

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: P332832-930

Luminaire Tested: **S124DIW-S1020D1560U930-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332832-930
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-S1020D1560U930-4F0-1E-UDD-D1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7846.2 lumens
Efficiency: N/A
Efficacy: 102.4 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: General Diffuse

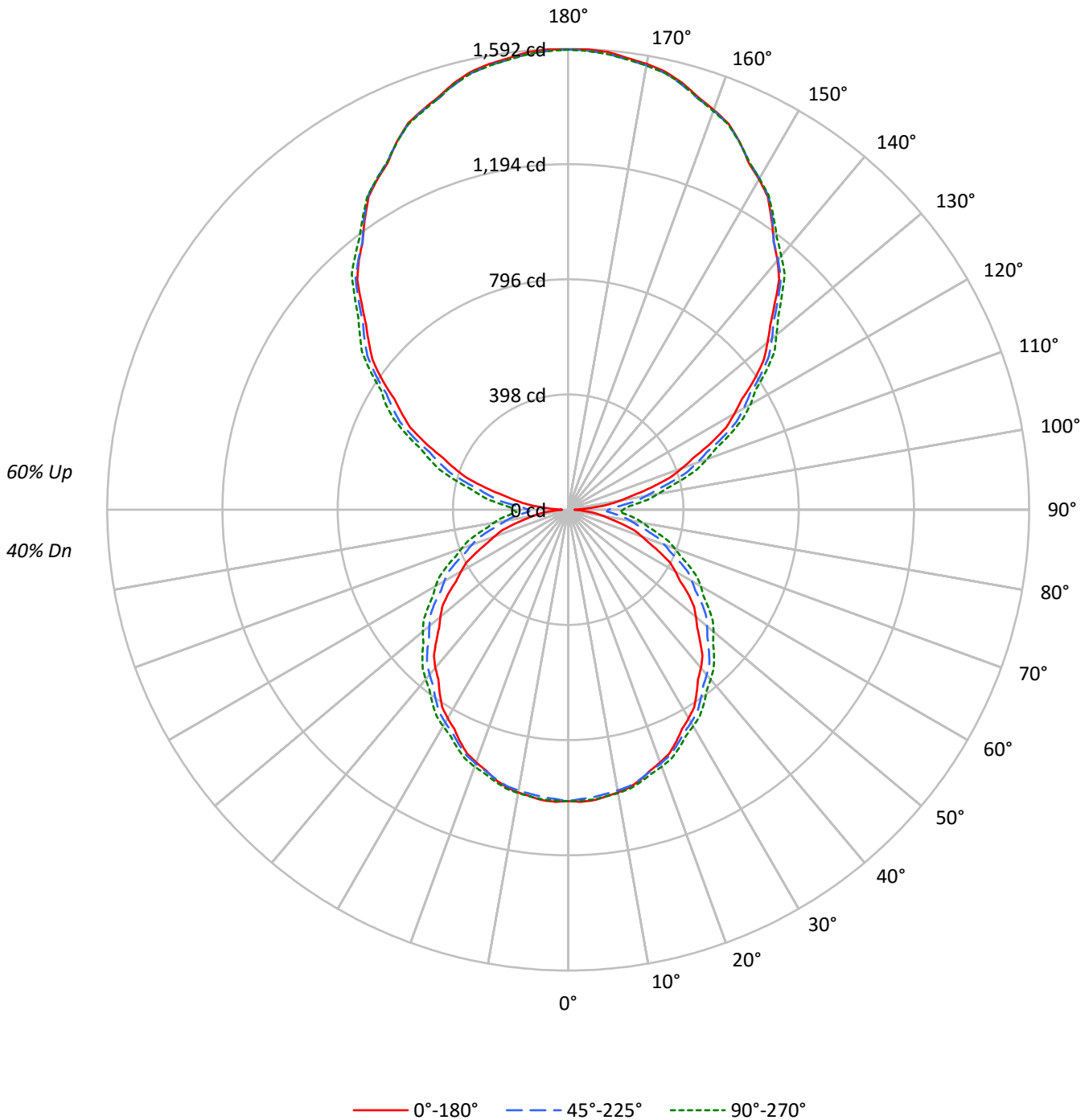
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	47	47	47	40
1	95	90	86	82	86	82	79	75	67	65	62	53	52	50	41	39	38	32
2	86	78	72	66	78	71	66	61	58	54	51	46	43	41	35	33	32	26
3	78	68	61	55	71	62	56	51	51	46	42	41	37	34	31	29	27	22
4	71	60	52	46	65	55	48	43	45	40	36	36	32	29	27	25	23	19
5	65	54	45	39	59	49	42	36	40	35	31	32	28	25	25	22	20	16
6	60	48	40	34	54	44	37	31	36	31	26	29	25	22	22	19	17	14
7	55	43	35	29	50	39	32	27	33	27	23	26	22	19	20	17	15	12
8	51	39	31	26	47	36	29	24	30	24	20	24	20	17	19	16	13	11
9	48	35	28	23	43	33	26	21	27	22	18	22	18	15	17	14	12	10
10	45	32	25	20	40	30	23	19	25	20	16	20	16	14	16	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8127	8127	8127
5°	8151	7942	7965
10°	8102	7812	7807
15°	8029	7662	7620
20°	7920	7496	7438
25°	7797	7310	7239
30°	7663	7125	7034
35°	7511	6935	6855
40°	7390	6755	6667
45°	7210	6588	6507
50°	7059	6397	6337
55°	6902	6217	6138
60°	6657	5986	5956
65°	6389	5740	5734
70°	6066	5458	5474
75°	5612	5146	5239
80°	5110	4847	5007
85°	4474	4583	4872



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	95.3	1.2
10°-20°	273.1	3.5
20°-30°	413.0	5.3
30°-40°	499.7	6.4
40°-50°	528.2	6.7
50°-60°	497.1	6.3
60°-70°	412.5	5.3
70°-80°	289.7	3.7
80°-90°	168.5	2.1
90°-100°	202.1	2.6
100°-110°	382.6	4.9
110°-120°	575.5	7.3
120°-130°	722.3	9.2
130°-140°	792.4	10.1
140°-150°	769.5	9.8
150°-160°	645.2	8.2
160°-170°	429.2	5.5
170°-180°	150.3	1.9
0°-30°	781.4	10.0
0°-40°	1281.1	16.3
0°-60°	2306.5	29.4
0°-90°	3177.2	40.5
90°-120°	1160.1	14.8
90°-150°	3444.3	43.9
90°-180°	4669.0	59.5
0°-180°	7846.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1007	1007	1007	1007	1007	
5°	1008	1004	996	1005	1004	96
15°	966	967	964	973	973	272
25°	884	890	894	906	907	407
35°	773	787	798	813	817	484
45°	645	666	688	706	712	498
55°	505	529	562	584	592	450
65°	349	386	424	451	461	346
75°	194	236	283	313	325	206
85°	60	107	158	190	203	64
90°	22	80	139	177	190	17
95°	88	137	192	224	236	94
105°	297	322	367	398	412	315
115°	543	554	586	609	617	535
125°	785	786	811	829	834	700
135°	1009	1016	1024	1039	1043	781
145°	1224	1228	1229	1235	1236	766
155°	1401	1401	1400	1405	1400	645
165°	1526	1522	1520	1526	1522	430
175°	1587	1581	1580	1587	1580	151
180°	1590	1590	1590	1590	1590	



TEST NUMBER: P332832-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7
2.5°	1010.2	1009.7	1009.0	1008.4	1007.8	1006.7	1005.1	1003.6	1001.9	1000.3	1001.7
5°	1007.7	1007.0	1006.2	1005.5	1004.8	1003.5	1001.8	1000.0	998.3	996.5	998.5
7.5°	999.1	998.7	998.3	997.8	997.4	996.5	995.0	993.5	992.1	990.6	992.9
10°	992.0	991.7	991.5	991.2	991.0	990.2	989.0	987.7	986.4	985.2	987.5
12.5°	982.0	982.0	981.9	981.9	981.9	981.4	980.6	979.7	978.8	978.0	980.1
15°	966.0	966.3	966.5	966.8	967.0	966.8	966.0	965.3	964.5	963.8	966.0
17.5°	944.2	944.9	945.7	946.4	947.2	947.5	947.3	947.2	947.1	946.9	949.2
20°	928.9	929.6	930.3	931.1	931.9	932.4	932.6	932.9	933.1	933.4	935.9
22.5°	911.7	912.6	913.6	914.6	915.5	916.2	916.6	917.1	917.5	918.0	920.6
25°	883.8	885.3	886.7	888.3	889.7	890.9	891.6	892.4	893.2	893.9	896.7
27.5°	852.6	854.8	857.0	859.2	861.4	863.2	864.3	865.4	866.6	867.7	870.3
30°	831.9	833.9	835.9	837.9	839.9	841.8	843.5	845.3	847.0	848.8	851.6
32.5°	809.3	811.8	814.2	816.6	819.0	821.2	823.1	825.1	827.0	829.0	832.1
35°	773.3	776.3	779.3	782.3	785.3	788.1	790.6	793.0	795.6	798.1	801.6
37.5°	736.9	740.5	743.9	747.4	750.8	754.1	757.2	760.3	763.4	766.5	770.1
40°	713.5	716.8	720.1	723.3	726.6	729.9	733.4	736.9	740.5	744.0	747.7
42.5°	686.5	690.2	693.8	697.5	701.1	705.0	709.1	713.2	717.3	721.5	725.6
45°	644.7	649.5	654.3	659.1	663.8	668.5	673.4	678.1	682.8	687.6	691.9
47.5°	604.9	609.8	614.7	619.6	624.5	629.7	635.2	640.7	646.3	651.8	656.2
50°	576.0	581.6	587.0	592.6	598.0	603.6	609.1	614.6	620.1	625.6	630.6
52.5°	547.1	552.7	558.2	563.7	569.2	575.1	581.4	587.7	594.0	600.4	605.4
55°	505.0	510.3	515.5	520.8	526.0	532.4	540.0	547.5	555.0	562.5	567.5
57.5°	457.9	464.4	470.9	477.4	484.0	490.9	498.4	505.9	513.3	520.8	526.8
60°	427.2	433.7	440.3	446.8	453.3	460.6	469.0	477.2	485.4	493.7	499.5
62.5°	397.5	404.6	411.7	418.8	425.9	433.6	441.9	450.1	458.4	466.7	472.5
65°	349.4	357.4	365.5	373.5	381.5	389.8	398.3	406.8	415.3	423.9	430.1
67.5°	303.2	311.8	320.2	328.8	337.3	346.1	355.2	364.4	373.5	382.6	389.0
70°	271.7	280.2	288.7	297.2	305.7	314.8	324.2	333.8	343.3	352.9	359.6
72.5°	241.0	249.7	258.4	267.2	275.9	285.3	295.4	305.5	315.7	325.8	332.3
75°	193.9	203.2	212.4	221.7	231.0	240.8	251.4	261.9	272.4	282.9	289.9
77.5°	149.9	159.7	169.6	179.4	189.2	199.6	210.7	221.7	232.7	243.7	250.8
80°	122.9	132.9	142.9	153.0	163.0	173.5	184.5	195.5	206.5	217.5	225.1
82.5°	95.8	106.2	116.7	127.1	137.5	148.2	159.2	170.2	181.3	192.3	200.0
85°	59.8	70.3	80.8	91.3	101.8	112.8	124.0	135.3	146.5	157.8	165.3
87.5°	34.1	44.9	55.8	66.5	77.4	88.5	99.9	111.3	122.7	134.1	141.7
90°	21.7	34.7	47.8	60.8	73.8	86.8	99.8	112.8	125.7	138.7	147.6
92.5°	43.5	55.9	68.3	80.8	93.3	105.7	118.0	130.3	142.6	154.9	162.9
95°	88.4	99.1	109.9	120.6	131.3	142.8	155.0	167.1	179.3	191.5	199.1
97.5°	142.1	151.2	160.3	169.4	178.5	189.2	201.6	214.0	226.4	238.9	246.4
100°	184.5	192.1	199.7	207.3	214.9	224.9	237.1	249.3	261.5	273.8	281.0
102.5°	229.8	235.9	242.1	248.2	254.4	263.3	275.2	286.9	298.7	310.5	317.9
105°	296.6	301.8	307.1	312.4	317.7	325.5	335.9	346.3	356.6	367.0	374.1
107.5°	368.9	373.3	377.7	382.2	386.6	393.3	402.3	411.2	420.1	429.0	435.9
110°	417.2	421.2	425.3	429.3	433.3	439.6	448.2	456.6	465.1	473.6	478.8



TEST NUMBER: P332832-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	467.4	470.6	473.9	477.0	480.3	485.8	493.7	501.6	509.4	517.3	522.8
115°	542.7	545.0	547.2	549.5	551.8	556.6	564.1	571.6	579.0	586.5	591.7
117.5°	614.8	616.4	618.0	619.5	621.1	625.4	632.5	639.6	646.7	653.8	658.0
120°	662.1	664.0	665.8	667.6	669.4	673.6	680.0	686.5	692.9	699.4	703.0
122.5°	712.2	712.8	713.5	714.0	714.6	718.1	724.6	731.1	737.6	744.0	748.1
125°	785.1	784.9	784.6	784.4	784.2	787.0	793.0	799.0	804.9	811.0	815.1
127.5°	852.1	852.6	853.2	853.8	854.4	856.8	861.1	865.5	869.9	874.2	878.2
130°	898.4	898.9	899.5	900.0	900.6	902.9	906.9	910.9	914.9	918.9	922.9
132.5°	946.6	946.9	947.2	947.6	947.9	949.6	952.6	955.6	958.5	961.6	965.3
135°	1009.1	1010.7	1012.4	1014.0	1015.6	1017.3	1019.1	1020.8	1022.6	1024.3	1027.8
137.5°	1078.4	1079.0	1079.5	1079.9	1080.5	1081.4	1082.6	1083.9	1085.2	1086.5	1089.5
140°	1124.6	1124.9	1125.2	1125.5	1125.8	1126.1	1126.3	1126.6	1126.8	1127.1	1130.1
142.5°	1166.0	1166.5	1167.0	1167.5	1168.0	1168.1	1167.7	1167.3	1166.9	1166.6	1169.4
145°	1224.3	1225.2	1226.0	1226.9	1227.7	1228.2	1228.5	1228.8	1229.1	1229.3	1230.5
147.5°	1282.4	1283.4	1284.5	1285.6	1286.6	1287.0	1286.8	1286.5	1286.4	1286.1	1286.1
150°	1317.8	1318.6	1319.4	1320.3	1321.1	1321.5	1321.5	1321.5	1321.5	1321.5	1321.5
152.5°	1350.3	1350.9	1351.5	1352.1	1352.7	1353.2	1353.3	1353.6	1353.8	1354.0	1354.6
155°	1401.4	1401.4	1401.4	1401.4	1401.4	1401.3	1401.0	1400.8	1400.5	1400.2	1401.3
157.5°	1444.7	1444.2	1443.7	1443.2	1442.8	1442.5	1442.4	1442.3	1442.3	1442.3	1443.1
160°	1470.3	1470.0	1469.7	1469.5	1469.2	1468.9	1468.7	1468.4	1468.1	1467.9	1468.7
162.5°	1493.9	1493.2	1492.5	1491.8	1491.0	1490.5	1490.3	1490.0	1489.7	1489.5	1490.9
165°	1525.6	1524.8	1524.0	1523.1	1522.3	1521.7	1521.1	1520.5	1520.0	1519.5	1521.1
167.5°	1550.0	1548.8	1547.7	1546.5	1545.4	1544.8	1544.9	1544.9	1545.0	1545.1	1546.7
170°	1563.7	1562.4	1561.0	1559.6	1558.3	1557.7	1558.0	1558.3	1558.5	1558.8	1560.4
172.5°	1573.5	1572.4	1571.2	1570.1	1569.0	1568.4	1568.5	1568.6	1568.6	1568.6	1570.5
175°	1587.1	1585.7	1584.4	1583.0	1581.6	1580.8	1580.5	1580.2	1580.0	1579.7	1581.6
177.5°	1591.5	1590.4	1589.3	1588.2	1587.1	1586.6	1586.6	1586.6	1586.6	1586.6	1588.1
180°	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5



TEST NUMBER: P332832-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7
2.5°	1003.1	1004.5	1005.9	1006.5	1006.3	1006.1	1005.9	1005.8
5°	1000.5	1002.5	1004.5	1005.3	1005.1	1004.9	1004.6	1004.4
7.5°	995.2	997.4	999.6	1000.6	1000.4	1000.1	999.9	999.6
10°	989.7	992.0	994.3	995.2	995.0	994.7	994.5	994.3
12.5°	982.1	984.1	986.2	987.2	987.2	987.1	987.1	987.0
15°	968.3	970.5	972.8	973.8	973.5	973.3	973.1	972.8
17.5°	951.5	953.8	956.1	957.2	956.9	956.8	956.5	956.3
20°	938.3	940.9	943.4	944.6	944.6	944.6	944.6	944.6
22.5°	923.0	925.5	928.1	929.5	929.9	930.3	930.7	931.1
25°	899.4	902.1	904.9	906.4	906.7	906.9	907.2	907.4
27.5°	872.9	875.4	878.0	879.4	879.7	880.0	880.3	880.6
30°	854.4	857.0	859.8	861.4	861.9	862.4	863.0	863.5
32.5°	835.3	838.5	841.6	843.4	843.9	844.4	844.9	845.5
35°	805.1	808.6	812.1	814.2	815.0	815.7	816.5	817.3
37.5°	773.6	777.2	780.7	782.9	783.7	784.6	785.3	786.1
40°	751.5	755.2	759.0	761.4	762.4	763.4	764.4	765.4
42.5°	729.8	733.9	738.1	740.5	741.4	742.2	743.0	743.7
45°	696.1	700.4	704.7	707.4	708.7	709.9	711.2	712.4
47.5°	660.6	665.0	669.4	672.4	673.8	675.4	676.9	678.4
50°	635.6	640.7	645.6	648.9	650.4	651.9	653.4	654.9
52.5°	610.4	615.4	620.4	623.6	625.2	626.6	628.2	629.7
55°	572.5	577.6	582.5	585.8	587.3	588.8	590.3	591.8
57.5°	532.7	538.7	544.6	548.3	549.7	551.1	552.5	553.9
60°	505.2	511.0	516.7	520.7	522.7	524.6	526.7	528.6
62.5°	478.2	484.0	489.8	493.6	495.6	497.6	499.6	501.7
65°	436.3	442.6	448.9	453.1	455.0	457.1	459.0	461.1
67.5°	395.3	401.7	408.1	412.2	414.2	416.1	418.1	420.0
70°	366.3	373.1	379.8	384.2	385.9	387.7	389.4	391.2
72.5°	338.9	345.4	352.0	356.3	358.2	360.2	362.2	364.1
75°	296.9	303.9	311.0	315.6	317.9	320.2	322.4	324.7
77.5°	258.0	265.1	272.1	277.0	279.3	281.8	284.1	286.6
80°	232.6	240.1	247.6	252.3	254.4	256.4	258.4	260.4
82.5°	207.7	215.5	223.1	228.1	230.3	232.5	234.7	236.9
85°	172.8	180.3	187.8	192.9	195.4	197.9	200.4	202.9
87.5°	149.4	156.9	164.5	169.5	171.8	174.1	176.4	178.7
90°	156.5	165.3	174.2	180.0	182.5	185.1	187.6	190.2
92.5°	171.0	179.0	187.0	192.2	194.6	196.9	199.3	201.5
95°	206.7	214.3	221.8	226.7	229.0	231.2	233.5	235.8
97.5°	254.0	261.5	269.0	273.9	276.1	278.2	280.4	282.5
100°	288.4	295.7	303.0	307.5	309.2	311.0	312.8	314.5
102.5°	325.2	332.6	339.9	344.6	346.8	348.9	351.1	353.3
105°	381.2	388.2	395.3	400.2	403.1	405.9	408.7	411.6
107.5°	442.9	449.8	456.7	461.1	462.8	464.6	466.4	468.1
110°	484.0	489.3	494.5	498.5	501.3	504.2	507.0	509.8



TEST NUMBER: P332832-930

CATALOG NUMBER: S124DIW-S1020D1560U930-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	528.2	533.7	539.1	542.9	545.1	547.2	549.4	551.6
115°	597.0	602.3	607.5	610.8	612.3	613.8	615.2	616.8
117.5°	662.3	666.6	670.9	673.8	675.2	676.7	678.1	679.6
120°	706.7	710.4	714.0	717.1	719.7	722.2	724.7	727.2
122.5°	752.2	756.3	760.4	762.9	763.7	764.5	765.3	766.1
125°	819.4	823.6	827.9	830.4	831.4	832.3	833.2	834.2
127.5°	882.2	886.1	890.1	892.8	894.0	895.3	896.5	897.8
130°	926.8	930.8	934.8	936.9	937.3	937.8	938.2	938.7
132.5°	969.1	972.8	976.6	979.0	980.1	981.1	982.2	983.3
135°	1031.3	1034.7	1038.2	1040.2	1041.0	1041.6	1042.3	1043.0
137.5°	1092.4	1095.4	1098.3	1100.5	1102.0	1103.3	1104.7	1106.2
140°	1133.1	1136.0	1139.1	1141.0	1142.0	1143.0	1143.9	1144.9
142.5°	1172.2	1175.0	1177.8	1179.7	1180.7	1181.7	1182.7	1183.7
145°	1231.8	1233.1	1234.3	1234.9	1235.2	1235.3	1235.5	1235.7
147.5°	1286.1	1286.1	1286.1	1286.3	1286.9	1287.4	1287.9	1288.4
150°	1321.5	1321.5	1321.5	1321.4	1321.1	1320.9	1320.6	1320.3
152.5°	1355.3	1355.9	1356.6	1356.6	1355.8	1355.2	1354.5	1353.7
155°	1402.4	1403.5	1404.6	1404.6	1403.5	1402.4	1401.3	1400.2
157.5°	1443.9	1444.7	1445.5	1445.4	1444.5	1443.7	1442.7	1441.8
160°	1469.5	1470.3	1471.1	1470.8	1469.5	1468.1	1466.7	1465.3
162.5°	1492.4	1493.9	1495.3	1495.4	1494.0	1492.7	1491.3	1490.0
165°	1522.7	1524.4	1526.0	1526.3	1525.2	1524.1	1523.0	1521.9
167.5°	1548.3	1550.0	1551.6	1551.6	1549.9	1548.2	1546.5	1544.7
170°	1562.1	1563.7	1565.4	1565.2	1563.3	1561.4	1559.5	1557.5
172.5°	1572.4	1574.2	1576.1	1576.1	1574.1	1572.2	1570.3	1568.4
175°	1583.6	1585.4	1587.4	1587.4	1585.4	1583.6	1581.6	1579.7
177.5°	1589.7	1591.1	1592.7	1592.6	1590.8	1589.1	1587.4	1585.6
180°	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5	1589.5

(END OF REPORT)