

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: P332638-930

Luminaire Tested: **S124DIP-S1020D590U930-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332638-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D590U930-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

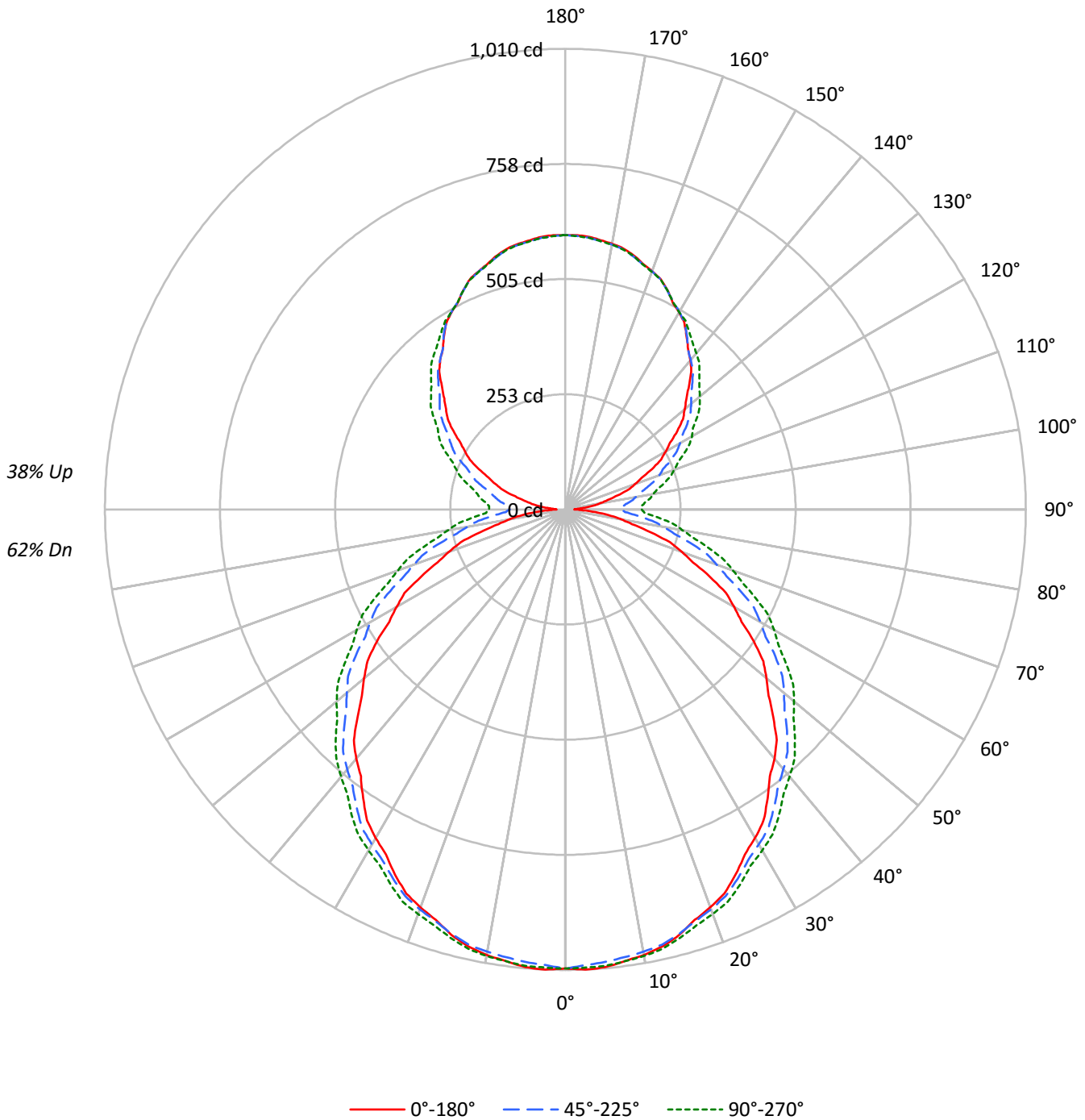
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5101.4 lumens  
Efficiency: N/A  
Efficacy: 104.5 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: Semi-Direct  
  
Input Watts (W): 48.8  
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	62
1	99	94	90	86	93	88	84	81	77	74	72	67	65	63	58	56	54	50
2	90	82	75	69	84	77	70	65	67	62	58	58	54	51	50	47	45	41
3	82	71	63	57	76	67	60	54	59	53	48	51	47	43	44	40	38	34
4	75	63	54	48	69	59	51	45	52	46	41	45	40	36	39	35	32	29
5	68	56	47	41	64	53	45	39	46	40	35	40	35	31	35	31	28	25
6	63	50	41	35	59	47	39	34	42	35	30	36	31	27	32	27	24	21
7	58	45	37	31	54	43	35	29	38	31	27	33	28	24	29	25	21	19
8	54	41	33	27	50	39	31	26	34	28	24	30	25	21	26	22	19	17
9	50	37	30	24	47	35	28	23	31	25	21	28	23	19	24	20	17	15
10	47	34	27	22	44	33	26	21	29	23	19	26	21	17	23	18	16	14

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

	0°	45°	90°
0°	8127	8127	8127
5°	8151	7942	7965
10°	8102	7812	7807
15°	8029	7662	7620
20°	7920	7496	7438
25°	7797	7310	7239
30°	7663	7125	7034
35°	7511	6935	6855
40°	7390	6755	6667
45°	7210	6588	6507
50°	7059	6397	6337
55°	6902	6217	6138
60°	6657	5986	5956
65°	6389	5740	5734
70°	6066	5458	5474
75°	5612	5146	5239
80°	5110	4847	5007
85°	4474	4583	4872



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	95.3	1.9
10°-20°	273.1	5.4
20°-30°	413.0	8.1
30°-40°	499.7	9.8
40°-50°	528.2	10.4
50°-60°	497.1	9.7
60°-70°	412.5	8.1
70°-80°	289.7	5.7
80°-90°	165.6	3.2
90°-100°	136.9	2.7
100°-110°	189.5	3.7
110°-120°	247.7	4.9
120°-130°	290.2	5.7
130°-140°	307.0	6.0
140°-150°	292.5	5.7
150°-160°	244.1	4.8
160°-170°	162.4	3.2
170°-180°	56.9	1.1
0°-30°	781.4	15.3
0°-40°	1281.1	25.1
0°-60°	2306.5	45.2
0°-90°	3174.2	62.2
90°-120°	574.1	11.3
90°-150°	1463.9	28.7
90°-180°	1927.0	37.8
0°-180°	5101.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1007	1007	1007	1007	1007	
5°	1008	1004	996	1005	1004	96
15°	966	967	964	973	973	272
25°	884	890	894	906	907	407
35°	773	787	798	813	817	484
45°	645	666	688	706	712	498
55°	505	529	562	584	592	450
65°	349	386	424	451	461	346
75°	194	236	283	313	325	206
85°	60	107	158	190	203	64
90°	19	70	122	156	167	14
95°	43	84	133	164	175	43
105°	118	143	185	214	225	126
115°	210	221	255	278	287	207
125°	300	300	326	346	353	267
135°	383	386	394	410	416	297
145°	464	465	465	471	474	290
155°	530	530	530	531	530	244
165°	577	576	575	577	576	163
175°	600	598	598	600	598	57
180°	601	601	601	601	601	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7
2.5°	1010.2	1009.7	1009.0	1008.4	1007.8	1006.7	1005.1	1003.6	1001.9	1000.3	1001.7
5°	1007.7	1007.0	1006.2	1005.5	1004.8	1003.5	1001.8	1000.0	998.3	996.5	998.5
7.5°	999.1	998.7	998.3	997.8	997.4	996.5	995.0	993.5	992.1	990.6	992.9
10°	992.0	991.7	991.5	991.2	991.0	990.2	989.0	987.7	986.4	985.2	987.5
12.5°	982.0	982.0	981.9	981.9	981.9	981.4	980.6	979.7	978.8	978.0	980.1
15°	966.0	966.3	966.5	966.8	967.0	966.8	966.0	965.3	964.5	963.8	966.0
17.5°	944.2	944.9	945.7	946.4	947.2	947.5	947.3	947.2	947.1	946.9	949.2
20°	928.9	929.6	930.3	931.1	931.9	932.4	932.6	932.9	933.1	933.4	935.9
22.5°	911.7	912.6	913.6	914.6	915.5	916.2	916.6	917.1	917.5	918.0	920.6
25°	883.8	885.3	886.7	888.3	889.7	890.9	891.6	892.4	893.2	893.9	896.7
27.5°	852.6	854.8	857.0	859.2	861.4	863.2	864.3	865.4	866.6	867.7	870.3
30°	831.9	833.9	835.9	837.9	839.9	841.8	843.5	845.3	847.0	848.8	851.6
32.5°	809.3	811.8	814.2	816.6	819.0	821.2	823.1	825.1	827.0	829.0	832.1
35°	773.3	776.3	779.3	782.3	785.3	788.1	790.6	793.0	795.6	798.1	801.6
37.5°	736.9	740.5	743.9	747.4	750.8	754.1	757.2	760.3	763.4	766.5	770.1
40°	713.5	716.8	720.1	723.3	726.6	729.9	733.4	736.9	740.5	744.0	747.7
42.5°	686.5	690.2	693.8	697.5	701.1	705.0	709.1	713.2	717.3	721.5	725.6
45°	644.7	649.5	654.3	659.1	663.8	668.5	673.4	678.1	682.8	687.6	691.9
47.5°	604.9	609.8	614.7	619.6	624.5	629.7	635.2	640.7	646.3	651.8	656.2
50°	576.0	581.6	587.0	592.6	598.0	603.6	609.1	614.6	620.1	625.6	630.6
52.5°	547.1	552.7	558.2	563.7	569.2	575.1	581.4	587.7	594.0	600.4	605.4
55°	505.0	510.3	515.5	520.8	526.0	532.4	540.0	547.5	555.0	562.5	567.5
57.5°	457.9	464.4	470.9	477.4	484.0	490.9	498.4	505.9	513.3	520.8	526.8
60°	427.2	433.7	440.3	446.8	453.3	460.6	469.0	477.2	485.4	493.7	499.5
62.5°	397.5	404.6	411.7	418.8	425.9	433.6	441.9	450.1	458.4	466.7	472.5
65°	349.4	357.4	365.5	373.5	381.5	389.8	398.3	406.8	415.3	423.9	430.1
67.5°	303.2	311.8	320.2	328.8	337.3	346.1	355.2	364.4	373.5	382.6	389.0
70°	271.7	280.2	288.7	297.2	305.7	314.8	324.2	333.8	343.3	352.9	359.6
72.5°	241.0	249.7	258.4	267.2	275.9	285.3	295.4	305.5	315.7	325.8	332.3
75°	193.9	203.2	212.4	221.7	231.0	240.8	251.4	261.9	272.4	282.9	289.9
77.5°	149.9	159.7	169.6	179.4	189.2	199.6	210.7	221.7	232.7	243.7	250.8
80°	122.9	132.9	142.9	153.0	163.0	173.5	184.5	195.5	206.5	217.5	225.1
82.5°	95.8	106.2	116.7	127.1	137.5	148.2	159.2	170.2	181.3	192.3	200.0
85°	59.8	70.3	80.8	91.3	101.8	112.8	124.0	135.3	146.5	157.8	165.3
87.5°	33.7	44.1	54.5	65.0	75.4	86.3	97.3	108.5	119.6	130.8	138.2
90°	19.4	30.6	41.7	52.9	64.1	75.4	87.0	98.7	110.2	121.8	129.7
92.5°	27.1	37.4	47.7	58.0	68.4	79.2	90.6	101.9	113.2	124.6	132.0
95°	42.6	51.8	61.0	70.1	79.3	89.4	100.4	111.5	122.4	133.4	140.5
97.5°	62.0	69.9	77.8	85.6	93.4	102.9	113.9	124.9	136.0	147.0	153.9
100°	77.5	84.5	91.3	98.2	105.2	114.0	124.7	135.4	146.1	156.8	163.8
102.5°	94.6	100.5	106.4	112.3	118.1	126.3	136.6	147.1	157.5	168.0	174.8
105°	118.5	123.6	128.7	133.8	138.9	146.3	156.0	165.7	175.4	185.1	191.7
107.5°	145.7	149.9	154.2	158.4	162.7	169.2	178.0	186.8	195.7	204.5	210.9
110°	163.4	167.1	170.8	174.6	178.2	184.4	193.1	201.8	210.4	219.1	224.6



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	181.8	185.0	188.2	191.3	194.4	200.1	208.3	216.5	224.6	232.8	238.3
115°	209.5	211.7	214.0	216.3	218.5	223.6	231.4	239.2	247.0	254.8	260.2
117.5°	236.6	238.1	239.5	240.9	242.4	246.7	254.0	261.4	268.7	276.1	280.9
120°	254.0	255.1	256.2	257.5	258.6	262.7	269.6	276.5	283.6	290.5	295.0
122.5°	273.0	273.2	273.5	273.9	274.2	277.7	284.5	291.1	297.8	304.6	309.2
125°	299.8	299.5	299.3	299.1	298.8	301.7	307.9	314.1	320.2	326.4	330.9
127.5°	325.0	325.0	325.1	325.1	325.2	327.5	332.2	336.8	341.4	346.1	350.4
130°	341.9	341.9	342.0	342.1	342.2	344.1	348.2	352.2	356.2	360.2	364.5
132.5°	360.1	360.1	360.1	360.0	360.0	361.6	364.7	367.9	371.0	374.1	378.2
135°	383.1	383.7	384.3	385.0	385.6	386.8	388.5	390.3	392.0	393.8	397.5
137.5°	409.3	409.4	409.4	409.4	409.4	410.0	411.0	412.1	413.0	414.1	417.4
140°	426.8	426.7	426.7	426.6	426.6	426.7	427.0	427.2	427.5	427.7	430.9
142.5°	441.9	442.1	442.2	442.4	442.5	442.5	442.2	442.1	441.8	441.6	444.4
145°	463.8	464.0	464.1	464.3	464.5	464.6	464.7	464.8	464.9	465.0	466.4
147.5°	485.8	486.0	486.2	486.5	486.7	486.8	486.7	486.7	486.6	486.5	486.6
150°	499.1	499.3	499.5	499.6	499.8	499.9	499.9	499.9	499.9	499.9	499.9
152.5°	510.9	511.1	511.3	511.5	511.7	511.8	511.9	512.0	512.1	512.2	512.4
155°	530.1	530.1	530.1	530.1	530.1	530.0	529.9	529.9	529.8	529.6	530.0
157.5°	546.5	546.3	546.1	545.9	545.8	545.6	545.6	545.6	545.6	545.5	545.8
160°	556.1	556.0	556.0	555.9	555.7	555.6	555.5	555.5	555.3	555.2	555.5
162.5°	565.1	564.8	564.5	564.3	564.0	563.8	563.7	563.6	563.5	563.4	563.9
165°	577.1	576.7	576.4	576.2	575.8	575.6	575.4	575.2	574.9	574.8	575.4
167.5°	586.3	585.9	585.4	585.0	584.6	584.3	584.3	584.4	584.4	584.4	585.1
170°	591.5	591.0	590.4	590.0	589.4	589.2	589.3	589.4	589.5	589.6	590.3
172.5°	595.2	594.8	594.4	593.9	593.5	593.3	593.3	593.3	593.3	593.4	594.0
175°	600.3	599.8	599.3	598.8	598.3	597.9	597.9	597.8	597.6	597.5	598.3
177.5°	602.0	601.6	601.2	600.8	600.3	600.1	600.1	600.1	600.1	600.1	600.7
180°	601.3	601.3	601.3	601.3	601.3	601.3	601.3	601.3	601.3	601.3	601.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7
2.5°	1003.1	1004.5	1005.9	1006.5	1006.3	1006.1	1005.9	1005.8
5°	1000.5	1002.5	1004.5	1005.3	1005.1	1004.9	1004.6	1004.4
7.5°	995.2	997.4	999.6	1000.6	1000.4	1000.1	999.9	999.6
10°	989.7	992.0	994.3	995.2	995.0	994.7	994.5	994.3
12.5°	982.1	984.1	986.2	987.2	987.2	987.1	987.1	987.0
15°	968.3	970.5	972.8	973.8	973.5	973.3	973.1	972.8
17.5°	951.5	953.8	956.1	957.2	956.9	956.8	956.5	956.3
20°	938.3	940.9	943.4	944.6	944.6	944.6	944.6	944.6
22.5°	923.0	925.5	928.1	929.5	929.9	930.3	930.7	931.1
25°	899.4	902.1	904.9	906.4	906.7	906.9	907.2	907.4
27.5°	872.9	875.4	878.0	879.4	879.7	880.0	880.3	880.6
30°	854.4	857.0	859.8	861.4	861.9	862.4	863.0	863.5
32.5°	835.3	838.5	841.6	843.4	843.9	844.4	844.9	845.5
35°	805.1	808.6	812.1	814.2	815.0	815.7	816.5	817.3
37.5°	773.6	777.2	780.7	782.9	783.7	784.6	785.3	786.1
40°	751.5	755.2	759.0	761.4	762.4	763.4	764.4	765.4
42.5°	729.8	733.9	738.1	740.5	741.4	742.2	743.0	743.7
45°	696.1	700.4	704.7	707.4	708.7	709.9	711.2	712.4
47.5°	660.6	665.0	669.4	672.4	673.8	675.4	676.9	678.4
50°	635.6	640.7	645.6	648.9	650.4	651.9	653.4	654.9
52.5°	610.4	615.4	620.4	623.6	625.2	626.6	628.2	629.7
55°	572.5	577.6	582.5	585.8	587.3	588.8	590.3	591.8
57.5°	532.7	538.7	544.6	548.3	549.7	551.1	552.5	553.9
60°	505.2	511.0	516.7	520.7	522.7	524.6	526.7	528.6
62.5°	478.2	484.0	489.8	493.6	495.6	497.6	499.6	501.7
65°	436.3	442.6	448.9	453.1	455.0	457.1	459.0	461.1
67.5°	395.3	401.7	408.1	412.2	414.2	416.1	418.1	420.0
70°	366.3	373.1	379.8	384.2	385.9	387.7	389.4	391.2
72.5°	338.9	345.4	352.0	356.3	358.2	360.2	362.2	364.1
75°	296.9	303.9	311.0	315.6	317.9	320.2	322.4	324.7
77.5°	258.0	265.1	272.1	277.0	279.3	281.8	284.1	286.6
80°	232.6	240.1	247.6	252.3	254.4	256.4	258.4	260.4
82.5°	207.7	215.5	223.1	228.1	230.3	232.5	234.7	236.9
85°	172.8	180.3	187.8	192.9	195.4	197.9	200.4	202.9
87.5°	145.5	153.0	160.4	165.2	167.4	169.7	171.9	174.1
90°	137.6	145.4	153.4	158.4	160.6	162.8	165.0	167.2
92.5°	139.5	146.9	154.3	159.1	161.3	163.4	165.5	167.6
95°	147.6	154.7	161.7	166.4	168.6	170.9	173.2	175.4
97.5°	160.9	167.8	174.7	179.3	181.4	183.6	185.7	187.8
100°	170.7	177.7	184.7	189.1	190.8	192.6	194.3	196.1
102.5°	181.6	188.5	195.3	199.7	201.8	203.8	205.9	207.9
105°	198.2	204.8	211.3	215.8	218.1	220.5	222.7	225.0
107.5°	217.4	223.8	230.3	234.4	236.2	238.0	239.8	241.6
110°	230.2	235.8	241.3	245.2	247.6	249.9	252.2	254.5





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	243.9	249.4	254.9	258.7	260.7	262.9	264.9	266.9
115°	265.6	271.0	276.4	280.0	281.6	283.2	284.9	286.6
117.5°	285.8	290.6	295.5	298.8	300.6	302.4	304.2	306.0
120°	299.5	303.9	308.4	311.8	314.1	316.3	318.5	320.7
122.5°	313.9	318.5	323.2	326.3	327.7	329.1	330.5	332.0
125°	335.5	340.1	344.6	347.5	348.8	350.1	351.4	352.7
127.5°	354.7	359.1	363.3	366.2	367.8	369.3	370.9	372.4
130°	368.8	373.1	377.4	380.1	381.2	382.3	383.4	384.5
132.5°	382.3	386.4	390.5	393.2	394.5	395.9	397.2	398.6
135°	401.4	405.2	409.0	411.5	412.7	413.8	415.1	416.2
137.5°	420.9	424.2	427.6	430.0	431.3	432.6	433.9	435.2
140°	434.1	437.2	440.3	442.5	443.7	444.8	446.0	447.1
142.5°	447.2	450.0	452.9	454.9	455.8	456.9	458.0	458.9
145°	467.8	469.2	470.6	471.7	472.3	473.0	473.7	474.4
147.5°	486.7	486.8	487.0	487.4	488.0	488.8	489.4	490.2
150°	499.9	499.9	499.9	499.9	499.7	499.6	499.5	499.5
152.5°	512.7	512.9	513.1	513.1	512.9	512.6	512.3	512.1
155°	530.4	530.8	531.3	531.3	530.8	530.4	530.0	529.6
157.5°	546.2	546.5	546.8	546.7	546.4	546.1	545.7	545.4
160°	555.9	556.1	556.4	556.4	555.9	555.3	554.8	554.3
162.5°	564.5	565.1	565.7	565.7	565.2	564.6	564.1	563.6
165°	576.0	576.6	577.2	577.3	576.9	576.5	576.1	575.7
167.5°	585.6	586.3	586.9	586.9	586.3	585.6	585.0	584.3
170°	590.8	591.5	592.1	592.1	591.3	590.6	589.9	589.1
172.5°	594.8	595.5	596.1	596.1	595.4	594.7	593.9	593.3
175°	599.0	599.7	600.4	600.4	599.7	599.0	598.3	597.5
177.5°	601.3	601.9	602.4	602.4	601.8	601.1	600.4	599.7
180°	601.3	601.3	601.3	601.3	601.3	601.3	601.3	601.3

(END OF REPORT)