

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: P242467

Luminaire Tested: **S123DR-S560D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242467
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: S123DR-S560D835-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2236.5 lumens
Efficiency: N/A
Efficacy: 119.0 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

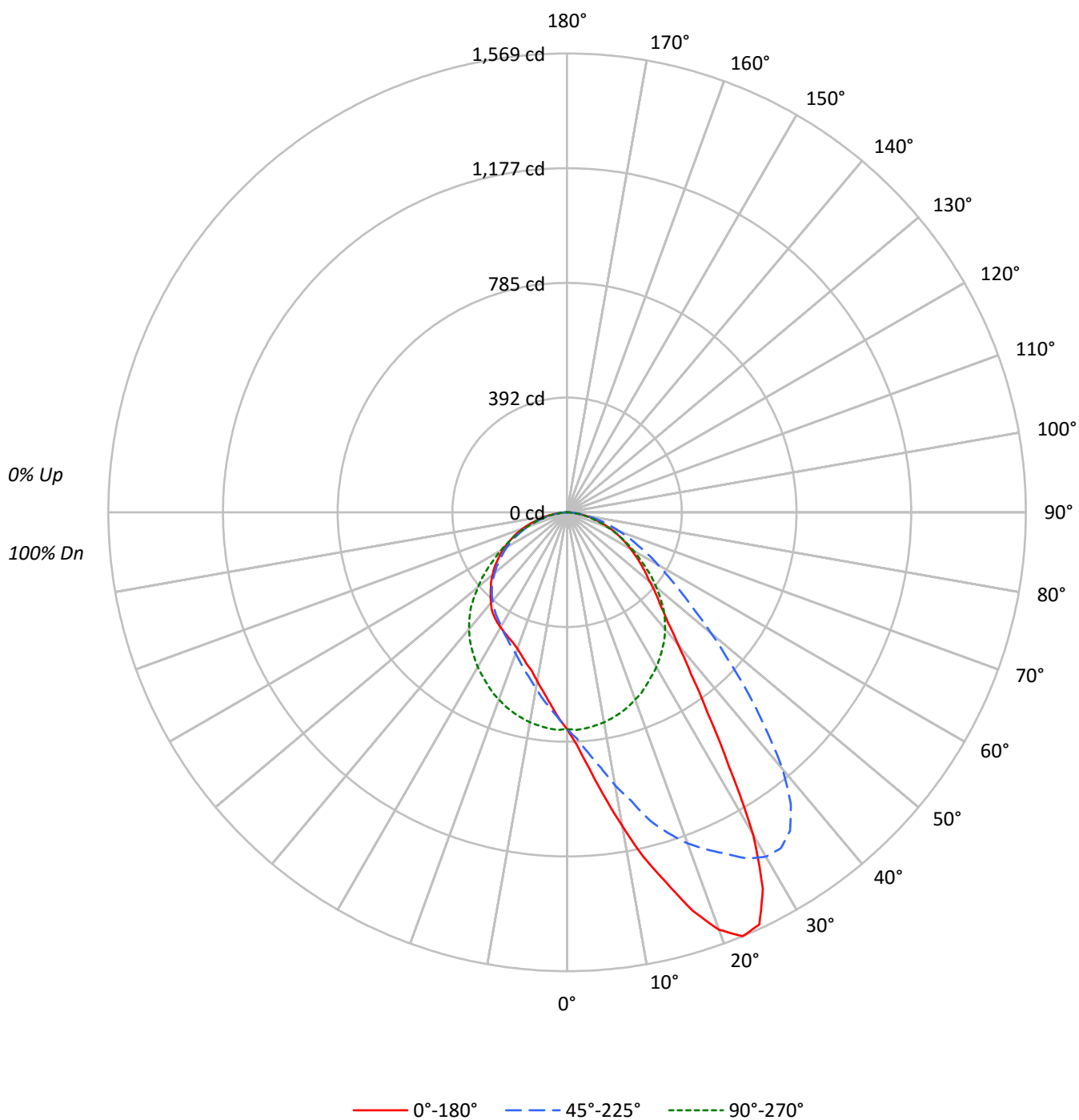
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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°	8982	8982	8982
5°	10711	9020	7994
10°	13406	8974	7220
15°	16443	8902	6721
20°	19589	8789	6399
25°	20800	8652	6329
30°	17827	8552	6361
35°	12399	8409	6428
40°	9339	8242	6408
45°	7753	7993	6327
50°	6945	7488	6268
55°	6494	6942	6190
60°	6092	6371	6126
65°	5725	5808	5931
70°	5369	5167	5649
75°	4810	4524	5180
80°	4209	3707	4460
85°	3296	2698	2990

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.9	3.3
10°-20°	234.1	10.5
20°-30°	393.8	17.6
30°-40°	445.1	19.9
40°-50°	398.7	17.8
50°-60°	321.8	14.4
60°-70°	224.2	10.0
70°-80°	117.7	5.3
80°-90°	28.2	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°	700.8	31.3
0°-40°	1145.9	51.2
0°-60°	1866.3	83.5
0°-90°	2236.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2236.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	741	741	741	741	741	
5°	880	825	741	671	657	91
15°	1310	1091	709	559	536	378
25°	1555	1289	647	481	473	688
35°	838	1329	568	425	434	541
45°	452	876	466	363	369	357
55°	307	476	328	281	293	276
65°	200	267	202	191	207	199
75°	103	126	97	96	111	110
85°	24	27	19	19	22	29
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°	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0
2.5°	797.7	797.0	795.2	796.6	793.7	789.8	789.4	785.8	775.4	774.7	771.8
5°	880.3	877.4	877.0	876.7	871.6	864.8	851.9	850.8	833.6	825.0	814.6
7.5°	980.1	979.0	976.1	972.9	956.0	947.8	935.5	919.8	899.7	880.3	868.1
10°	1089.2	1101.0	1086.3	1076.3	1066.9	1049.4	1028.9	1003.4	977.9	948.1	925.5
12.5°	1206.2	1210.5	1210.5	1201.2	1185.4	1156.3	1116.1	1087.4	1064.4	1009.9	990.5
15°	1310.3	1332.2	1318.2	1285.9	1286.7	1261.2	1213.8	1161.7	1134.1	1090.6	1031.4
17.5°	1428.1	1432.0	1427.7	1397.6	1382.9	1345.9	1303.2	1254.7	1202.6	1149.9	1088.5
20°	1518.6	1516.4	1503.8	1489.8	1459.0	1431.7	1383.9	1328.3	1256.5	1204.8	1136.2
22.5°	1568.8	1564.9	1560.6	1549.4	1525.0	1495.2	1453.6	1391.5	1324.0	1247.9	1166.0
25°	1555.2	1559.8	1560.6	1557.3	1548.4	1530.8	1497.0	1448.6	1380.3	1288.8	1206.2
27.5°	1449.6	1461.5	1476.6	1486.6	1502.8	1513.5	1502.8	1472.3	1416.2	1334.4	1232.8
30°	1273.7	1259.4	1294.9	1339.8	1370.3	1424.1	1454.3	1456.1	1427.7	1359.9	1261.5
32.5°	1029.6	1052.9	1063.7	1121.5	1197.3	1259.4	1326.9	1386.8	1400.8	1361.3	1278.4
35°	837.9	857.6	886.4	915.1	986.9	1048.6	1154.2	1246.1	1319.3	1329.0	1276.2
37.5°	696.5	707.9	725.5	756.1	805.2	881.7	965.3	1084.9	1185.8	1256.9	1249.7
40°	590.2	593.1	613.5	635.4	673.5	733.8	807.4	910.1	1037.1	1147.4	1193.3
42.5°	510.5	517.7	523.4	544.2	572.6	614.2	681.4	761.8	875.6	1006.6	1107.5
45°	452.3	459.5	464.9	478.9	500.4	531.0	578.7	656.2	744.9	876.0	996.9
47.5°	412.1	411.4	416.1	427.2	442.6	467.1	502.2	553.9	639.0	748.5	875.2
50°	368.3	374.1	375.5	383.8	395.3	412.1	440.1	482.5	549.3	642.6	756.8
52.5°	337.5	338.2	342.8	348.2	357.9	370.1	393.5	424.3	473.2	549.3	651.9
55°	307.3	307.3	311.3	315.9	321.7	333.5	349.7	374.1	413.9	475.7	562.6
57.5°	279.3	280.7	284.3	285.4	290.4	298.7	312.7	332.1	362.6	412.5	484.3
60°	251.3	254.5	254.2	257.0	261.4	267.5	278.9	294.0	320.6	358.6	416.8
62.5°	226.9	225.8	225.8	229.4	233.7	239.5	245.9	258.5	280.0	312.7	360.1
65°	199.6	198.9	201.4	203.6	205.0	209.3	215.0	226.5	241.6	266.7	305.1
67.5°	175.9	173.8	175.6	176.3	178.8	182.4	188.1	195.3	207.5	228.7	259.6
70°	151.5	149.7	149.3	150.1	152.2	154.7	158.7	165.5	176.6	192.8	214.0
72.5°	126.4	125.3	125.3	127.1	127.8	129.2	131.8	137.9	146.1	157.2	176.6
75°	102.7	102.7	102.7	103.0	104.1	105.5	107.7	110.9	117.8	126.4	139.7
77.5°	81.1	81.5	80.8	80.4	82.2	82.9	83.3	86.9	90.8	97.3	107.7
80°	60.3	58.5	59.2	60.3	61.0	61.4	62.5	63.2	66.4	69.6	76.5
82.5°	40.9	39.5	39.5	41.3	41.3	41.6	42.7	43.8	44.5	47.4	50.3
85°	23.7	23.7	24.1	24.1	24.4	24.1	25.1	25.5	25.5	27.3	29.4
87.5°	10.8	10.1	10.4	10.8	10.4	10.8	11.1	11.5	11.8	12.2	12.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0
2.5°	769.7	766.8	763.9	758.9	754.6	748.5	746.7	744.6	738.1	732.4	728.0
5°	810.6	802.0	789.4	777.9	768.6	756.1	748.9	741.3	730.6	720.9	713.0
7.5°	849.7	834.7	817.1	798.1	779.7	762.2	748.2	735.6	721.6	707.9	697.5
10°	898.2	873.8	846.5	817.1	792.0	767.5	747.1	729.1	709.7	692.9	678.9
12.5°	953.5	914.4	874.2	836.8	806.0	769.7	743.8	719.8	697.2	676.0	659.8
15°	994.8	948.8	904.3	855.1	809.9	767.5	738.1	709.4	683.9	663.1	643.0
17.5°	1035.7	985.5	928.7	869.5	816.4	767.5	727.3	696.5	665.2	640.1	620.7
20°	1069.5	1010.2	943.8	881.7	821.4	765.4	720.2	681.4	646.9	620.0	597.4
22.5°	1098.5	1026.7	957.4	890.0	821.0	759.6	706.9	666.7	628.6	602.4	578.0
25°	1116.8	1033.9	965.0	887.1	812.1	749.6	692.1	646.9	609.6	578.7	553.9
27.5°	1134.1	1032.8	954.9	870.9	801.3	739.2	677.4	629.0	589.8	556.4	531.0
30°	1151.3	1034.6	937.3	854.4	784.1	719.4	659.8	611.0	569.4	535.3	511.6
32.5°	1162.1	1033.6	921.2	831.4	756.8	701.5	640.8	589.8	546.8	513.4	490.8
35°	1164.9	1027.5	902.2	798.1	727.0	671.3	620.7	568.3	523.4	492.2	466.3
37.5°	1158.8	1016.3	881.3	767.9	691.1	635.8	591.6	546.8	503.7	468.9	446.2
40°	1139.1	1005.6	856.2	735.6	653.7	601.0	564.7	520.9	478.5	445.9	425.1
42.5°	1101.4	983.7	828.6	699.7	615.0	562.2	529.5	494.7	455.2	425.1	404.2
45°	1035.4	949.9	800.9	663.8	576.9	522.3	492.9	466.3	430.1	400.3	382.3
47.5°	951.0	904.3	761.1	626.1	537.1	484.3	453.4	431.5	403.2	379.1	361.5
50°	862.3	845.4	720.5	587.3	497.2	445.9	416.4	397.1	378.0	354.0	338.2
52.5°	760.0	777.2	673.1	547.1	456.6	406.4	379.1	364.7	347.9	329.2	315.9
55°	665.2	702.9	617.1	501.2	416.4	368.3	342.1	328.5	318.4	303.7	291.9
57.5°	573.3	621.4	559.0	454.9	376.9	334.9	309.1	293.7	287.2	278.9	269.2
60°	493.3	540.7	495.8	408.2	337.1	297.6	275.4	262.8	256.3	250.9	243.0
62.5°	421.8	469.9	434.0	360.8	298.0	262.1	243.4	231.2	226.5	224.4	217.9
65°	357.6	398.8	373.7	311.3	261.0	228.7	211.1	202.5	197.8	196.7	192.4
67.5°	301.9	333.9	314.5	267.5	226.5	197.1	181.7	174.1	170.2	169.8	166.2
70°	247.3	276.8	262.8	221.1	187.0	165.1	152.2	145.8	143.6	143.2	141.4
72.5°	205.0	223.3	212.9	179.9	155.4	136.1	127.4	120.6	118.1	118.8	117.8
75°	158.0	173.4	166.9	142.9	121.7	108.8	100.9	96.6	94.4	95.5	94.1
77.5°	120.6	131.4	124.9	106.6	93.0	83.3	77.2	74.3	72.2	72.2	71.4
80°	85.8	91.5	88.3	78.3	67.5	59.6	54.9	53.1	52.1	51.7	51.3
82.5°	54.9	59.6	55.6	49.5	43.1	39.1	37.0	34.5	33.7	34.1	33.7
85°	30.9	32.7	31.2	26.9	24.1	21.9	20.5	19.4	18.7	19.0	18.3
87.5°	13.3	13.6	12.6	11.1	10.4	9.3	9.3	8.6	7.9	7.9	7.5
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°	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0	741.0
2.5°	725.5	723.0	719.4	714.0	709.7	702.9	702.9	704.0	704.0	703.6	702.9
5°	706.5	701.1	694.7	687.1	679.2	671.3	669.9	667.0	664.9	663.4	661.6
7.5°	687.1	678.1	669.2	658.8	649.8	642.2	636.9	632.2	629.3	626.1	623.6
10°	667.4	655.5	644.4	633.3	621.1	611.4	605.3	601.0	597.7	594.9	593.4
12.5°	644.0	630.0	617.5	607.1	593.4	583.4	577.6	576.2	572.2	565.4	561.8
15°	621.4	608.9	594.1	578.0	571.5	559.3	552.5	549.3	547.1	542.4	541.0
17.5°	602.8	585.9	569.0	557.2	545.3	535.6	531.7	527.4	524.5	520.2	519.1
20°	579.4	564.7	549.6	536.7	524.1	513.4	510.1	507.3	504.4	502.6	501.2
22.5°	555.7	541.0	529.2	517.3	503.7	497.6	494.0	490.8	489.0	487.9	486.4
25°	533.8	520.9	506.9	496.1	485.4	480.7	478.5	476.7	475.3	473.5	473.2
27.5°	514.4	500.1	488.2	477.8	469.9	466.0	463.5	462.4	462.4	463.1	463.5
30°	492.2	479.3	469.9	461.3	454.1	450.5	450.2	450.2	451.6	452.0	452.7
32.5°	471.7	461.7	452.3	444.1	439.1	436.9	438.7	438.7	439.8	440.9	442.3
35°	452.0	442.6	435.5	428.3	423.6	424.7	425.4	426.1	427.9	430.1	431.5
37.5°	433.3	424.7	417.2	411.4	408.5	410.7	412.5	413.9	416.1	417.9	419.3
40°	412.8	406.7	399.6	394.5	395.3	396.3	397.8	399.6	401.4	402.4	403.9
42.5°	393.8	387.4	382.3	378.4	379.5	380.9	381.6	382.3	384.5	386.6	387.4
45°	374.4	369.4	364.4	361.9	362.6	363.3	364.0	365.1	366.9	368.3	368.7
47.5°	352.5	348.9	345.7	342.8	344.3	343.9	345.0	347.2	347.9	348.6	350.7
50°	331.7	328.5	324.5	323.8	323.8	323.8	324.2	327.0	327.0	328.5	329.9
52.5°	308.7	306.9	304.8	303.4	302.6	302.6	304.4	305.5	306.2	308.4	309.8
55°	286.1	284.0	281.8	280.7	280.0	280.7	283.6	284.3	286.1	287.2	288.3
57.5°	262.4	261.0	259.2	258.5	258.5	258.8	261.0	262.8	263.1	266.7	268.2
60°	239.1	236.6	235.1	235.1	234.4	237.7	236.9	240.5	241.2	243.4	245.9
62.5°	215.0	211.5	211.1	211.1	212.5	212.9	214.3	215.4	217.6	220.4	222.2
65°	188.8	187.0	189.6	189.2	188.5	190.6	190.6	192.4	194.6	197.1	201.0
67.5°	164.4	163.0	163.7	163.3	164.4	165.9	166.9	168.4	170.9	173.8	176.3
70°	139.7	140.7	138.9	140.4	141.4	141.8	142.5	144.7	147.5	149.3	152.2
72.5°	115.6	115.2	116.0	116.3	117.4	118.1	118.8	121.3	124.6	126.0	128.2
75°	92.6	92.3	93.3	93.3	95.1	95.9	96.6	97.6	100.5	102.7	104.5
77.5°	71.8	72.2	71.8	73.2	72.5	72.9	75.0	76.1	76.5	81.1	81.9
80°	51.0	51.7	52.1	52.4	52.8	52.1	54.6	55.6	55.6	58.2	60.0
82.5°	33.0	33.4	34.5	34.8	34.8	35.9	35.5	36.3	37.3	38.1	40.6
85°	18.3	19.4	19.7	19.4	19.7	19.0	20.1	20.5	20.8	20.8	20.8
87.5°	7.2	7.5	7.2	7.5	7.2	7.5	7.5	6.8	6.8	7.9	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):

	165°	170°	175°	180°
0°	741.0	741.0	741.0	741.0
2.5°	700.4	700.0	702.6	700.8
5°	659.5	660.6	657.0	657.0
7.5°	622.5	621.1	621.4	618.9
10°	589.1	587.0	586.2	586.6
12.5°	561.5	561.5	555.7	555.7
15°	541.0	534.2	533.5	535.6
17.5°	518.4	514.4	514.8	514.1
20°	501.2	499.0	498.6	496.1
22.5°	485.4	485.0	485.4	482.5
25°	472.8	474.6	473.2	473.2
27.5°	464.2	464.2	463.1	463.1
30°	454.1	453.8	454.5	454.5
32.5°	444.1	444.8	444.8	445.2
35°	433.7	434.0	435.1	434.4
37.5°	420.0	421.8	421.5	422.2
40°	404.2	405.3	405.0	405.0
42.5°	388.1	388.8	387.7	387.0
45°	370.1	369.4	370.5	369.1
47.5°	350.4	350.7	351.1	352.5
50°	330.6	332.8	332.8	332.4
52.5°	311.3	312.0	313.8	313.8
55°	291.1	291.9	292.6	292.9
57.5°	270.7	270.3	271.8	272.1
60°	248.8	248.8	251.7	252.7
62.5°	225.5	226.9	229.8	227.6
65°	202.8	205.7	205.3	206.8
67.5°	179.1	180.9	183.8	183.8
70°	155.1	156.9	158.3	159.4
72.5°	131.8	132.5	136.4	134.3
75°	107.0	109.5	111.6	110.6
77.5°	83.3	86.5	87.2	86.2
80°	62.5	62.1	64.3	63.9
82.5°	41.6	41.3	42.0	42.4
85°	22.3	23.3	21.9	21.5
87.5°	6.5	6.5	6.1	5.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)