

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: P332808-840

Luminaire Tested: **S124DIW-S1020D470U840-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332808-840
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-S1020D470U840-4F0-1E-UDD-D1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5893.7 lumens
Efficiency: N/A
Efficacy: 127.6 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

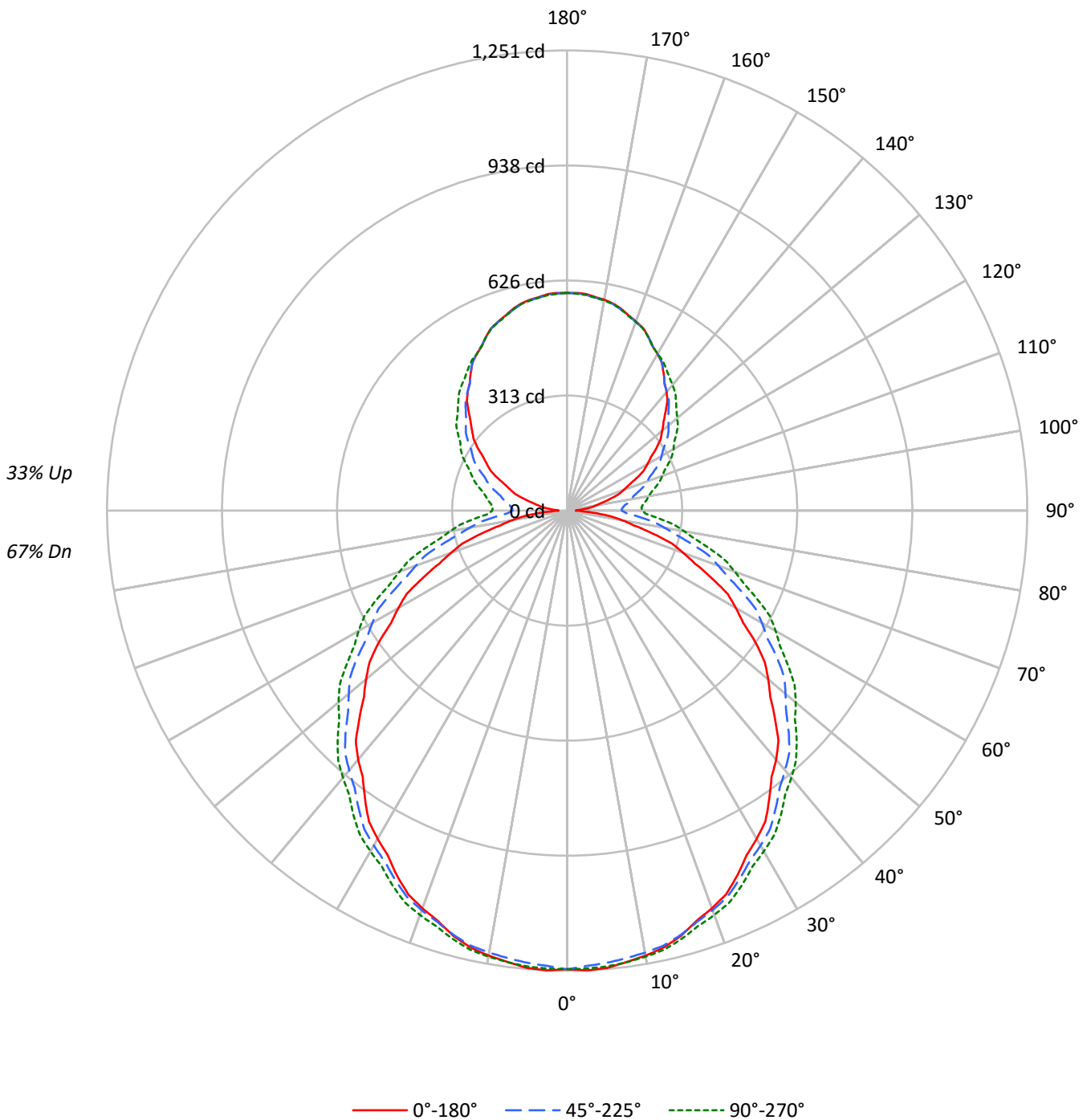
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67								
1	100	95	91	87	94	90	86	82	79	76	73	70	67	65	61	59	58	53								
2	91	82	75	70	85	78	71	66	69	64	60	61	57	53	53	50	48	44								
3	82	72	64	57	77	68	61	55	60	54	50	53	48	45	46	43	40	36								
4	75	63	55	48	70	60	52	46	53	47	42	47	42	38	41	37	34	31								
5	69	56	48	41	65	53	45	39	47	41	36	42	37	33	37	33	29	26								
6	63	51	42	36	59	48	40	34	43	36	31	38	33	28	33	29	26	23								
7	59	46	37	31	55	43	35	30	39	32	27	34	29	25	30	26	23	20								
8	55	41	33	28	51	39	32	26	35	29	24	32	26	22	28	24	20	18								
9	51	38	30	25	48	36	29	24	32	26	22	29	24	20	26	21	18	16								
10	47	35	27	22	45	33	26	21	30	24	20	27	22	18	24	20	17	15								

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	2.0
10°-20°	338.3	5.7
20°-30°	511.5	8.7
30°-40°	618.9	10.5
40°-50°	654.3	11.1
50°-60°	615.8	10.4
60°-70°	510.9	8.7
70°-80°	358.9	6.1
80°-90°	204.7	3.5
90°-100°	159.5	2.7
100°-110°	204.8	3.5
110°-120°	256.1	4.3
120°-130°	292.5	5.0
130°-140°	305.2	5.2
140°-150°	288.5	4.9
150°-160°	240.2	4.1
160°-170°	159.8	2.7
170°-180°	56.0	0.9
0°-30°	967.9	16.4
0°-40°	1586.8	26.9
0°-60°	2856.9	48.5
0°-90°	3931.3	66.7
90°-120°	620.3	10.5
90°-150°	1506.5	25.6
90°-180°	1962.0	33.3
0°-180°	5893.7	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°	46	96	156	194	208	45
105°	119	149	201	236	250	127
115°	208	222	264	293	304	206
125°	296	297	329	354	362	264
135°	378	381	390	411	418	292
145°	457	457	458	465	470	286
155°	522	522	521	523	521	240
165°	568	566	566	568	566	160
175°	591	589	588	591	588	56
180°	592	592	592	592	592	



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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°	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°	31.0	43.4	55.9	68.4	80.8	94.0	108.0	121.8	135.7	149.7	158.8
95°	45.6	56.8	68.0	79.1	90.2	102.5	115.9	129.4	142.8	156.2	164.9
97.5°	64.4	74.0	83.5	93.1	102.6	114.1	127.5	141.0	154.4	167.8	176.3
100°	79.4	87.9	96.3	104.8	113.3	124.1	137.0	150.1	163.1	176.1	184.7
102.5°	96.2	103.5	110.8	118.0	125.2	135.2	147.8	160.6	173.2	185.9	194.3
105°	119.2	125.5	131.8	138.1	144.4	153.5	165.4	177.3	189.1	201.1	209.1
107.5°	145.9	151.1	156.3	161.6	166.7	174.8	185.7	196.6	207.6	218.5	226.4
110°	163.1	167.6	172.2	176.7	181.3	188.9	199.7	210.5	221.3	232.0	238.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	181.0	184.9	188.7	192.7	196.5	203.6	213.8	224.0	234.2	244.3	251.2
115°	207.9	210.7	213.5	216.3	219.0	225.3	235.1	244.8	254.5	264.2	270.9
117.5°	234.5	236.3	238.0	239.8	241.6	247.0	256.1	265.2	274.3	283.4	289.5
120°	251.4	252.7	254.0	255.4	256.7	261.8	270.4	279.1	287.8	296.5	302.2
122.5°	270.0	270.3	270.7	271.0	271.5	275.8	284.1	292.5	300.8	309.2	315.1
125°	296.2	295.9	295.6	295.3	294.9	298.6	306.3	313.9	321.5	329.2	334.9
127.5°	320.8	320.8	320.8	320.8	320.8	323.8	329.5	335.4	341.1	346.9	352.3
130°	337.3	337.3	337.3	337.3	337.3	339.8	344.8	349.7	354.7	359.6	365.1
132.5°	355.3	355.2	355.1	355.0	355.0	356.8	360.7	364.6	368.5	372.3	377.5
135°	377.6	378.2	378.8	379.4	380.0	381.4	383.5	385.8	387.9	390.1	394.9
137.5°	403.3	403.3	403.3	403.3	403.2	403.8	405.1	406.3	407.6	408.8	413.0
140°	420.6	420.5	420.4	420.3	420.2	420.3	420.6	420.9	421.2	421.5	425.5
142.5°	435.3	435.4	435.5	435.7	435.8	435.8	435.5	435.2	434.9	434.6	438.2
145°	456.8	456.9	456.9	457.0	457.1	457.2	457.3	457.4	457.5	457.6	459.4
147.5°	478.3	478.5	478.7	478.9	479.1	479.1	479.0	478.9	478.9	478.8	478.9
150°	491.5	491.6	491.7	491.8	491.9	491.9	491.9	491.9	491.9	491.9	491.9
152.5°	502.8	503.0	503.2	503.4	503.5	503.7	503.7	503.8	503.9	504.0	504.2
155°	521.7	521.7	521.7	521.7	521.7	521.6	521.5	521.4	521.3	521.2	521.6
157.5°	537.8	537.6	537.5	537.2	537.0	536.9	536.9	536.9	536.8	536.8	537.1
160°	547.3	547.2	547.1	547.0	546.9	546.8	546.7	546.6	546.5	546.4	546.7
162.5°	556.1	555.8	555.5	555.3	555.0	554.8	554.7	554.6	554.5	554.4	555.0
165°	567.8	567.5	567.2	566.9	566.6	566.4	566.2	566.0	565.8	565.6	566.2
167.5°	576.9	576.5	576.1	575.7	575.2	575.0	575.0	575.1	575.1	575.1	575.7
170°	582.1	581.6	581.1	580.6	580.1	579.9	580.0	580.1	580.2	580.3	580.9
172.5°	585.7	585.3	584.9	584.5	584.0	583.8	583.8	583.9	583.9	583.9	584.6
175°	590.8	590.3	589.8	589.3	588.8	588.4	588.3	588.2	588.1	588.0	588.8
177.5°	592.4	592.0	591.6	591.2	590.8	590.6	590.6	590.6	590.6	590.6	591.2
180°	591.7	591.7	591.7	591.7	591.7	591.7	591.7	591.7	591.7	591.7	591.7



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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°	167.8	177.0	186.1	192.0	194.6	197.2	199.8	202.4
95°	173.6	182.3	191.0	196.7	199.5	202.3	205.1	207.9
97.5°	184.8	193.3	201.8	207.4	210.1	212.7	215.4	218.0
100°	193.3	201.9	210.5	215.8	218.0	220.2	222.4	224.5
102.5°	202.8	211.2	219.5	225.0	227.5	230.0	232.6	235.0
105°	217.2	225.2	233.3	238.7	241.6	244.3	247.1	249.8
107.5°	234.3	242.3	250.1	255.2	257.4	259.6	261.9	264.1
110°	245.8	252.8	259.7	264.6	267.3	270.1	273.0	275.7



TEST NUMBER: P332808-840

CATALOG NUMBER: S124DIW-S1020D470U840-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	258.0	264.9	271.8	276.4	278.9	281.4	284.1	286.6
115°	277.7	284.4	291.1	295.5	297.6	299.6	301.7	303.8
117.5°	295.6	301.7	307.8	312.0	314.3	316.6	318.8	321.1
120°	307.9	313.6	319.3	323.5	326.2	328.8	331.5	334.2
122.5°	320.9	326.8	332.6	336.5	338.4	340.2	342.1	344.0
125°	340.6	346.3	351.9	355.7	357.3	359.0	360.6	362.3
127.5°	357.7	363.0	368.5	372.1	374.1	376.0	378.0	379.9
130°	370.4	375.8	381.1	384.6	386.1	387.5	389.0	390.4
132.5°	382.6	387.8	392.9	396.4	398.0	399.7	401.4	403.1
135°	399.6	404.3	409.1	412.3	413.8	415.5	417.0	418.5
137.5°	417.3	421.5	425.9	428.8	430.4	432.0	433.6	435.2
140°	429.4	433.3	437.3	439.9	441.4	442.8	444.2	445.8
142.5°	441.7	445.1	448.7	451.1	452.4	453.6	454.9	456.3
145°	461.1	462.9	464.6	466.0	467.0	467.9	468.8	469.8
147.5°	479.1	479.3	479.4	480.0	480.8	481.7	482.6	483.5
150°	491.9	491.9	491.9	491.9	491.8	491.7	491.6	491.5
152.5°	504.5	504.7	505.0	504.9	504.7	504.4	504.2	503.9
155°	522.0	522.4	522.8	522.8	522.4	522.0	521.6	521.2
157.5°	537.5	537.8	538.1	538.1	537.8	537.3	537.0	536.6
160°	547.0	547.3	547.6	547.5	547.0	546.5	545.9	545.4
162.5°	555.5	556.1	556.6	556.6	556.1	555.6	555.1	554.6
165°	566.8	567.4	568.0	568.2	567.7	567.3	566.9	566.5
167.5°	576.3	576.9	577.5	577.5	576.9	576.3	575.6	575.0
170°	581.5	582.1	582.7	582.6	581.9	581.2	580.5	579.8
172.5°	585.3	586.0	586.6	586.6	585.9	585.2	584.5	583.8
175°	589.5	590.2	590.9	590.9	590.2	589.5	588.8	588.0
177.5°	591.8	592.3	592.9	592.8	592.2	591.6	590.9	590.3
180°	591.7	591.7	591.7	591.7	591.7	591.7	591.7	591.7

(END OF REPORT)