

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: P332111-940

Luminaire Tested: **S123DIW-S340D1320U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332111-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S340D1320U940-4F0-1E-UDD-D1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

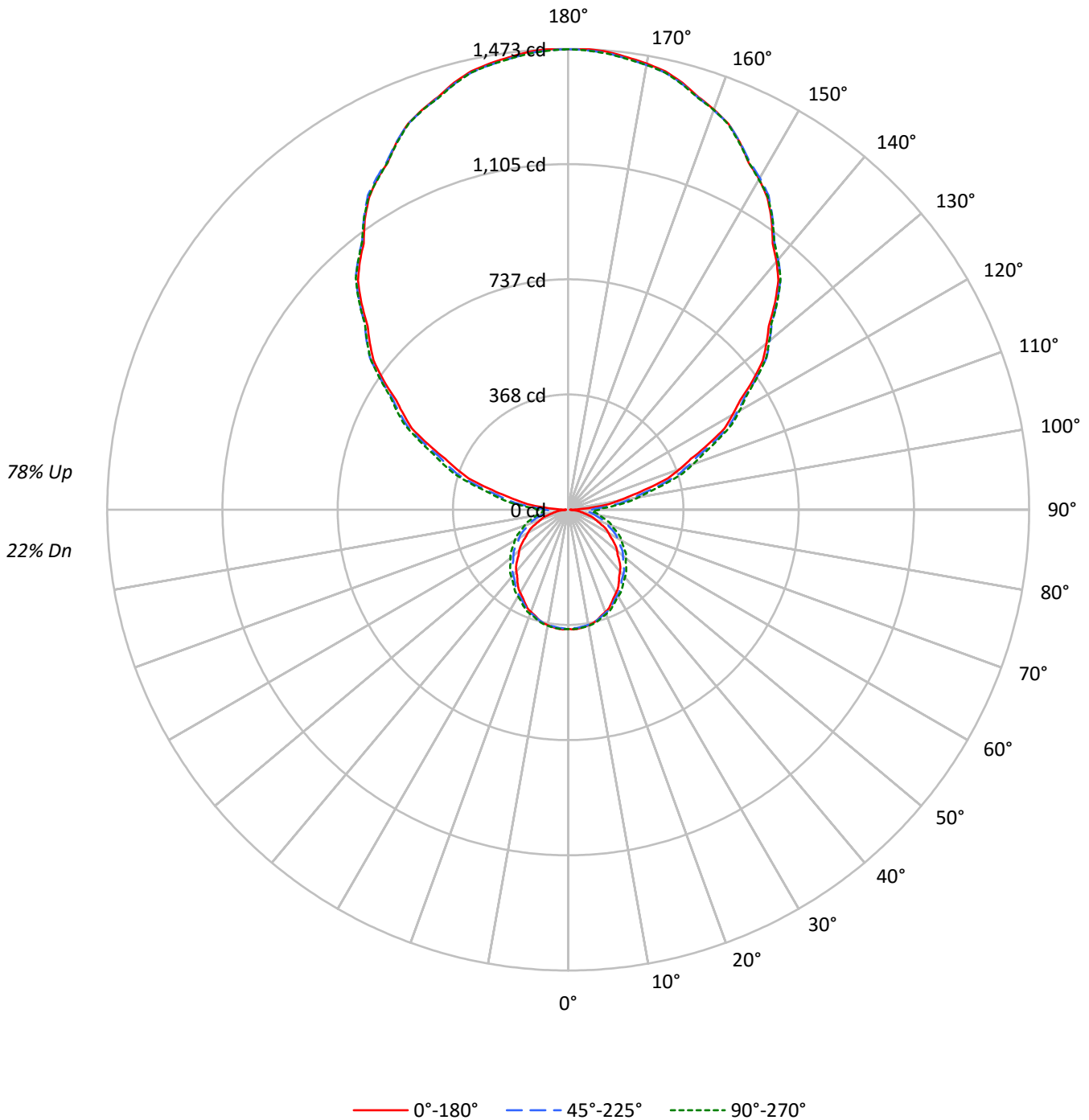
Lumens per Lamp: N/A  
Luminaire Lumens: 5365.2 lumens  
Efficiency: N/A  
Efficacy: 115.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 46.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	100	100	100	100	89	89	89	89	68	68	68	48	48	48	30	30	30
1	91	87	83	79	80	77	74	71	58	56	54	42	40	39	26	25	25
2	83	75	69	64	73	67	62	58	51	48	45	36	34	32	23	21	20
3	75	66	59	53	66	59	53	48	45	41	37	32	29	27	20	18	17
4	69	58	51	45	60	52	45	40	40	35	31	28	25	23	18	16	15
5	63	52	44	38	55	46	39	34	35	30	27	25	22	20	16	14	13
6	58	46	38	33	51	41	34	29	31	27	23	23	19	17	14	12	11
7	53	41	34	28	47	37	30	26	28	24	20	20	17	15	13	11	10
8	49	37	30	25	43	33	27	22	26	21	18	19	15	13	12	10	9
9	46	34	27	22	40	30	24	20	23	19	16	17	14	12	11	9	8
10	42	31	24	19	38	28	22	18	21	17	14	16	13	10	10	8	7

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	4105	4105	4105
5°	4118	4002	4004
10°	4082	3910	3890
15°	4029	3805	3766
20°	3954	3686	3630
25°	3860	3549	3485
30°	3767	3425	3339
35°	3659	3294	3223
40°	3557	3175	3098
45°	3445	3060	2998
50°	3333	2947	2888
55°	3211	2831	2789
60°	3090	2713	2689
65°	2967	2588	2567
70°	2783	2448	2443
75°	2551	2287	2318
80°	2278	2128	2175
85°	2025	2018	2090



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	36.2	0.7
10°-20°	103.1	1.9
20°-30°	154.2	2.9
30°-40°	184.1	3.4
40°-50°	192.6	3.6
50°-60°	180.7	3.4
60°-70°	151.0	2.8
70°-80°	108.0	2.0
80°-90°	68.8	1.3
90°-100°	136.3	2.5
100°-110°	316.8	5.9
110°-120°	508.1	9.5
120°-130°	653.6	12.2
130°-140°	726.9	13.5
140°-150°	710.6	13.2
150°-160°	597.4	11.1
160°-170°	397.6	7.4
170°-180°	139.2	2.6
0°-30°	293.4	5.5
0°-40°	477.5	8.9
0°-60°	850.9	15.9
0°-90°	1178.6	22.0
90°-120°	961.2	17.9
90°-150°	3052.3	56.9
90°-180°	4187.0	78.0
0°-180°	5365.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	381	381	381	381	381	
5°	382	381	378	382	381	36
15°	364	365	364	368	368	102
25°	328	332	334	339	339	151
35°	282	289	295	301	302	177
45°	231	241	251	259	263	178
55°	176	190	205	216	219	158
65°	122	138	156	168	173	120
75°	66	86	106	120	125	71
85°	20	41	63	77	81	21
90°	7	39	75	93	100	8
95°	73	97	127	144	148	80
105°	264	277	304	315	322	282
115°	494	502	515	525	528	488
125°	721	724	734	738	736	642
135°	934	940	944	947	947	720
145°	1133	1135	1138	1140	1137	707
155°	1296	1297	1298	1302	1294	597
165°	1412	1409	1409	1415	1408	398
175°	1469	1464	1464	1470	1463	139
180°	1472	1472	1472	1472	1472	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4
2.5°	383.1	382.9	382.6	382.5	382.2	381.8	381.2	380.6	380.0	379.4	380.0
5°	381.8	381.7	381.5	381.3	381.1	380.8	380.1	379.6	379.1	378.5	379.2
7.5°	378.1	378.2	378.2	378.2	378.3	378.0	377.5	376.9	376.4	375.9	376.7
10°	374.8	375.0	375.1	375.3	375.5	375.4	374.9	374.4	374.0	373.5	374.4
12.5°	370.8	371.0	371.3	371.6	371.8	371.8	371.5	371.1	370.9	370.5	371.4
15°	363.6	363.8	364.1	364.4	364.6	364.8	364.6	364.5	364.4	364.4	365.3
17.5°	354.5	355.0	355.5	356.1	356.6	356.9	356.9	356.8	356.8	356.8	357.6
20°	347.8	348.3	348.8	349.5	350.0	350.4	350.5	350.7	350.9	351.1	352.0
22.5°	340.8	341.3	341.9	342.4	343.0	343.4	343.7	343.9	344.2	344.5	345.5
25°	328.2	329.1	330.1	331.0	331.9	332.5	332.8	333.1	333.3	333.7	334.8
27.5°	315.6	316.6	317.7	318.8	319.9	320.7	321.2	321.8	322.4	323.0	324.0
30°	306.7	307.8	309.1	310.2	311.5	312.4	313.2	313.9	314.6	315.4	316.5
32.5°	296.7	298.0	299.3	300.7	302.0	303.2	304.2	305.1	306.1	307.0	308.3
35°	282.5	284.0	285.5	287.0	288.5	289.8	291.0	292.2	293.4	294.6	296.0
37.5°	267.6	269.2	270.9	272.6	274.2	275.8	277.2	278.7	280.3	281.7	283.3
40°	257.6	259.3	260.9	262.6	264.2	266.0	267.9	269.7	271.5	273.4	275.0
42.5°	246.6	248.7	250.7	252.7	254.8	256.7	258.7	260.6	262.5	264.4	266.2
45°	231.0	233.3	235.4	237.6	239.9	242.1	244.4	246.7	249.1	251.4	253.2
47.5°	214.6	217.1	219.6	222.2	224.7	227.3	229.9	232.6	235.1	237.8	239.8
50°	204.0	206.6	209.2	211.8	214.4	217.0	219.9	222.8	225.7	228.5	230.7
52.5°	192.7	195.5	198.1	200.9	203.7	206.6	209.7	212.9	216.1	219.2	221.4
55°	176.2	179.2	182.3	185.3	188.3	191.5	194.8	198.2	201.5	204.8	207.3
57.5°	160.1	163.2	166.4	169.6	172.7	176.2	179.8	183.4	187.1	190.7	193.2
60°	148.7	152.0	155.4	158.7	162.0	165.6	169.4	173.2	176.9	180.7	183.3
62.5°	138.1	141.5	144.9	148.3	151.7	155.4	159.4	163.5	167.5	171.5	174.0
65°	121.7	125.4	128.9	132.5	136.2	140.0	144.0	148.1	152.1	156.2	159.0
67.5°	105.1	109.0	112.8	116.5	120.4	124.4	128.5	132.7	136.8	141.0	143.9
70°	93.5	97.5	101.4	105.4	109.3	113.6	118.0	122.4	126.9	131.3	134.3
72.5°	82.8	86.9	90.8	94.8	98.7	103.0	107.5	112.2	116.7	121.4	124.4
75°	66.1	70.4	74.7	79.1	83.5	87.9	92.6	97.1	101.7	106.4	109.4
77.5°	51.5	55.8	60.2	64.6	68.9	73.5	78.1	82.8	87.4	92.1	95.3
80°	41.1	45.7	50.2	54.8	59.2	63.9	68.7	73.5	78.3	83.1	86.2
82.5°	32.2	36.7	41.4	45.9	50.6	55.3	60.2	65.0	69.9	74.8	77.9
85°	20.3	25.0	29.6	34.2	38.8	43.6	48.5	53.3	58.2	63.1	66.3
87.5°	11.3	16.4	21.5	26.7	31.7	37.0	42.4	47.7	53.1	58.5	61.8
90°	6.6	13.6	20.8	27.8	35.0	42.5	50.6	58.6	66.7	74.7	78.9
92.5°	33.1	38.9	44.7	50.6	56.4	62.6	69.1	75.6	82.1	88.7	92.6
95°	72.8	78.2	83.6	89.0	94.4	100.4	107.0	113.5	120.1	126.7	130.6
97.5°	125.3	129.8	134.5	139.0	143.7	148.8	154.6	160.4	166.2	172.1	176.0
100°	161.0	165.5	170.0	174.5	179.1	184.0	189.6	195.1	200.6	206.2	209.6
102.5°	202.3	205.9	209.5	213.1	216.7	221.4	227.3	233.1	239.0	244.9	248.3
105°	263.5	266.3	269.0	271.7	274.5	278.9	285.3	291.5	297.8	304.1	306.7
107.5°	334.3	336.4	338.7	340.9	343.0	346.5	351.2	355.9	360.6	365.2	368.5
110°	378.4	380.6	382.7	384.9	387.1	390.3	394.5	398.7	402.9	407.1	410.5



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	424.6	426.3	427.9	429.6	431.3	434.0	437.7	441.3	445.0	448.6	452.1
115°	493.6	495.5	497.4	499.3	501.1	503.5	506.3	509.1	511.9	514.7	517.2
117.5°	563.4	564.5	565.8	566.9	568.2	570.0	572.5	574.9	577.4	579.8	581.9
120°	606.5	608.5	610.6	612.5	614.6	616.4	618.2	619.9	621.7	623.5	625.4
122.5°	651.8	653.3	654.6	655.9	657.4	659.2	661.4	663.6	665.8	668.1	669.5
125°	720.6	721.4	722.1	722.9	723.7	725.1	727.3	729.5	731.6	733.8	734.7
127.5°	784.4	786.0	787.6	789.1	790.7	792.3	793.9	795.6	797.2	798.9	799.2
130°	827.0	828.9	830.9	832.9	834.8	836.4	837.5	838.6	839.6	840.7	841.4
132.5°	869.2	871.3	873.3	875.4	877.4	878.9	879.8	880.7	881.6	882.5	883.0
135°	934.2	935.6	937.0	938.5	940.0	941.0	941.8	942.5	943.3	944.1	944.7
137.5°	994.2	995.4	996.7	997.8	999.1	1000.2	1001.5	1002.7	1004.0	1005.2	1005.6
140°	1035.5	1036.8	1038.0	1039.4	1040.6	1041.5	1042.1	1042.6	1043.1	1043.7	1044.8
142.5°	1073.4	1074.7	1075.8	1077.1	1078.3	1079.1	1079.7	1080.2	1080.7	1081.2	1082.2
145°	1132.7	1133.1	1133.5	1133.9	1134.3	1135.0	1135.7	1136.5	1137.3	1138.0	1138.5
147.5°	1184.0	1185.0	1185.9	1186.9	1187.8	1188.6	1189.3	1190.0	1190.7	1191.4	1191.7
150°	1220.1	1220.7	1221.2	1221.6	1222.2	1222.7	1223.2	1223.7	1224.2	1224.8	1224.8
152.5°	1249.7	1250.4	1251.2	1251.9	1252.6	1253.1	1253.5	1253.7	1254.1	1254.4	1254.8
155°	1296.5	1296.5	1296.5	1296.5	1296.5	1296.6	1296.8	1297.1	1297.4	1297.6	1298.7
157.5°	1336.2	1336.0	1335.6	1335.3	1335.0	1335.0	1335.2	1335.3	1335.6	1335.8	1336.9
160°	1361.2	1360.8	1360.2	1359.7	1359.1	1358.9	1358.9	1358.9	1358.9	1358.9	1360.2
162.5°	1383.4	1382.7	1382.0	1381.3	1380.5	1380.3	1380.5	1380.7	1380.9	1381.1	1382.4
165°	1412.1	1411.3	1410.6	1409.8	1409.1	1408.6	1408.6	1408.6	1408.6	1408.6	1410.2
167.5°	1435.0	1434.0	1433.0	1431.9	1430.9	1430.5	1430.7	1430.9	1431.1	1431.3	1432.9
170°	1448.0	1447.0	1445.9	1444.9	1443.9	1443.3	1443.3	1443.3	1443.3	1443.3	1445.1
172.5°	1458.1	1457.1	1456.1	1455.1	1454.0	1453.5	1453.5	1453.5	1453.5	1453.5	1455.1
175°	1468.8	1467.8	1466.8	1465.7	1464.6	1464.2	1464.2	1464.2	1464.2	1464.2	1465.7
177.5°	1473.2	1472.4	1471.5	1470.7	1469.9	1469.5	1469.5	1469.5	1469.5	1469.5	1470.7
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	381.4	381.4	381.4	381.4	381.4	381.4	381.4	381.4
2.5°	380.6	381.2	381.8	382.0	382.0	381.9	381.8	381.7
5°	380.0	380.8	381.5	381.8	381.7	381.6	381.5	381.4
7.5°	377.7	378.6	379.5	380.0	379.9	379.7	379.6	379.5
10°	375.4	376.3	377.2	377.6	377.4	377.2	377.0	376.8
12.5°	372.2	373.1	373.9	374.3	374.1	373.9	373.7	373.5
15°	366.2	367.1	368.1	368.5	368.4	368.3	368.2	368.1
17.5°	358.4	359.3	360.1	360.4	360.3	360.2	360.1	359.9
20°	352.8	353.6	354.5	354.9	355.0	355.1	355.2	355.3
22.5°	346.5	347.6	348.7	349.2	349.1	349.0	349.0	348.9
25°	336.0	337.2	338.4	339.0	339.0	339.0	339.0	339.0
27.5°	325.0	326.1	327.2	327.7	327.8	327.9	327.9	328.0
30°	317.5	318.7	319.8	320.3	320.3	320.3	320.3	320.3
32.5°	309.4	310.6	311.7	312.5	312.7	312.9	313.2	313.3
35°	297.4	298.7	300.1	301.0	301.4	301.8	302.1	302.5
37.5°	284.8	286.4	288.0	288.9	289.2	289.5	289.8	290.1
40°	276.5	278.1	279.6	280.6	281.0	281.4	281.8	282.1
42.5°	267.9	269.6	271.3	272.4	273.0	273.4	273.9	274.5
45°	254.9	256.6	258.4	259.7	260.4	261.1	261.9	262.6
47.5°	241.7	243.8	245.8	247.0	247.5	248.2	248.7	249.3
50°	232.7	234.9	237.0	238.4	239.1	239.7	240.3	241.0
52.5°	223.6	225.8	228.0	229.5	230.3	231.1	231.8	232.6
55°	209.8	212.3	214.8	216.4	217.1	217.9	218.6	219.4
57.5°	195.7	198.2	200.7	202.4	203.3	204.2	205.1	205.9
60°	185.9	188.5	191.1	192.9	193.9	194.9	195.9	197.0
62.5°	176.6	179.1	181.7	183.5	184.5	185.4	186.4	187.3
65°	161.8	164.5	167.3	169.2	170.0	171.0	171.9	172.8
67.5°	147.0	150.0	153.0	155.0	155.7	156.5	157.3	158.0
70°	137.2	140.2	143.1	145.1	146.0	146.9	147.8	148.7
72.5°	127.3	130.4	133.4	135.5	136.3	137.2	138.2	139.1
75°	112.4	115.5	118.6	120.6	121.7	122.9	123.9	125.1
77.5°	98.5	101.7	105.0	106.9	107.8	108.7	109.5	110.4
80°	89.3	92.6	95.7	97.6	98.6	99.5	100.5	101.4
82.5°	81.1	84.2	87.4	89.3	90.3	91.2	92.1	93.1
85°	69.5	72.6	75.7	77.8	78.6	79.6	80.5	81.4
87.5°	65.2	68.5	71.9	74.0	75.1	76.1	77.1	78.1
90°	83.0	87.2	91.4	94.2	95.6	97.0	98.5	100.0
92.5°	96.5	100.4	104.2	106.5	107.0	107.5	108.1	108.6
95°	134.5	138.4	142.3	144.7	145.6	146.5	147.5	148.4
97.5°	179.9	183.9	187.8	190.2	191.0	191.8	192.6	193.5
100°	213.0	216.5	220.0	222.4	223.8	225.2	226.7	228.2
102.5°	251.6	255.0	258.3	260.5	261.3	262.1	263.0	263.8
105°	309.2	311.8	314.4	316.4	317.7	319.1	320.5	321.8
107.5°	371.8	375.1	378.4	380.3	380.8	381.4	381.8	382.4
110°	413.9	417.4	420.8	422.7	422.8	423.1	423.3	423.6





TEST NUMBER: P332111-940

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	455.7	459.2	462.8	464.9	465.7	466.4	467.1	467.8
115°	519.7	522.1	524.6	526.1	526.6	527.0	527.5	528.0
117.5°	584.1	586.2	588.4	589.4	589.4	589.4	589.4	589.4
120°	627.2	629.1	631.0	632.0	632.0	632.2	632.3	632.5
122.5°	670.8	672.2	673.6	674.2	674.1	674.1	674.0	674.0
125°	735.7	736.6	737.4	737.7	737.4	737.0	736.6	736.2
127.5°	799.6	800.0	800.4	800.3	799.8	799.2	798.7	798.1
130°	842.1	842.8	843.6	843.3	842.0	840.9	839.6	838.4
132.5°	883.4	883.9	884.3	884.1	883.4	882.6	881.9	881.1
135°	945.4	946.0	946.6	946.9	946.8	946.8	946.7	946.7
137.5°	1006.0	1006.4	1006.7	1006.7	1006.2	1005.7	1005.1	1004.6
140°	1046.0	1047.0	1048.2	1048.1	1046.8	1045.4	1044.1	1042.8
142.5°	1083.2	1084.1	1085.1	1085.2	1084.2	1083.3	1082.4	1081.5
145°	1139.0	1139.4	1140.0	1139.9	1139.2	1138.5	1137.9	1137.2
147.5°	1191.9	1192.1	1192.3	1191.9	1190.6	1189.5	1188.2	1187.0
150°	1224.8	1224.8	1224.8	1224.1	1222.7	1221.4	1220.0	1218.6
152.5°	1255.2	1255.6	1256.0	1255.5	1254.3	1252.9	1251.7	1250.4
155°	1299.7	1300.7	1301.7	1301.4	1299.6	1297.8	1295.9	1294.1
157.5°	1337.9	1339.0	1340.2	1339.9	1338.5	1337.0	1335.6	1334.2
160°	1361.5	1362.8	1364.1	1364.2	1363.2	1362.2	1361.1	1360.0
162.5°	1383.7	1385.0	1386.3	1386.1	1384.5	1382.8	1381.2	1379.5
165°	1411.8	1413.3	1414.8	1414.7	1412.9	1411.1	1409.3	1407.5
167.5°	1434.5	1436.1	1437.7	1437.7	1436.1	1434.5	1432.9	1431.3
170°	1447.0	1448.8	1450.5	1450.5	1448.8	1447.0	1445.1	1443.3
172.5°	1456.7	1458.3	1459.9	1459.8	1458.0	1456.2	1454.4	1452.6
175°	1467.2	1468.8	1470.3	1470.2	1468.4	1466.6	1464.8	1463.0
177.5°	1471.9	1473.2	1474.4	1474.4	1472.8	1471.4	1470.0	1468.6
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3

(END OF REPORT)