

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: P332639-940

Luminaire Tested: **S124DIP-S1020D590U940-4F0-1E-UDD-D4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332639-940
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-S1020D590U940-4F0-1E-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: 5637.5 lumens
Efficiency: N/A
Efficacy: 115.5 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

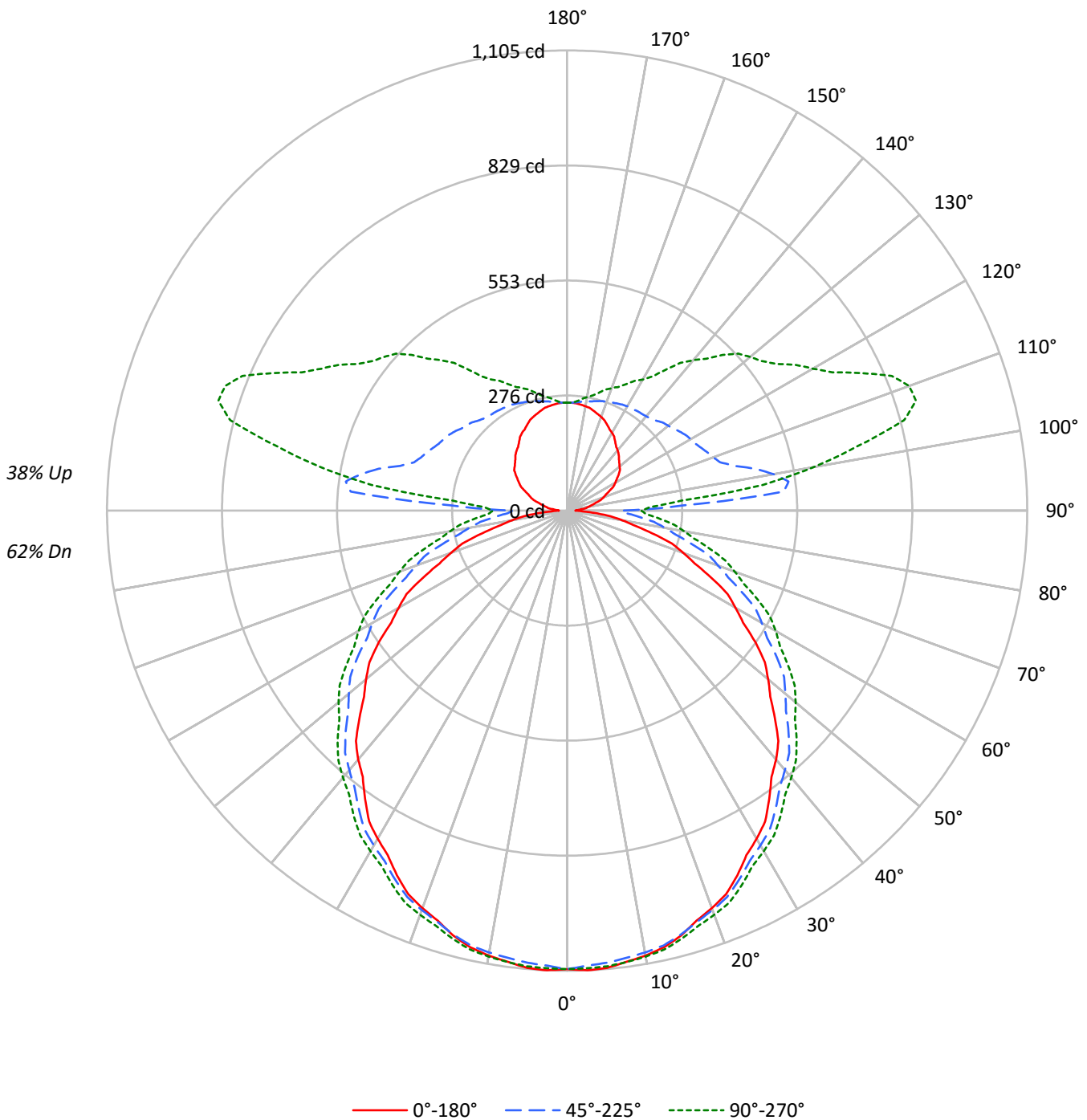
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

Luminous Intensity Polar Plot





TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

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°	8888	8888	8888
5°	8916	8686	8711
10°	8861	8544	8538
15°	8782	8380	8334
20°	8662	8198	8135
25°	8527	7995	7918
30°	8381	7793	7693
35°	8216	7585	7497
40°	8083	7388	7292
45°	7887	7207	7117
50°	7721	6996	6931
55°	7549	6799	6714
60°	7282	6547	6515
65°	6989	6278	6271
70°	6633	5968	5986
75°	6136	5628	5730
80°	5588	5302	5476
85°	4893	5013	5328



TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.3	1.8
10°-20°	298.7	5.3
20°-30°	451.7	8.0
30°-40°	546.5	9.7
40°-50°	577.7	10.2
50°-60°	543.7	9.6
60°-70°	451.1	8.0
70°-80°	316.9	5.6
80°-90°	180.6	3.2
90°-100°	293.4	5.2
100°-110°	468.0	8.3
110°-120°	401.5	7.1
120°-130°	323.1	5.7
130°-140°	257.4	4.6
140°-150°	189.4	3.4
150°-160°	131.3	2.3
160°-170°	77.2	1.4
170°-180°	25.1	0.4
0°-30°	854.6	15.2
0°-40°	1401.1	24.9
0°-60°	2522.6	44.7
0°-90°	3471.2	61.6
90°-120°	1162.8	20.6
90°-150°	1932.7	34.3
90°-180°	2166.0	38.4
0°-180°	5637.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1101	1101	1101	1101	1101	
5°	1102	1098	1090	1099	1098	105
15°	1057	1058	1054	1065	1064	298
25°	967	974	978	991	992	445
35°	846	860	873	889	894	529
45°	705	729	752	772	779	545
55°	552	579	615	639	647	492
65°	382	422	464	493	504	379
75°	212	258	309	343	355	226
85°	65	117	173	208	222	70
90°	20	73	131	167	178	14
95°	33	110	522	345	276	32
105°	71	123	415	830	838	76
115°	112	152	356	656	781	112
125°	151	179	331	544	614	135
135°	176	210	305	462	529	136
145°	201	229	292	371	413	126
155°	227	245	284	321	335	105
165°	248	255	272	288	292	70
175°	258	259	261	264	264	25
180°	259	259	259	259	259	



TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1104.9	1104.3	1103.6	1103.0	1102.2	1101.1	1099.3	1097.6	1095.8	1094.0	1095.6
5°	1102.2	1101.4	1100.5	1099.7	1098.9	1097.5	1095.6	1093.7	1091.8	1089.8	1092.1
7.5°	1092.8	1092.3	1091.8	1091.4	1090.8	1089.8	1088.2	1086.6	1085.0	1083.4	1085.9
10°	1084.9	1084.7	1084.4	1084.1	1083.9	1083.0	1081.6	1080.3	1078.9	1077.5	1080.0
12.5°	1074.1	1074.1	1074.0	1073.9	1073.9	1073.4	1072.5	1071.5	1070.6	1069.6	1071.9
15°	1056.6	1056.9	1057.1	1057.4	1057.7	1057.4	1056.6	1055.8	1054.9	1054.1	1056.6
17.5°	1032.7	1033.5	1034.3	1035.1	1036.0	1036.3	1036.1	1036.0	1035.8	1035.6	1038.1
20°	1015.9	1016.7	1017.5	1018.3	1019.2	1019.8	1020.0	1020.3	1020.6	1020.8	1023.6
22.5°	997.1	998.2	999.3	1000.3	1001.3	1002.1	1002.6	1003.1	1003.5	1004.1	1006.8
25°	966.6	968.2	969.8	971.5	973.1	974.4	975.2	976.1	976.9	977.7	980.7
27.5°	932.6	935.0	937.4	939.8	942.2	944.1	945.3	946.6	947.8	949.0	951.9
30°	909.9	912.0	914.3	916.4	918.6	920.7	922.6	924.5	926.4	928.4	931.4
32.5°	885.2	887.9	890.5	893.1	895.7	898.1	900.3	902.4	904.6	906.7	910.1
35°	845.8	849.1	852.3	855.6	858.9	861.9	864.7	867.4	870.1	872.9	876.7
37.5°	806.0	809.9	813.6	817.4	821.2	824.7	828.1	831.5	835.0	838.4	842.2
40°	780.4	784.0	787.6	791.1	794.7	798.3	802.2	806.0	809.9	813.7	817.8
42.5°	750.8	754.8	758.8	762.9	766.8	771.1	775.5	780.1	784.5	789.1	793.6
45°	705.2	710.4	715.6	720.9	726.0	731.2	736.5	741.6	746.8	752.1	756.7
47.5°	661.6	666.9	672.3	677.7	683.1	688.8	694.7	700.8	706.9	712.8	717.6
50°	630.0	636.1	642.0	648.1	654.1	660.1	666.2	672.2	678.2	684.2	689.7
52.5°	598.4	604.5	610.5	616.5	622.6	629.0	635.9	642.8	649.7	656.7	662.1
55°	552.3	558.1	563.8	569.6	575.3	582.3	590.6	598.8	607.0	615.2	620.7
57.5°	500.8	507.9	515.1	522.2	529.3	536.9	545.1	553.3	561.4	569.6	576.1
60°	467.3	474.4	481.5	488.7	495.8	503.8	512.9	521.9	530.9	540.0	546.3
62.5°	434.7	442.5	450.3	458.1	465.8	474.2	483.3	492.3	501.4	510.4	516.7
65°	382.2	390.9	399.8	408.5	417.2	426.3	435.6	445.0	454.2	463.6	470.4
67.5°	331.6	341.0	350.3	359.6	368.9	378.5	388.5	398.5	408.5	418.5	425.4
70°	297.1	306.5	315.8	325.0	334.4	344.3	354.6	365.1	375.5	385.9	393.3
72.5°	263.6	273.1	282.7	292.2	301.8	312.0	323.1	334.1	345.3	356.3	363.5
75°	212.0	222.2	232.3	242.5	252.6	263.4	274.9	286.4	297.9	309.4	317.1
77.5°	164.0	174.7	185.5	196.2	207.0	218.3	230.4	242.5	254.5	266.5	274.3
80°	134.4	145.3	156.3	167.3	178.3	189.8	201.8	213.8	225.9	237.9	246.2
82.5°	104.8	116.2	127.6	139.0	150.3	162.1	174.2	186.2	198.3	210.4	218.7
85°	65.4	76.9	88.4	99.9	111.4	123.3	135.6	147.9	160.2	172.6	180.8
87.5°	36.6	48.0	59.5	70.7	82.0	93.6	106.2	118.2	130.5	142.6	150.4
90°	20.2	32.2	44.7	56.2	67.6	79.0	93.8	105.6	118.4	131.2	138.7
92.5°	24.5	37.0	51.7	67.8	85.1	106.5	144.1	195.3	245.6	277.5	258.2
95°	32.8	43.3	57.5	73.1	94.4	125.9	181.4	276.1	408.8	521.8	540.9
97.5°	44.7	52.4	64.6	78.5	96.8	124.1	169.3	249.3	381.3	536.3	642.3
100°	52.3	59.4	70.0	83.3	100.0	125.2	165.9	234.1	348.6	502.7	640.2
102.5°	60.4	67.4	76.8	88.7	104.2	128.0	165.7	226.8	325.5	463.2	604.6
105°	70.6	77.6	85.6	97.2	111.8	134.4	169.0	221.3	302.6	415.1	541.4
107.5°	84.4	89.9	96.9	108.0	121.2	142.8	174.8	222.8	293.2	385.1	489.5
110°	92.7	97.6	104.0	114.0	127.0	147.4	179.3	224.5	290.1	373.4	462.6



TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	100.8	105.1	111.5	120.6	133.1	153.2	183.9	226.6	288.0	364.9	444.9
115°	112.2	116.2	122.2	129.7	141.9	161.2	190.4	229.6	285.7	355.5	425.6
117.5°	125.4	128.2	132.9	140.0	150.5	169.6	197.1	233.3	283.9	347.6	412.6
120°	133.3	135.2	139.6	146.0	155.4	174.1	201.3	235.8	282.9	342.7	404.7
122.5°	141.5	142.7	146.4	151.8	161.4	179.1	205.9	238.2	282.0	337.3	396.5
125°	150.9	152.7	155.4	160.8	170.1	187.7	212.9	243.1	282.0	330.6	384.6
127.5°	160.2	161.5	164.9	171.0	180.8	197.7	220.6	247.4	280.5	322.1	369.7
130°	164.4	166.2	170.0	177.4	186.7	203.6	225.2	249.4	279.8	316.7	360.3
132.5°	169.7	171.1	176.1	183.1	193.2	208.8	229.6	252.5	279.6	312.4	352.0
135°	175.9	178.0	183.1	191.7	202.4	216.6	235.2	255.5	278.3	304.6	338.5
137.5°	183.3	185.0	190.3	198.3	209.1	222.0	238.6	256.6	276.2	298.8	327.2
140°	188.6	189.9	195.2	203.6	214.0	226.2	241.7	258.3	275.9	295.4	320.9
142.5°	193.3	194.8	199.9	208.1	218.4	230.1	244.8	259.7	276.0	293.5	316.0
145°	201.2	202.4	207.2	214.0	223.5	234.5	247.7	261.4	276.3	291.9	309.9
147.5°	210.2	210.4	214.6	221.7	229.4	239.4	251.8	263.8	276.7	290.2	304.7
150°	215.9	216.2	219.9	225.8	233.1	242.6	253.9	265.0	276.7	288.9	301.7
152.5°	220.2	220.3	224.3	229.9	236.7	245.5	255.5	265.8	275.9	286.9	298.4
155°	227.4	227.9	231.0	236.0	241.7	249.2	257.9	266.5	274.6	283.8	293.5
157.5°	234.6	234.6	237.5	241.4	246.3	252.3	259.7	266.5	273.4	280.7	288.6
160°	239.1	239.1	241.1	244.7	248.7	254.3	260.5	266.5	272.2	278.2	284.9
162.5°	243.2	242.7	244.3	247.5	251.2	255.6	261.3	266.5	270.9	275.8	281.6
165°	247.7	247.7	248.7	251.3	253.9	256.9	261.4	265.6	268.6	272.2	276.3
167.5°	252.3	251.8	252.3	254.2	255.7	258.0	261.4	264.3	266.2	268.5	271.3
170°	254.3	253.9	254.3	255.8	256.9	258.4	260.9	263.5	264.5	266.0	268.0
172.5°	256.4	255.8	255.9	257.1	257.7	258.8	260.6	262.7	262.9	263.6	265.2
175°	258.4	257.9	257.9	258.4	259.0	259.0	259.9	261.4	260.9	260.9	262.0
177.5°	259.3	259.0	258.5	259.0	259.0	259.0	259.3	260.1	259.3	259.3	259.8
180°	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0



TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1097.2	1098.7	1100.2	1100.8	1100.6	1100.4	1100.2	1100.0
5°	1094.2	1096.4	1098.7	1099.6	1099.3	1099.0	1098.8	1098.5
7.5°	1088.4	1090.8	1093.3	1094.4	1094.1	1093.9	1093.6	1093.3
10°	1082.4	1084.9	1087.4	1088.5	1088.2	1088.0	1087.7	1087.4
12.5°	1074.2	1076.4	1078.6	1079.8	1079.7	1079.6	1079.6	1079.5
15°	1059.1	1061.5	1064.0	1065.1	1064.8	1064.5	1064.3	1064.0
17.5°	1040.6	1043.2	1045.7	1046.9	1046.6	1046.4	1046.2	1046.0
20°	1026.3	1029.0	1031.8	1033.1	1033.1	1033.1	1033.1	1033.1
22.5°	1009.5	1012.3	1015.0	1016.6	1017.1	1017.4	1017.9	1018.3
25°	983.7	986.7	989.7	991.4	991.7	991.9	992.2	992.5
27.5°	954.7	957.4	960.3	961.8	962.2	962.5	962.8	963.1
30°	934.4	937.4	940.4	942.2	942.7	943.3	943.9	944.4
32.5°	913.6	917.0	920.5	922.5	923.0	923.5	924.1	924.7
35°	880.6	884.4	888.2	890.6	891.4	892.2	893.0	893.9
37.5°	846.1	850.1	853.9	856.3	857.2	858.1	858.9	859.8
40°	821.9	826.0	830.2	832.8	833.8	834.9	836.1	837.1
42.5°	798.2	802.7	807.3	809.9	810.8	811.7	812.6	813.4
45°	761.3	766.1	770.7	773.7	775.1	776.4	777.8	779.2
47.5°	722.5	727.3	732.2	735.4	737.0	738.7	740.3	742.0
50°	695.2	700.7	706.1	709.7	711.4	713.0	714.6	716.3
52.5°	667.6	673.1	678.6	682.1	683.8	685.4	687.1	688.7
55°	626.2	631.7	637.1	640.7	642.3	644.0	645.6	647.3
57.5°	582.6	589.2	595.7	599.7	601.2	602.8	604.3	605.8
60°	552.6	558.9	565.2	569.4	571.7	573.8	576.0	578.2
62.5°	523.0	529.3	535.7	539.8	542.1	544.2	546.4	548.7
65°	477.2	484.1	491.0	495.5	497.7	499.9	502.0	504.3
67.5°	432.4	439.3	446.3	450.8	453.0	455.1	457.3	459.4
70°	400.6	408.0	415.4	420.2	422.0	424.0	425.9	427.8
72.5°	370.7	377.8	385.0	389.7	391.8	394.0	396.1	398.2
75°	324.8	332.4	340.1	345.2	347.7	350.2	352.6	355.1
77.5°	282.1	289.9	297.7	302.9	305.5	308.2	310.8	313.4
80°	254.4	262.6	270.8	276.0	278.2	280.4	282.6	284.8
82.5°	227.2	235.7	244.1	249.5	251.9	254.3	256.7	259.1
85°	189.0	197.2	205.5	211.0	213.7	216.4	219.2	221.9
87.5°	158.5	166.6	174.6	179.8	182.3	184.9	187.1	189.6
90°	147.1	155.5	164.0	169.1	171.7	174.5	176.2	178.3
92.5°	231.5	214.5	206.9	201.6	197.9	197.2	197.8	199.9
95°	499.0	427.6	366.8	322.4	299.9	286.6	279.9	275.7
97.5°	670.8	648.7	606.2	557.9	523.7	495.4	482.5	474.3
100°	721.9	739.5	722.0	689.0	646.7	617.6	604.2	602.1
102.5°	713.7	771.4	785.8	774.8	749.8	729.4	715.4	714.3
105°	664.8	759.6	816.8	842.2	845.4	843.6	838.7	837.8
107.5°	599.3	699.7	777.4	827.2	854.3	867.8	874.9	878.2
110°	559.5	653.8	733.9	794.1	832.4	856.0	867.3	874.1



TEST NUMBER: P332639-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	528.5	612.4	688.2	748.2	791.5	819.5	834.5	844.1
115°	495.3	563.8	629.4	682.2	724.3	756.7	774.9	781.0
117.5°	474.6	532.1	584.6	629.9	666.4	694.2	712.9	718.3
120°	463.5	516.3	562.5	602.4	633.6	658.2	673.6	681.4
122.5°	453.7	504.9	547.3	582.7	609.2	630.4	643.5	651.0
125°	438.6	487.6	527.9	559.3	581.3	597.7	609.0	613.7
127.5°	420.5	467.3	507.2	537.2	559.5	574.4	584.4	589.3
130°	407.4	452.5	492.1	522.4	544.8	559.2	569.0	573.6
132.5°	394.5	437.0	475.5	505.6	527.7	543.7	553.0	557.8
135°	374.9	412.3	447.8	476.3	498.2	514.1	523.9	528.6
137.5°	357.8	389.8	419.9	445.6	466.0	481.4	489.5	494.5
140°	347.9	375.3	401.8	425.6	444.8	457.4	465.8	471.3
142.5°	339.3	363.5	386.3	406.9	423.8	435.3	442.8	446.8
145°	327.8	346.8	363.6	379.2	393.1	402.9	409.0	412.7
147.5°	318.3	332.3	344.7	356.5	366.8	375.1	379.8	381.6
150°	313.9	325.6	335.7	344.9	353.0	359.6	362.7	363.2
152.5°	309.3	319.4	328.8	336.4	343.2	348.7	350.4	351.0
155°	302.6	310.8	318.4	324.5	329.7	333.7	335.2	335.2
157.5°	295.4	302.3	308.6	313.5	317.4	320.5	321.4	321.4
160°	291.0	296.6	302.1	306.2	309.2	312.4	312.8	312.8
162.5°	286.5	291.2	295.6	299.3	301.6	304.6	305.1	304.7
165°	280.3	283.3	286.9	289.4	291.5	293.5	293.0	292.5
167.5°	274.3	276.6	279.5	281.0	282.0	283.3	283.2	282.9
170°	270.6	272.2	274.2	275.7	276.7	277.2	276.7	276.7
172.5°	267.3	268.5	269.7	270.8	271.4	272.0	271.4	270.6
175°	263.0	263.5	264.5	264.5	264.5	265.6	264.5	263.5
177.5°	260.1	260.6	260.6	260.9	260.6	260.9	260.1	259.3
180°	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0

(END OF REPORT)