

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: P332816-935

Luminaire Tested: **S124DIW-S1020D770U935-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332816-935
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-S1020D770U935-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 770 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6107.3 lumens
Efficiency: N/A
Efficacy: 113.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

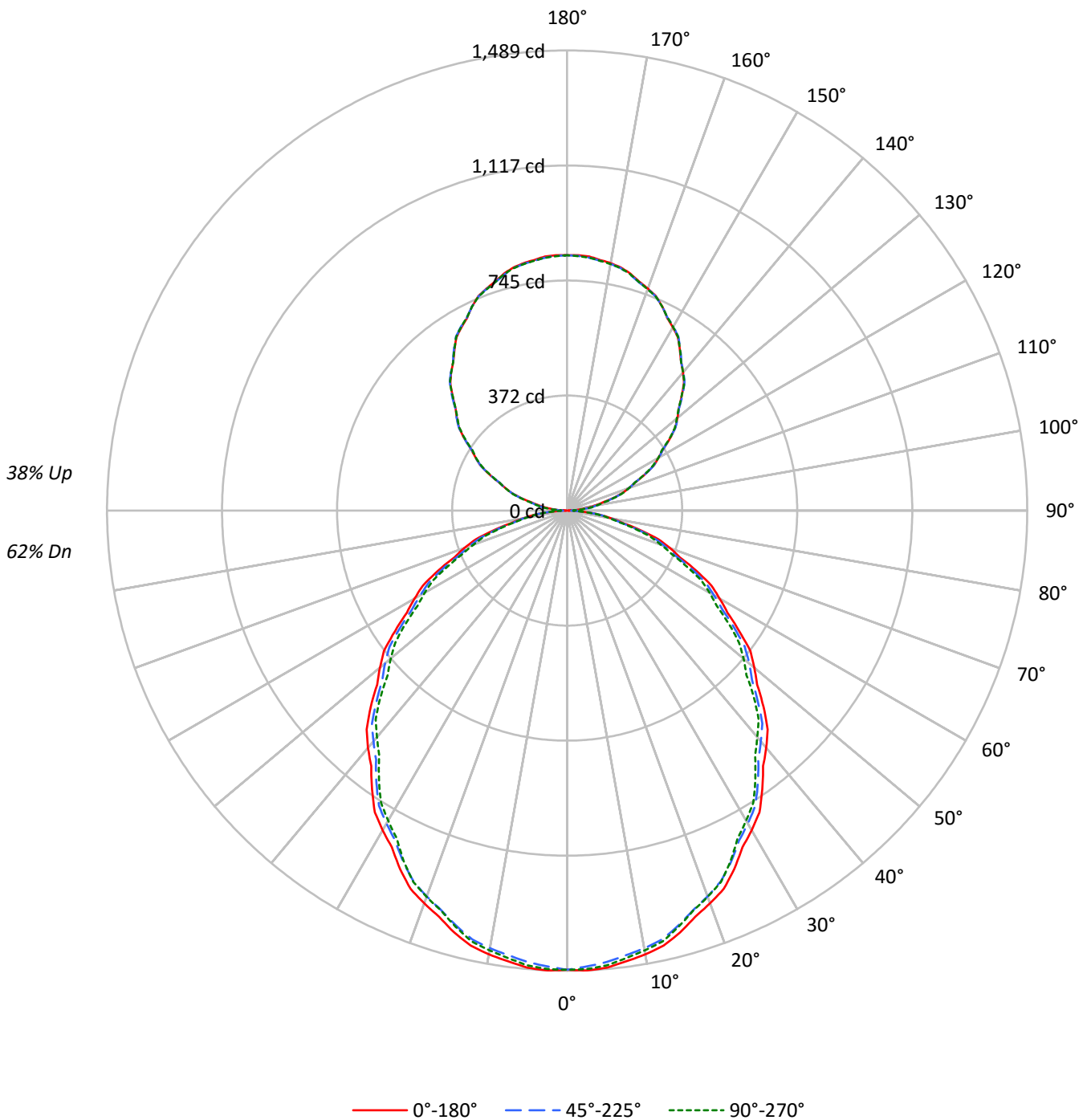
Input Watts (W): 53.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	68	68	68	62
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57	53
2	92	84	78	72	86	79	73	69	69	65	61	61	57	55	52	50	48	44
3	84	74	66	60	78	69	63	57	61	56	52	54	50	46	47	43	41	37
4	76	65	57	51	71	62	54	49	54	49	44	48	43	40	42	38	35	32
5	70	58	50	44	66	55	48	42	49	43	38	43	38	34	37	34	31	28
6	65	52	44	38	60	49	42	37	44	38	33	39	34	30	34	30	27	24
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24	22
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	29	25	22	19
9	52	39	32	27	49	37	30	26	34	28	24	30	25	22	26	22	20	17
10	49	36	29	24	46	34	28	23	31	25	21	28	23	19	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	11994	11994	11994
5°	12030	11885	11972
10°	11954	11788	11847
15°	11810	11621	11651
20°	11618	11413	11424
25°	11399	11176	11144
30°	11130	10897	10797
35°	10852	10606	10465
40°	10564	10275	10086
45°	10261	9949	9758
50°	9928	9658	9359
55°	9568	9282	8981
60°	9206	8861	8591
65°	8800	8458	8118
70°	8344	7924	7615
75°	7648	7277	7093
80°	6811	6527	6365
85°	5956	5734	5622



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.9	2.3
10°-20°	394.2	6.5
20°-30°	580.2	9.5
30°-40°	674.5	11.0
40°-50°	674.5	11.0
50°-60°	590.0	9.7
60°-70°	438.2	7.2
70°-80°	248.9	4.1
80°-90°	74.3	1.2
90°-100°	54.5	0.9
100°-110°	161.4	2.6
110°-120°	274.0	4.5
120°-130°	361.3	5.9
130°-140°	405.8	6.6
140°-150°	398.7	6.5
150°-160°	335.4	5.5
160°-170°	223.1	3.7
170°-180°	78.1	1.3
0°-30°	1114.3	18.2
0°-40°	1788.8	29.3
0°-60°	3053.4	50.0
0°-90°	3814.9	62.5
90°-120°	489.9	8.0
90°-150°	1655.8	27.1
90°-180°	2292.0	37.5
0°-180°	6107.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1486	1486	1486	1486	1486	
5°	1484	1479	1467	1479	1477	141
15°	1413	1408	1390	1397	1394	398
25°	1280	1271	1255	1256	1251	588
35°	1101	1092	1076	1068	1062	688
45°	899	890	871	859	855	693
55°	680	675	660	646	638	609
65°	461	454	443	431	425	456
75°	245	239	233	229	227	261
85°	64	64	62	62	61	71
90°	2	9	14	18	19	6
95°	38	44	49	50	50	43
105°	149	150	152	154	156	158
115°	279	278	277	277	276	275
125°	406	406	405	404	403	362
135°	523	527	527	526	524	405
145°	636	638	639	638	636	398
155°	728	728	728	730	728	335
165°	793	791	790	793	791	223
175°	825	822	821	825	821	78
180°	826	826	826	826	826	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7
2.5°	1489.4	1488.8	1488.2	1487.5	1486.9	1485.4	1483.1	1480.7	1478.4	1476.1	1478.3
5°	1484.5	1483.4	1482.4	1481.3	1480.2	1478.3	1475.3	1472.4	1469.6	1466.6	1469.6
7.5°	1470.7	1469.6	1468.5	1467.5	1466.5	1464.3	1461.0	1457.8	1454.6	1451.4	1453.7
10°	1458.3	1457.2	1456.1	1455.1	1454.1	1451.8	1448.4	1444.9	1441.5	1438.0	1440.1
12.5°	1442.1	1441.1	1439.9	1438.9	1437.9	1435.5	1431.8	1428.2	1424.5	1420.9	1423.2
15°	1413.1	1412.0	1410.9	1409.9	1408.8	1406.3	1402.3	1398.4	1394.4	1390.4	1392.0
17.5°	1378.0	1376.7	1375.4	1374.1	1372.8	1370.2	1366.4	1362.7	1358.9	1355.2	1356.2
20°	1352.3	1351.0	1349.7	1348.3	1347.0	1344.4	1340.4	1336.4	1332.5	1328.5	1329.3
22.5°	1324.7	1322.9	1321.2	1319.5	1317.8	1314.8	1310.9	1306.9	1303.0	1299.0	1300.5
25°	1279.7	1277.9	1276.0	1274.1	1272.3	1269.5	1265.8	1262.1	1258.4	1254.7	1255.0
27.5°	1228.3	1226.4	1224.4	1222.5	1220.6	1218.0	1214.5	1211.1	1207.6	1204.2	1203.6
30°	1194.0	1191.9	1189.7	1187.7	1185.5	1182.8	1179.3	1175.9	1172.4	1169.0	1167.9
32.5°	1157.8	1155.9	1154.0	1152.1	1150.2	1147.4	1143.8	1140.1	1136.4	1132.8	1131.5
35°	1101.1	1099.3	1097.4	1095.6	1093.7	1091.0	1087.3	1083.6	1079.9	1076.2	1074.3
37.5°	1041.4	1039.7	1038.0	1036.3	1034.6	1031.8	1027.8	1023.8	1019.9	1015.9	1013.9
40°	1002.4	1000.2	998.1	996.0	993.9	990.8	986.9	982.9	979.0	975.0	972.3
42.5°	960.4	959.2	957.9	956.7	955.4	952.5	948.1	943.7	939.4	935.0	931.9
45°	898.8	896.9	895.1	893.2	891.4	888.3	884.1	879.9	875.6	871.4	868.5
47.5°	834.2	833.0	831.7	830.4	829.1	826.6	822.7	818.7	814.9	810.9	807.6
50°	790.5	789.4	788.3	787.3	786.2	783.9	780.2	776.4	772.7	769.0	765.3
52.5°	747.6	746.3	745.0	743.8	742.5	739.9	736.0	732.1	728.1	724.3	721.0
55°	679.8	678.9	678.1	677.3	676.6	674.3	670.6	666.9	663.2	659.5	656.3
57.5°	615.0	614.1	613.2	612.3	611.4	609.1	605.5	601.8	598.1	594.5	591.5
60°	570.2	568.9	567.6	566.3	564.9	562.6	559.1	555.7	552.2	548.8	546.4
62.5°	526.4	525.3	524.2	523.1	521.9	519.6	515.9	512.3	508.6	505.0	502.8
65°	460.7	459.3	458.1	456.8	455.4	453.4	450.7	448.2	445.5	442.8	440.2
67.5°	394.5	393.3	392.1	390.9	389.6	387.8	385.2	382.7	380.1	377.6	375.1
70°	353.5	351.7	349.8	348.0	346.1	344.1	342.1	339.9	337.9	335.7	333.6
72.5°	309.8	307.9	306.1	304.2	302.4	300.6	298.9	297.2	295.5	293.8	292.1
75°	245.2	243.9	242.5	241.3	240.0	238.6	237.3	236.0	234.6	233.3	232.3
77.5°	183.6	183.0	182.4	181.8	181.2	180.4	179.2	178.1	176.8	175.7	175.4
80°	146.5	145.6	144.8	144.0	143.3	142.6	142.1	141.5	141.0	140.4	139.9
82.5°	110.2	109.9	109.5	109.1	108.7	108.5	108.4	108.3	108.2	108.1	107.8
85°	64.3	64.3	64.3	64.3	64.3	64.1	63.5	62.9	62.4	61.9	61.9
87.5°	25.1	25.2	25.3	25.5	25.6	25.6	25.7	25.7	25.7	25.7	25.8
90°	1.9	3.4	5.1	6.6	8.2	9.6	10.7	11.8	12.9	14.0	14.9
92.5°	13.7	15.5	17.2	19.0	20.8	22.1	22.9	23.7	24.5	25.3	25.8
95°	38.3	39.6	40.9	42.2	43.5	44.6	45.5	46.6	47.6	48.6	49.0
97.5°	67.0	68.0	69.1	70.0	71.0	72.2	73.4	74.5	75.7	76.8	77.3
100°	89.5	90.1	90.6	91.2	91.7	92.6	93.9	95.2	96.5	97.8	98.1
102.5°	113.0	113.2	113.4	113.7	113.9	114.6	115.7	116.9	118.0	119.2	119.7
105°	148.9	149.0	149.2	149.3	149.5	149.8	150.4	150.9	151.5	152.1	152.5
107.5°	186.6	186.8	186.9	187.1	187.3	187.4	187.5	187.6	187.7	187.8	188.1
110°	212.2	212.4	212.8	213.0	213.3	213.4	213.2	213.1	212.9	212.8	212.5



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	238.8	238.8	238.8	238.9	238.9	238.8	238.6	238.3	238.1	237.8	237.8
115°	278.6	278.6	278.6	278.6	278.6	278.4	278.2	277.9	277.6	277.3	277.2
117.5°	316.2	316.3	316.4	316.5	316.7	316.6	316.4	316.2	316.0	315.8	315.3
120°	341.2	341.8	342.3	342.9	343.5	343.5	343.2	342.8	342.3	341.9	341.1
122.5°	367.3	367.6	367.7	368.0	368.2	368.2	368.1	367.8	367.6	367.5	367.0
125°	405.8	405.8	405.8	405.8	405.8	405.7	405.5	405.4	405.3	405.1	404.8
127.5°	440.7	441.1	441.5	442.0	442.4	442.5	442.2	442.0	441.8	441.6	441.3
130°	465.2	465.6	466.1	466.5	466.9	467.1	467.1	467.1	467.1	467.1	466.8
132.5°	490.3	490.6	490.9	491.2	491.5	491.6	491.5	491.4	491.3	491.1	490.9
135°	523.4	524.2	525.0	525.9	526.8	527.2	527.2	527.2	527.2	527.2	526.9
137.5°	559.4	559.8	560.2	560.6	561.0	561.3	561.5	561.7	562.0	562.2	561.8
140°	583.4	583.7	584.0	584.3	584.5	584.7	584.7	584.7	584.7	584.7	584.5
142.5°	605.4	605.7	606.0	606.2	606.6	606.7	606.5	606.4	606.3	606.1	606.1
145°	635.8	636.4	637.0	637.6	638.1	638.4	638.6	638.8	638.9	639.0	638.9
147.5°	666.0	666.7	667.4	668.0	668.7	669.0	668.9	668.7	668.7	668.6	668.4
150°	684.4	684.9	685.5	686.1	686.6	687.0	687.0	687.0	687.0	687.0	687.0
152.5°	701.8	702.1	702.5	702.8	703.2	703.4	703.4	703.6	703.7	703.8	704.1
155°	728.5	728.5	728.5	728.5	728.5	728.4	728.2	728.1	728.0	727.9	728.4
157.5°	751.0	750.7	750.4	750.2	749.9	749.8	749.8	749.8	749.8	749.7	750.1
160°	764.3	764.1	764.0	763.9	763.7	763.5	763.4	763.3	763.1	763.0	763.4
162.5°	776.5	776.2	775.8	775.4	775.1	774.8	774.6	774.6	774.4	774.2	775.0
165°	793.1	792.6	792.2	791.8	791.3	791.0	790.7	790.4	790.1	789.8	790.7
167.5°	805.6	805.1	804.5	803.9	803.3	803.0	803.1	803.1	803.1	803.1	804.0
170°	812.9	812.1	811.4	810.7	810.0	809.7	809.9	810.0	810.1	810.3	811.1
172.5°	817.9	817.3	816.7	816.1	815.5	815.3	815.3	815.4	815.4	815.4	816.4
175°	825.0	824.2	823.5	822.9	822.2	821.7	821.6	821.4	821.3	821.1	822.2
177.5°	827.2	826.7	826.1	825.6	825.0	824.8	824.8	824.8	824.8	824.8	825.5
180°	826.2	826.2	826.2	826.2	826.2	826.2	826.2	826.2	826.2	826.2	826.2



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7	1485.7
2.5°	1480.3	1482.5	1484.6	1485.6	1485.3	1485.1	1484.9	1484.7
5°	1472.4	1475.3	1478.3	1479.5	1478.9	1478.3	1477.8	1477.3
7.5°	1456.0	1458.4	1460.7	1461.7	1461.4	1461.0	1460.7	1460.4
10°	1442.3	1444.4	1446.5	1447.3	1446.7	1446.2	1445.7	1445.2
12.5°	1425.6	1427.9	1430.2	1431.0	1430.3	1429.5	1428.7	1428.1
15°	1393.6	1395.2	1396.8	1397.1	1396.4	1395.6	1394.8	1394.0
17.5°	1357.2	1358.2	1359.2	1359.4	1358.9	1358.4	1357.9	1357.3
20°	1330.1	1330.9	1331.7	1331.8	1331.3	1330.8	1330.2	1329.7
22.5°	1301.8	1303.3	1304.7	1304.9	1304.0	1303.0	1302.1	1301.1
25°	1255.3	1255.5	1255.8	1255.3	1254.3	1253.3	1252.2	1251.1
27.5°	1203.0	1202.3	1201.7	1200.8	1199.4	1198.1	1196.7	1195.4
30°	1166.9	1165.8	1164.8	1163.6	1162.3	1160.9	1159.6	1158.3
32.5°	1130.2	1129.0	1127.7	1126.4	1125.1	1123.8	1122.5	1121.1
35°	1072.5	1070.6	1068.8	1067.1	1065.8	1064.5	1063.2	1061.9
37.5°	1011.8	1009.9	1007.9	1006.0	1004.3	1002.5	1000.7	999.0
40°	969.7	967.0	964.4	962.4	961.0	959.8	958.5	957.1
42.5°	928.8	925.7	922.6	920.7	919.8	918.9	918.0	917.1
45°	865.6	862.6	859.7	857.9	857.1	856.4	855.5	854.7
47.5°	804.3	801.1	797.8	795.1	793.2	791.1	789.1	787.1
50°	761.6	757.9	754.2	751.6	749.9	748.4	746.8	745.2
52.5°	717.7	714.4	711.1	708.5	706.5	704.5	702.5	700.4
55°	653.2	650.0	646.8	644.5	642.8	641.3	639.6	638.1
57.5°	588.5	585.5	582.5	580.1	578.6	577.1	575.6	574.0
60°	544.1	541.7	539.2	537.4	536.1	534.8	533.5	532.1
62.5°	500.7	498.4	496.3	494.6	493.3	491.9	490.6	489.3
65°	437.6	434.9	432.2	430.2	429.0	427.7	426.3	425.0
67.5°	372.6	370.0	367.5	366.0	365.6	365.2	364.9	364.5
70°	331.5	329.3	327.3	325.8	325.0	324.2	323.4	322.6
72.5°	290.4	288.7	287.1	285.8	285.0	284.2	283.4	282.6
75°	231.2	230.1	229.1	228.4	228.2	227.9	227.6	227.4
77.5°	175.0	174.8	174.4	173.9	173.2	172.5	171.9	171.2
80°	139.4	138.9	138.4	137.9	137.7	137.4	137.2	136.9
82.5°	107.5	107.1	106.9	106.5	106.2	106.0	105.7	105.5
85°	61.9	61.9	61.9	61.7	61.5	61.2	61.0	60.7
87.5°	26.0	26.2	26.3	26.4	26.5	26.6	26.6	26.7
90°	15.8	16.6	17.5	18.0	18.3	18.6	18.9	19.2
92.5°	26.3	26.9	27.4	27.7	27.9	28.1	28.2	28.4
95°	49.4	49.9	50.3	50.5	50.5	50.5	50.5	50.5
97.5°	77.8	78.4	78.9	79.1	79.1	79.1	79.1	79.1
100°	98.3	98.6	98.9	99.0	99.0	99.0	99.0	99.0
102.5°	120.0	120.5	120.8	121.1	121.2	121.3	121.4	121.6
105°	152.9	153.3	153.8	154.2	154.6	155.1	155.5	155.9
107.5°	188.6	188.9	189.3	189.5	189.5	189.5	189.4	189.4
110°	212.2	212.0	211.6	211.7	212.2	212.6	213.0	213.4



TEST NUMBER: P332816-935

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	237.7	237.6	237.6	237.6	237.7	237.8	237.9	238.0
115°	277.1	276.9	276.7	276.6	276.5	276.4	276.2	276.0
117.5°	314.9	314.4	313.8	313.5	313.2	312.9	312.6	312.4
120°	340.4	339.8	339.1	338.8	339.1	339.4	339.7	339.9
122.5°	366.4	366.0	365.5	365.0	364.5	363.9	363.5	363.0
125°	404.6	404.3	404.0	403.7	403.5	403.1	402.9	402.6
127.5°	441.0	440.7	440.4	440.1	440.0	439.7	439.5	439.3
130°	466.6	466.2	466.0	465.5	465.0	464.4	463.8	463.3
132.5°	490.6	490.3	490.0	489.7	489.6	489.3	489.0	488.9
135°	526.6	526.3	526.1	525.7	525.3	524.9	524.4	524.0
137.5°	561.5	561.1	560.8	560.6	560.7	560.8	560.9	560.9
140°	584.4	584.3	584.1	584.0	583.8	583.7	583.6	583.4
142.5°	606.1	606.1	606.1	606.1	606.0	606.0	606.0	605.9
145°	638.8	638.6	638.4	638.2	637.7	637.3	636.9	636.5
147.5°	668.3	668.2	668.0	668.0	667.8	667.7	667.5	667.4
150°	687.0	687.0	687.0	686.9	686.7	686.6	686.5	686.3
152.5°	704.5	704.8	705.2	705.2	704.8	704.5	704.0	703.7
155°	729.0	729.5	730.1	730.1	729.5	729.0	728.4	727.9
157.5°	750.5	751.0	751.4	751.4	750.9	750.4	749.9	749.4
160°	763.9	764.3	764.7	764.6	763.9	763.1	762.4	761.7
162.5°	775.8	776.5	777.3	777.3	776.6	775.9	775.2	774.5
165°	791.5	792.4	793.2	793.4	792.8	792.2	791.7	791.1
167.5°	804.9	805.6	806.5	806.5	805.6	804.8	803.9	803.0
170°	812.0	812.9	813.7	813.6	812.6	811.7	810.6	809.7
172.5°	817.3	818.3	819.2	819.2	818.2	817.3	816.2	815.3
175°	823.1	824.1	825.1	825.1	824.1	823.1	822.2	821.1
177.5°	826.3	827.1	827.9	827.9	826.9	826.0	825.1	824.2
180°	826.2	826.2	826.2	826.2	826.2	826.2	826.2	826.2

(END OF REPORT)