

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: P332965-935

Luminaire Tested: **SA4XXRDIP-C1020D590U935-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332965-935
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D590U935-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 590 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5355.5 lumens
Efficiency: N/A
Efficacy: 109.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

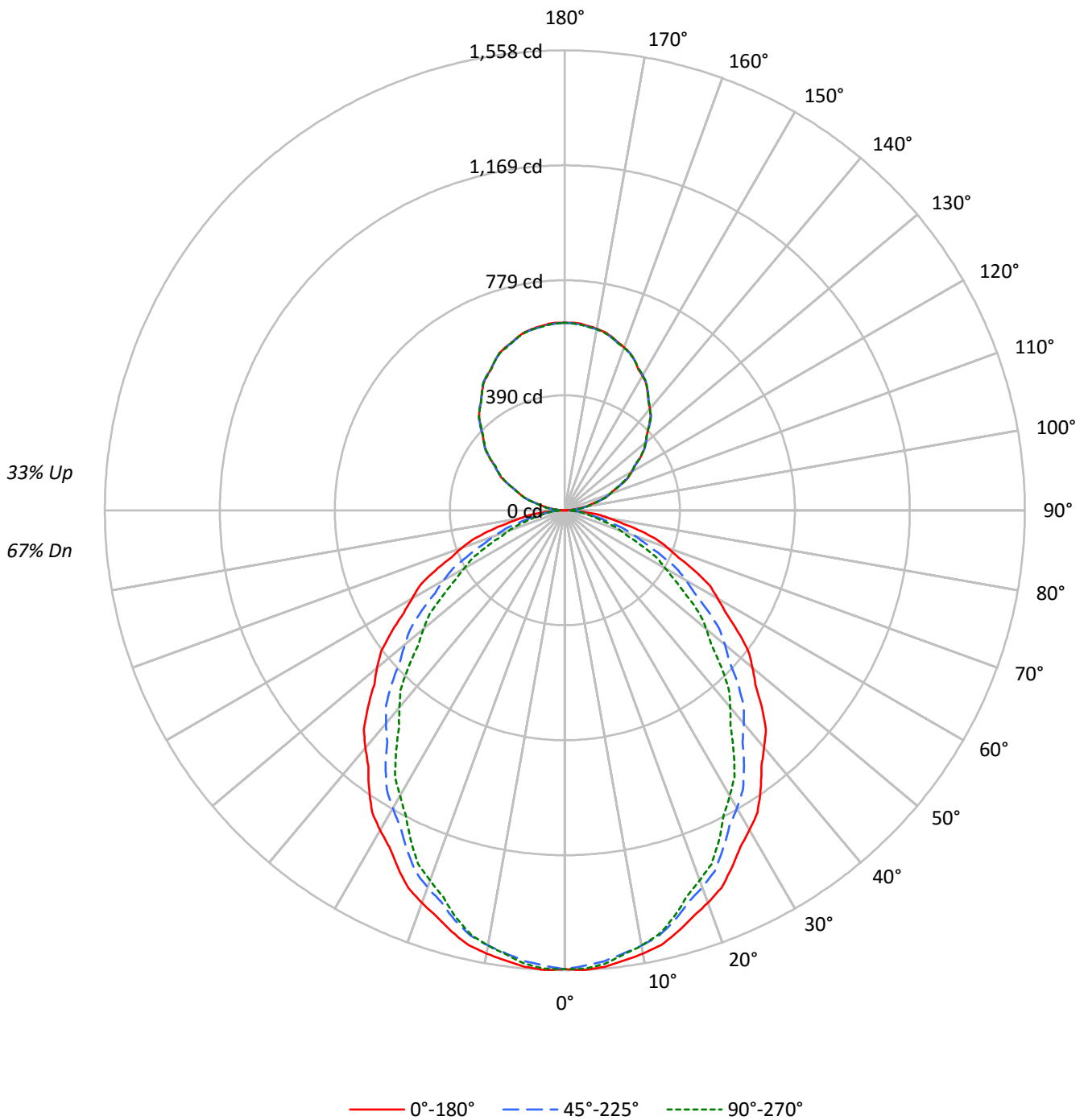
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	72	72	72	67
1	102	98	94	90	96	92	89	86	82	80	77	73	71	69	64	63	61	57
2	93	86	80	74	88	81	76	71	72	68	64	64	61	58	57	54	52	49
3	85	76	68	62	80	72	65	60	64	59	55	57	53	50	51	48	45	41
4	78	67	59	53	73	64	57	51	57	51	47	51	47	43	45	42	39	36
5	72	60	52	46	68	57	50	44	51	45	41	46	41	37	41	37	34	31
6	66	54	46	40	63	52	44	39	47	40	36	42	37	33	37	33	30	28
7	62	49	41	35	58	47	39	34	42	36	32	38	33	29	34	30	27	25
8	57	45	37	32	54	43	36	31	39	33	28	35	30	26	32	27	24	22
9	53	41	33	28	50	39	32	27	36	30	26	32	27	24	29	25	22	20
10	50	38	30	26	47	36	29	25	33	27	23	30	25	22	27	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12551	12551	12551
5°	12580	12426	12503
10°	12500	12276	12276
15°	12357	12018	11929
20°	12160	11679	11465
25°	11908	11282	10996
30°	11663	10864	10409
35°	11392	10430	9819
40°	11065	9936	9183
45°	10764	9445	8535
50°	10420	8881	7850
55°	10054	8294	7104
60°	9649	7650	6344
65°	9278	6844	5593
70°	8738	5958	4749
75°	8057	4938	3862
80°	7029	3761	3543
85°	5956	3418	3196



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	2.7
10°-20°	407.3	7.6
20°-30°	588.1	11.0
30°-40°	666.6	12.4
40°-50°	643.7	12.0
50°-60°	535.3	10.0
60°-70°	369.6	6.9
70°-80°	187.4	3.5
80°-90°	50.0	0.9
90°-100°	41.9	0.8
100°-110°	124.1	2.3
110°-120°	210.6	3.9
120°-130°	277.7	5.2
130°-140°	311.8	5.8
140°-150°	306.4	5.7
150°-160°	257.7	4.8
160°-170°	171.5	3.2
170°-180°	60.0	1.1
0°-30°	1141.4	21.3
0°-40°	1808.0	33.8
0°-60°	2987.0	55.8
0°-90°	3593.9	67.1
90°-120°	376.5	7.0
90°-150°	1272.4	23.8
90°-180°	1762.0	32.9
0°-180°	5355.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1555	1555	1555	1555	1555	
5°	1552	1547	1533	1544	1543	147
15°	1478	1467	1438	1435	1427	416
25°	1337	1314	1267	1247	1234	616
35°	1156	1117	1058	1019	996	722
45°	943	897	827	771	748	727
55°	714	665	589	530	505	639
65°	486	433	358	309	293	479
75°	258	214	158	132	124	273
85°	64	42	37	35	34	72
90°	2	7	11	14	15	5
95°	29	34	37	39	39	33
105°	114	115	117	118	120	121
115°	214	214	213	213	212	211
125°	312	312	311	310	309	278
135°	402	405	405	404	403	311
145°	489	490	491	490	489	306
155°	560	560	559	561	559	257
165°	609	608	607	610	608	172
175°	634	632	631	634	631	60
180°	635	635	635	635	635	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7
2.5°	1558.5	1557.6	1556.8	1556.0	1555.1	1553.5	1551.2	1548.9	1546.5	1544.2	1546.5
5°	1552.3	1551.3	1550.2	1549.1	1548.1	1545.9	1542.8	1539.6	1536.5	1533.3	1535.9
7.5°	1538.3	1537.1	1536.0	1534.9	1533.8	1531.2	1527.1	1522.9	1518.8	1514.7	1516.4
10°	1524.9	1523.6	1522.2	1521.0	1519.7	1516.6	1511.8	1507.1	1502.3	1497.5	1498.6
12.5°	1507.8	1506.2	1504.7	1503.2	1501.7	1498.1	1492.5	1486.9	1481.3	1475.7	1476.3
15°	1478.5	1476.1	1473.8	1471.4	1469.0	1464.5	1457.8	1451.2	1444.7	1438.0	1437.5
17.5°	1443.0	1439.6	1436.1	1432.7	1429.3	1423.6	1415.7	1407.7	1399.8	1391.8	1390.3
20°	1415.4	1412.0	1408.5	1405.1	1401.6	1395.4	1386.5	1377.4	1368.5	1359.4	1357.4
22.5°	1384.9	1381.0	1377.2	1373.4	1369.5	1362.7	1353.1	1343.5	1333.9	1324.2	1321.0
25°	1336.9	1332.1	1327.3	1322.6	1317.8	1310.0	1299.2	1288.3	1277.5	1266.6	1262.1
27.5°	1286.3	1280.4	1274.5	1268.4	1262.5	1253.7	1242.1	1230.5	1218.9	1207.3	1201.8
30°	1251.1	1244.5	1237.9	1231.3	1224.7	1215.1	1202.7	1190.2	1177.8	1165.4	1158.8
32.5°	1214.0	1206.5	1199.0	1191.6	1184.1	1174.0	1161.1	1148.3	1135.4	1122.6	1114.9
35°	1155.9	1147.5	1138.9	1130.5	1122.1	1111.2	1097.9	1084.8	1071.5	1058.3	1049.3
37.5°	1093.7	1085.0	1076.3	1067.6	1058.9	1047.1	1032.5	1017.9	1003.2	988.5	978.4
40°	1050.0	1041.2	1032.5	1023.7	1015.0	1003.2	988.1	972.9	957.9	942.8	931.7
42.5°	1008.1	998.9	989.7	980.6	971.5	959.0	943.3	927.6	911.9	896.1	884.8
45°	942.8	933.1	923.3	913.4	903.6	890.8	874.9	859.1	843.2	827.3	814.4
47.5°	875.5	865.3	855.2	845.2	835.0	821.7	805.2	788.7	772.1	755.7	742.3
50°	829.7	819.4	809.1	798.7	788.4	774.8	757.9	741.0	724.0	707.1	693.9
52.5°	783.1	772.9	762.8	752.8	742.6	728.9	711.5	694.2	676.8	659.5	646.1
55°	714.3	703.7	693.1	682.5	671.9	658.1	640.8	623.6	606.5	589.3	575.5
57.5°	646.2	635.2	624.1	613.1	602.2	588.1	571.3	554.3	537.4	520.5	506.5
60°	597.6	587.0	576.4	565.8	555.3	541.5	524.6	507.6	490.7	473.8	460.0
62.5°	553.8	542.8	531.8	520.7	509.8	495.6	478.2	460.9	443.5	426.2	413.5
65°	485.7	474.3	463.0	451.6	440.2	426.0	409.1	392.2	375.2	358.3	347.0
67.5°	415.0	404.1	393.2	382.3	371.3	358.1	342.3	326.7	310.9	295.2	285.4
70°	370.2	359.1	348.0	336.9	325.8	312.7	297.6	282.5	267.4	252.4	243.7
72.5°	322.6	312.5	302.5	292.5	282.4	270.3	256.1	241.8	227.6	213.4	205.9
75°	258.3	248.6	238.8	228.9	219.2	208.0	195.6	183.2	170.7	158.3	152.2
77.5°	193.1	184.8	176.5	168.2	159.9	150.7	140.6	130.6	120.5	110.5	106.9
80°	151.2	143.5	135.9	128.2	120.5	112.7	104.8	96.9	88.9	80.9	80.2
82.5°	115.0	108.0	100.9	93.8	86.9	81.0	76.5	72.0	67.4	62.9	62.3
85°	64.3	59.0	53.7	48.4	43.1	40.0	39.3	38.5	37.7	36.9	36.3
87.5°	22.2	20.8	19.3	17.8	16.4	15.7	15.6	15.6	15.5	15.5	15.4
90°	1.5	2.7	3.9	5.1	6.3	7.3	8.2	9.0	9.9	10.8	11.5
92.5°	10.5	11.9	13.3	14.6	16.0	17.0	17.7	18.3	18.9	19.5	19.8
95°	29.4	30.5	31.4	32.4	33.4	34.3	35.0	35.8	36.6	37.3	37.6
97.5°	51.5	52.3	53.0	53.8	54.6	55.4	56.3	57.3	58.1	59.1	59.4
100°	68.7	69.2	69.7	70.1	70.5	71.2	72.2	73.2	74.1	75.2	75.3
102.5°	86.8	87.0	87.1	87.3	87.5	88.1	88.9	89.8	90.7	91.6	92.0
105°	114.4	114.5	114.6	114.8	114.9	115.1	115.5	116.0	116.4	116.8	117.2
107.5°	143.4	143.5	143.6	143.8	144.0	144.0	144.0	144.1	144.2	144.3	144.6
110°	163.1	163.2	163.5	163.7	163.9	163.9	163.8	163.8	163.7	163.5	163.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	183.5	183.5	183.6	183.6	183.7	183.6	183.4	183.1	183.0	182.8	182.7
115°	214.1	214.1	214.1	214.1	214.1	214.0	213.8	213.5	213.4	213.1	213.0
117.5°	243.0	243.1	243.1	243.2	243.3	243.3	243.1	243.0	242.8	242.7	242.3
120°	262.3	262.7	263.1	263.6	264.0	264.1	263.7	263.4	263.0	262.7	262.2
122.5°	282.2	282.4	282.6	282.8	282.9	283.0	282.8	282.7	282.5	282.4	282.0
125°	311.9	311.9	311.9	311.9	311.9	311.8	311.7	311.6	311.4	311.3	311.1
127.5°	338.6	339.0	339.3	339.7	339.9	340.0	339.8	339.7	339.5	339.3	339.1
130°	357.5	357.8	358.2	358.5	358.8	359.0	359.0	359.0	359.0	359.0	358.8
132.5°	376.8	377.0	377.2	377.5	377.7	377.8	377.7	377.6	377.5	377.5	377.2
135°	402.2	402.9	403.5	404.2	404.8	405.1	405.1	405.1	405.1	405.1	404.9
137.5°	429.9	430.2	430.5	430.8	431.1	431.4	431.5	431.7	431.9	432.0	431.8
140°	448.3	448.6	448.8	449.0	449.2	449.4	449.4	449.4	449.4	449.4	449.2
142.5°	465.2	465.5	465.7	465.9	466.1	466.1	466.1	466.0	465.9	465.8	465.8
145°	488.6	489.0	489.5	489.9	490.3	490.6	490.8	490.9	490.9	491.0	490.9
147.5°	511.8	512.3	512.8	513.3	513.9	514.1	514.0	513.9	513.8	513.8	513.7
150°	525.9	526.4	526.8	527.3	527.7	527.9	527.9	527.9	527.9	527.9	527.9
152.5°	539.3	539.6	539.8	540.1	540.4	540.5	540.6	540.7	540.8	540.9	541.1
155°	559.8	559.8	559.8	559.8	559.8	559.7	559.6	559.6	559.5	559.3	559.7
157.5°	577.1	576.9	576.7	576.5	576.4	576.2	576.2	576.2	576.2	576.1	576.4
160°	587.3	587.2	587.1	587.0	586.9	586.8	586.7	586.6	586.4	586.3	586.7
162.5°	596.8	596.5	596.2	595.9	595.6	595.4	595.3	595.2	595.1	595.0	595.6
165°	609.4	609.1	608.7	608.5	608.1	607.9	607.6	607.4	607.2	607.0	607.6
167.5°	619.1	618.7	618.2	617.8	617.3	617.1	617.1	617.2	617.2	617.2	617.9
170°	624.7	624.1	623.5	623.0	622.4	622.2	622.3	622.4	622.6	622.7	623.4
172.5°	628.5	628.1	627.7	627.2	626.7	626.5	626.5	626.5	626.5	626.6	627.3
175°	634.0	633.4	632.9	632.3	631.8	631.5	631.4	631.3	631.1	631.0	631.8
177.5°	635.8	635.3	634.9	634.5	634.0	633.8	633.8	633.8	633.8	633.8	634.4
180°	635.0	635.0	635.0	635.0	635.0	635.0	635.0	635.0	635.0	635.0	635.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7
2.5°	1548.9	1551.2	1553.5	1554.6	1554.4	1554.2	1553.9	1553.8
5°	1538.5	1541.2	1543.9	1544.9	1544.4	1543.9	1543.3	1542.8
7.5°	1518.1	1519.8	1521.5	1521.9	1521.0	1520.2	1519.3	1518.5
10°	1499.7	1500.7	1501.8	1501.8	1500.7	1499.7	1498.6	1497.5
12.5°	1476.9	1477.6	1478.2	1477.7	1476.3	1474.8	1473.3	1471.9
15°	1437.0	1436.4	1435.9	1434.7	1432.9	1431.0	1429.2	1427.3
17.5°	1388.9	1387.4	1386.0	1383.8	1381.0	1378.2	1375.4	1372.5
20°	1355.2	1353.1	1351.0	1348.2	1344.8	1341.4	1337.9	1334.5
22.5°	1317.8	1314.7	1311.6	1308.5	1305.7	1303.0	1300.1	1297.4
25°	1257.6	1253.1	1248.6	1245.0	1242.4	1239.8	1237.1	1234.5
27.5°	1196.2	1190.7	1185.1	1180.4	1176.6	1172.8	1169.0	1165.2
30°	1152.2	1145.6	1138.9	1133.5	1129.3	1125.1	1120.8	1116.6
32.5°	1107.2	1099.6	1091.9	1086.1	1082.0	1078.0	1074.0	1070.0
35°	1040.3	1031.3	1022.3	1015.5	1010.6	1005.9	1001.2	996.3
37.5°	968.5	958.4	948.3	940.9	936.2	931.3	926.6	921.9
40°	920.6	909.5	898.4	890.4	885.7	880.9	876.2	871.4
42.5°	873.5	862.2	850.8	842.7	837.8	832.8	827.8	822.9
45°	801.4	788.4	775.5	766.6	761.9	757.1	752.3	747.6
47.5°	728.8	715.4	701.9	692.6	687.3	682.1	676.8	671.7
50°	680.6	667.4	654.2	645.1	640.1	635.0	630.0	625.0
52.5°	632.6	619.1	605.7	596.4	591.2	585.9	580.7	575.5
55°	561.7	548.0	534.3	524.9	519.8	514.8	509.8	504.7
57.5°	492.5	478.5	464.6	455.7	451.9	448.1	444.3	440.5
60°	446.3	432.5	418.8	409.7	405.5	401.3	397.1	392.9
62.5°	400.8	388.1	375.4	367.3	363.9	360.6	357.1	353.8
65°	335.5	324.2	312.8	305.6	302.4	299.2	296.0	292.8
67.5°	275.6	265.9	256.1	249.4	245.9	242.5	238.9	235.5
70°	234.9	226.2	217.5	211.7	209.1	206.5	203.8	201.2
72.5°	198.4	191.0	183.5	178.6	176.1	173.7	171.3	168.8
75°	146.2	140.1	134.0	130.2	128.5	127.0	125.4	123.8
77.5°	103.4	99.9	96.3	94.3	93.8	93.3	92.8	92.4
80°	79.4	78.6	77.7	77.2	77.0	76.7	76.5	76.2
82.5°	61.6	61.1	60.5	60.1	59.8	59.6	59.3	59.1
85°	35.8	35.3	34.8	34.5	34.5	34.5	34.5	34.5
87.5°	15.3	15.2	15.2	15.2	15.5	15.8	16.0	16.3
90°	12.1	12.7	13.4	13.9	14.1	14.3	14.6	14.7
92.5°	20.2	20.7	21.0	21.3	21.4	21.5	21.7	21.8
95°	38.0	38.3	38.7	38.8	38.8	38.8	38.8	38.8
97.5°	59.8	60.2	60.6	60.8	60.8	60.8	60.8	60.8
100°	75.6	75.8	76.0	76.1	76.1	76.1	76.1	76.1
102.5°	92.2	92.6	92.8	93.1	93.2	93.2	93.3	93.4
105°	117.5	117.9	118.2	118.5	118.8	119.2	119.5	119.9
107.5°	144.9	145.2	145.5	145.7	145.6	145.6	145.6	145.6
110°	163.1	162.9	162.6	162.7	163.1	163.3	163.7	164.0



TEST NUMBER: P332965-935

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	182.7	182.6	182.6	182.6	182.7	182.7	182.8	182.9
115°	212.9	212.8	212.7	212.6	212.5	212.3	212.2	212.2
117.5°	241.9	241.6	241.2	240.9	240.6	240.5	240.2	240.0
120°	261.7	261.1	260.5	260.4	260.6	260.8	261.1	261.2
122.5°	281.6	281.3	280.9	280.5	280.1	279.7	279.3	279.0
125°	310.9	310.6	310.5	310.2	310.0	309.8	309.6	309.4
127.5°	338.9	338.7	338.5	338.3	338.1	337.9	337.8	337.6
130°	358.5	358.3	358.1	357.7	357.3	356.9	356.5	356.0
132.5°	377.0	376.8	376.6	376.3	376.2	376.0	375.8	375.7
135°	404.7	404.5	404.2	404.0	403.6	403.3	403.0	402.7
137.5°	431.4	431.2	430.9	430.8	430.8	430.9	431.0	431.1
140°	449.1	449.0	448.9	448.8	448.7	448.6	448.5	448.3
142.5°	465.8	465.8	465.7	465.7	465.7	465.7	465.6	465.6
145°	490.9	490.8	490.6	490.4	490.1	489.7	489.4	489.1
147.5°	513.6	513.5	513.4	513.3	513.2	513.1	513.0	512.9
150°	527.9	527.9	527.9	527.9	527.7	527.6	527.5	527.4
152.5°	541.4	541.7	541.9	541.9	541.7	541.3	541.1	540.8
155°	560.2	560.6	561.1	561.1	560.6	560.2	559.7	559.3
157.5°	576.8	577.1	577.5	577.4	577.0	576.7	576.3	575.9
160°	587.0	587.3	587.6	587.5	587.0	586.4	585.9	585.4
162.5°	596.2	596.8	597.4	597.4	596.8	596.2	595.7	595.2
165°	608.3	608.9	609.6	609.7	609.2	608.8	608.4	608.0
167.5°	618.5	619.1	619.8	619.7	619.1	618.5	617.8	617.1
170°	624.0	624.7	625.3	625.3	624.5	623.7	622.9	622.2
172.5°	628.1	628.9	629.6	629.6	628.8	628.0	627.2	626.5
175°	632.6	633.4	634.0	634.0	633.4	632.6	631.8	631.0
177.5°	635.0	635.6	636.2	636.2	635.5	634.8	634.0	633.4
180°	635.0	635.0	635.0	635.0	635.0	635.0	635.0	635.0

(END OF REPORT)