

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

Luminaire Tested: **S124DIW-S1020D470U835-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332808
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-S1020D470U835-4F0-1E-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: 5836.1 lumens
Efficiency: N/A
Efficacy: 126.3 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

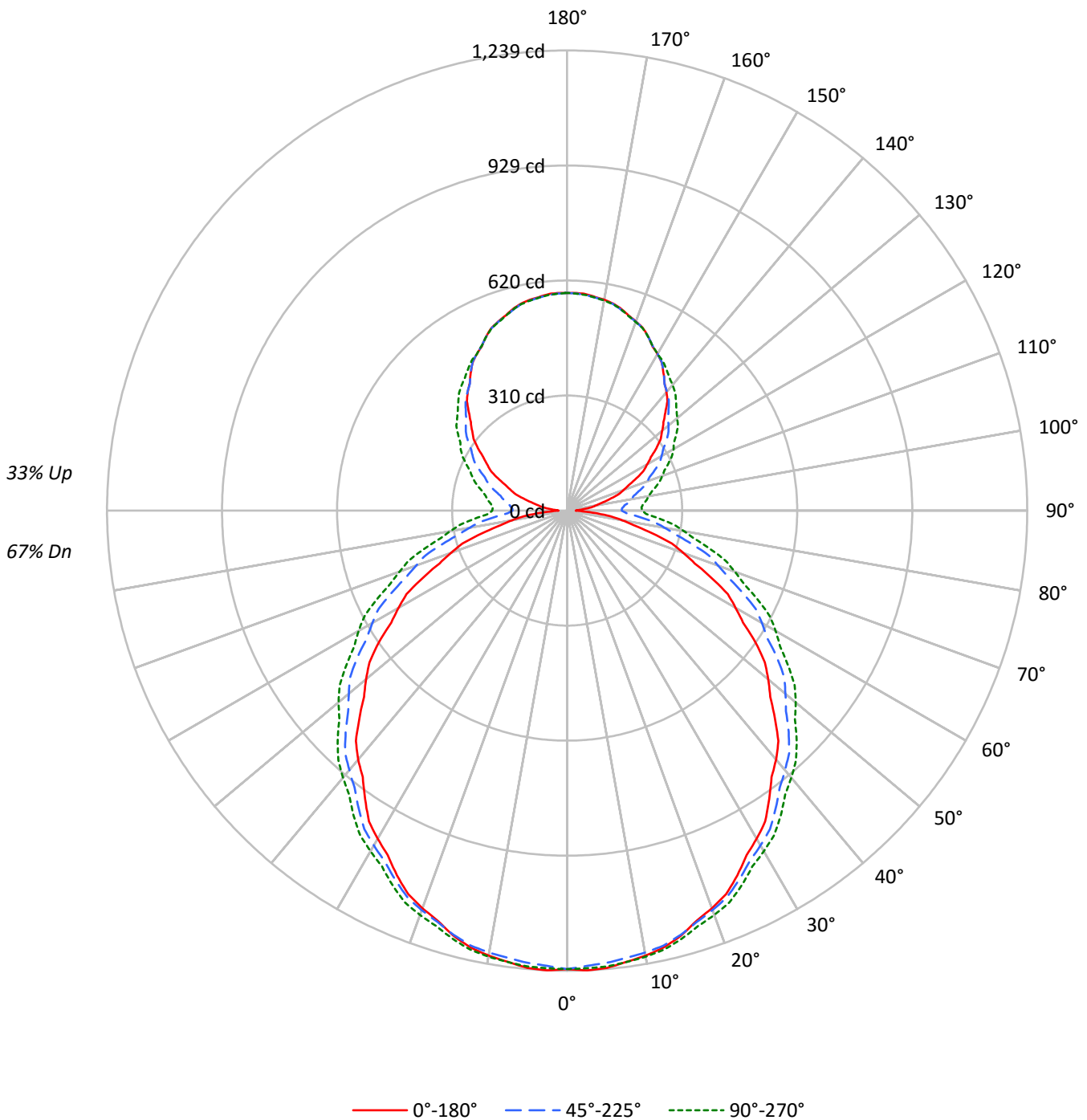
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	9968	9968	9968
5°	9998	9741	9769
10°	9937	9582	9575
15°	9848	9397	9346
20°	9714	9194	9123
25°	9563	8966	8879
30°	9399	8739	8627
35°	9213	8507	8407
40°	9065	8285	8178
45°	8844	8081	7981
50°	8658	7846	7773
55°	8466	7625	7529
60°	8166	7342	7306
65°	7837	7040	7032
70°	7439	6694	6714
75°	6882	6312	6425
80°	6266	5946	6141
85°	5484	5623	5977



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.9	2.0
10°-20°	335.0	5.7
20°-30°	506.5	8.7
30°-40°	612.9	10.5
40°-50°	647.9	11.1
50°-60°	609.8	10.4
60°-70°	505.9	8.7
70°-80°	355.4	6.1
80°-90°	202.7	3.5
90°-100°	157.9	2.7
100°-110°	202.8	3.5
110°-120°	253.6	4.3
120°-130°	289.6	5.0
130°-140°	302.2	5.2
140°-150°	285.7	4.9
150°-160°	237.8	4.1
160°-170°	158.2	2.7
170°-180°	55.4	0.9
0°-30°	958.4	16.4
0°-40°	1571.3	26.9
0°-60°	2829.0	48.5
0°-90°	3892.9	66.7
90°-120°	614.3	10.5
90°-150°	1491.8	25.6
90°-180°	1943.0	33.3
0°-180°	5836.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1235	1235	1235	1235	1235	
5°	1236	1232	1222	1233	1232	117
15°	1185	1186	1182	1194	1193	334
25°	1084	1092	1096	1111	1113	499
35°	948	965	979	997	1002	594
45°	791	817	843	866	874	611
55°	619	649	690	716	726	552
65°	429	473	520	553	566	425
75°	238	289	347	384	398	253
85°	73	132	194	234	249	78
90°	24	84	147	188	202	16
95°	45	95	155	192	206	45
105°	118	148	199	234	247	126
115°	206	220	262	290	301	204
125°	293	294	326	350	359	262
135°	374	377	386	407	414	290
145°	452	453	453	461	465	283
155°	517	517	516	518	516	238
165°	562	561	560	563	561	158
175°	585	583	582	585	582	56
180°	586	586	586	586	586	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7
2.5°	1239.1	1238.4	1237.6	1236.9	1236.1	1234.8	1232.8	1230.9	1228.9	1226.9	1228.6
5°	1236.0	1235.1	1234.2	1233.3	1232.4	1230.8	1228.7	1226.5	1224.4	1222.2	1224.7
7.5°	1225.5	1225.0	1224.4	1223.9	1223.3	1222.2	1220.4	1218.6	1216.8	1215.0	1217.8
10°	1216.7	1216.4	1216.1	1215.8	1215.5	1214.5	1213.0	1211.5	1209.9	1208.4	1211.2
12.5°	1204.5	1204.5	1204.4	1204.3	1204.3	1203.7	1202.7	1201.6	1200.6	1199.5	1202.1
15°	1184.9	1185.2	1185.5	1185.8	1186.1	1185.8	1184.9	1184.0	1183.0	1182.1	1184.9
17.5°	1158.1	1159.0	1159.9	1160.8	1161.8	1162.1	1161.9	1161.8	1161.6	1161.4	1164.2
20°	1139.3	1140.2	1141.1	1142.0	1143.0	1143.6	1143.9	1144.2	1144.5	1144.8	1147.9
22.5°	1118.2	1119.4	1120.6	1121.8	1122.9	1123.8	1124.3	1124.9	1125.4	1126.0	1129.1
25°	1084.0	1085.8	1087.6	1089.5	1091.3	1092.7	1093.6	1094.6	1095.5	1096.4	1099.8
27.5°	1045.8	1048.5	1051.2	1053.9	1056.6	1058.7	1060.1	1061.5	1062.9	1064.3	1067.5
30°	1020.4	1022.8	1025.3	1027.7	1030.2	1032.5	1034.6	1036.8	1038.9	1041.1	1044.5
32.5°	992.7	995.7	998.6	1001.6	1004.5	1007.2	1009.6	1012.0	1014.4	1016.8	1020.6
35°	948.5	952.2	955.8	959.5	963.2	966.6	969.7	972.7	975.8	978.9	983.2
37.5°	903.9	908.2	912.4	916.7	920.9	924.9	928.7	932.5	936.4	940.2	944.5
40°	875.2	879.2	883.2	887.2	891.2	895.3	899.6	903.9	908.2	912.5	917.1
42.5°	842.0	846.5	851.0	855.5	859.9	864.7	869.7	874.8	879.8	884.9	890.0
45°	790.8	796.7	802.5	808.4	814.2	820.0	825.9	831.7	837.5	843.4	848.6
47.5°	741.9	747.9	753.9	760.0	766.0	772.4	779.1	785.9	792.7	799.4	804.8
50°	706.5	713.3	720.0	726.8	733.5	740.3	747.1	753.8	760.6	767.3	773.5
52.5°	671.1	677.9	684.6	691.4	698.2	705.4	713.1	720.9	728.6	736.4	742.5
55°	619.4	625.9	632.3	638.8	645.2	653.0	662.3	671.5	680.7	689.9	696.1
57.5°	561.6	569.6	577.6	585.6	593.6	602.1	611.3	620.5	629.6	638.8	646.1
60°	524.0	532.0	540.0	548.0	556.0	565.0	575.2	585.3	595.4	605.6	612.6
62.5°	487.5	496.2	505.0	513.7	522.4	531.8	542.0	552.1	562.3	572.4	579.5
65°	428.6	438.4	448.3	458.1	467.9	478.1	488.5	499.0	509.4	519.9	527.5
67.5°	371.9	382.4	392.8	403.3	413.7	424.5	435.7	446.9	458.1	469.3	477.1
70°	333.2	343.7	354.1	364.5	375.0	386.1	397.7	409.4	421.1	432.8	441.1
72.5°	295.6	306.3	317.0	327.7	338.4	349.9	362.3	374.7	387.2	399.6	407.6
75°	237.8	249.2	260.5	271.9	283.3	295.4	308.3	321.2	334.1	347.0	355.6
77.5°	183.9	195.9	208.0	220.0	232.1	244.8	258.4	271.9	285.4	298.9	307.6
80°	150.7	163.0	175.3	187.6	199.9	212.8	226.3	239.8	253.3	266.8	276.1
82.5°	117.5	130.3	143.1	155.9	168.6	181.8	195.3	208.8	222.4	235.9	245.3
85°	73.3	86.2	99.1	112.0	124.9	138.3	152.1	165.9	179.7	193.6	202.8
87.5°	41.2	54.0	66.7	79.5	92.2	105.4	119.0	132.7	146.3	159.9	168.9
90°	23.5	36.9	50.3	63.7	77.1	90.8	104.8	118.8	132.8	146.8	156.4
92.5°	30.7	43.0	55.4	67.7	80.0	93.1	106.9	120.6	134.4	148.2	157.2
95°	45.2	56.2	67.3	78.3	89.3	101.5	114.8	128.1	141.4	154.7	163.3
97.5°	63.8	73.3	82.7	92.2	101.6	113.0	126.3	139.6	152.9	166.2	174.6
100°	78.6	87.0	95.4	103.8	112.2	122.9	135.7	148.6	161.5	174.4	182.9
102.5°	95.3	102.5	109.7	116.8	124.0	133.9	146.4	159.0	171.5	184.1	192.4
105°	118.0	124.3	130.5	136.8	143.0	152.0	163.8	175.6	187.3	199.1	207.1
107.5°	144.5	149.6	154.8	160.0	165.1	173.1	183.9	194.7	205.6	216.4	224.2
110°	161.5	166.0	170.5	175.0	179.5	187.1	197.7	208.4	219.1	229.7	236.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	179.2	183.1	186.9	190.8	194.6	201.6	211.7	221.8	231.9	241.9	248.7
115°	205.9	208.6	211.4	214.2	216.9	223.1	232.8	242.4	252.0	261.6	268.3
117.5°	232.2	234.0	235.7	237.5	239.2	244.6	253.6	262.6	271.6	280.6	286.7
120°	248.9	250.2	251.5	252.9	254.2	259.2	267.8	276.4	285.0	293.6	299.2
122.5°	267.4	267.7	268.1	268.4	268.8	273.1	281.3	289.6	297.9	306.2	312.0
125°	293.3	293.0	292.7	292.4	292.0	295.7	303.3	310.8	318.4	326.0	331.6
127.5°	317.7	317.7	317.7	317.7	317.7	320.6	326.3	332.1	337.8	343.5	348.9
130°	334.0	334.0	334.0	334.0	334.0	336.5	341.4	346.3	351.2	356.1	361.5
132.5°	351.8	351.7	351.6	351.5	351.5	353.3	357.2	361.0	364.9	368.7	373.8
135°	373.9	374.5	375.1	375.7	376.3	377.7	379.8	382.0	384.1	386.3	391.0
137.5°	399.4	399.4	399.4	399.4	399.3	399.9	401.1	402.3	403.6	404.8	409.0
140°	416.5	416.4	416.3	416.2	416.1	416.2	416.5	416.8	417.1	417.4	421.3
142.5°	431.0	431.1	431.2	431.4	431.5	431.5	431.2	430.9	430.7	430.4	433.9
145°	452.3	452.4	452.4	452.5	452.6	452.7	452.8	452.9	453.0	453.1	454.9
147.5°	473.6	473.8	474.0	474.2	474.4	474.4	474.3	474.2	474.2	474.1	474.2
150°	486.7	486.8	486.9	487.0	487.1	487.1	487.1	487.1	487.1	487.1	487.1
152.5°	497.9	498.1	498.3	498.5	498.6	498.8	498.8	498.9	499.0	499.1	499.3
155°	516.6	516.6	516.6	516.6	516.6	516.5	516.4	516.3	516.2	516.1	516.5
157.5°	532.5	532.3	532.2	532.0	531.8	531.7	531.7	531.7	531.6	531.6	531.9
160°	542.0	541.9	541.8	541.7	541.6	541.5	541.4	541.3	541.2	541.1	541.4
162.5°	550.7	550.4	550.1	549.9	549.6	549.4	549.3	549.2	549.1	549.0	549.6
165°	562.3	562.0	561.7	561.4	561.1	560.9	560.7	560.5	560.3	560.1	560.7
167.5°	571.3	570.9	570.5	570.1	569.6	569.4	569.4	569.5	569.5	569.5	570.1
170°	576.4	575.9	575.4	574.9	574.4	574.2	574.3	574.4	574.5	574.6	575.2
172.5°	580.0	579.6	579.2	578.8	578.3	578.1	578.1	578.2	578.2	578.2	578.9
175°	585.0	584.5	584.0	583.5	583.0	582.7	582.6	582.5	582.4	582.3	583.0
177.5°	586.6	586.2	585.8	585.4	585.0	584.8	584.8	584.8	584.8	584.8	585.4
180°	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7
2.5°	1230.4	1232.1	1233.8	1234.5	1234.3	1234.0	1233.8	1233.6
5°	1227.1	1229.6	1232.1	1233.1	1232.8	1232.5	1232.2	1231.9
7.5°	1220.6	1223.3	1226.1	1227.3	1227.0	1226.7	1226.4	1226.1
10°	1213.9	1216.7	1219.5	1220.7	1220.4	1220.1	1219.8	1219.5
12.5°	1204.6	1207.1	1209.6	1210.9	1210.8	1210.7	1210.7	1210.6
15°	1187.7	1190.4	1193.2	1194.4	1194.1	1193.8	1193.5	1193.2
17.5°	1167.0	1169.9	1172.7	1174.0	1173.7	1173.5	1173.2	1173.0
20°	1150.9	1154.0	1157.1	1158.6	1158.6	1158.6	1158.6	1158.6
22.5°	1132.1	1135.2	1138.3	1140.1	1140.6	1141.0	1141.5	1142.0
25°	1103.2	1106.5	1109.9	1111.8	1112.1	1112.4	1112.7	1113.0
27.5°	1070.6	1073.7	1076.9	1078.6	1079.0	1079.4	1079.7	1080.1
30°	1047.9	1051.2	1054.6	1056.6	1057.2	1057.8	1058.5	1059.1
32.5°	1024.5	1028.4	1032.3	1034.5	1035.1	1035.7	1036.3	1037.0
35°	987.5	991.8	996.1	998.7	999.6	1000.5	1001.5	1002.4
37.5°	948.9	953.3	957.6	960.3	961.3	962.3	963.2	964.2
40°	921.7	926.3	931.0	933.9	935.1	936.3	937.6	938.8
42.5°	895.1	900.2	905.3	908.3	909.3	910.3	911.3	912.2
45°	853.8	859.1	864.3	867.7	869.2	870.7	872.3	873.8
47.5°	810.2	815.6	821.1	824.7	826.5	828.4	830.2	832.1
50°	779.6	785.8	791.9	795.9	797.8	799.6	801.4	803.3
52.5°	748.7	754.8	761.0	764.9	766.8	768.6	770.5	772.3
55°	702.2	708.4	714.5	718.5	720.3	722.2	724.0	725.9
57.5°	653.4	660.7	668.0	672.5	674.2	676.0	677.7	679.4
60°	619.7	626.8	633.8	638.6	641.1	643.5	646.0	648.4
62.5°	586.5	593.6	600.7	605.4	607.9	610.3	612.8	615.3
65°	535.2	542.9	550.6	555.7	558.1	560.6	563.0	565.5
67.5°	484.9	492.7	500.5	505.6	508.0	510.4	512.8	515.2
70°	449.3	457.6	465.9	471.2	473.3	475.5	477.6	479.8
72.5°	415.7	423.7	431.8	437.0	439.4	441.8	444.2	446.6
75°	364.2	372.8	381.4	387.1	389.9	392.7	395.4	398.2
77.5°	316.4	325.1	333.8	339.7	342.6	345.6	348.5	351.5
80°	285.3	294.5	303.7	309.5	312.0	314.5	316.9	319.4
82.5°	254.8	264.3	273.7	279.8	282.5	285.2	287.9	290.6
85°	212.0	221.2	230.4	236.6	239.7	242.7	245.8	248.9
87.5°	177.9	187.0	196.0	201.9	204.6	207.4	210.1	212.9
90°	165.9	175.4	184.9	191.0	193.7	196.3	199.0	201.6
92.5°	166.2	175.3	184.3	190.1	192.7	195.3	197.8	200.4
95°	171.9	180.5	189.1	194.8	197.6	200.3	203.1	205.9
97.5°	183.0	191.4	199.8	205.4	208.0	210.6	213.3	215.9
100°	191.4	199.9	208.4	213.7	215.9	218.0	220.2	222.3
102.5°	200.8	209.1	217.4	222.8	225.3	227.8	230.3	232.7
105°	215.1	223.0	231.0	236.4	239.2	241.9	244.7	247.4
107.5°	232.0	239.9	247.7	252.7	254.9	257.1	259.3	261.5
110°	243.4	250.3	257.2	262.0	264.7	267.5	270.3	273.0



TEST NUMBER: P332808

CATALOG NUMBER: S124DIW-S1020D470U835-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	255.5	262.3	269.1	273.7	276.2	278.7	281.3	283.8
115°	275.0	281.6	288.3	292.6	294.7	296.7	298.8	300.8
117.5°	292.7	298.8	304.8	309.0	311.2	313.5	315.7	318.0
120°	304.9	310.5	316.2	320.3	323.0	325.6	328.3	330.9
122.5°	317.8	323.6	329.4	333.2	335.1	336.9	338.8	340.6
125°	337.3	342.9	348.5	352.2	353.8	355.5	357.1	358.8
127.5°	354.2	359.5	364.9	368.5	370.4	372.3	374.3	376.2
130°	366.8	372.1	377.4	380.8	382.3	383.7	385.2	386.6
132.5°	378.9	384.0	389.1	392.5	394.1	395.8	397.5	399.2
135°	395.7	400.4	405.1	408.3	409.8	411.4	412.9	414.4
137.5°	413.2	417.4	421.7	424.6	426.2	427.8	429.4	430.9
140°	425.2	429.1	433.0	435.6	437.1	438.5	439.9	441.4
142.5°	437.4	440.8	444.3	446.7	448.0	449.2	450.5	451.8
145°	456.6	458.4	460.1	461.4	462.4	463.3	464.2	465.2
147.5°	474.4	474.6	474.7	475.3	476.1	477.0	477.9	478.8
150°	487.1	487.1	487.1	487.1	487.0	486.9	486.8	486.7
152.5°	499.6	499.8	500.1	500.0	499.8	499.5	499.3	499.0
155°	516.9	517.3	517.7	517.7	517.3	516.9	516.5	516.1
157.5°	532.2	532.5	532.8	532.8	532.5	532.1	531.8	531.4
160°	541.7	542.0	542.3	542.2	541.7	541.2	540.6	540.1
162.5°	550.1	550.7	551.2	551.2	550.7	550.2	549.7	549.2
165°	561.3	561.9	562.5	562.6	562.2	561.8	561.4	561.0
167.5°	570.7	571.3	571.9	571.9	571.3	570.7	570.0	569.4
170°	575.8	576.4	577.0	576.9	576.2	575.5	574.8	574.1
172.5°	579.6	580.3	580.9	580.9	580.2	579.5	578.8	578.1
175°	583.7	584.4	585.1	585.1	584.4	583.7	583.0	582.3
177.5°	586.0	586.5	587.1	587.0	586.4	585.8	585.1	584.5
180°	585.9	585.9	585.9	585.9	585.9	585.9	585.9	585.9

(END OF REPORT)