

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: P332639-840

Luminaire Tested: **S124DIP-S1020D590U840-4F0-1E-UDD-D4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332639-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DIP-S1020D590U840-4F0-1E-UDD-D4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6384.5 lumens
Efficiency: N/A
Efficacy: 130.8 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

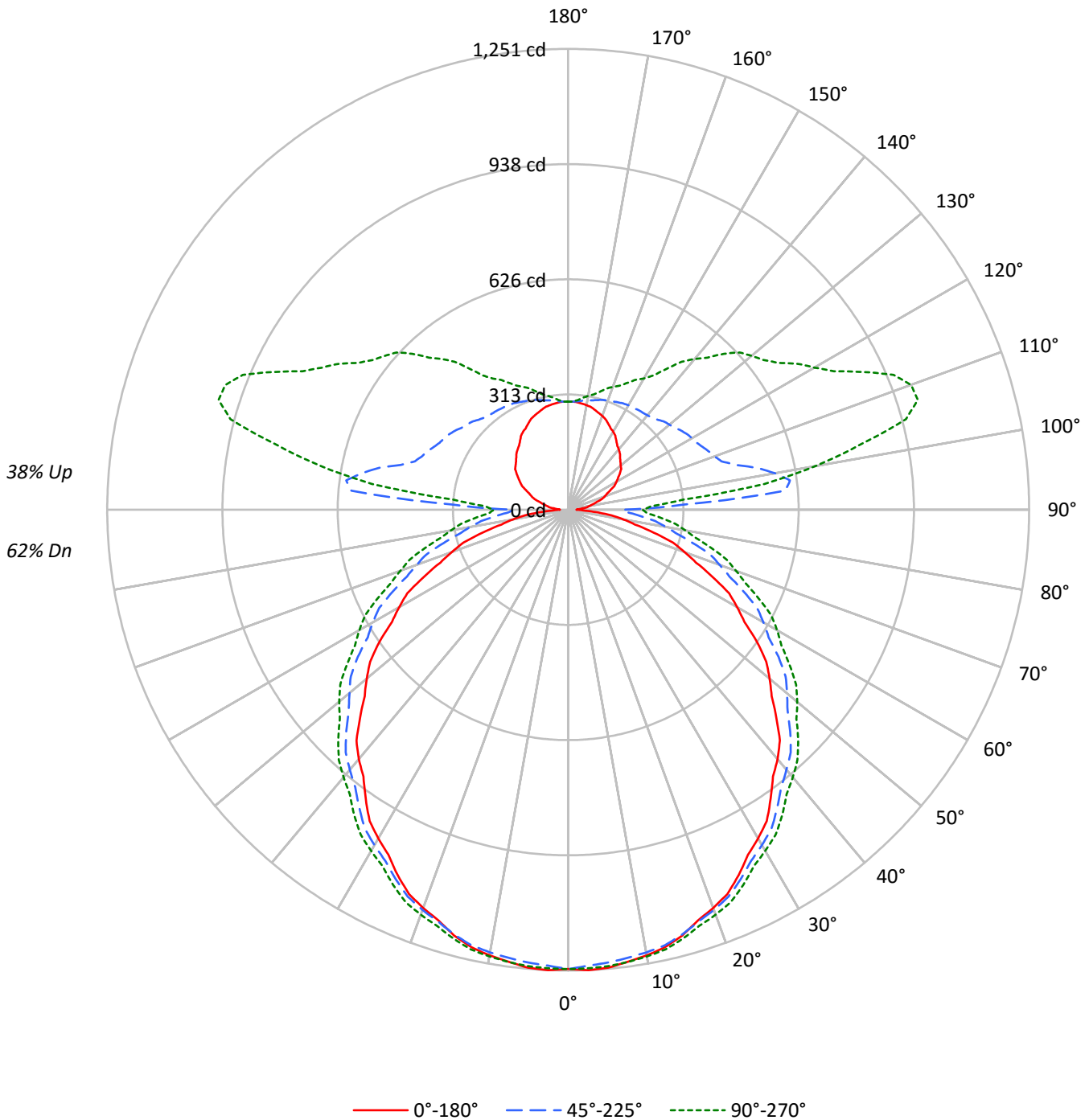
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	103	103	103	103	90	90	90	78	78	78	67	67	67	62
1	99	94	90	86	92	88	84	81	77	74	71	67	64	62	57	55	54	49
2	90	82	75	69	84	76	70	65	67	62	58	58	54	51	49	47	44	40
3	82	71	63	57	76	67	60	54	58	53	48	51	46	43	43	40	37	33
4	74	63	54	48	69	59	51	45	52	46	41	45	40	36	39	35	32	28
5	68	56	47	41	63	52	45	39	46	40	35	40	35	31	35	31	27	24
6	63	50	41	35	58	47	39	34	41	35	30	36	31	27	31	27	24	21
7	58	45	37	31	54	42	35	29	38	31	27	33	28	24	28	24	21	19
8	54	41	33	27	50	39	31	26	34	28	24	30	25	21	26	22	19	17
9	50	37	30	24	47	35	28	23	31	25	21	28	23	19	24	20	17	15
10	47	34	27	22	44	32	25	21	29	23	19	26	21	17	22	18	15	13

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	1.8
10°-20°	338.3	5.3
20°-30°	511.5	8.0
30°-40°	618.9	9.7
40°-50°	654.3	10.2
50°-60°	615.8	9.6
60°-70°	510.9	8.0
70°-80°	358.9	5.6
80°-90°	204.5	3.2
90°-100°	332.3	5.2
100°-110°	530.0	8.3
110°-120°	454.7	7.1
120°-130°	365.9	5.7
130°-140°	291.5	4.6
140°-150°	214.5	3.4
150°-160°	148.7	2.3
160°-170°	87.5	1.4
170°-180°	28.5	0.4
0°-30°	967.9	15.2
0°-40°	1586.8	24.9
0°-60°	2856.9	44.7
0°-90°	3931.2	61.6
90°-120°	1316.9	20.6
90°-150°	2188.7	34.3
90°-180°	2453.0	38.4
0°-180°	6384.5	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°	23	83	149	189	202	16
95°	37	125	591	390	312	36
105°	80	139	470	939	949	86
115°	127	172	403	743	884	127
125°	171	203	374	616	695	152
135°	199	237	345	523	599	154
145°	228	259	331	421	467	143
155°	258	278	321	364	380	119
165°	280	289	308	326	331	79
175°	293	293	296	300	298	28
180°	293	293	293	293	293	



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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°	41.4	54.3	67.4	80.1	92.9	106.0	120.3	133.9	147.7	161.5	170.4
90°	22.9	36.5	50.6	63.6	76.5	89.5	106.2	119.6	134.1	148.6	157.0
92.5°	27.8	41.9	58.6	76.7	96.3	120.6	163.2	221.2	278.1	314.3	292.5
95°	37.2	49.1	65.1	82.8	106.9	142.6	205.4	312.7	463.0	591.0	612.6
97.5°	50.6	59.4	73.1	88.9	109.6	140.6	191.8	282.4	431.8	607.3	727.4
100°	59.2	67.3	79.3	94.3	113.3	141.8	187.9	265.1	394.8	569.3	725.1
102.5°	68.4	76.3	86.9	100.5	118.1	145.0	187.6	256.8	368.6	524.5	684.7
105°	80.0	87.9	96.9	110.1	126.6	152.2	191.4	250.6	342.7	470.1	613.2
107.5°	95.6	101.8	109.8	122.3	137.2	161.7	197.9	252.4	332.0	436.2	554.3
110°	105.0	110.6	117.8	129.1	143.8	166.9	203.1	254.3	328.5	422.9	523.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	114.1	119.1	126.2	136.5	150.8	173.5	208.2	256.6	326.2	413.2	503.8
115°	127.0	131.6	138.4	146.9	160.7	182.6	215.6	260.0	323.6	402.6	482.0
117.5°	142.0	145.2	150.5	158.5	170.5	192.1	223.2	264.2	321.5	393.6	467.3
120°	151.0	153.1	158.0	165.3	176.0	197.1	228.0	267.0	320.3	388.1	458.3
122.5°	160.3	161.6	165.8	171.9	182.8	202.8	233.2	269.7	319.4	382.0	449.0
125°	170.9	172.9	176.0	182.1	192.7	212.6	241.1	275.3	319.4	374.4	435.6
127.5°	181.4	182.9	186.7	193.7	204.8	223.9	249.8	280.1	317.7	364.8	418.7
130°	186.2	188.2	192.5	200.9	211.5	230.6	255.1	282.5	316.9	358.7	408.1
132.5°	192.2	193.8	199.4	207.3	218.8	236.5	260.0	286.0	316.6	353.8	398.7
135°	199.2	201.6	207.3	217.1	229.2	245.3	266.4	289.3	315.2	345.0	383.3
137.5°	207.6	209.5	215.5	224.6	236.8	251.5	270.2	290.6	312.8	338.4	370.5
140°	213.6	215.1	221.1	230.6	242.4	256.2	273.8	292.6	312.5	334.6	363.5
142.5°	218.9	220.7	226.4	235.7	247.3	260.5	277.2	294.1	312.6	332.3	357.9
145°	227.8	229.2	234.7	242.4	253.1	265.6	280.5	296.1	312.9	330.6	350.9
147.5°	238.0	238.3	243.1	251.1	259.8	271.1	285.2	298.7	313.4	328.6	345.1
150°	244.5	244.8	249.0	255.7	264.0	274.8	287.5	300.1	313.4	327.2	341.6
152.5°	249.3	249.4	254.0	260.3	268.0	278.0	289.3	301.0	312.5	324.9	337.9
155°	257.5	258.1	261.6	267.3	273.7	282.3	292.1	301.8	311.0	321.4	332.3
157.5°	265.7	265.7	268.9	273.4	278.9	285.7	294.1	301.8	309.6	317.9	326.8
160°	270.7	270.7	273.1	277.1	281.7	288.0	295.0	301.8	308.2	315.1	322.7
162.5°	275.4	274.9	276.7	280.3	284.5	289.4	295.9	301.8	306.8	312.4	318.9
165°	280.5	280.5	281.7	284.6	287.5	290.9	296.1	300.7	304.2	308.2	312.9
167.5°	285.7	285.2	285.7	287.9	289.5	292.2	296.0	299.3	301.4	304.1	307.3
170°	288.0	287.5	288.0	289.7	290.9	292.7	295.5	298.4	299.5	301.2	303.6
172.5°	290.3	289.7	289.8	291.1	291.9	293.1	295.1	297.5	297.7	298.5	300.3
175°	292.7	292.1	292.1	292.7	293.3	293.3	294.4	296.1	295.5	295.5	296.7
177.5°	293.7	293.3	292.8	293.3	293.3	293.3	293.7	294.6	293.7	293.7	294.2
180°	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3



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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°	179.6	188.6	197.7	203.6	206.4	209.3	211.9	214.7
90°	166.6	176.1	185.7	191.5	194.5	197.6	199.5	202.0
92.5°	262.2	242.9	234.3	228.3	224.1	223.4	224.0	226.4
95°	565.1	484.2	415.4	365.1	339.6	324.6	317.0	312.3
97.5°	759.7	734.7	686.5	631.8	593.1	561.1	546.4	537.1
100°	817.6	837.5	817.7	780.3	732.4	699.4	684.3	681.9
102.5°	808.3	873.6	889.9	877.5	849.1	826.1	810.2	809.0
105°	752.9	860.3	925.0	953.8	957.5	955.3	949.8	948.8
107.5°	678.7	792.4	880.4	936.8	967.5	982.8	990.8	994.5
110°	633.7	740.4	831.1	899.3	942.7	969.4	982.2	989.9



TEST NUMBER: P332639-840

CATALOG NUMBER: S124DIP-S1020D590U840-4F0-1E-UDD-D4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	598.5	693.6	779.4	847.4	896.4	928.1	945.0	955.9
115°	560.9	638.5	712.8	772.5	820.3	857.0	877.6	884.4
117.5°	537.5	602.6	662.1	713.4	754.7	786.2	807.4	813.4
120°	524.9	584.7	637.0	682.3	717.6	745.4	762.9	771.6
122.5°	513.8	571.8	619.9	659.9	689.9	713.9	728.7	737.3
125°	496.8	552.2	597.8	633.4	658.3	676.9	689.7	695.0
127.5°	476.3	529.2	574.4	608.3	633.6	650.6	661.9	667.4
130°	461.4	512.5	557.3	591.6	617.0	633.3	644.4	649.6
132.5°	446.8	494.9	538.5	572.6	597.6	615.7	626.3	631.7
135°	424.5	467.0	507.2	539.4	564.2	582.2	593.3	598.6
137.5°	405.2	441.4	475.5	504.6	527.8	545.2	554.3	560.1
140°	393.9	425.1	455.0	482.0	503.7	518.0	527.6	533.7
142.5°	384.3	411.6	437.5	460.8	480.0	493.0	501.5	506.0
145°	371.2	392.7	411.8	429.5	445.1	456.3	463.2	467.4
147.5°	360.5	376.4	390.4	403.7	415.4	424.7	430.1	432.1
150°	355.5	368.7	380.2	390.6	399.8	407.3	410.7	411.3
152.5°	350.3	361.7	372.3	380.9	388.7	394.9	396.9	397.5
155°	342.7	351.9	360.6	367.5	373.3	377.9	379.6	379.6
157.5°	334.6	342.3	349.5	355.1	359.5	362.9	364.0	364.0
160°	329.5	335.9	342.1	346.8	350.2	353.8	354.3	354.3
162.5°	324.5	329.8	334.8	339.0	341.5	345.0	345.6	345.1
165°	317.4	320.8	324.9	327.8	330.1	332.3	331.8	331.2
167.5°	310.6	313.3	316.5	318.2	319.4	320.8	320.7	320.3
170°	306.5	308.2	310.5	312.3	313.4	314.0	313.4	313.4
172.5°	302.8	304.1	305.5	306.7	307.4	308.0	307.4	306.5
175°	297.8	298.4	299.5	299.5	299.5	300.7	299.5	298.4
177.5°	294.6	295.1	295.1	295.5	295.1	295.5	294.6	293.7
180°	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3

(END OF REPORT)