

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: P332832-935

Luminaire Tested: **S124DIW-S1020D1560U935-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332832-935
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-S1020D1560U935-4F0-1E-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: 8286.1 lumens
Efficiency: N/A
Efficacy: 108.2 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: General Diffuse

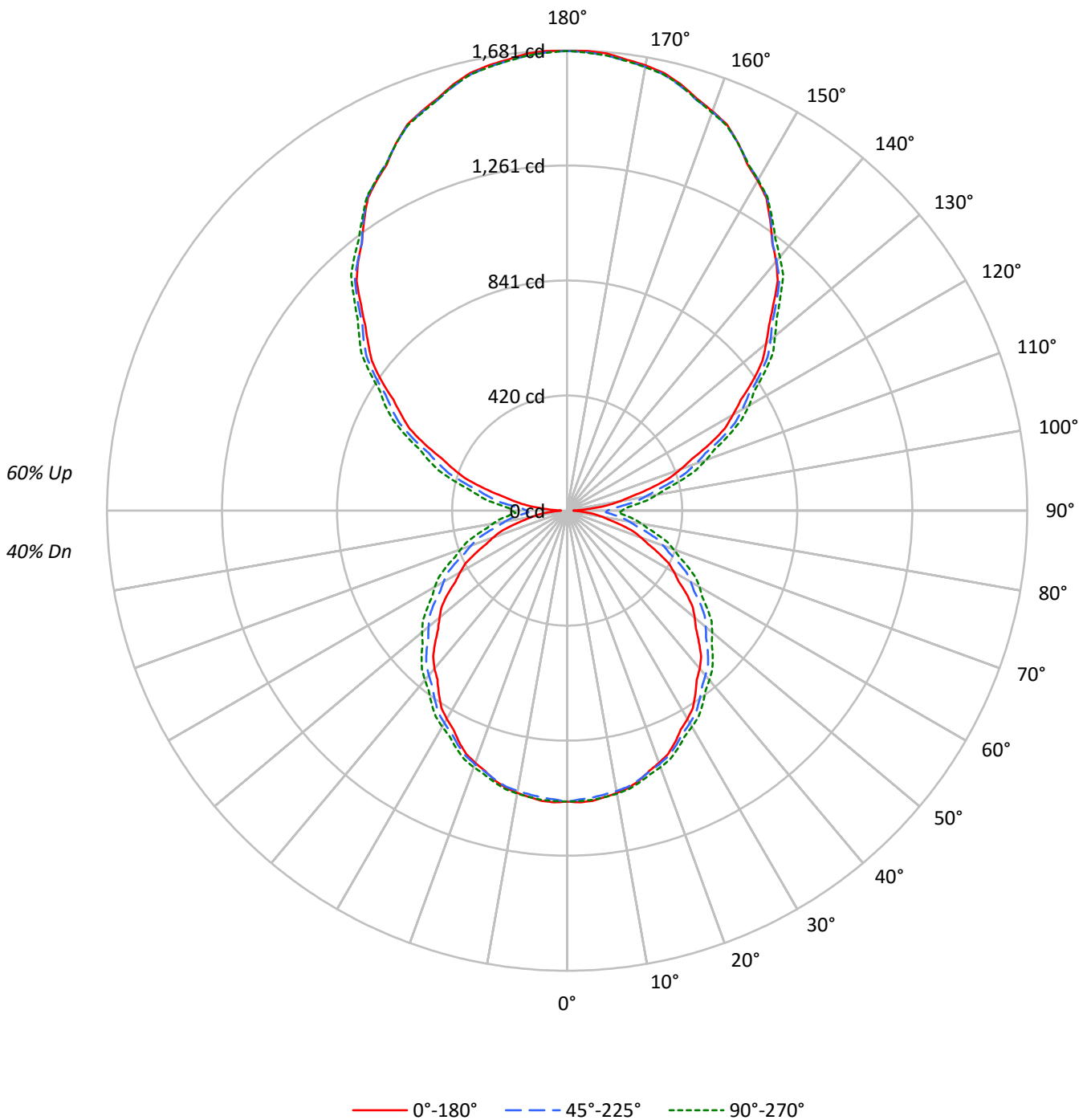
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	8582	8582	8582
5°	8608	8387	8412
10°	8556	8250	8244
15°	8479	8091	8047
20°	8364	7916	7856
25°	8233	7719	7645
30°	8093	7524	7428
35°	7933	7324	7239
40°	7804	7134	7041
45°	7615	6958	6871
50°	7455	6755	6692
55°	7289	6565	6482
60°	7031	6322	6290
65°	6747	6061	6055
70°	6405	5763	5780
75°	5924	5435	5533
80°	5397	5119	5288
85°	4721	4842	5146



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.7	1.2
10°-20°	288.4	3.5
20°-30°	436.1	5.3
30°-40°	527.7	6.4
40°-50°	557.9	6.7
50°-60°	525.0	6.3
60°-70°	435.6	5.3
70°-80°	306.0	3.7
80°-90°	178.0	2.1
90°-100°	213.4	2.6
100°-110°	404.0	4.9
110°-120°	607.7	7.3
120°-130°	762.8	9.2
130°-140°	836.8	10.1
140°-150°	812.6	9.8
150°-160°	681.3	8.2
160°-170°	453.3	5.5
170°-180°	158.7	1.9
0°-30°	825.2	10.0
0°-40°	1352.9	16.3
0°-60°	2435.8	29.4
0°-90°	3355.3	40.5
90°-120°	1225.2	14.8
90°-150°	3637.4	43.9
90°-180°	4931.0	59.5
0°-180°	8286.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1063	1063	1063	1063	1063	
5°	1064	1060	1052	1061	1061	101
15°	1020	1021	1018	1028	1027	287
25°	933	940	944	956	958	430
35°	817	831	843	859	863	511
45°	681	704	726	746	752	526
55°	533	559	594	617	625	475
65°	369	407	448	476	487	366
75°	205	249	299	331	343	218
85°	63	113	167	201	214	67
90°	23	85	146	187	201	17
95°	93	145	202	237	249	99
105°	313	340	388	420	435	333
115°	573	585	619	643	651	566
125°	829	830	856	876	881	739
135°	1066	1073	1082	1097	1102	824
145°	1293	1297	1298	1304	1305	809
155°	1480	1480	1479	1483	1479	681
165°	1611	1607	1605	1612	1607	454
175°	1676	1670	1668	1676	1668	159
180°	1679	1679	1679	1679	1679	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1
2.5°	1066.9	1066.3	1065.6	1065.0	1064.3	1063.2	1061.4	1059.8	1058.1	1056.4	1057.8
5°	1064.2	1063.4	1062.6	1061.9	1061.1	1059.7	1057.9	1056.0	1054.2	1052.3	1054.5
7.5°	1055.2	1054.7	1054.2	1053.8	1053.3	1052.3	1050.8	1049.2	1047.7	1046.1	1048.5
10°	1047.6	1047.3	1047.1	1046.8	1046.5	1045.7	1044.4	1043.1	1041.7	1040.4	1042.8
12.5°	1037.1	1037.1	1037.0	1036.9	1036.9	1036.4	1035.5	1034.6	1033.7	1032.8	1035.0
15°	1020.2	1020.5	1020.7	1021.0	1021.2	1021.0	1020.2	1019.4	1018.6	1017.8	1020.2
17.5°	997.1	997.9	998.7	999.4	1000.3	1000.6	1000.4	1000.3	1000.1	1000.0	1002.4
20°	980.9	981.7	982.5	983.3	984.1	984.6	984.9	985.2	985.4	985.7	988.3
22.5°	962.8	963.8	964.8	965.9	966.8	967.6	968.0	968.5	969.0	969.5	972.2
25°	933.3	934.9	936.4	938.1	939.6	940.8	941.6	942.5	943.2	944.0	946.9
27.5°	900.4	902.8	905.1	907.4	909.7	911.5	912.7	914.0	915.2	916.4	919.1
30°	878.6	880.6	882.8	884.8	887.0	889.0	890.8	892.7	894.5	896.4	899.3
32.5°	854.7	857.3	859.8	862.4	864.9	867.2	869.3	871.3	873.4	875.5	878.7
35°	816.7	819.8	822.9	826.1	829.3	832.2	834.9	837.5	840.2	842.8	846.5
37.5°	778.3	782.0	785.6	789.3	792.9	796.3	799.6	802.9	806.2	809.5	813.2
40°	753.5	757.0	760.4	763.9	767.3	770.9	774.6	778.3	782.0	785.7	789.6
42.5°	725.0	728.8	732.7	736.6	740.4	744.5	748.8	753.2	757.5	761.9	766.3
45°	680.9	686.0	691.0	696.0	701.0	706.0	711.1	716.1	721.1	726.2	730.6
47.5°	638.8	643.9	649.1	654.4	659.5	665.0	670.8	676.7	682.5	688.3	692.9
50°	608.3	614.2	619.9	625.8	631.5	637.4	643.3	649.0	654.9	660.6	666.0
52.5°	577.8	583.7	589.4	595.3	601.2	607.3	614.0	620.7	627.3	634.0	639.3
55°	533.3	538.9	544.4	550.0	555.5	562.2	570.2	578.2	586.1	594.0	599.3
57.5°	483.5	490.4	497.3	504.2	511.1	518.4	526.3	534.3	542.1	550.0	556.3
60°	451.2	458.1	464.9	471.8	478.7	486.5	495.2	503.9	512.6	521.4	527.4
62.5°	419.7	427.2	434.8	442.3	449.8	457.9	466.7	475.4	484.1	492.8	498.9
65°	369.0	377.5	386.0	394.4	402.9	411.6	420.6	429.6	438.6	447.6	454.2
67.5°	320.2	329.2	338.2	347.2	356.2	365.5	375.1	384.8	394.4	404.1	410.8
70°	286.9	295.9	304.9	313.8	322.9	332.4	342.4	352.5	362.6	372.6	379.8
72.5°	254.5	263.7	272.9	282.1	291.4	301.3	311.9	322.6	333.4	344.1	350.9
75°	204.7	214.6	224.3	234.1	243.9	254.3	265.4	276.6	287.7	298.8	306.2
77.5°	158.3	168.7	179.1	189.4	199.8	210.8	222.5	234.1	245.7	257.4	264.8
80°	129.8	140.3	150.9	161.5	172.1	183.2	194.8	206.5	218.1	229.7	237.7
82.5°	101.2	112.2	123.2	134.2	145.2	156.5	168.2	179.8	191.5	203.1	211.2
85°	63.1	74.2	85.3	96.4	107.5	119.1	131.0	142.8	154.7	166.7	174.6
87.5°	36.0	47.4	58.9	70.3	81.7	93.5	105.5	117.5	129.6	141.6	149.6
90°	22.9	36.7	50.5	64.2	77.9	91.7	105.4	119.1	132.8	146.5	155.8
92.5°	45.9	59.1	72.2	85.3	98.5	111.6	124.6	137.6	150.6	163.6	172.0
95°	93.3	104.7	116.1	127.3	138.7	150.8	163.7	176.5	189.3	202.2	210.3
97.5°	150.1	159.7	169.3	178.9	188.5	199.8	212.9	226.0	239.1	252.3	260.2
100°	194.8	202.9	210.9	219.0	227.0	237.5	250.4	263.3	276.2	289.1	296.8
102.5°	242.6	249.1	255.6	262.1	268.6	278.1	290.6	303.0	315.5	328.0	335.7
105°	313.2	318.7	324.3	329.9	335.5	343.8	354.7	365.7	376.6	387.5	395.0
107.5°	389.6	394.3	398.9	403.6	408.3	415.3	424.8	434.2	443.7	453.1	460.4
110°	440.6	444.8	449.1	453.4	457.6	464.3	473.3	482.2	491.2	500.2	505.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	493.6	497.0	500.4	503.8	507.2	513.1	521.3	529.7	538.0	546.3	552.1
115°	573.2	575.6	577.9	580.3	582.7	587.8	595.7	603.6	611.5	619.4	624.9
117.5°	649.3	650.9	652.6	654.3	655.9	660.5	668.0	675.5	682.9	690.4	694.9
120°	699.2	701.2	703.1	705.1	707.0	711.4	718.2	725.0	731.8	738.6	742.4
122.5°	752.2	752.8	753.5	754.1	754.7	758.4	765.3	772.1	778.9	785.7	790.1
125°	829.1	828.9	828.6	828.4	828.1	831.1	837.4	843.8	850.1	856.4	860.8
127.5°	899.8	900.4	901.0	901.6	902.2	904.8	909.4	914.0	918.7	923.3	927.5
130°	948.7	949.3	949.9	950.5	951.1	953.6	957.8	962.0	966.2	970.4	974.7
132.5°	999.6	1000.0	1000.3	1000.7	1001.1	1002.8	1006.0	1009.2	1012.3	1015.5	1019.4
135°	1065.7	1067.4	1069.1	1070.8	1072.5	1074.4	1076.2	1078.1	1080.0	1081.8	1085.5
137.5°	1138.8	1139.4	1140.0	1140.5	1141.1	1142.0	1143.3	1144.7	1146.1	1147.5	1150.6
140°	1187.7	1188.0	1188.3	1188.6	1189.0	1189.2	1189.5	1189.7	1190.0	1190.2	1193.4
142.5°	1231.4	1231.9	1232.4	1233.0	1233.5	1233.6	1233.1	1232.8	1232.3	1232.0	1234.9
145°	1293.0	1293.8	1294.7	1295.6	1296.5	1297.1	1297.4	1297.7	1298.0	1298.2	1299.5
147.5°	1354.3	1355.4	1356.5	1357.6	1358.7	1359.2	1358.9	1358.7	1358.5	1358.2	1358.2
150°	1391.6	1392.5	1393.4	1394.3	1395.2	1395.6	1395.6	1395.6	1395.6	1395.6	1395.6
152.5°	1426.0	1426.6	1427.3	1427.9	1428.6	1429.0	1429.2	1429.4	1429.7	1429.9	1430.6
155°	1480.0	1480.0	1480.0	1480.0	1480.0	1479.9	1479.5	1479.3	1479.0	1478.7	1479.9
157.5°	1525.7	1525.2	1524.7	1524.1	1523.6	1523.4	1523.3	1523.2	1523.2	1523.1	1524.0
160°	1552.7	1552.4	1552.1	1551.9	1551.5	1551.3	1551.0	1550.7	1550.4	1550.1	1551.0
162.5°	1577.6	1576.9	1576.1	1575.4	1574.6	1574.1	1573.8	1573.6	1573.2	1573.0	1574.5
165°	1611.1	1610.2	1609.4	1608.5	1607.7	1607.0	1606.4	1605.8	1605.2	1604.6	1606.4
167.5°	1636.8	1635.6	1634.4	1633.2	1632.0	1631.4	1631.5	1631.5	1631.6	1631.7	1633.4
170°	1651.4	1649.9	1648.5	1647.0	1645.6	1645.0	1645.3	1645.6	1645.9	1646.1	1647.9
172.5°	1661.7	1660.5	1659.3	1658.1	1656.9	1656.3	1656.4	1656.5	1656.5	1656.6	1658.5
175°	1676.0	1674.6	1673.2	1671.7	1670.3	1669.4	1669.1	1668.8	1668.5	1668.3	1670.3
177.5°	1680.7	1679.6	1678.4	1677.2	1676.1	1675.5	1675.5	1675.5	1675.5	1675.5	1677.1
180°	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1
2.5°	1059.4	1060.8	1062.3	1062.9	1062.7	1062.5	1062.3	1062.1
5°	1056.5	1058.7	1060.8	1061.7	1061.4	1061.2	1060.9	1060.7
7.5°	1050.9	1053.3	1055.7	1056.7	1056.4	1056.2	1055.9	1055.7
10°	1045.2	1047.6	1050.0	1051.0	1050.8	1050.5	1050.2	1050.0
12.5°	1037.2	1039.3	1041.5	1042.6	1042.5	1042.4	1042.4	1042.3
15°	1022.6	1024.9	1027.3	1028.4	1028.1	1027.9	1027.6	1027.3
17.5°	1004.8	1007.3	1009.7	1010.8	1010.6	1010.4	1010.1	1010.0
20°	990.9	993.6	996.3	997.6	997.6	997.6	997.6	997.6
22.5°	974.7	977.4	980.1	981.6	982.1	982.4	982.8	983.3
25°	949.9	952.7	955.6	957.3	957.5	957.8	958.0	958.3
27.5°	921.8	924.5	927.2	928.7	929.0	929.4	929.6	930.0
30°	902.2	905.1	908.0	909.7	910.2	910.8	911.4	911.9
32.5°	882.1	885.5	888.8	890.7	891.2	891.7	892.3	892.9
35°	850.2	853.9	857.6	859.9	860.7	861.4	862.3	863.1
37.5°	817.0	820.8	824.5	826.8	827.7	828.5	829.3	830.2
40°	793.6	797.5	801.6	804.1	805.1	806.2	807.3	808.3
42.5°	770.7	775.1	779.5	782.0	782.9	783.8	784.6	785.4
45°	735.1	739.7	744.2	747.1	748.4	749.7	751.1	752.3
47.5°	697.6	702.2	707.0	710.1	711.6	713.3	714.8	716.4
50°	671.2	676.6	681.8	685.3	686.9	688.5	690.0	691.6
52.5°	644.6	649.9	655.2	658.6	660.2	661.8	663.4	665.0
55°	604.6	609.9	615.2	618.6	620.2	621.8	623.4	625.0
57.5°	562.6	568.9	575.1	579.0	580.5	582.0	583.5	585.0
60°	533.6	539.7	545.7	549.8	552.0	554.1	556.2	558.3
62.5°	505.0	511.1	517.2	521.2	523.4	525.5	527.6	529.8
65°	460.8	467.4	474.1	478.5	480.5	482.7	484.7	486.9
67.5°	417.5	424.2	430.9	435.3	437.4	439.5	441.5	443.6
70°	386.8	394.0	401.1	405.7	407.5	409.4	411.2	413.1
72.5°	357.9	364.8	371.8	376.3	378.3	380.4	382.5	384.5
75°	313.6	321.0	328.4	333.3	335.7	338.1	340.4	342.9
77.5°	272.4	279.9	287.4	292.5	295.0	297.6	300.1	302.6
80°	245.6	253.6	261.5	266.5	268.6	270.8	272.9	275.0
82.5°	219.4	227.6	235.7	240.9	243.2	245.6	247.9	250.2
85°	182.5	190.5	198.4	203.7	206.4	209.0	211.6	214.3
87.5°	157.7	165.7	173.7	179.0	181.4	183.8	186.3	188.7
90°	165.2	174.6	184.0	190.1	192.8	195.4	198.1	200.9
92.5°	180.6	189.1	197.5	203.0	205.5	207.9	210.4	212.8
95°	218.3	226.3	234.3	239.4	241.9	244.2	246.6	249.0
97.5°	268.2	276.1	284.1	289.2	291.5	293.8	296.1	298.3
100°	304.5	312.3	319.9	324.8	326.6	328.5	330.4	332.2
102.5°	343.5	351.2	359.0	363.9	366.3	368.5	370.8	373.1
105°	402.5	410.0	417.5	422.7	425.7	428.7	431.6	434.6
107.5°	467.7	475.0	482.3	486.9	488.8	490.6	492.5	494.3
110°	511.2	516.7	522.2	526.4	529.4	532.4	535.4	538.4



TEST NUMBER: P332832-935

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	557.8	563.6	569.3	573.3	575.7	577.9	580.2	582.6
115°	630.4	636.0	641.5	645.1	646.6	648.2	649.7	651.3
117.5°	699.5	704.0	708.5	711.5	713.1	714.6	716.1	717.6
120°	746.3	750.2	754.0	757.2	760.0	762.7	765.3	768.0
122.5°	794.4	798.7	803.1	805.6	806.5	807.4	808.2	809.1
125°	865.3	869.8	874.3	876.9	878.0	879.0	879.9	881.0
127.5°	931.7	935.8	940.0	942.8	944.1	945.5	946.8	948.1
130°	978.8	983.0	987.2	989.5	989.9	990.3	990.8	991.3
132.5°	1023.4	1027.3	1031.3	1033.9	1035.0	1036.1	1037.2	1038.4
135°	1089.1	1092.7	1096.4	1098.5	1099.3	1100.0	1100.7	1101.5
137.5°	1153.7	1156.8	1159.9	1162.2	1163.7	1165.2	1166.7	1168.2
140°	1196.6	1199.7	1202.9	1205.0	1206.0	1207.0	1208.1	1209.1
142.5°	1237.9	1240.9	1243.8	1245.9	1246.9	1247.9	1249.0	1250.1
145°	1300.9	1302.2	1303.5	1304.2	1304.4	1304.6	1304.8	1304.9
147.5°	1358.2	1358.1	1358.1	1358.4	1359.0	1359.5	1360.1	1360.6
150°	1395.6	1395.6	1395.6	1395.5	1395.2	1394.9	1394.6	1394.3
152.5°	1431.2	1431.9	1432.6	1432.6	1431.8	1431.2	1430.4	1429.6
155°	1481.0	1482.1	1483.3	1483.3	1482.1	1481.0	1479.9	1478.7
157.5°	1524.8	1525.7	1526.6	1526.5	1525.5	1524.6	1523.5	1522.6
160°	1551.9	1552.7	1553.6	1553.2	1551.9	1550.4	1548.9	1547.5
162.5°	1576.1	1577.6	1579.2	1579.2	1577.8	1576.4	1574.9	1573.5
165°	1608.1	1609.8	1611.5	1611.9	1610.7	1609.6	1608.3	1607.2
167.5°	1635.1	1636.8	1638.6	1638.6	1636.8	1635.0	1633.1	1631.3
170°	1649.7	1651.4	1653.1	1652.9	1651.0	1648.9	1646.9	1644.9
172.5°	1660.5	1662.4	1664.4	1664.4	1662.3	1660.4	1658.3	1656.3
175°	1672.3	1674.3	1676.4	1676.4	1674.3	1672.3	1670.3	1668.3
177.5°	1678.8	1680.3	1682.0	1681.9	1680.0	1678.2	1676.4	1674.5
180°	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6	1678.6

(END OF REPORT)