

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: P243175

Luminaire Tested: **S122DR-H485D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243175
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-H485D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1782.4 lumens
Efficiency: N/A
Efficacy: 103.6 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

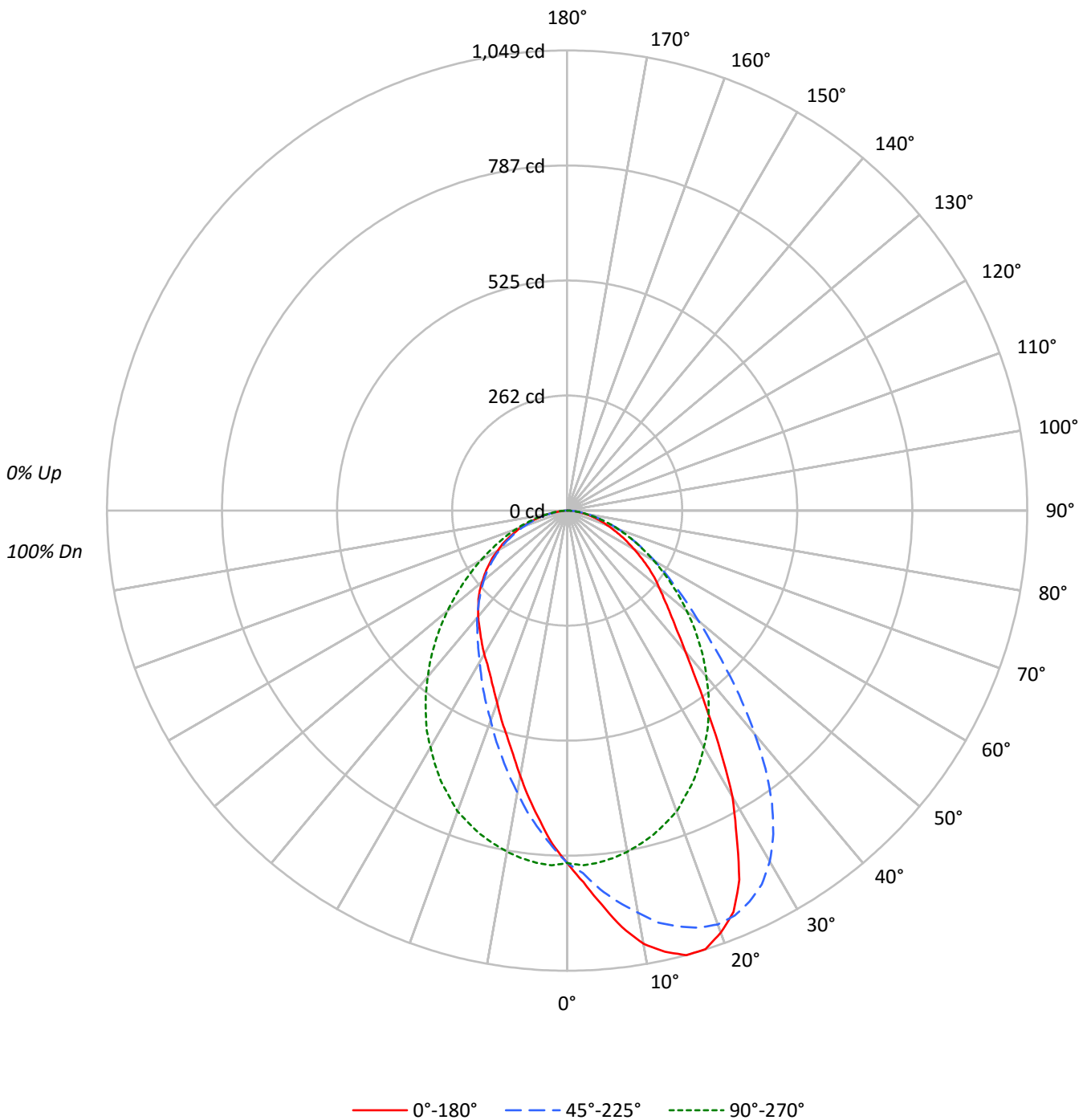
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	15301	15301	15301
5°	17235	15409	13574
10°	19400	15272	11880
15°	20694	15066	10469
20°	20753	14793	9448
25°	19518	14302	8709
30°	16568	13705	8316
35°	12954	13066	8006
40°	10408	12278	7850
45°	8954	11467	7704
50°	8122	10552	7488
55°	7482	9617	7286
60°	6728	8663	6952
65°	6058	7784	6621
70°	5397	6922	6193
75°	4857	5954	5424
80°	4234	4794	4234
85°	3628	3584	2338



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	76.5	4.3
10°-20°	220.0	12.3
20°-30°	319.9	17.9
30°-40°	343.1	19.3
40°-50°	307.5	17.3
50°-60°	245.2	13.8
60°-70°	165.8	9.3
70°-80°	84.6	4.7
80°-90°	19.8	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°	616.4	34.6
0°-40°	959.5	53.8
0°-60°	1512.2	84.8
0°-90°	1782.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1782.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	803	803	803	803	803	
5°	901	867	806	730	710	89
15°	1049	981	764	578	531	294
25°	929	984	680	452	414	418
35°	557	814	562	356	344	353
45°	332	515	426	282	286	260
55°	225	299	290	213	219	201
65°	134	174	173	140	147	133
75°	66	82	81	70	74	70
85°	17	19	16	13	11	19
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°	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3
2.5°	847.9	850.5	848.1	847.3	845.5	844.9	840.1	836.3	833.9	827.3	827.9
5°	901.4	907.3	904.0	903.7	897.2	893.0	888.9	882.9	874.0	866.9	861.2
7.5°	957.8	954.9	954.0	950.7	946.0	940.0	930.8	922.2	910.9	900.5	892.7
10°	1003.0	1002.1	1003.6	995.3	992.3	983.1	975.1	961.7	947.1	930.8	920.7
12.5°	1029.8	1032.5	1034.5	1031.3	1024.1	1021.5	1008.1	989.4	984.3	962.0	949.8
15°	1049.4	1050.6	1050.9	1047.3	1043.8	1036.9	1028.9	1017.0	1000.7	981.3	972.1
17.5°	1048.2	1047.9	1049.7	1047.6	1045.5	1043.5	1037.2	1028.0	1015.2	997.1	981.6
20°	1023.8	1029.2	1033.4	1034.2	1034.0	1035.1	1032.2	1026.2	1017.0	1003.9	986.4
22.5°	990.5	988.5	997.4	996.8	1000.7	1009.6	1013.4	1011.1	1007.5	999.2	985.2
25°	928.7	930.8	937.0	943.6	958.7	964.1	975.7	984.6	985.8	983.7	975.1
27.5°	836.0	850.8	854.1	862.7	883.8	901.4	924.8	938.8	958.7	960.5	956.7
30°	753.3	752.7	757.8	773.2	792.6	819.0	849.3	885.3	908.2	924.0	929.6
32.5°	651.6	654.0	667.1	686.1	705.8	732.2	767.3	811.3	841.9	874.6	893.0
35°	557.1	564.5	577.0	590.1	611.5	647.8	686.7	723.3	770.3	814.0	843.7
37.5°	479.2	489.3	498.8	511.3	532.1	560.1	595.2	643.6	690.3	742.9	786.6
40°	418.6	422.4	429.0	441.2	455.1	483.1	518.5	554.7	605.3	665.6	723.0
42.5°	371.0	370.1	377.3	385.0	397.8	418.6	449.5	485.8	536.0	589.5	647.5
45°	332.4	332.7	335.6	343.7	353.8	365.7	389.4	423.6	461.7	514.9	576.4
47.5°	300.9	301.7	306.2	311.9	317.8	328.8	344.6	366.8	402.5	447.1	504.8
50°	274.1	275.6	278.6	282.7	287.2	294.9	306.8	324.3	352.6	390.3	442.7
52.5°	250.3	250.9	251.8	255.7	259.2	266.4	275.3	289.0	311.3	342.8	383.5
55°	225.3	224.7	226.8	230.1	233.4	238.4	247.6	258.6	274.4	299.4	333.0
57.5°	199.8	200.7	202.2	203.9	209.9	215.2	222.1	232.2	244.7	264.3	292.2
60°	176.6	176.6	178.4	180.7	184.6	188.2	194.7	203.9	214.9	230.1	253.6
62.5°	154.0	155.2	157.0	158.2	161.7	166.2	171.2	178.4	188.5	200.7	218.2
65°	134.4	133.8	135.6	137.9	140.6	143.6	149.2	155.2	162.9	173.9	188.5
67.5°	114.2	115.9	116.5	117.7	119.8	123.7	126.3	132.6	138.8	148.6	160.8
70°	96.9	98.1	99.0	100.5	102.3	104.0	106.7	111.8	118.0	124.9	133.5
72.5°	81.5	82.3	81.5	82.9	83.8	85.6	89.2	91.6	96.3	102.3	110.0
75°	66.0	66.6	66.3	67.8	68.1	69.9	71.6	73.7	79.1	82.3	87.7
77.5°	51.7	52.3	52.6	53.2	53.8	54.7	55.6	57.7	60.6	63.6	67.8
80°	38.6	38.6	39.5	39.8	40.1	40.7	42.2	42.8	44.9	45.8	49.1
82.5°	26.8	27.1	27.4	27.4	27.6	28.2	28.5	29.7	30.3	31.8	33.3
85°	16.6	16.9	16.9	16.9	17.8	17.5	17.5	18.1	19.0	19.0	19.6
87.5°	8.3	8.6	8.6	8.6	8.9	8.9	8.9	8.9	8.9	9.5	9.2
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°	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3
2.5°	827.6	827.3	826.2	820.8	816.6	811.3	810.4	809.5	802.1	794.0	791.7
5°	856.8	851.4	844.0	835.1	826.2	816.3	810.7	805.9	794.6	782.2	775.0
7.5°	885.3	874.9	863.3	849.3	834.5	818.7	808.6	799.1	783.6	767.3	757.5
10°	909.7	895.7	879.7	861.2	840.7	819.3	804.4	789.6	770.0	750.0	737.0
12.5°	929.9	912.1	891.0	866.0	847.3	817.8	797.0	777.4	755.7	729.8	715.6
15°	945.4	927.8	899.3	874.0	849.3	810.1	784.8	764.0	734.9	709.6	687.0
17.5°	964.1	939.1	910.9	874.6	847.3	802.4	773.8	746.8	715.3	685.5	660.6
20°	972.4	946.3	915.9	875.5	840.7	794.0	756.0	729.8	691.8	657.6	629.3
22.5°	973.6	948.6	915.6	872.8	829.4	781.9	738.2	704.0	665.9	629.6	597.8
25°	968.5	944.8	910.6	868.1	816.9	768.8	720.0	680.5	636.5	599.0	566.6
27.5°	954.9	935.6	903.1	857.7	804.2	748.6	695.3	652.2	608.8	566.3	535.4
30°	932.9	920.1	892.1	844.0	787.8	726.6	673.3	623.1	576.1	536.3	503.0
32.5°	904.6	898.4	875.2	827.6	771.2	702.5	646.9	595.2	544.0	506.3	472.1
35°	868.7	871.9	852.3	809.2	750.0	678.1	616.0	561.9	511.9	471.8	440.3
37.5°	822.0	838.0	825.6	785.1	723.0	653.4	583.6	529.2	476.8	438.2	410.5
40°	769.7	797.9	792.0	758.1	693.9	624.6	552.4	493.8	442.7	406.1	379.6
42.5°	708.1	749.2	755.7	725.1	665.0	588.6	517.3	460.8	411.4	375.5	350.2
45°	639.2	690.0	712.0	687.9	631.4	553.8	481.3	425.7	377.0	346.3	325.2
47.5°	569.9	631.1	660.9	649.3	592.2	516.7	445.6	391.2	345.1	318.4	298.5
50°	501.5	567.2	610.6	602.9	553.5	481.3	409.7	356.1	313.9	289.3	272.3
52.5°	441.5	503.6	550.9	554.7	510.4	440.9	371.6	322.0	286.0	263.7	249.4
55°	382.3	440.0	491.7	501.2	465.2	398.4	336.5	289.6	256.9	238.4	226.8
57.5°	329.4	381.7	433.1	449.8	420.7	360.3	298.8	257.4	229.2	214.9	204.8
60°	284.5	331.8	376.1	393.0	373.1	318.1	264.3	227.4	203.9	191.2	183.1
62.5°	245.3	281.8	321.1	339.8	326.4	278.6	231.6	198.9	179.9	168.9	162.6
65°	209.9	238.1	269.0	290.7	275.9	240.2	201.0	172.7	156.7	146.6	142.1
67.5°	177.2	200.7	225.3	242.6	235.2	202.7	169.7	147.7	134.4	126.6	122.5
70°	147.5	165.0	184.9	198.3	192.9	168.0	141.8	124.3	113.0	107.6	104.0
72.5°	121.0	132.3	147.5	158.5	152.8	135.3	116.5	102.6	94.2	88.0	85.3
75°	96.0	105.8	116.5	124.0	119.5	106.4	91.6	80.9	75.2	71.3	69.6
77.5°	72.8	80.6	88.0	91.6	89.5	80.0	69.9	61.5	56.8	54.4	52.3
80°	52.3	56.8	61.8	65.1	63.9	57.4	50.2	43.7	41.6	38.6	38.1
82.5°	35.1	38.6	39.8	41.3	40.4	37.5	32.4	28.5	26.8	25.3	25.0
85°	20.8	21.7	23.2	23.2	22.3	20.2	17.5	16.4	14.6	14.3	13.4
87.5°	9.2	9.2	9.2	9.2	9.2	8.6	7.4	6.8	6.2	5.9	5.6
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°	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3	803.3
2.5°	789.6	786.6	782.4	777.7	773.5	767.0	764.9	764.9	766.4	764.6	763.1
5°	769.1	763.1	757.2	748.0	740.2	729.8	726.9	723.9	723.6	720.6	716.7
7.5°	747.1	738.2	726.0	712.9	704.6	693.3	687.0	685.2	679.6	674.2	668.0
10°	721.5	707.8	693.3	680.8	667.7	653.1	645.7	640.6	635.0	628.5	624.0
12.5°	690.6	675.1	661.8	647.2	636.2	615.7	613.3	606.8	595.5	585.6	582.1
15°	671.6	644.5	629.3	616.0	599.3	578.2	570.5	563.4	552.6	546.4	541.4
17.5°	638.0	613.6	594.6	576.7	560.7	544.3	532.7	526.8	518.2	512.8	507.8
20°	607.3	580.9	561.0	540.2	523.5	508.7	498.8	491.4	486.9	481.6	476.5
22.5°	576.4	548.8	529.8	508.7	489.0	480.1	468.5	462.3	456.3	452.2	446.8
25°	540.5	518.5	494.7	478.3	461.1	451.9	440.9	434.9	430.2	425.4	422.7
27.5°	508.4	486.1	464.1	447.7	433.1	424.2	417.4	411.7	405.8	402.2	400.1
30°	475.1	454.5	435.2	419.5	408.2	398.4	394.2	388.8	384.4	382.9	379.6
32.5°	445.3	422.4	407.0	392.7	383.2	376.4	373.4	367.7	366.8	365.4	363.6
35°	415.6	396.0	381.1	368.9	360.9	355.8	352.0	350.5	349.0	347.5	346.0
37.5°	386.2	370.7	356.7	346.9	340.4	336.5	335.6	332.7	332.4	330.3	330.3
40°	359.7	344.0	334.1	326.4	321.1	319.3	316.9	316.3	315.4	314.8	316.0
42.5°	333.3	322.6	314.2	306.2	302.0	300.6	300.0	299.1	298.5	300.3	300.9
45°	308.6	299.4	292.2	286.6	284.2	282.4	282.4	283.3	283.0	283.9	283.9
47.5°	285.7	277.4	271.4	269.3	266.4	265.8	266.1	265.8	267.3	268.4	269.6
50°	264.0	256.6	251.8	249.7	249.1	248.2	249.4	250.0	250.9	252.1	252.7
52.5°	239.9	236.3	233.4	231.3	231.0	231.3	231.0	233.1	234.0	235.7	235.4
55°	219.4	216.7	214.6	212.3	212.0	212.9	213.4	215.2	216.4	217.9	217.6
57.5°	200.1	198.0	195.6	195.0	194.7	195.0	197.7	197.4	199.2	200.4	201.0
60°	179.0	177.5	175.4	175.4	176.3	176.9	177.8	179.3	181.0	180.7	182.8
62.5°	159.6	157.9	157.3	158.2	157.9	159.3	160.2	160.2	162.6	163.5	164.1
65°	140.3	139.7	138.8	138.8	139.7	140.0	141.5	142.4	143.3	145.1	146.6
67.5°	122.2	120.7	120.7	120.1	121.3	122.2	123.1	124.3	124.9	126.9	127.8
70°	103.2	102.6	102.3	102.9	102.9	103.8	105.2	106.7	107.9	108.2	110.0
72.5°	84.7	84.7	84.7	85.6	86.2	87.1	87.4	88.6	90.4	90.7	91.6
75°	68.1	68.4	68.1	68.4	68.7	69.6	70.2	71.3	72.5	72.8	73.4
77.5°	52.6	52.0	51.4	52.3	52.9	54.7	54.4	55.0	56.2	55.6	56.2
80°	36.9	37.8	36.6	38.3	38.3	38.1	38.6	39.5	39.2	39.8	39.2
82.5°	25.0	24.1	24.1	25.0	25.3	24.4	25.0	25.3	25.6	25.0	24.7
85°	13.7	13.4	14.0	13.1	13.4	12.8	12.8	12.2	12.8	12.2	11.6
87.5°	5.1	4.8	5.1	4.2	3.9	3.6	3.3	3.3	2.7	2.7	2.7
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°	803.3	803.3	803.3	803.3
2.5°	765.2	761.9	760.5	761.6
5°	712.6	713.5	708.1	709.9
7.5°	667.1	663.2	664.4	662.3
10°	618.9	616.9	613.6	614.2
12.5°	586.5	572.6	571.7	569.0
15°	541.1	533.3	531.5	530.9
17.5°	504.8	498.2	500.6	498.8
20°	472.1	472.4	468.5	466.1
22.5°	443.2	442.7	441.2	438.8
25°	418.9	418.9	415.3	414.4
27.5°	396.6	397.2	394.2	394.2
30°	379.9	377.8	377.5	378.1
32.5°	363.3	360.9	361.2	360.9
35°	345.4	346.0	345.1	344.3
37.5°	330.3	330.3	330.3	329.4
40°	315.4	316.0	315.1	315.7
42.5°	300.6	300.9	300.9	299.7
45°	285.7	285.4	284.8	286.0
47.5°	270.2	270.2	269.9	270.5
50°	253.3	253.9	253.0	252.7
52.5°	236.0	236.3	236.0	236.6
55°	218.5	218.5	218.8	219.4
57.5°	200.4	202.4	201.0	202.2
60°	182.5	182.8	183.1	182.5
62.5°	165.6	165.3	165.6	166.5
65°	147.2	147.7	147.5	146.9
67.5°	129.0	128.4	129.3	128.4
70°	109.7	110.9	110.0	111.2
72.5°	92.2	91.9	92.5	91.0
75°	73.7	73.7	74.0	73.7
77.5°	56.5	55.9	55.6	54.7
80°	38.9	38.9	37.8	38.6
82.5°	23.8	24.1	24.4	22.6
85°	11.3	11.3	11.0	10.7
87.5°	2.4	2.4	2.7	3.0
90°	0.0	0.0	0.0	0.0

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