

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: P332807-840

Luminaire Tested: **S124DIW-S1020D470U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332807-840  
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: S124DIW-S1020D470U840-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 470 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6144.9 lumens  
Efficiency: N/A  
Efficacy: 133.0 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: Semi-Direct

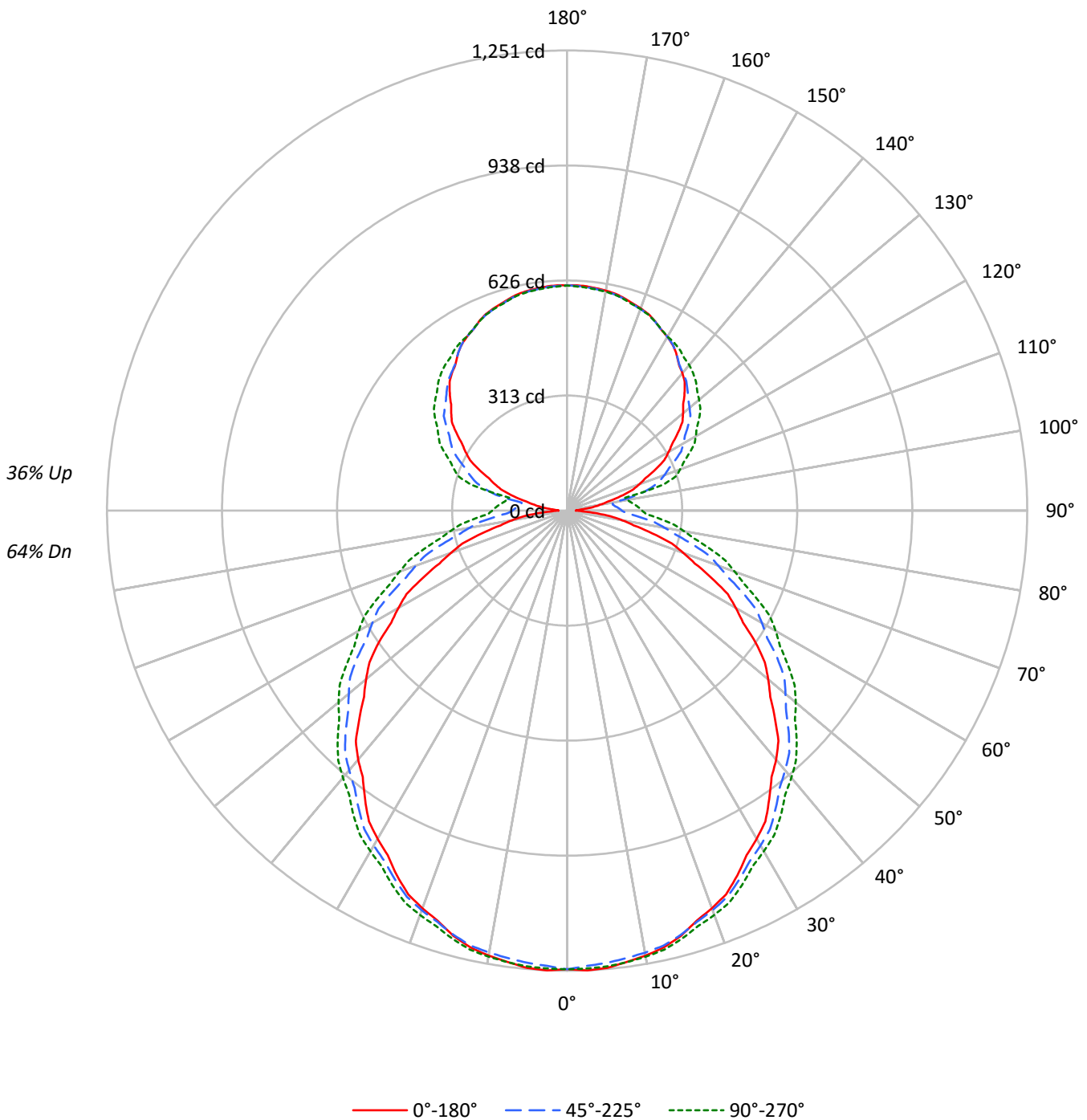
Input Watts (W): 46.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	110	110	110	110	104	104	104	104	91	91	91	80	80	80	69	69	69	64
1	100	95	90	86	93	89	85	81	78	75	72	68	66	64	59	57	56	51
2	90	82	75	69	84	77	71	66	68	63	59	59	55	52	51	48	46	42
3	82	72	64	57	76	67	60	54	59	54	49	52	47	44	45	41	38	35
4	75	63	55	48	70	59	52	46	52	46	41	46	41	37	40	36	33	29
5	69	56	47	41	64	53	45	39	47	40	35	41	36	32	36	32	28	25
6	63	50	42	35	59	47	40	34	42	36	31	37	32	28	32	28	25	22
7	58	45	37	31	55	43	35	30	38	32	27	34	28	24	29	25	22	19
8	54	41	33	27	51	39	31	26	35	28	24	31	26	22	27	23	20	17
9	50	38	30	24	47	36	28	23	32	26	21	28	23	20	25	21	18	15
10	47	35	27	22	44	33	26	21	29	23	19	26	21	18	23	19	16	14

**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	1.9
10°-20°	338.3	5.5
20°-30°	511.5	8.3
30°-40°	618.9	10.1
40°-50°	654.3	10.6
50°-60°	615.8	10.0
60°-70°	510.9	8.3
70°-80°	358.9	5.8
80°-90°	204.7	3.3
90°-100°	141.4	2.3
100°-110°	222.6	3.6
110°-120°	315.1	5.1
120°-130°	357.8	5.8
130°-140°	361.3	5.9
140°-150°	327.2	5.3
150°-160°	261.5	4.3
160°-170°	168.6	2.7
170°-180°	58.1	0.9
0°-30°	967.9	15.8
0°-40°	1586.8	25.8
0°-60°	2856.9	46.5
0°-90°	3931.3	64.0
90°-120°	679.1	11.1
90°-150°	1725.4	28.1
90°-180°	2214.0	36.0
0°-180°	6144.9	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°	24	85	148	190	204	16
95°	43	75	132	170	185	47
105°	150	182	235	272	269	158
115°	266	281	324	354	365	262
125°	367	369	402	428	438	328
135°	451	452	462	485	495	348
145°	519	519	519	527	534	324
155°	567	567	566	568	567	261
165°	598	596	596	599	595	169
175°	612	609	610	613	608	58
180°	612	612	612	612	612	



TEST NUMBER: P332807-840

CATALOG NUMBER: S124DIW-S1020D470U840-4F0-1E-UDD-D

**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°	41.6	54.5	67.4	80.3	93.1	106.4	120.2	134.0	147.7	161.5	170.6
90°	23.7	37.3	50.8	64.3	77.9	91.7	105.8	120.0	134.1	148.2	157.9
92.5°	27.0	38.2	49.5	60.7	71.9	84.6	98.8	112.9	127.0	141.2	150.6
95°	43.3	50.1	56.9	63.6	70.5	80.3	93.1	105.9	118.8	131.6	140.6
97.5°	69.9	80.9	91.9	102.8	113.8	119.9	121.2	122.4	123.6	124.9	133.1
100°	90.4	100.3	110.2	120.1	130.0	134.0	132.1	130.1	128.2	126.2	132.9
102.5°	114.6	123.0	131.4	139.9	148.2	157.4	167.5	177.5	187.5	197.5	187.0
105°	150.4	157.1	164.0	170.8	177.6	187.0	198.9	211.0	223.0	235.0	243.6
107.5°	185.8	191.3	196.6	202.0	207.4	215.9	227.4	239.0	250.5	262.1	270.1
110°	208.8	213.5	218.2	222.9	227.5	235.5	247.0	258.5	269.9	281.4	288.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	231.2	235.6	239.9	244.4	248.8	256.3	266.9	277.6	288.2	298.9	305.8
115°	265.6	268.7	271.8	274.9	278.0	284.5	294.3	304.1	314.0	323.8	330.7
117.5°	297.8	299.9	301.9	304.1	306.1	311.9	321.3	330.8	340.3	349.8	356.2
120°	318.6	320.0	321.3	322.7	324.0	329.1	338.0	346.9	355.8	364.7	371.1
122.5°	339.1	339.6	340.0	340.4	340.9	345.4	354.1	362.7	371.3	380.0	386.3
125°	367.2	367.3	367.4	367.4	367.5	371.3	378.9	386.5	394.0	401.5	407.8
127.5°	394.7	394.5	394.3	394.0	393.8	397.0	403.4	409.8	416.3	422.6	428.2
130°	411.5	411.3	411.1	410.9	410.7	413.2	418.5	423.7	429.0	434.2	440.0
132.5°	428.0	427.9	427.8	427.6	427.5	429.6	433.9	438.3	442.6	447.1	452.5
135°	451.3	451.2	451.1	451.0	450.9	452.1	454.7	457.3	459.9	462.4	467.7
137.5°	473.2	472.9	472.6	472.4	472.1	472.7	474.2	475.7	477.3	478.8	483.5
140°	487.5	487.4	487.3	487.2	487.1	487.3	487.8	488.3	488.8	489.3	493.6
142.5°	499.2	499.5	499.8	500.1	500.4	500.5	500.4	500.4	500.3	500.3	504.0
145°	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6	520.5
147.5°	534.2	534.5	534.7	535.0	535.2	535.3	535.2	535.1	535.0	534.9	535.2
150°	545.5	545.6	545.7	545.8	545.9	545.9	545.8	545.7	545.6	545.5	545.5
152.5°	554.0	554.2	554.5	554.7	555.0	555.0	554.9	554.7	554.5	554.3	554.5
155°	567.0	567.1	567.2	567.3	567.4	567.3	567.0	566.7	566.4	566.1	566.5
157.5°	578.3	578.2	578.1	578.1	578.0	577.8	577.5	577.1	576.8	576.5	577.0
160°	584.9	584.6	584.3	584.0	583.7	583.5	583.4	583.3	583.2	583.1	583.7
162.5°	590.8	590.4	590.0	589.6	589.3	589.0	588.9	588.8	588.7	588.5	589.2
165°	598.1	597.6	597.1	596.6	596.1	595.9	595.9	595.9	595.9	595.9	596.7
167.5°	604.0	603.5	603.0	602.5	601.9	601.6	601.6	601.5	601.5	601.4	602.3
170°	607.3	606.7	606.1	605.5	604.9	604.6	604.7	604.8	604.9	605.0	605.8
172.5°	609.6	608.9	608.3	607.7	607.1	606.8	606.9	607.0	607.1	607.2	608.0
175°	611.9	611.3	610.7	610.1	609.5	609.3	609.4	609.5	609.6	609.7	610.6
177.5°	613.0	612.5	611.9	611.3	610.8	610.6	610.7	610.9	611.0	611.2	611.8
180°	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9



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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°	179.7	188.8	197.9	203.9	206.6	209.4	212.2	215.0
90°	167.5	177.1	186.7	192.9	195.6	198.2	201.0	203.6
92.5°	160.0	169.4	178.6	184.6	187.1	189.7	192.2	194.7
95°	149.6	158.5	167.5	173.4	176.3	179.3	182.1	185.0
97.5°	141.3	149.5	157.6	163.1	165.9	168.6	171.5	174.2
100°	139.6	146.2	152.9	157.3	159.6	161.9	164.1	166.4
102.5°	176.5	166.0	155.4	151.4	153.9	156.3	158.8	161.2
105°	252.3	260.9	269.6	273.4	272.2	271.0	269.8	268.6
107.5°	278.2	286.3	294.4	299.7	302.4	305.0	307.6	310.2
110°	296.1	303.5	310.7	315.9	318.6	321.4	324.2	327.0





TEST NUMBER: P332807-840

CATALOG NUMBER: S124DIW-S1020D470U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	312.6	319.4	326.3	331.1	334.1	336.9	339.7	342.6
115°	337.8	344.9	351.8	356.5	358.6	360.8	362.9	365.2
117.5°	362.6	369.0	375.5	379.9	382.3	384.8	387.2	389.6
120°	377.5	384.0	390.3	394.7	397.0	399.2	401.5	403.8
122.5°	392.6	399.0	405.3	409.5	411.5	413.5	415.6	417.6
125°	413.9	420.2	426.4	430.4	432.4	434.3	436.4	438.3
127.5°	433.7	439.2	444.7	448.6	450.6	452.6	454.6	456.7
130°	445.7	451.3	457.1	460.8	462.7	464.5	466.4	468.3
132.5°	457.9	463.3	468.8	472.4	474.1	475.9	477.8	479.5
135°	472.8	478.0	483.1	486.8	488.8	490.9	492.9	495.0
137.5°	488.3	493.0	497.8	500.9	502.4	503.8	505.3	506.9
140°	498.0	502.3	506.6	509.7	511.3	512.9	514.6	516.2
142.5°	507.8	511.5	515.3	517.9	519.2	520.5	521.8	523.1
145°	522.5	524.4	526.4	528.1	529.6	531.0	532.4	533.9
147.5°	535.6	535.9	536.2	536.9	538.1	539.2	540.3	541.3
150°	545.5	545.5	545.5	545.6	545.7	545.8	545.9	546.0
152.5°	554.6	554.8	555.0	555.0	555.0	554.9	554.8	554.8
155°	566.9	567.3	567.7	567.8	567.5	567.2	566.9	566.6
157.5°	577.5	578.0	578.6	578.6	578.0	577.5	577.0	576.5
160°	584.3	584.9	585.5	585.5	584.9	584.3	583.7	583.1
162.5°	589.8	590.4	591.0	591.0	590.3	589.6	588.9	588.2
165°	597.5	598.3	599.2	599.1	598.1	597.2	596.3	595.4
167.5°	603.2	604.1	605.0	604.9	603.9	602.9	601.9	600.9
170°	606.6	607.4	608.3	608.2	607.1	606.1	605.1	604.1
172.5°	608.8	609.7	610.5	610.4	609.3	608.1	607.0	605.9
175°	611.5	612.4	613.3	613.1	611.9	610.7	609.5	608.2
177.5°	612.5	613.1	613.8	613.6	612.7	611.7	610.7	609.8
180°	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9

(END OF REPORT)