

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: P332214-935

Luminaire Tested: **S123DIW-S1165D460U935-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332214-935
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DIW-S1165D460U935-4F0-1E-UDD-F
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1165 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 460 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5685.0 lumens
Efficiency: N/A
Efficacy: 108.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')
CIE Type: Semi-Direct

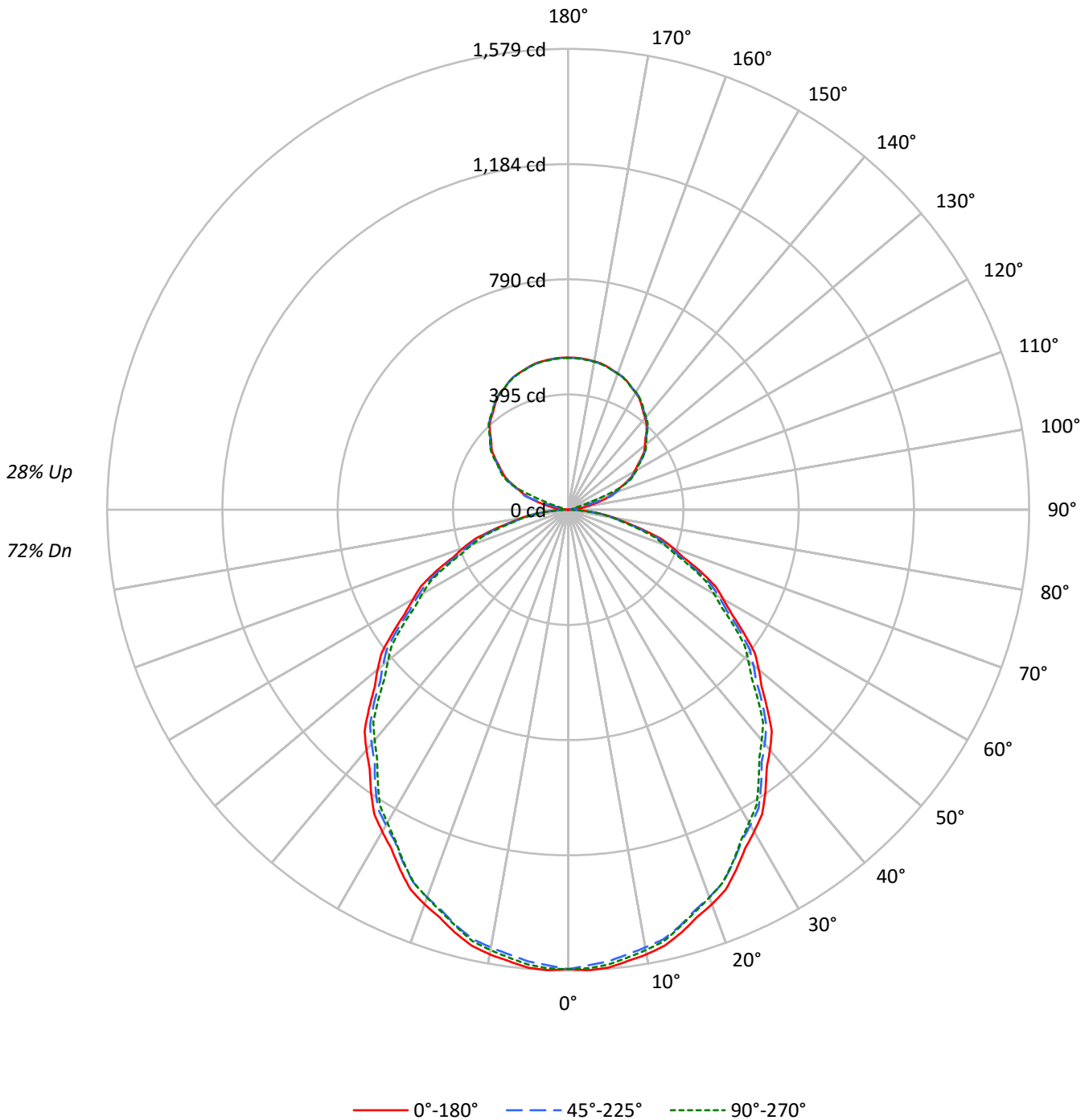
Input Watts (W): 52.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	76	76	76	72
1	103	98	94	90	97	93	90	86	84	81	79	75	73	71	67	66	64	61
2	93	86	79	74	88	81	76	71	73	69	65	66	63	59	59	57	54	51
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	53	49	46	43
4	78	67	58	52	74	64	56	50	58	52	47	52	47	43	47	43	40	37
5	72	60	51	45	68	57	49	43	52	45	40	47	42	37	42	38	35	32
6	66	54	45	39	63	51	43	38	47	40	35	42	37	33	38	34	30	28
7	61	49	40	34	58	46	39	33	42	36	31	39	33	29	35	31	27	25
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	28	24	22
9	53	40	33	27	50	39	32	27	36	29	25	33	27	24	30	25	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	16942	16942	16942
5°	17022	16788	16904
10°	16909	16642	16746
15°	16711	16454	16485
20°	16479	16186	16200
25°	16170	15865	15833
30°	15830	15509	15392
35°	15473	15135	14939
40°	15100	14720	14491
45°	14690	14338	13988
50°	14277	13870	13485
55°	13741	13386	12979
60°	13199	12820	12411
65°	12720	12202	11826
70°	12013	11500	10990
75°	10975	10580	10131
80°	9899	9478	9397
85°	8682	8361	8028



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	148.3	2.6
10°-20°	418.7	7.4
20°-30°	618.4	10.9
30°-40°	722.4	12.7
40°-50°	726.3	12.8
50°-60°	638.0	11.2
60°-70°	475.3	8.4
70°-80°	270.8	4.8
80°-90°	79.2	1.4
90°-100°	18.9	0.3
100°-110°	90.2	1.6
110°-120°	216.7	3.8
120°-130°	276.0	4.9
130°-140°	294.8	5.2
140°-150°	275.7	4.8
150°-160°	222.4	3.9
160°-170°	143.5	2.5
170°-180°	49.5	0.9
0°-30°	1185.3	20.9
0°-40°	1907.7	33.6
0°-60°	3272.0	57.6
0°-90°	4097.2	72.1
90°-120°	325.9	5.7
90°-150°	1172.4	20.6
90°-180°	1588.0	27.9
0°-180°	5685.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1574	1574	1574	1574	1574	
5°	1575	1568	1554	1566	1564	149
15°	1500	1494	1476	1486	1479	423
25°	1362	1353	1336	1337	1333	627
35°	1178	1169	1152	1144	1137	736
45°	965	959	942	926	919	745
55°	732	730	713	699	692	656
65°	499	492	479	469	464	493
75°	264	259	254	248	244	282
85°	70	68	68	65	65	77
90°	0	4	9	11	12	5
95°	24	9	12	15	15	29
105°	115	117	85	20	17	122
115°	216	219	222	226	228	213
125°	305	308	309	310	311	272
135°	379	382	383	384	383	292
145°	438	440	441	442	442	274
155°	482	482	482	484	482	222
165°	509	508	507	510	508	144
175°	521	519	519	522	519	50
180°	521	521	521	521	521	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0
2.5°	1579.4	1578.5	1577.5	1576.6	1575.5	1573.7	1571.2	1568.5	1565.8	1563.1	1565.6
5°	1575.4	1573.9	1572.4	1570.9	1569.3	1566.9	1563.7	1560.3	1557.0	1553.7	1556.7
7.5°	1560.0	1558.4	1556.9	1555.4	1553.9	1551.4	1548.0	1544.6	1541.2	1537.7	1540.4
10°	1547.0	1545.4	1543.9	1542.4	1540.9	1538.3	1534.3	1530.4	1526.5	1522.6	1525.3
12.5°	1529.7	1528.4	1527.1	1525.9	1524.6	1522.1	1518.5	1514.8	1511.1	1507.4	1509.4
15°	1499.6	1498.4	1497.2	1496.0	1494.8	1492.2	1488.3	1484.4	1480.5	1476.5	1478.9
17.5°	1464.6	1463.1	1461.5	1460.0	1458.4	1455.7	1451.7	1447.9	1443.9	1440.0	1441.7
20°	1438.6	1436.8	1435.0	1433.2	1431.5	1428.6	1424.7	1420.8	1416.9	1413.0	1414.2
22.5°	1409.5	1407.6	1405.8	1404.0	1402.2	1399.4	1395.4	1391.5	1387.7	1383.7	1384.7
25°	1361.5	1359.7	1357.9	1356.1	1354.4	1351.4	1347.6	1343.7	1339.7	1335.8	1336.1
27.5°	1310.4	1308.6	1306.9	1305.1	1303.4	1300.5	1296.2	1292.0	1287.8	1283.6	1283.8
30°	1273.6	1272.0	1270.6	1269.0	1267.6	1264.7	1260.5	1256.3	1252.1	1247.8	1247.8
32.5°	1236.7	1234.8	1232.8	1230.8	1228.8	1226.2	1223.0	1219.7	1216.4	1213.2	1211.5
35°	1177.5	1175.7	1173.9	1172.1	1170.3	1167.4	1163.5	1159.6	1155.6	1151.8	1150.0
37.5°	1116.8	1114.6	1112.2	1110.0	1107.7	1104.6	1100.6	1096.7	1092.7	1088.6	1086.5
40°	1074.6	1072.8	1071.0	1069.2	1067.4	1064.4	1060.1	1055.9	1051.7	1047.6	1045.2
42.5°	1032.3	1030.4	1028.3	1026.2	1024.2	1021.1	1016.8	1012.6	1008.4	1004.3	1001.9
45°	965.0	963.8	962.6	961.4	960.2	957.6	953.7	949.8	945.9	941.9	938.4
47.5°	898.1	896.4	894.7	892.9	891.1	888.5	884.8	881.1	877.4	873.7	870.2
50°	852.6	851.2	849.6	848.2	846.6	844.0	840.0	836.1	832.2	828.3	825.0
52.5°	805.0	804.0	803.0	801.9	800.9	798.3	794.2	790.1	785.9	781.7	778.9
55°	732.2	731.9	731.6	731.3	731.0	728.9	725.0	721.1	717.1	713.3	710.0
57.5°	662.9	661.9	660.8	659.9	658.8	656.8	653.6	650.5	647.4	644.2	641.3
60°	613.1	612.8	612.5	612.2	611.9	609.9	606.3	602.7	599.1	595.5	592.8
62.5°	568.7	567.9	567.1	566.4	565.6	563.4	559.7	556.1	552.6	549.0	546.2
65°	499.4	497.9	496.4	494.9	493.4	491.1	488.1	485.1	482.1	479.1	476.7
67.5°	426.0	424.7	423.4	422.1	420.8	419.0	416.6	414.4	412.1	409.8	407.7
70°	381.7	379.9	378.1	376.3	374.4	372.6	370.8	369.0	367.2	365.4	363.3
72.5°	335.1	333.8	332.4	331.1	329.8	328.1	326.1	324.0	322.0	319.9	318.1
75°	263.9	262.7	261.5	260.3	259.1	258.0	257.2	256.2	255.4	254.4	253.0
77.5°	200.9	200.2	199.5	198.9	198.2	197.3	196.2	195.2	194.1	193.0	192.0
80°	159.7	158.8	157.9	157.0	156.1	155.3	154.7	154.1	153.5	152.9	152.7
82.5°	119.7	119.4	119.2	119.1	118.9	118.7	118.6	118.6	118.4	118.3	117.8
85°	70.3	69.7	69.1	68.5	67.9	67.7	67.7	67.7	67.7	67.7	67.1
87.5°	28.2	27.6	27.1	26.6	26.0	25.7	25.7	25.7	25.7	25.7	25.5
90°	0.3	1.2	2.1	2.9	3.8	4.8	5.9	7.1	8.2	9.3	9.6
92.5°	7.2	7.0	6.7	6.5	6.2	6.5	7.4	8.2	9.0	9.9	10.4
95°	23.6	20.1	16.5	13.0	9.5	8.2	9.1	10.1	11.0	12.0	12.6
97.5°	47.4	45.8	44.3	42.7	41.1	37.2	31.0	24.8	18.7	12.5	13.2
100°	65.3	67.1	68.8	70.5	72.2	66.4	53.0	39.6	26.2	12.7	13.4
102.5°	85.8	87.0	88.3	89.5	90.7	84.0	69.4	54.8	40.1	25.5	23.3
105°	115.3	116.2	117.2	118.1	119.1	115.6	107.9	100.2	92.5	84.7	69.5
107.5°	146.4	147.1	147.9	148.6	149.4	150.4	151.6	152.8	154.0	155.2	144.1
110°	167.1	167.8	168.5	169.2	169.9	170.7	171.6	172.5	173.5	174.4	171.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	186.9	187.5	188.1	188.7	189.4	190.2	191.1	192.1	193.0	194.0	194.0
115°	216.2	216.7	217.2	217.7	218.3	219.0	219.7	220.5	221.3	222.1	222.9
117.5°	244.6	245.3	245.9	246.5	247.2	247.7	248.1	248.5	248.9	249.3	249.9
120°	262.3	263.0	263.8	264.6	265.4	265.9	266.1	266.4	266.7	266.9	267.6
122.5°	280.3	280.9	281.5	282.1	282.8	283.3	283.6	283.9	284.2	284.6	285.0
125°	304.8	305.5	306.2	306.9	307.5	308.1	308.4	308.8	309.1	309.4	309.6
127.5°	328.6	329.3	330.0	330.7	331.4	331.9	332.3	332.8	333.2	333.6	333.9
130°	343.5	344.2	344.9	345.6	346.3	346.8	347.2	347.5	347.8	348.1	348.4
132.5°	357.7	358.4	359.1	359.8	360.5	360.9	361.3	361.5	361.8	362.1	362.4
135°	379.4	380.0	380.5	381.0	381.5	381.9	382.3	382.6	383.0	383.3	383.6
137.5°	398.0	398.7	399.3	400.0	400.6	401.1	401.3	401.5	401.7	401.8	402.3
140°	410.4	411.0	411.5	412.0	412.5	412.8	413.1	413.4	413.6	413.9	414.2
142.5°	421.9	422.4	422.9	423.4	424.0	424.3	424.6	424.8	425.1	425.3	425.6
145°	437.9	438.5	439.1	439.7	440.3	440.7	440.8	441.0	441.2	441.3	441.5
147.5°	453.0	453.4	453.7	454.2	454.5	454.9	455.0	455.2	455.4	455.6	455.7
150°	462.3	462.5	462.8	463.0	463.3	463.5	463.6	463.8	464.0	464.2	464.3
152.5°	470.6	470.7	470.9	471.0	471.1	471.2	471.3	471.4	471.5	471.7	471.9
155°	482.3	482.2	482.0	481.9	481.7	481.6	481.7	481.8	481.9	482.0	482.4
157.5°	491.5	491.5	491.5	491.5	491.5	491.4	491.3	491.2	491.1	491.0	491.5
160°	497.1	497.0	496.9	496.8	496.7	496.6	496.5	496.5	496.4	496.3	496.8
162.5°	502.3	502.1	501.9	501.7	501.4	501.3	501.2	501.1	501.0	500.9	501.5
165°	508.7	508.4	508.2	507.9	507.6	507.5	507.4	507.3	507.2	507.1	507.8
167.5°	513.7	513.3	513.0	512.6	512.3	512.1	512.1	512.1	512.1	512.1	512.8
170°	516.4	516.1	515.7	515.4	515.1	514.9	514.9	514.9	514.9	514.9	515.6
172.5°	518.2	517.9	517.5	517.0	516.6	516.4	516.5	516.6	516.7	516.7	517.4
175°	520.6	520.2	519.8	519.4	518.9	518.8	518.8	518.9	519.0	519.1	519.7
177.5°	521.2	520.9	520.6	520.2	519.9	519.8	519.9	519.9	520.0	520.0	520.6
180°	520.6	520.6	520.6	520.6	520.6	520.6	520.6	520.6	520.6	520.6	520.6



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0
2.5°	1568.0	1570.4	1572.8	1573.9	1573.6	1573.4	1573.1	1573.0
5°	1559.7	1562.7	1565.7	1566.9	1566.3	1565.7	1565.1	1564.5
7.5°	1543.2	1545.8	1548.6	1549.7	1549.4	1549.0	1548.7	1548.3
10°	1528.0	1530.7	1533.4	1534.5	1533.9	1533.3	1532.7	1532.1
12.5°	1511.4	1513.4	1515.4	1516.2	1515.8	1515.4	1515.1	1514.8
15°	1481.4	1483.8	1486.2	1486.5	1484.7	1482.9	1481.1	1479.3
17.5°	1443.4	1445.1	1446.7	1447.3	1446.7	1446.0	1445.3	1444.7
20°	1415.4	1416.6	1417.8	1417.9	1417.0	1416.1	1415.2	1414.3
22.5°	1385.7	1386.6	1387.6	1387.5	1386.4	1385.2	1384.1	1382.9
25°	1336.4	1336.7	1337.0	1336.7	1335.8	1334.9	1334.0	1333.1
27.5°	1284.1	1284.3	1284.5	1284.1	1283.0	1281.8	1280.7	1279.5
30°	1247.8	1247.8	1247.8	1246.8	1244.7	1242.6	1240.4	1238.4
32.5°	1209.8	1208.2	1206.4	1205.1	1203.9	1202.7	1201.6	1200.5
35°	1148.1	1146.3	1144.5	1142.9	1141.3	1139.9	1138.3	1136.9
37.5°	1084.3	1082.2	1080.0	1078.5	1077.5	1076.5	1075.6	1074.6
40°	1042.8	1040.3	1037.9	1036.1	1034.9	1033.7	1032.5	1031.3
42.5°	999.4	997.0	994.6	992.8	991.6	990.4	989.2	988.0
45°	934.8	931.2	927.6	925.0	923.5	922.0	920.5	918.9
47.5°	866.7	863.2	859.5	857.1	855.8	854.5	853.2	851.9
50°	821.7	818.4	815.0	812.5	810.7	808.9	807.1	805.3
52.5°	776.1	773.3	770.4	768.1	766.3	764.5	762.7	760.9
55°	706.6	703.4	700.0	697.6	696.1	694.6	693.1	691.6
57.5°	638.3	635.4	632.4	630.1	628.4	626.6	624.8	623.1
60°	590.1	587.4	584.7	582.6	581.1	579.5	578.1	576.5
62.5°	543.5	540.8	538.1	536.2	535.2	534.2	533.2	532.2
65°	474.3	471.9	469.5	467.9	466.9	466.1	465.1	464.3
67.5°	405.6	403.5	401.4	399.7	398.5	397.2	395.9	394.7
70°	361.2	359.1	357.0	355.2	353.7	352.1	350.7	349.2
72.5°	316.2	314.4	312.5	311.2	310.4	309.6	308.8	308.1
75°	251.4	249.9	248.4	247.2	246.3	245.4	244.5	243.6
77.5°	191.0	189.9	188.9	188.4	188.4	188.4	188.4	188.4
80°	152.3	152.1	151.7	151.6	151.6	151.6	151.6	151.6
82.5°	117.2	116.7	116.1	115.7	115.5	115.3	115.0	114.8
85°	66.5	65.9	65.3	65.0	65.0	65.0	65.0	65.0
87.5°	25.3	25.1	25.0	24.9	25.0	25.0	25.1	25.1
90°	10.0	10.3	10.7	10.9	11.1	11.3	11.5	11.6
92.5°	11.0	11.5	12.1	12.4	12.6	12.7	12.7	12.8
95°	13.2	13.8	14.4	14.7	14.7	14.7	14.7	14.7
97.5°	13.9	14.6	15.2	15.6	15.7	15.8	15.8	15.9
100°	14.1	14.8	15.5	15.9	16.0	16.1	16.2	16.3
102.5°	21.2	19.0	17.0	15.9	16.1	16.3	16.4	16.5
105°	54.2	39.1	23.8	16.4	16.5	16.7	16.9	17.0
107.5°	132.9	121.8	110.6	99.4	87.8	76.4	64.9	53.5
110°	168.8	165.9	163.1	155.6	143.3	131.0	118.6	106.4



TEST NUMBER: P332214-935

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	194.1	194.1	194.2	192.9	190.3	187.7	185.1	182.5
115°	223.8	224.6	225.5	226.1	226.4	226.8	227.1	227.5
117.5°	250.6	251.3	252.0	252.4	252.4	252.5	252.6	252.7
120°	268.3	269.0	269.7	270.0	270.0	270.0	270.0	270.0
122.5°	285.5	286.0	286.5	286.7	286.8	286.9	287.0	287.1
125°	309.8	310.0	310.1	310.3	310.5	310.6	310.8	311.0
127.5°	334.2	334.4	334.7	334.8	334.6	334.4	334.2	334.1
130°	348.8	349.1	349.5	349.6	349.4	349.2	349.0	348.9
132.5°	362.7	363.1	363.4	363.5	363.3	363.0	362.7	362.6
135°	383.8	384.1	384.4	384.4	384.1	383.8	383.6	383.3
137.5°	402.7	403.0	403.5	403.6	403.5	403.3	403.1	402.9
140°	414.6	414.9	415.3	415.3	415.2	415.0	414.8	414.7
142.5°	425.9	426.2	426.5	426.5	426.2	426.0	425.8	425.5
145°	441.7	441.9	442.0	442.1	442.1	442.1	442.1	442.1
147.5°	455.9	456.1	456.2	456.1	455.7	455.3	455.0	454.5
150°	464.5	464.7	464.9	464.9	464.6	464.3	464.1	463.8
152.5°	472.3	472.5	472.9	472.8	472.4	472.0	471.7	471.2
155°	482.8	483.3	483.7	483.6	483.1	482.6	482.1	481.6
157.5°	492.1	492.6	493.1	493.0	492.3	491.7	491.0	490.3
160°	497.3	497.8	498.3	498.3	497.7	497.1	496.5	495.9
162.5°	502.1	502.7	503.3	503.3	502.7	502.2	501.7	501.2
165°	508.5	509.2	509.9	509.9	509.3	508.8	508.2	507.6
167.5°	513.5	514.1	514.8	514.8	514.1	513.5	512.8	512.1
170°	516.3	516.9	517.6	517.6	516.9	516.3	515.6	514.9
172.5°	518.1	518.8	519.4	519.4	518.7	517.9	517.2	516.4
175°	520.3	520.9	521.5	521.5	520.8	520.1	519.4	518.8
177.5°	521.2	521.7	522.3	522.2	521.5	520.8	520.1	519.4
180°	520.6	520.6	520.6	520.6	520.6	520.6	520.6	520.6

(END OF REPORT)