

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: P332831-930

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332831-930
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
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-D
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8521.1 lumens
Efficiency: N/A
Efficacy: 111.2 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-Indirect

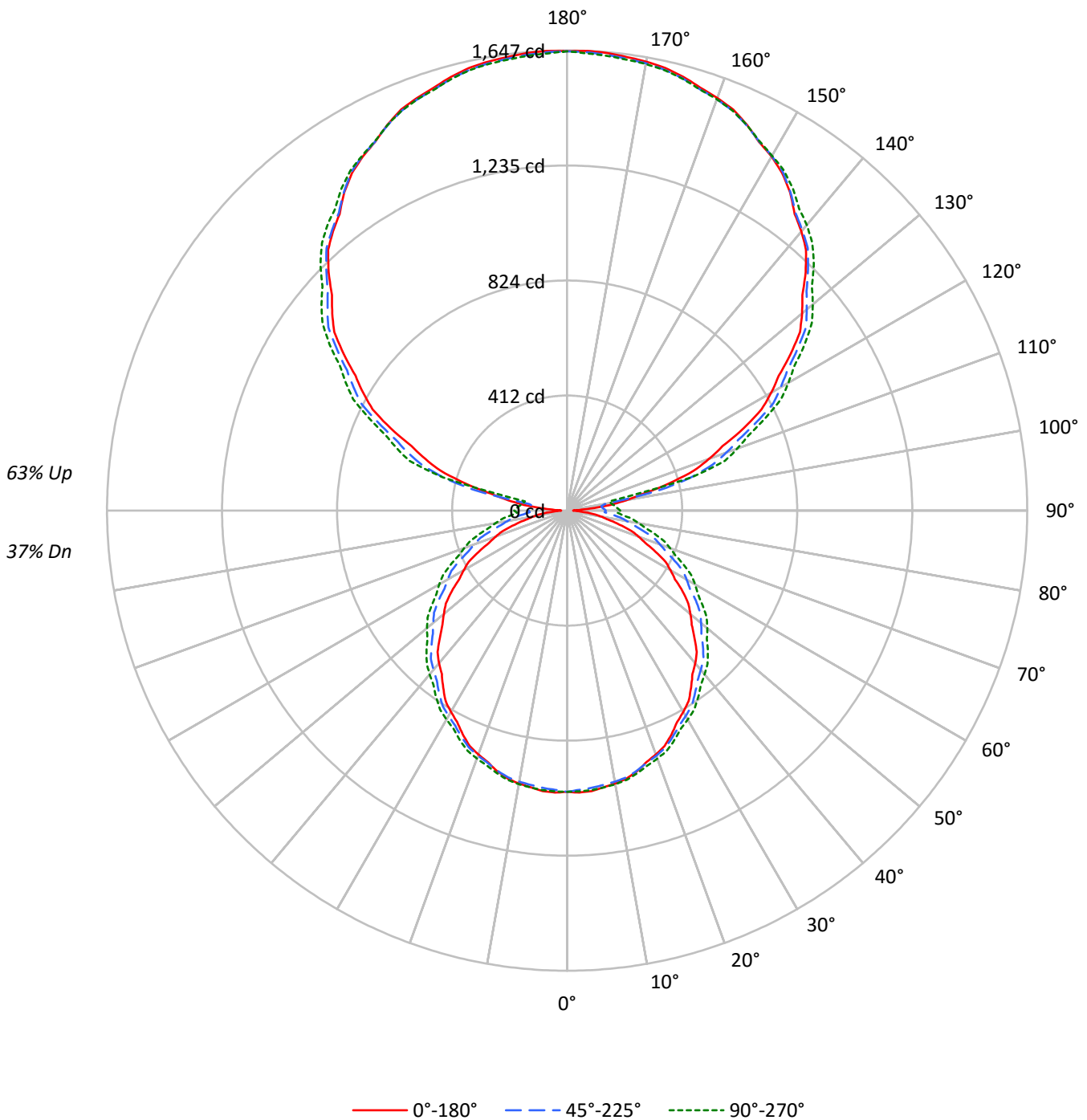
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P332831-930

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	76	76	76	60	60	60	44	44	44
1	94	90	85	82	85	81	78	75	66	63	61	51	50	48	38	37	36
2	85	78	71	66	77	71	65	61	57	53	50	45	42	39	33	31	30
3	78	68	61	55	70	62	55	50	50	45	41	39	36	33	29	27	25
4	71	60	52	46	64	55	48	42	44	39	35	35	31	28	26	23	21
5	65	53	45	39	58	48	41	36	39	34	30	31	27	24	23	20	18
6	60	48	39	34	54	43	36	31	35	30	26	28	24	21	21	18	16
7	55	43	35	29	50	39	32	27	32	27	23	25	21	18	19	16	14
8	51	39	31	26	46	35	29	24	29	24	20	23	19	16	17	15	13
9	47	35	28	23	43	32	26	21	26	21	18	21	17	15	16	13	11
10	44	32	25	20	40	29	23	19	24	19	16	19	16	13	15	12	10

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	1.1
10°-20°	273.1	3.2
20°-30°	413.0	4.8
30°-40°	499.7	5.9
40°-50°	528.2	6.2
50°-60°	497.1	5.8
60°-70°	412.5	4.8
70°-80°	289.7	3.4
80°-90°	168.5	2.0
90°-100°	153.5	1.8
100°-110°	430.5	5.1
110°-120°	734.1	8.6
120°-130°	897.8	10.5
130°-140°	943.2	11.1
140°-150°	873.4	10.2
150°-160°	702.4	8.2
160°-170°	453.0	5.3
170°-180°	156.1	1.8
0°-30°	781.4	9.2
0°-40°	1281.1	15.0
0°-60°	2306.5	27.1
0°-90°	3177.2	37.3
90°-120°	1318.0	15.5
90°-150°	4032.4	47.3
90°-180°	5344.0	62.7
0°-180°	8521.1	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	15
95°	82	81	125	161	174	99
105°	380	411	458	493	462	399
115°	698	713	746	773	782	687
125°	976	981	1005	1030	1038	871
135°	1207	1207	1219	1239	1248	930
145°	1390	1393	1393	1401	1408	869
155°	1523	1524	1521	1525	1522	702
165°	1607	1601	1601	1610	1600	454
175°	1644	1637	1638	1647	1634	156
180°	1644	1644	1644	1644	1644	



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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	73.9	86.8	99.8	112.8	125.7	138.7	147.6
92.5°	32.6	41.8	51.0	60.2	69.4	80.4	93.4	106.3	119.3	132.2	141.0
95°	82.3	81.3	80.2	79.2	78.2	82.9	93.5	104.0	114.5	125.1	133.5
97.5°	156.9	169.8	182.7	195.6	208.6	204.8	184.5	164.2	143.9	123.5	130.3
100°	214.0	225.4	236.9	248.3	259.8	251.5	223.6	195.7	167.7	139.7	141.9
102.5°	279.0	288.3	297.6	306.9	316.3	323.2	327.8	332.5	337.1	341.9	298.2
105°	380.3	386.9	393.5	400.1	406.8	415.5	426.1	436.8	447.4	458.0	466.8
107.5°	476.1	481.1	486.0	490.9	495.9	503.6	514.3	524.9	535.5	546.2	553.5
110°	540.1	544.5	548.8	553.2	557.5	564.8	575.3	585.6	596.1	606.5	612.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	602.2	606.8	611.4	616.0	620.5	627.4	636.5	645.6	654.8	663.9	669.4
115°	697.7	700.8	703.9	706.9	710.0	715.4	723.2	730.9	738.7	746.4	752.4
117.5°	784.8	787.3	789.7	792.1	794.6	799.9	807.9	816.0	824.0	832.1	837.2
120°	842.9	844.8	846.6	848.5	850.3	854.8	861.7	868.7	875.7	882.7	888.3
122.5°	898.0	898.8	899.6	900.4	901.2	905.2	912.5	919.7	927.0	934.3	939.6
125°	975.8	976.6	977.5	978.4	979.2	982.4	988.1	993.9	999.6	1005.3	1010.9
127.5°	1050.4	1050.4	1050.4	1050.4	1050.4	1053.4	1059.6	1065.6	1071.7	1077.7	1082.1
130°	1097.6	1097.6	1097.7	1097.7	1097.7	1100.2	1105.0	1109.8	1114.7	1119.5	1124.2
132.5°	1141.9	1142.2	1142.4	1142.6	1142.9	1145.1	1149.3	1153.6	1157.8	1162.1	1166.7
135°	1207.1	1206.9	1206.6	1206.3	1206.1	1207.4	1210.2	1213.1	1215.9	1218.7	1223.3
137.5°	1265.9	1265.8	1265.7	1265.5	1265.3	1266.3	1268.4	1270.4	1272.5	1274.6	1278.8
140°	1304.3	1304.6	1304.9	1305.2	1305.5	1306.0	1306.8	1307.7	1308.4	1309.2	1313.3
142.5°	1337.8	1338.7	1339.7	1340.6	1341.6	1342.1	1342.3	1342.5	1342.6	1342.8	1346.3
145°	1390.5	1391.1	1391.6	1392.2	1392.8	1393.0	1393.0	1393.0	1393.0	1393.0	1394.8
147.5°	1432.5	1433.8	1435.1	1436.4	1437.6	1438.1	1437.9	1437.6	1437.3	1437.0	1437.5
150°	1463.0	1463.9	1464.7	1465.5	1466.4	1466.6	1466.4	1466.2	1465.8	1465.6	1465.6
152.5°	1487.7	1488.5	1489.3	1490.1	1490.9	1491.2	1490.6	1490.1	1489.6	1489.1	1489.6
155°	1523.4	1523.6	1523.9	1524.2	1524.4	1524.2	1523.4	1522.6	1521.8	1520.9	1522.0
157.5°	1553.6	1553.5	1553.3	1553.1	1553.0	1552.4	1551.4	1550.5	1549.6	1548.7	1550.1
160°	1571.3	1570.5	1569.7	1568.9	1568.1	1567.5	1567.2	1566.9	1566.7	1566.4	1568.1
162.5°	1587.1	1586.0	1584.9	1584.0	1582.9	1582.3	1581.9	1581.7	1581.4	1581.1	1582.7
165°	1607.0	1605.6	1604.3	1602.9	1601.5	1600.8	1600.8	1600.8	1600.8	1600.8	1603.0
167.5°	1622.7	1621.3	1619.8	1618.5	1617.0	1616.2	1616.1	1615.9	1615.8	1615.6	1618.0
170°	1631.6	1629.9	1628.2	1626.6	1625.0	1624.3	1624.6	1624.9	1625.1	1625.4	1627.6
172.5°	1637.4	1635.8	1634.2	1632.6	1630.9	1630.2	1630.5	1630.8	1631.0	1631.3	1633.5
175°	1643.8	1642.2	1640.5	1638.9	1637.3	1636.6	1636.9	1637.1	1637.4	1637.7	1640.1
177.5°	1646.8	1645.3	1643.7	1642.2	1640.7	1640.1	1640.5	1641.0	1641.4	1641.8	1643.6
180°	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8



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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°	149.7	158.3	167.1	172.4	174.6	176.7	178.8	180.9
95°	141.9	150.3	158.7	164.2	166.7	169.3	171.8	174.3
97.5°	137.0	143.7	150.4	155.0	157.4	159.9	162.3	164.8
100°	144.0	146.1	148.2	150.3	152.4	154.3	156.4	158.4
102.5°	254.7	211.2	167.6	146.8	148.9	150.9	152.9	154.9
105°	475.5	484.2	492.8	493.3	485.5	477.7	469.9	462.0
107.5°	560.8	568.3	575.6	580.7	583.5	586.4	589.2	592.1
110°	619.1	625.4	631.7	636.3	639.1	641.9	644.7	647.6



TEST NUMBER: P332831-930

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	674.8	680.3	685.7	690.0	693.0	696.0	699.1	702.1
115°	758.6	764.6	770.6	774.5	776.3	778.0	779.8	781.5
117.5°	842.3	847.4	852.6	856.0	857.9	859.8	861.7	863.6
120°	893.8	899.4	904.9	908.4	909.9	911.3	912.8	914.3
122.5°	944.9	950.2	955.6	958.9	960.2	961.4	962.6	963.9
125°	1016.5	1022.1	1027.7	1031.4	1033.1	1034.9	1036.7	1038.4
127.5°	1086.5	1090.8	1095.1	1098.0	1099.5	1101.0	1102.5	1104.0
130°	1129.0	1133.8	1138.6	1141.7	1143.2	1144.8	1146.2	1147.8
132.5°	1171.3	1175.8	1180.4	1183.3	1184.6	1185.9	1187.2	1188.5
135°	1227.8	1232.4	1237.0	1240.2	1242.4	1244.4	1246.4	1248.5
137.5°	1283.0	1287.4	1291.6	1294.3	1295.3	1296.4	1297.5	1298.6
140°	1317.4	1321.4	1325.5	1328.3	1329.8	1331.4	1332.9	1334.4
142.5°	1349.7	1353.2	1356.7	1358.9	1360.0	1361.1	1362.3	1363.3
145°	1396.6	1398.3	1400.1	1401.8	1403.4	1404.9	1406.5	1408.0
147.5°	1437.9	1438.3	1438.8	1439.5	1440.6	1441.6	1442.7	1443.7
150°	1465.6	1465.6	1465.6	1465.7	1466.0	1466.2	1466.6	1466.8
152.5°	1490.0	1490.4	1490.9	1491.0	1490.9	1490.7	1490.5	1490.4
155°	1523.1	1524.2	1525.3	1525.4	1524.6	1523.8	1523.0	1522.2
157.5°	1551.5	1553.0	1554.4	1554.4	1553.0	1551.5	1550.1	1548.7
160°	1569.7	1571.3	1573.0	1573.0	1571.3	1569.7	1568.1	1566.4
162.5°	1584.5	1586.1	1587.7	1587.6	1585.8	1583.9	1582.0	1580.1
165°	1605.2	1607.4	1609.6	1609.4	1607.0	1604.5	1602.1	1599.6
167.5°	1620.4	1622.8	1625.2	1625.1	1622.3	1619.6	1616.8	1614.1
170°	1629.8	1632.0	1634.2	1633.9	1631.2	1628.4	1625.7	1622.9
172.5°	1635.7	1637.9	1640.1	1639.6	1636.7	1633.8	1630.8	1627.8
175°	1642.6	1645.1	1647.6	1647.1	1643.8	1640.5	1637.3	1634.0
177.5°	1645.4	1647.1	1648.9	1648.5	1645.8	1643.2	1640.5	1637.9
180°	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8	1643.8

(END OF REPORT)