

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: P243160

Luminaire Tested: **S122DR-H485D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243160
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H485D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2018.6 lumens
Efficiency: N/A
Efficacy: 117.4 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

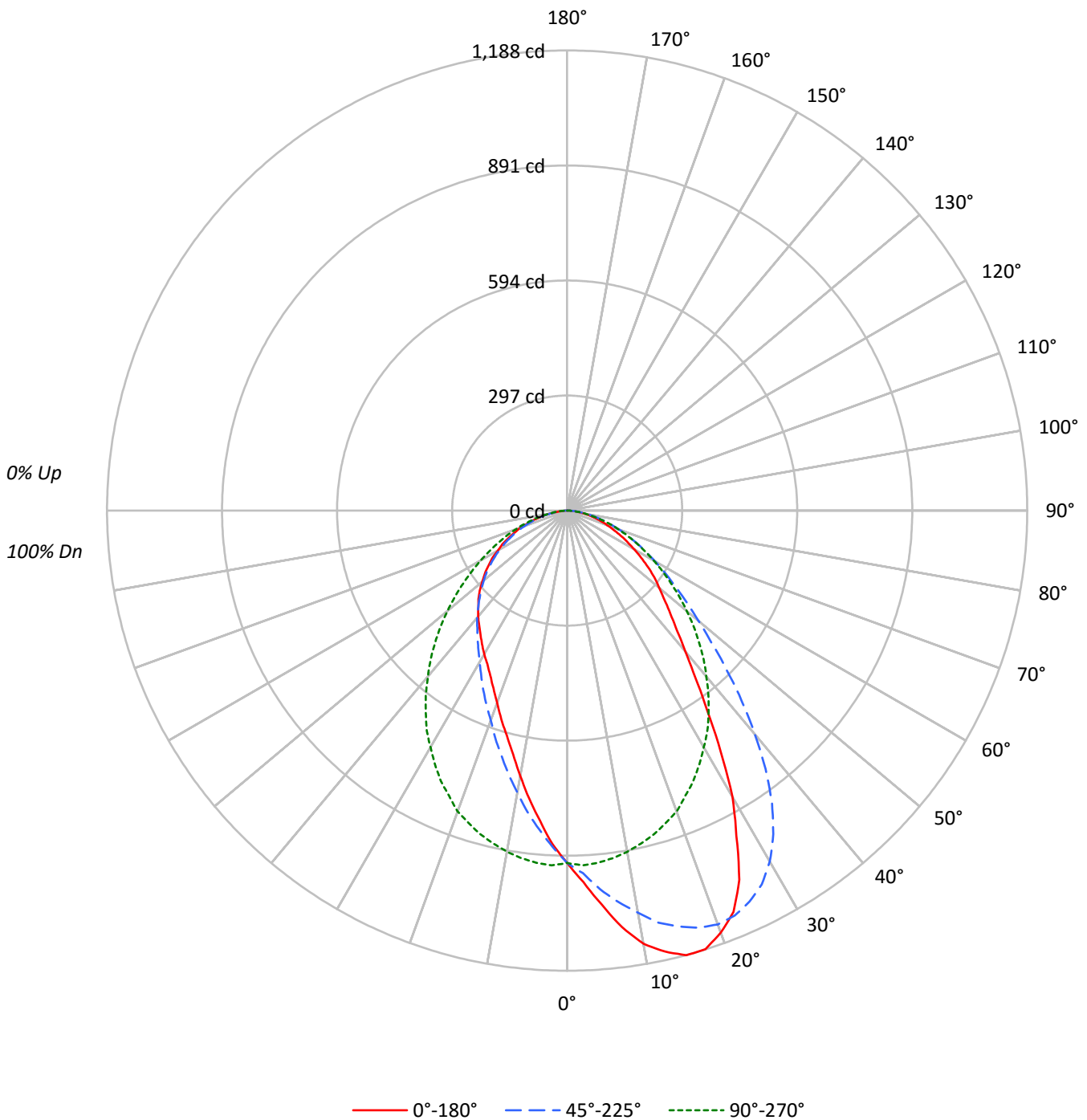
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94		95	93	91		92	90	88	86
2	101	93	87	82	98	92	86	81	88	83	79		85	81	77		82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68		76	71	67		73	69	66	63
4	86	74	66	60	83	73	66	60	71	64	59		68	63	58		66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52		62	56	51		60	55	51	49
6	73	61	52	46	72	60	52	46	58	51	46		57	50	45		55	49	45	43
7	68	56	47	41	67	55	47	41	53	46	41		52	46	41		51	45	40	39
8	64	51	43	37	62	50	43	37	49	42	37		48	41	37		47	41	37	35
9	60	47	39	34	58	46	39	34	45	38	34		44	38	34		43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31		41	35	31		40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17328	17328	17328
5°	19518	17451	15373
10°	21970	17295	13454
15°	23437	17063	11857
20°	23503	16753	10701
25°	22105	16196	9863
30°	18763	15521	9418
35°	14670	14796	9066
40°	11786	13905	8889
45°	10139	12987	8725
50°	9198	11951	8481
55°	8475	10889	8252
60°	7619	9813	7874
65°	6860	8816	7495
70°	6115	7836	7012
75°	5498	6741	6145
80°	4804	5430	4804
85°	4131	4043	2644



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.7	4.3
10°-20°	249.1	12.3
20°-30°	362.3	17.9
30°-40°	388.6	19.3
40°-50°	348.3	17.3
50°-60°	277.7	13.8
60°-70°	187.8	9.3
70°-80°	95.8	4.7
80°-90°	22.4	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	698.0	34.6
0°-40°	1086.6	53.8
0°-60°	1712.5	84.8
0°-90°	2018.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2018.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	910	910	910	910	910	
5°	1021	982	913	826	804	101
15°	1188	1111	865	655	601	333
25°	1052	1114	771	512	469	473
35°	631	922	636	403	390	400
45°	376	583	482	320	324	294
55°	255	339	328	241	248	228
65°	152	197	196	159	166	151
75°	75	93	92	79	84	80
85°	19	22	18	14	12	22
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7
2.5°	960.2	963.2	960.5	959.5	957.5	956.8	951.4	947.1	944.4	937.0	937.6
5°	1020.8	1027.5	1023.8	1023.5	1016.1	1011.4	1006.7	999.9	989.8	981.7	975.3
7.5°	1084.8	1081.4	1080.4	1076.7	1071.3	1064.6	1054.1	1044.4	1031.6	1019.8	1011.0
10°	1135.9	1134.9	1136.6	1127.2	1123.8	1113.4	1104.3	1089.1	1072.6	1054.1	1042.7
12.5°	1166.2	1169.3	1171.6	1167.9	1159.8	1156.8	1141.7	1120.5	1114.7	1089.5	1075.7
15°	1188.5	1189.8	1190.1	1186.1	1182.1	1174.3	1165.2	1151.8	1133.2	1111.4	1100.9
17.5°	1187.1	1186.8	1188.8	1186.4	1184.1	1181.7	1174.7	1164.2	1149.7	1129.2	1111.7
20°	1159.5	1165.6	1170.3	1171.3	1171.0	1172.3	1168.9	1162.2	1151.8	1136.9	1117.1
22.5°	1121.8	1119.4	1129.5	1128.9	1133.2	1143.3	1147.7	1145.0	1141.0	1131.6	1115.7
25°	1051.8	1054.1	1061.2	1068.6	1085.8	1091.8	1105.0	1115.1	1116.4	1114.1	1104.3
27.5°	946.7	963.6	967.3	977.0	1000.9	1020.8	1047.4	1063.2	1085.8	1087.8	1083.4
30°	853.1	852.5	858.2	875.7	897.6	927.5	961.9	1002.6	1028.5	1046.4	1052.8
32.5°	738.0	740.7	755.5	777.0	799.3	829.2	869.0	918.8	953.5	990.5	1011.4
35°	630.9	639.3	653.5	668.3	692.5	733.6	777.7	819.1	872.3	921.8	955.5
37.5°	542.7	554.2	564.9	579.1	602.6	634.3	674.0	728.9	781.8	841.3	890.8
40°	474.0	478.4	485.8	499.6	515.4	547.1	587.2	628.2	685.5	753.8	818.8
42.5°	420.2	419.2	427.2	436.0	450.5	474.0	509.1	550.1	607.0	667.6	733.3
45°	376.4	376.7	380.1	389.2	400.6	414.1	441.0	479.8	522.9	583.1	652.8
47.5°	340.7	341.7	346.8	353.2	359.9	372.4	390.2	415.5	455.9	506.4	571.7
50°	310.4	312.1	315.5	320.2	325.2	334.0	347.4	367.3	399.3	442.1	501.3
52.5°	283.5	284.2	285.2	289.5	293.6	301.7	311.8	327.2	352.5	388.2	434.3
55°	255.2	254.5	256.9	260.6	264.3	270.0	280.4	292.9	310.8	339.0	377.1
57.5°	226.2	227.3	228.9	231.0	237.7	243.8	251.5	262.9	277.1	299.3	331.0
60°	200.0	200.0	202.0	204.7	209.1	213.1	220.5	231.0	243.4	260.6	287.2
62.5°	174.4	175.7	177.8	179.1	183.2	188.2	193.9	202.0	213.5	227.3	247.1
65°	152.2	151.5	153.5	156.2	159.2	162.6	169.0	175.7	184.5	197.0	213.5
67.5°	129.3	131.3	132.0	133.3	135.7	140.1	143.1	150.2	157.2	168.3	182.1
70°	109.8	111.1	112.1	113.8	115.8	117.8	120.9	126.6	133.7	141.4	151.2
72.5°	92.2	93.3	92.2	93.9	94.9	97.0	101.0	103.7	109.1	115.8	124.6
75°	74.7	75.4	75.1	76.8	77.1	79.1	81.1	83.5	89.6	93.3	99.3
77.5°	58.6	59.3	59.6	60.3	60.9	61.9	63.0	65.3	68.7	72.0	76.8
80°	43.8	43.8	44.8	45.1	45.5	46.1	47.8	48.5	50.8	51.8	55.6
82.5°	30.3	30.6	31.0	31.0	31.3	32.0	32.3	33.7	34.3	36.0	37.7
85°	18.9	19.2	19.2	19.2	20.2	19.9	19.9	20.5	21.5	21.5	22.2
87.5°	9.4	9.8	9.8	9.8	10.1	10.1	10.1	10.1	10.1	10.8	10.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7
2.5°	937.3	937.0	935.6	929.6	924.8	918.8	917.8	916.8	908.3	899.3	896.6
5°	970.3	964.2	955.8	945.7	935.6	924.5	918.1	912.7	899.9	885.8	877.7
7.5°	1002.6	990.8	977.7	961.9	945.0	927.2	915.8	905.0	887.5	869.0	857.8
10°	1030.2	1014.4	996.2	975.3	952.1	927.9	911.0	894.2	872.0	849.4	834.6
12.5°	1053.1	1032.9	1009.0	980.7	959.5	926.2	902.6	880.4	855.8	826.5	810.4
15°	1070.6	1050.8	1018.4	989.8	961.9	917.4	888.8	865.3	832.3	803.6	778.1
17.5°	1091.8	1063.6	1031.6	990.5	959.5	908.7	876.4	845.7	810.0	776.4	748.1
20°	1101.3	1071.6	1037.3	991.5	952.1	899.3	856.2	826.5	783.4	744.7	712.7
22.5°	1102.6	1074.3	1037.0	988.5	939.3	885.5	836.0	797.2	754.2	713.1	677.1
25°	1096.9	1070.0	1031.2	983.1	925.2	870.6	815.4	770.6	720.8	678.4	641.7
27.5°	1081.4	1059.5	1022.8	971.3	910.7	847.7	787.5	738.7	689.5	641.4	606.4
30°	1056.5	1042.0	1010.4	955.8	892.2	822.8	762.6	705.7	652.5	607.4	569.7
32.5°	1024.5	1017.4	991.2	937.3	873.3	795.6	732.6	674.0	616.1	573.4	534.6
35°	983.8	987.5	965.2	916.4	849.4	768.0	697.6	636.3	579.8	534.3	498.6
37.5°	930.9	949.1	934.9	889.2	818.8	740.0	660.9	599.3	540.0	496.3	464.9
40°	871.6	903.6	896.9	858.5	785.8	707.4	625.5	559.2	501.3	459.9	429.9
42.5°	802.0	848.4	855.8	821.1	753.1	666.6	585.8	521.8	466.0	425.2	396.6
45°	723.8	781.4	806.3	779.1	715.1	627.2	545.1	482.1	426.9	392.2	368.3
47.5°	645.4	714.8	748.4	735.3	670.7	585.1	504.7	443.1	390.9	360.6	338.0
50°	568.0	642.4	691.5	682.8	626.9	545.1	463.9	403.3	355.5	327.6	308.4
52.5°	500.0	570.3	623.9	628.2	578.1	499.3	420.8	364.6	323.9	298.6	282.5
55°	433.0	498.3	556.9	567.6	526.9	451.1	381.1	327.9	290.9	270.0	256.9
57.5°	373.0	432.3	490.5	509.4	476.4	408.0	338.4	291.6	259.6	243.4	232.0
60°	322.2	375.7	425.9	445.1	422.5	360.2	299.3	257.6	231.0	216.5	207.4
62.5°	277.8	319.2	363.6	384.8	369.7	315.5	262.3	225.2	203.7	191.2	184.2
65°	237.7	269.7	304.7	329.3	312.4	272.0	227.6	195.6	177.4	166.0	160.9
67.5°	200.7	227.3	255.2	274.7	266.3	229.6	192.2	167.3	152.2	143.4	138.7
70°	167.0	186.9	209.4	224.6	218.5	190.2	160.6	140.7	127.9	121.9	117.8
72.5°	137.0	149.8	167.0	179.4	173.1	153.2	132.0	116.2	106.7	99.7	96.6
75°	108.7	119.9	132.0	140.4	135.3	120.5	103.7	91.6	85.2	80.8	78.8
77.5°	82.5	91.2	99.7	103.7	101.3	90.6	79.1	69.7	64.3	61.6	59.3
80°	59.3	64.3	70.0	73.7	72.4	65.0	56.9	49.5	47.1	43.8	43.1
82.5°	39.7	43.8	45.1	46.8	45.8	42.4	36.7	32.3	30.3	28.6	28.3
85°	23.6	24.6	26.3	26.3	25.3	22.9	19.9	18.5	16.5	16.2	15.2
87.5°	10.4	10.4	10.4	10.4	10.4	9.8	8.4	7.7	7.1	6.7	6.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7
2.5°	894.2	890.8	886.1	880.7	876.0	868.6	866.3	866.3	867.9	865.9	864.2
5°	871.0	864.2	857.5	847.1	838.3	826.5	823.2	819.8	819.5	816.1	811.7
7.5°	846.1	836.0	822.2	807.3	797.9	785.1	778.1	776.0	769.6	763.6	756.5
10°	817.1	801.6	785.1	771.0	756.2	739.7	731.3	725.5	719.1	711.7	706.7
12.5°	782.1	764.6	749.4	732.9	720.5	697.3	694.6	687.2	674.4	663.2	659.2
15°	760.5	729.9	712.7	697.6	678.7	654.8	646.1	638.0	625.9	618.8	613.1
17.5°	722.5	694.9	673.3	653.1	635.0	616.5	603.3	596.6	586.8	580.8	575.0
20°	687.8	657.9	635.3	611.7	592.9	576.0	564.9	556.5	551.5	545.4	539.7
22.5°	652.8	621.5	600.0	576.0	553.8	543.7	530.6	523.5	516.8	512.1	506.0
25°	612.1	587.2	560.2	541.7	522.2	511.7	499.3	492.6	487.2	481.8	478.8
27.5°	575.7	550.5	525.5	507.0	490.5	480.4	472.7	466.3	459.6	455.5	453.2
30°	538.0	514.8	492.9	475.0	462.3	451.1	446.4	440.4	435.3	433.6	429.9
32.5°	504.3	478.4	460.9	444.7	434.0	426.2	422.9	416.5	415.5	413.8	411.8
35°	470.7	448.4	431.6	417.8	408.7	403.0	398.6	396.9	395.3	393.6	391.9
37.5°	437.3	419.8	404.0	392.9	385.5	381.1	380.1	376.7	376.4	374.0	374.0
40°	407.4	389.5	378.4	369.7	363.6	361.6	358.9	358.2	357.2	356.5	357.9
42.5°	377.4	365.3	355.9	346.8	342.1	340.4	339.7	338.7	338.0	340.0	340.7
45°	349.5	339.0	331.0	324.6	321.9	319.8	319.8	320.9	320.5	321.5	321.5
47.5°	323.5	314.1	307.4	305.0	301.7	301.0	301.3	301.0	302.7	304.0	305.4
50°	299.0	290.5	285.2	282.8	282.1	281.1	282.5	283.1	284.2	285.5	286.2
52.5°	271.7	267.7	264.3	261.9	261.6	261.9	261.6	264.0	265.0	267.0	266.6
55°	248.5	245.4	243.1	240.4	240.0	241.1	241.7	243.8	245.1	246.8	246.4
57.5°	226.6	224.2	221.5	220.9	220.5	220.9	223.9	223.6	225.6	226.9	227.6
60°	202.7	201.0	198.6	198.6	199.6	200.3	201.3	203.0	205.0	204.7	207.1
62.5°	180.8	178.8	178.1	179.1	178.8	180.5	181.5	181.5	184.2	185.2	185.8
65°	158.9	158.2	157.2	157.2	158.2	158.6	160.3	161.3	162.3	164.3	166.0
67.5°	138.4	136.7	136.7	136.0	137.4	138.4	139.4	140.7	141.4	143.8	144.8
70°	116.8	116.2	115.8	116.5	116.5	117.5	119.2	120.9	122.2	122.5	124.6
72.5°	96.0	96.0	96.0	97.0	97.6	98.6	99.0	100.3	102.3	102.7	103.7
75°	77.1	77.4	77.1	77.4	77.8	78.8	79.5	80.8	82.1	82.5	83.2
77.5°	59.6	58.9	58.2	59.3	59.9	61.9	61.6	62.3	63.6	63.0	63.6
80°	41.7	42.8	41.4	43.4	43.4	43.1	43.8	44.8	44.4	45.1	44.4
82.5°	28.3	27.3	27.3	28.3	28.6	27.6	28.3	28.6	29.0	28.3	27.9
85°	15.5	15.2	15.8	14.8	15.2	14.5	14.5	13.8	14.5	13.8	13.1
87.5°	5.7	5.4	5.7	4.7	4.4	4.0	3.7	3.7	3.0	3.0	3.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	909.7	909.7	909.7	909.7
2.5°	866.6	862.9	861.2	862.6
5°	807.0	808.0	802.0	804.0
7.5°	755.5	751.1	752.5	750.1
10°	701.0	698.6	694.9	695.6
12.5°	664.3	648.4	647.4	644.4
15°	612.7	604.0	602.0	601.3
17.5°	571.7	564.3	567.0	564.9
20°	534.6	535.0	530.6	527.9
22.5°	502.0	501.3	499.6	496.9
25°	474.4	474.4	470.3	469.3
27.5°	449.1	449.8	446.4	446.4
30°	430.3	427.9	427.6	428.2
32.5°	411.4	408.7	409.1	408.7
35°	391.2	391.9	390.9	389.9
37.5°	374.0	374.0	374.0	373.0
40°	357.2	357.9	356.9	357.5
42.5°	340.4	340.7	340.7	339.4
45°	323.5	323.2	322.5	323.9
47.5°	306.0	306.0	305.7	306.4
50°	286.8	287.5	286.5	286.2
52.5°	267.3	267.7	267.3	268.0
55°	247.5	247.5	247.8	248.5
57.5°	226.9	229.3	227.6	228.9
60°	206.7	207.1	207.4	206.7
62.5°	187.5	187.2	187.5	188.5
65°	166.7	167.3	167.0	166.3
67.5°	146.1	145.4	146.5	145.4
70°	124.2	125.6	124.6	125.9
72.5°	104.4	104.0	104.7	103.0
75°	83.5	83.5	83.8	83.5
77.5°	64.0	63.3	63.0	61.9
80°	44.1	44.1	42.8	43.8
82.5°	26.9	27.3	27.6	25.6
85°	12.8	12.8	12.5	12.1
87.5°	2.7	2.7	3.0	3.4
90°	0.0	0.0	0.0	0.0

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