579.2	1578.1	1577.6	1577.6	1577.6	1577.6	1577.6	1579.1
180°	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8
2.5°	1159.7	1161.3	1162.9	1163.6	1163.4	1163.1	1162.9	1162.7
5°	1156.6	1159.0	1161.3	1162.2	1162.0	1161.7	1161.4	1161.1
7.5°	1150.5	1153.0	1155.7	1156.8	1156.5	1156.2	1155.9	1155.7
10°	1144.2	1146.8	1149.4	1150.6	1150.3	1150.0	1149.7	1149.4
12.5°	1135.4	1137.7	1140.1	1141.3	1141.2	1141.1	1141.1	1141.0
15°	1119.5	1122.0	1124.6	1125.8	1125.5	1125.2	1124.9	1124.6
17.5°	1099.9	1102.7	1105.3	1106.5	1106.3	1106.1	1105.8	1105.6
20°	1084.8	1087.7	1090.6	1092.0	1092.0	1092.0	1092.0	1092.0
22.5°	1067.1	1070.0	1072.9	1074.6	1075.1	1075.4	1075.9	1076.4
25°	1039.8	1042.9	1046.1	1047.9	1048.2	1048.5	1048.8	1049.0
27.5°	1009.1	1012.0	1015.0	1016.6	1017.0	1017.4	1017.7	1018.0
30°	987.7	990.8	994.0	995.9	996.5	997.0	997.7	998.2
32.5°	965.6	969.3	973.0	975.1	975.6	976.2	976.8	977.4
35°	930.8	934.8	938.9	941.3	942.2	943.0	944.0	944.8
37.5°	894.4	898.5	902.6	905.1	906.1	907.0	907.9	908.8
40°	868.7	873.1	877.5	880.2	881.4	882.5	883.7	884.9
42.5°	843.7	848.5	853.3	856.1	857.1	858.0	858.9	859.8
45°	804.7	809.7	814.6	817.8	819.3	820.7	822.2	823.6
47.5°	763.6	768.7	773.9	777.3	779.0	780.8	782.5	784.3
50°	734.8	740.6	746.4	750.2	752.0	753.7	755.4	757.1
52.5°	705.7	711.4	717.3	721.0	722.7	724.4	726.2	727.9
55°	661.9	667.7	673.4	677.2	678.9	680.7	682.4	684.2
57.5°	615.9	622.7	629.6	633.9	635.5	637.2	638.8	640.4
60°	584.1	590.8	597.4	601.9	604.3	606.5	608.9	611.1
62.5°	552.8	559.5	566.2	570.6	573.0	575.2	577.6	579.9
65°	504.4	511.7	519.0	523.8	526.0	528.4	530.7	533.0
67.5°	457.0	464.4	471.7	476.5	478.8	481.1	483.3	485.6
70°	423.5	431.3	439.1	444.1	446.1	448.2	450.2	452.2
72.5°	391.8	399.4	407.0	411.9	414.2	416.4	418.7	420.9
75°	343.3	351.4	359.5	364.9	367.5	370.1	372.7	375.3
77.5°	298.2	306.4	314.6	320.2	322.9	325.7	328.5	331.3
80°	268.9	277.6	286.3	291.7	294.1	296.4	298.7	301.0
82.5°	240.2	249.1	258.0	263.7	266.3	268.8	271.4	273.9
85°	199.8	208.5	217.2	223.0	225.9	228.8	231.7	234.6
87.5°	171.6	180.4	189.1	194.8	197.5	200.1	202.7	205.4
90°	176.0	186.0	196.0	202.5	205.3	208.2	211.0	213.9
92.5°	189.5	198.6	207.7	213.7	216.3	219.0	221.6	224.2
95°	223.6	232.1	240.8	246.5	249.0	251.7	254.2	256.8
97.5°	269.4	278.0	286.4	292.0	294.5	297.0	299.4	302.0
100°	302.7	311.1	319.5	324.7	326.8	328.8	330.8	332.8
102.5°	338.7	346.9	355.3	360.7	363.2	365.7	368.2	370.6
105°	393.0	401.1	409.2	414.7	417.8	421.0	424.1	427.3
107.5°	453.4	461.3	469.1	474.1	476.1	478.2	480.1	482.2
110°	493.6	499.6	505.8	510.4	513.6	516.7	519.8	522.9





TEST NUMBER: P332826-830

CATALOG NUMBER: S124DIW-S1020D1340U830-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	536.7	543.0	549.3	553.7	556.2	558.6	561.2	563.6
115°	604.0	610.0	616.1	620.1	621.8	623.6	625.4	627.1
117.5°	667.7	672.8	677.9	681.4	683.2	684.9	686.6	688.4
120°	711.1	715.5	719.9	723.6	726.4	729.2	732.2	735.0
122.5°	755.6	760.4	765.3	768.4	769.4	770.5	771.7	772.8
125°	821.4	826.3	831.3	834.3	835.6	836.8	837.9	839.1
127.5°	882.7	887.3	892.0	895.1	896.6	898.1	899.8	901.3
130°	926.3	931.0	935.7	938.3	939.0	939.6	940.3	940.9
132.5°	967.7	972.1	976.6	979.4	980.7	982.0	983.4	984.7
135°	1028.4	1032.5	1036.5	1039.1	1040.0	1040.8	1041.8	1042.7
137.5°	1088.3	1091.7	1095.2	1097.9	1099.5	1101.1	1102.7	1104.3
140°	1128.0	1131.5	1135.0	1137.4	1138.6	1139.7	1140.9	1142.1
142.5°	1166.6	1169.8	1173.1	1175.3	1176.4	1177.6	1178.7	1179.9
145°	1225.3	1226.7	1228.2	1229.2	1229.5	1229.8	1230.2	1230.5
147.5°	1278.8	1278.8	1278.9	1279.2	1279.9	1280.5	1281.2	1281.9
150°	1314.0	1314.0	1314.0	1313.9	1313.6	1313.3	1313.1	1312.9
152.5°	1347.6	1348.3	1349.0	1348.9	1348.2	1347.5	1346.8	1346.0
155°	1394.5	1395.5	1396.7	1396.7	1395.5	1394.5	1393.4	1392.3
157.5°	1435.7	1436.5	1437.4	1437.3	1436.3	1435.4	1434.5	1433.6
160°	1461.1	1462.0	1462.7	1462.4	1461.1	1459.8	1458.4	1457.1
162.5°	1483.9	1485.4	1486.9	1487.0	1485.5	1484.2	1482.9	1481.5
165°	1514.1	1515.7	1517.4	1517.7	1516.6	1515.4	1514.4	1513.3
167.5°	1539.5	1541.2	1542.8	1542.8	1541.1	1539.4	1537.8	1536.1
170°	1553.2	1554.8	1556.5	1556.3	1554.4	1552.6	1550.7	1548.8
172.5°	1563.4	1565.3	1567.2	1567.1	1565.2	1563.3	1561.4	1559.5
175°	1574.5	1576.4	1578.4	1578.4	1576.4	1574.5	1572.6	1570.7
177.5°	1580.6	1582.2	1583.7	1583.6	1581.9	1580.1	1578.4	1576.6
180°	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5	1580.5

(END OF REPORT)