

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: P333941

Luminaire Tested: **S123DS-S560D935-4F0-1E-UDD-A**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333941
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DS-S560D935-4F0-1E-UDD-A
Description: DEFINE 3 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER
PENDANT/SURFACE/WALL MOUNT, 560 LUMENS PER FOOT
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1925.6 lumens
Efficiency: N/A
Efficacy: 102.4 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 4' x L: 0.5' x H: 0')
CIE Type: Direct

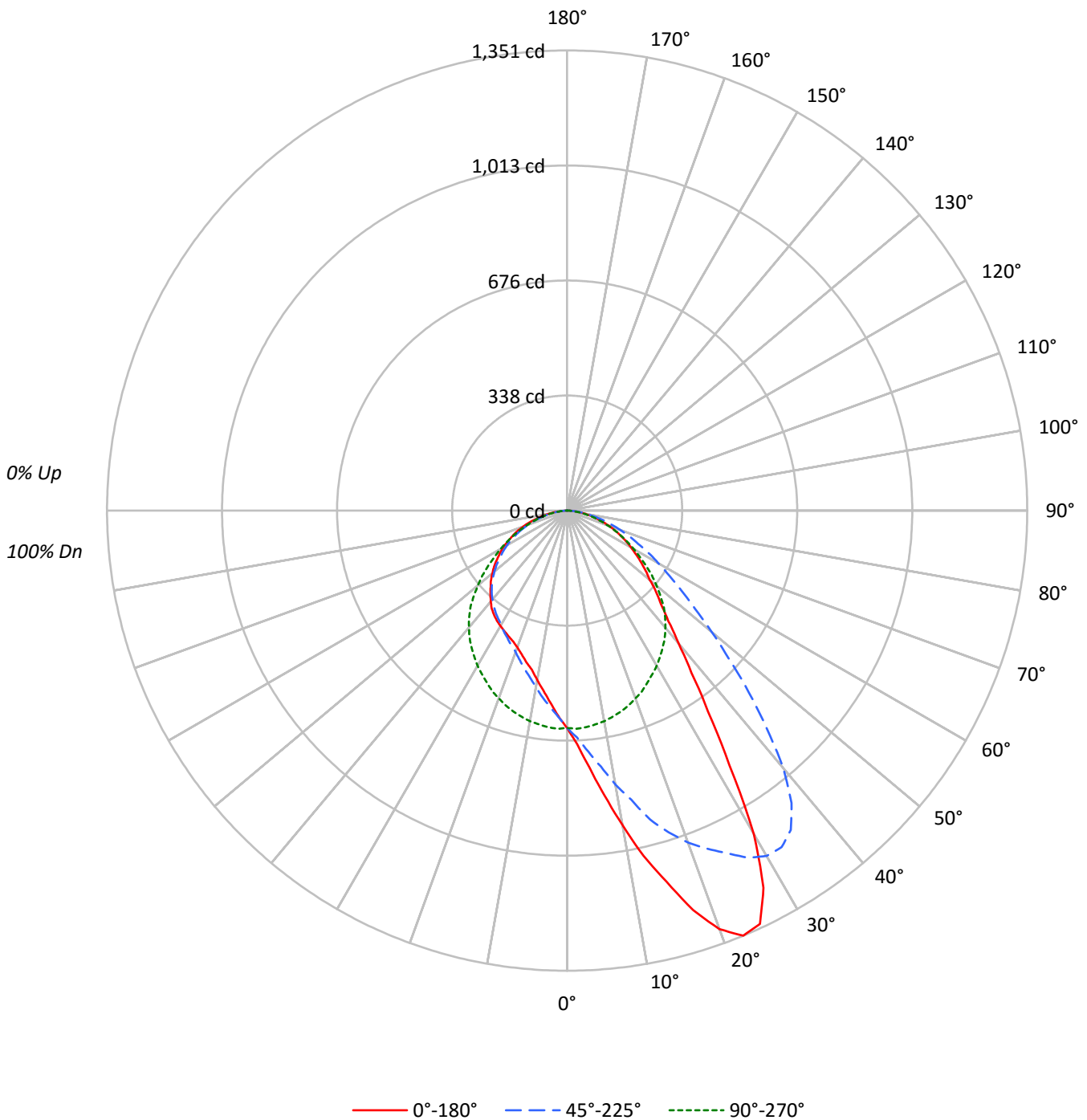
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	3434	3434	3434
5°	4095	3448	3056
10°	5125	3431	2760
15°	6286	3403	2570
20°	7489	3360	2447
25°	7951	3308	2419
30°	6815	3269	2432
35°	4740	3215	2457
40°	3570	3151	2450
45°	2965	3056	2419
50°	2655	2863	2396
55°	2483	2654	2366
60°	2329	2436	2342
65°	2189	2220	2267
70°	2052	1975	2159
75°	1838	1728	1980
80°	1609	1416	1705
85°	1260	1031	1142



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.7	3.3
10°-20°	201.5	10.5
20°-30°	339.1	17.6
30°-40°	383.2	19.9
40°-50°	343.3	17.8
50°-60°	277.1	14.4
60°-70°	193.1	10.0
70°-80°	101.3	5.3
80°-90°	24.3	1.3
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°	603.4	31.3
0°-40°	986.6	51.2
0°-60°	1606.9	83.5
0°-90°	1925.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1925.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	638	638	638	638	638	
5°	758	710	638	578	566	78
15°	1128	939	611	482	461	326
25°	1339	1110	557	414	407	592
35°	721	1144	489	366	374	466
45°	390	754	402	313	318	307
55°	265	410	283	242	252	237
65°	172	230	174	164	178	171
75°	88	109	83	82	95	94
85°	20	24	17	16	18	25
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°	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0
2.5°	686.8	686.2	684.7	685.9	683.4	680.0	679.7	676.6	667.7	667.0	664.6
5°	757.9	755.4	755.1	754.8	750.5	744.6	733.5	732.6	717.7	710.3	701.3
7.5°	843.8	842.9	840.4	837.7	823.1	816.0	805.5	791.9	774.6	757.9	747.4
10°	937.8	948.0	935.3	926.7	918.6	903.5	885.9	863.9	842.0	816.3	796.9
12.5°	1038.6	1042.3	1042.3	1034.2	1020.6	995.6	961.0	936.3	916.5	869.5	852.8
15°	1128.2	1147.1	1135.0	1107.2	1107.8	1085.9	1045.1	1000.2	976.4	939.0	888.0
17.5°	1229.6	1233.0	1229.3	1203.3	1190.6	1158.8	1122.0	1080.3	1035.5	990.0	937.2
20°	1307.5	1305.6	1294.8	1282.8	1256.2	1232.7	1191.6	1143.7	1081.8	1037.3	978.3
22.5°	1350.8	1347.4	1343.6	1334.1	1313.0	1287.4	1251.5	1198.1	1140.0	1074.4	1003.9
25°	1339.0	1343.0	1343.6	1340.9	1333.1	1318.0	1288.9	1247.2	1188.5	1109.7	1038.6
27.5°	1248.1	1258.3	1271.3	1280.0	1293.9	1303.2	1293.9	1267.6	1219.4	1148.9	1061.4
30°	1096.7	1084.3	1114.9	1153.6	1179.8	1226.2	1252.2	1253.7	1229.3	1170.9	1086.2
32.5°	886.5	906.6	915.9	965.6	1030.8	1084.3	1142.4	1194.0	1206.1	1172.1	1100.7
35°	721.4	738.4	763.2	787.9	849.7	902.9	993.7	1072.9	1135.9	1144.3	1098.8
37.5°	599.6	609.5	624.7	651.0	693.3	759.1	831.2	934.1	1020.9	1082.2	1076.0
40°	508.2	510.6	528.2	547.1	579.9	631.8	695.2	783.6	893.0	987.9	1027.4
42.5°	439.5	445.7	450.7	468.6	493.0	528.9	586.7	655.9	753.9	866.7	953.6
45°	389.5	395.6	400.3	412.3	430.9	457.2	498.3	565.0	641.4	754.2	858.4
47.5°	354.8	354.2	358.2	367.8	381.1	402.1	432.4	476.9	550.2	644.5	753.6
50°	317.1	322.1	323.3	330.4	340.3	354.8	379.0	415.4	472.9	553.3	651.6
52.5°	290.6	291.2	295.2	299.8	308.2	318.7	338.8	365.4	407.4	472.9	561.3
55°	264.6	264.6	268.0	272.0	277.0	287.2	301.1	322.1	356.4	409.6	484.4
57.5°	240.5	241.7	244.8	245.7	250.1	257.2	269.2	285.9	312.2	355.2	417.0
60°	216.4	219.2	218.8	221.3	225.0	230.3	240.2	253.2	276.0	308.8	358.9
62.5°	195.3	194.4	194.4	197.5	201.2	206.2	211.7	222.6	241.1	269.2	310.0
65°	171.9	171.2	173.4	175.3	176.5	180.2	185.1	195.0	208.0	229.7	262.7
67.5°	151.5	149.6	151.1	151.8	153.9	157.0	162.0	168.1	178.7	196.9	223.5
70°	130.4	128.9	128.6	129.2	131.1	133.2	136.6	142.5	152.1	166.0	184.2
72.5°	108.8	107.9	107.9	109.4	110.0	111.3	113.4	118.7	125.8	135.4	152.1
75°	88.4	88.4	88.4	88.7	89.6	90.9	92.7	95.5	101.4	108.8	120.2
77.5°	69.9	70.2	69.5	69.2	70.8	71.4	71.7	74.8	78.2	83.8	92.7
80°	51.9	50.4	51.0	51.9	52.5	52.9	53.8	54.4	57.2	60.0	65.8
82.5°	35.2	34.0	34.0	35.5	35.5	35.9	36.8	37.7	38.3	40.8	43.3
85°	20.4	20.4	20.7	20.7	21.0	20.7	21.6	21.9	21.9	23.5	25.3
87.5°	9.3	8.7	9.0	9.3	9.0	9.3	9.6	9.9	10.2	10.5	10.8
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°	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0
2.5°	662.7	660.2	657.8	653.4	649.7	644.5	642.9	641.1	635.5	630.6	626.9
5°	697.9	690.5	679.7	669.8	661.8	651.0	644.8	638.3	629.0	620.7	613.9
7.5°	731.6	718.7	703.5	687.1	671.4	656.2	644.2	633.3	621.3	609.5	600.6
10°	773.4	752.3	728.9	703.5	681.9	660.9	643.2	627.8	611.1	596.6	584.5
12.5°	821.0	787.3	752.7	720.5	693.9	662.7	640.5	619.7	600.3	582.0	568.1
15°	856.5	816.9	778.6	736.3	697.3	660.9	635.5	610.8	588.8	570.9	553.6
17.5°	891.7	848.5	799.6	748.6	702.9	660.9	626.2	599.6	572.8	551.1	534.4
20°	920.8	869.8	812.6	759.1	707.2	659.0	620.0	586.7	557.0	533.8	514.3
22.5°	945.8	884.0	824.4	766.3	706.9	654.1	608.6	574.0	541.2	518.7	497.6
25°	961.6	890.2	830.9	763.8	699.2	645.4	595.9	557.0	524.8	498.3	476.9
27.5°	976.4	889.3	822.2	749.9	689.9	636.4	583.3	541.5	507.8	479.1	457.2
30°	991.3	890.8	807.1	735.7	675.1	619.4	568.1	526.1	490.2	460.9	440.5
32.5°	1000.5	889.9	793.1	715.9	651.6	604.0	551.7	507.8	470.8	442.0	422.5
35°	1003.0	884.6	776.8	687.1	625.9	578.0	534.4	489.3	450.7	423.8	401.5
37.5°	997.8	875.1	758.8	661.2	595.0	547.4	509.4	470.8	433.7	403.7	384.2
40°	980.8	865.8	737.2	633.3	562.9	517.4	486.2	448.5	412.0	383.9	366.0
42.5°	948.3	846.9	713.4	602.4	529.5	484.0	455.9	425.9	391.9	366.0	348.0
45°	891.4	817.9	689.6	571.5	496.7	449.7	424.4	401.5	370.3	344.6	329.2
47.5°	818.8	778.6	655.3	539.1	462.4	417.0	390.4	371.5	347.1	326.4	311.3
50°	742.5	727.9	620.4	505.7	428.1	383.9	358.6	341.9	325.5	304.8	291.2
52.5°	654.4	669.2	579.6	471.1	393.2	349.9	326.4	314.0	299.5	283.4	272.0
55°	572.8	605.2	531.3	431.5	358.6	317.1	294.6	282.8	274.2	261.5	251.3
57.5°	493.6	535.0	481.3	391.6	324.6	288.4	266.1	252.8	247.3	240.2	231.8
60°	424.7	465.5	426.9	351.4	290.2	256.2	237.1	226.3	220.7	216.1	209.3
62.5°	363.2	404.6	373.7	310.6	256.6	225.6	209.6	199.1	195.0	193.2	187.6
65°	307.9	343.4	321.8	268.0	224.7	196.9	181.7	174.3	170.3	169.4	165.7
67.5°	260.0	287.5	270.8	230.3	195.0	169.7	156.4	149.9	146.5	146.2	143.1
70°	213.0	238.3	226.3	190.4	161.0	142.2	131.1	125.5	123.6	123.3	121.8
72.5°	176.5	192.3	183.3	154.9	133.8	117.1	109.7	103.9	101.7	102.3	101.4
75°	136.0	149.3	143.7	123.0	104.8	93.7	86.9	83.1	81.3	82.2	81.0
77.5°	103.9	113.1	107.6	91.8	80.1	71.7	66.5	64.0	62.1	62.1	61.5
80°	73.9	78.8	76.0	67.4	58.1	51.3	47.3	45.7	44.8	44.5	44.2
82.5°	47.3	51.3	47.9	42.7	37.1	33.7	31.8	29.7	29.1	29.4	29.1
85°	26.6	28.1	26.9	23.2	20.7	18.9	17.6	16.7	16.1	16.4	15.8
87.5°	11.4	11.7	10.8	9.6	9.0	8.0	8.0	7.4	6.8	6.8	6.5
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°	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0	638.0
2.5°	624.7	622.5	619.4	614.8	611.1	605.2	605.2	606.1	606.1	605.8	605.2
5°	608.3	603.7	598.1	591.6	584.8	578.0	576.8	574.3	572.4	571.2	569.7
7.5°	591.6	583.9	576.2	567.2	559.5	553.0	548.3	544.3	541.8	539.1	536.9
10°	574.6	564.4	554.8	545.2	534.7	526.4	521.1	517.4	514.6	512.2	510.9
12.5°	554.5	542.5	531.6	522.7	510.9	502.3	497.3	496.1	492.7	486.8	483.7
15°	535.0	524.2	511.6	497.6	492.1	481.6	475.7	472.9	471.1	467.0	465.8
17.5°	519.0	504.4	489.9	479.7	469.5	461.2	457.8	454.1	451.6	447.9	447.0
20°	498.9	486.2	473.2	462.1	451.3	442.0	439.2	436.8	434.3	432.7	431.5
22.5°	478.5	465.8	455.6	445.4	433.7	428.4	425.3	422.5	421.0	420.1	418.8
25°	459.6	448.5	436.4	427.2	417.9	413.9	412.0	410.5	409.2	407.7	407.4
27.5°	442.9	430.6	420.4	411.4	404.6	401.2	399.0	398.1	398.1	398.7	399.0
30°	423.8	412.6	404.6	397.2	391.0	387.9	387.6	387.6	388.8	389.2	389.8
32.5°	406.2	397.5	389.5	382.4	378.0	376.2	377.7	377.7	378.6	379.6	380.8
35°	389.2	381.1	374.9	368.8	364.7	365.7	366.3	366.9	368.4	370.3	371.5
37.5°	373.1	365.7	359.2	354.2	351.8	353.6	355.2	356.4	358.2	359.8	361.0
40°	355.5	350.2	344.0	339.7	340.3	341.2	342.5	344.0	345.6	346.5	347.7
42.5°	339.1	333.5	329.2	325.8	326.7	328.0	328.6	329.2	331.0	332.9	333.5
45°	322.4	318.1	313.7	311.6	312.2	312.8	313.4	314.4	315.9	317.1	317.4
47.5°	303.5	300.4	297.7	295.2	296.4	296.1	297.0	298.9	299.5	300.1	302.0
50°	285.6	282.8	279.4	278.8	278.8	278.8	279.1	281.6	281.6	282.8	284.1
52.5°	265.8	264.3	262.4	261.2	260.6	260.6	262.1	263.0	263.7	265.5	266.8
55°	246.4	244.5	242.6	241.7	241.1	241.7	244.2	244.8	246.4	247.3	248.2
57.5°	226.0	224.7	223.2	222.6	222.6	222.9	224.7	226.3	226.6	229.7	230.9
60°	205.9	203.7	202.5	202.5	201.8	204.6	204.0	207.1	207.7	209.6	211.7
62.5°	185.1	182.1	181.7	181.7	183.0	183.3	184.5	185.5	187.3	189.8	191.3
65°	162.6	161.0	163.2	162.9	162.3	164.1	164.1	165.7	167.5	169.7	173.1
67.5°	141.6	140.3	140.9	140.6	141.6	142.8	143.7	145.0	147.1	149.6	151.8
70°	120.2	121.2	119.6	120.9	121.8	122.1	122.7	124.6	127.0	128.6	131.1
72.5°	99.5	99.2	99.8	100.1	101.1	101.7	102.3	104.5	107.3	108.5	110.3
75°	79.7	79.4	80.4	80.4	81.9	82.5	83.1	84.1	86.5	88.4	89.9
77.5°	61.8	62.1	61.8	63.1	62.4	62.7	64.6	65.5	65.8	69.9	70.5
80°	43.9	44.5	44.8	45.1	45.4	44.8	47.0	47.9	47.9	50.1	51.6
82.5°	28.4	28.7	29.7	30.0	30.0	30.9	30.6	31.2	32.1	32.8	34.9
85°	15.8	16.7	17.0	16.7	17.0	16.4	17.3	17.6	17.9	17.9	17.9
87.5°	6.2	6.5	6.2	6.5	6.2	6.5	6.5	5.9	5.9	6.8	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):

	165°	170°	175°	180°
0°	638.0	638.0	638.0	638.0
2.5°	603.0	602.7	604.9	603.4
5°	567.8	568.7	565.6	565.6
7.5°	536.0	534.7	535.0	532.9
10°	507.2	505.4	504.8	505.1
12.5°	483.4	483.4	478.5	478.5
15°	465.8	459.9	459.3	461.2
17.5°	446.3	442.9	443.2	442.6
20°	431.5	429.6	429.3	427.2
22.5°	417.9	417.6	417.9	415.4
25°	407.1	408.6	407.4	407.4
27.5°	399.7	399.7	398.7	398.7
30°	391.0	390.7	391.3	391.3
32.5°	382.4	383.0	383.0	383.3
35°	373.4	373.7	374.6	374.0
37.5°	361.6	363.2	362.9	363.5
40°	348.0	349.0	348.7	348.7
42.5°	334.1	334.8	333.8	333.2
45°	318.7	318.1	319.0	317.8
47.5°	301.7	302.0	302.3	303.5
50°	284.7	286.5	286.5	286.2
52.5°	268.0	268.6	270.2	270.2
55°	250.7	251.3	251.9	252.2
57.5°	233.1	232.8	234.0	234.3
60°	214.2	214.2	216.7	217.6
62.5°	194.1	195.3	197.8	196.0
65°	174.6	177.1	176.8	178.0
67.5°	154.2	155.8	158.3	158.3
70°	133.5	135.1	136.3	137.2
72.5°	113.4	114.1	117.5	115.6
75°	92.1	94.3	96.1	95.2
77.5°	71.7	74.5	75.1	74.2
80°	53.8	53.5	55.3	55.0
82.5°	35.9	35.5	36.2	36.5
85°	19.2	20.1	18.9	18.5
87.5°	5.6	5.6	5.3	4.9
90°	0.0	0.0	0.0	0.0

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