

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: P332719-840

Luminaire Tested: **S124DIW-S350D470U840-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332719-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DIW-S350D470U840-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 350 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3425.4 lumens
Efficiency: N/A
Efficacy: 148.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: General Diffuse

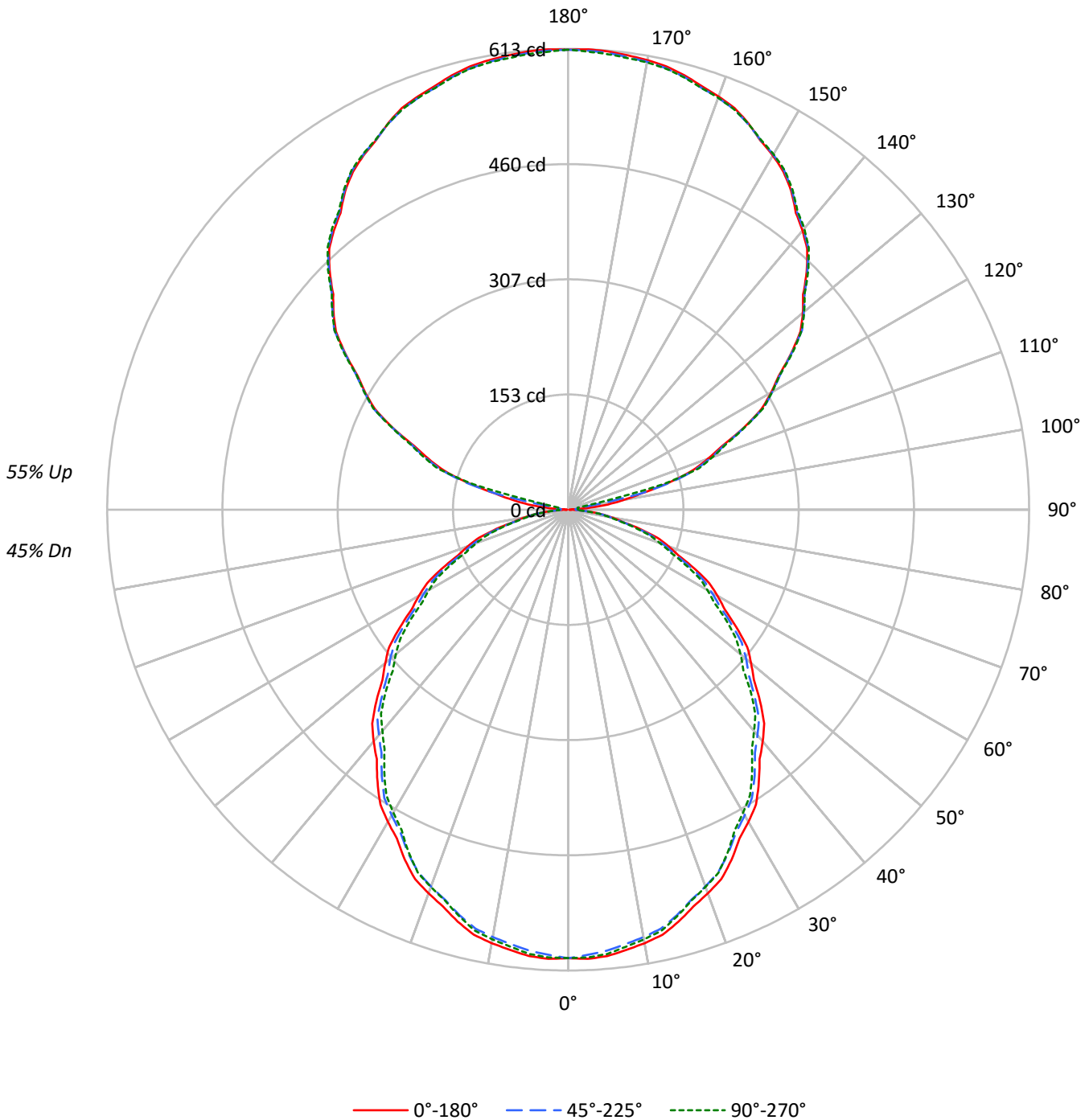
Input Watts (W): 23
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	45
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43	38
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36	31
3	80	71	63	58	73	65	59	54	54	50	46	44	41	38	35	33	31	27
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	32	29	27	23
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	28	26	23	20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20	17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	20	18	15
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14
9	49	37	30	25	45	35	28	23	29	24	20	25	20	18	20	17	15	12
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4816	4816	4816
5°	4830	4772	4807
10°	4800	4733	4757
15°	4741	4667	4679
20°	4665	4582	4587
25°	4577	4488	4475
30°	4470	4376	4336
35°	4357	4258	4202
40°	4241	4126	4051
45°	4120	3995	3919
50°	3986	3878	3758
55°	3842	3727	3606
60°	3696	3559	3450
65°	3534	3396	3261
70°	3352	3182	3059
75°	3072	2923	2848
80°	2734	2627	2552
85°	2399	2297	2251



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.2	1.6
10°-20°	158.3	4.6
20°-30°	233.0	6.8
30°-40°	270.8	7.9
40°-50°	270.9	7.9
50°-60°	236.9	6.9
60°-70°	175.9	5.1
70°-80°	100.0	2.9
80°-90°	30.6	0.9
90°-100°	20.9	0.6
100°-110°	133.4	3.9
110°-120°	255.3	7.5
120°-130°	324.0	9.5
130°-140°	346.7	10.1
140°-150°	324.2	9.5
150°-160°	261.4	7.6
160°-170°	168.6	4.9
170°-180°	58.1	1.7
0°-30°	447.4	13.1
0°-40°	718.3	21.0
0°-60°	1226.1	35.8
0°-90°	1532.6	44.7
90°-120°	409.6	12.0
90°-150°	1404.6	41.0
90°-180°	1893.0	55.3
0°-180°	3425.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	596	596	596	596	596	
5°	596	594	589	594	593	57
15°	567	565	558	561	560	160
25°	514	510	504	504	502	236
35°	442	439	432	429	426	276
45°	361	357	350	345	343	278
55°	273	271	265	259	256	244
65°	185	182	178	173	171	183
75°	98	96	94	92	91	105
85°	26	26	25	25	24	28
90°	1	6	10	13	14	3
95°	25	10	10	13	13	32
105°	138	140	143	146	130	144
115°	257	258	258	259	259	253
125°	362	363	362	364	364	323
135°	448	448	450	451	452	345
145°	517	518	519	519	520	323
155°	567	567	566	568	567	261
165°	598	596	596	599	595	169
175°	612	609	610	613	608	58
180°	612	612	612	612	612	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5
2.5°	598.0	597.8	597.5	597.3	597.0	596.4	595.5	594.6	593.7	592.7	593.6
5°	596.0	595.6	595.2	594.8	594.4	593.6	592.4	591.3	590.1	588.9	590.1
7.5°	590.6	590.1	589.7	589.3	588.9	587.9	586.6	585.4	584.1	582.8	583.7
10°	585.5	585.1	584.7	584.3	583.9	583.0	581.6	580.2	578.9	577.4	578.2
12.5°	579.1	578.7	578.2	577.7	577.3	576.4	574.9	573.5	572.0	570.6	571.5
15°	567.3	566.9	566.5	566.1	565.7	564.7	563.1	561.5	559.9	558.4	559.0
17.5°	553.3	552.8	552.3	551.8	551.2	550.2	548.7	547.1	545.6	544.1	544.5
20°	543.0	542.5	542.0	541.4	540.9	539.9	538.3	536.6	535.0	533.4	533.8
22.5°	531.9	531.2	530.5	529.8	529.1	528.0	526.3	524.8	523.2	521.6	522.2
25°	513.8	513.1	512.4	511.6	510.9	509.8	508.3	506.8	505.3	503.8	503.9
27.5°	493.2	492.4	491.7	490.9	490.2	489.1	487.7	486.4	484.9	483.5	483.3
30°	479.5	478.6	477.8	476.9	476.1	474.9	473.5	472.1	470.8	469.4	469.0
32.5°	464.9	464.1	463.3	462.6	461.8	460.7	459.3	457.8	456.4	454.8	454.3
35°	442.1	441.4	440.7	439.9	439.2	438.1	436.6	435.0	433.6	432.1	431.4
37.5°	418.2	417.5	416.8	416.2	415.5	414.3	412.7	411.1	409.5	407.9	407.1
40°	402.4	401.6	400.8	399.9	399.1	397.9	396.3	394.7	393.0	391.5	390.4
42.5°	385.7	385.2	384.7	384.2	383.6	382.4	380.7	378.9	377.2	375.5	374.2
45°	360.9	360.1	359.4	358.7	357.9	356.7	355.0	353.3	351.6	349.9	348.7
47.5°	335.0	334.5	334.0	333.5	333.0	331.9	330.3	328.7	327.2	325.6	324.3
50°	317.4	317.0	316.6	316.1	315.7	314.8	313.3	311.7	310.2	308.8	307.3
52.5°	300.2	299.6	299.1	298.6	298.1	297.1	295.5	294.0	292.4	290.8	289.5
55°	273.0	272.7	272.3	272.0	271.7	270.7	269.2	267.8	266.3	264.8	263.6
57.5°	246.9	246.6	246.2	245.9	245.5	244.6	243.1	241.7	240.1	238.7	237.5
60°	228.9	228.4	227.9	227.3	226.8	225.9	224.5	223.1	221.8	220.4	219.4
62.5°	211.4	211.0	210.5	210.1	209.5	208.6	207.1	205.7	204.2	202.8	201.9
65°	185.0	184.5	183.9	183.4	182.9	182.1	181.0	180.0	178.8	177.8	176.7
67.5°	158.4	157.9	157.4	156.9	156.4	155.7	154.7	153.7	152.7	151.6	150.6
70°	142.0	141.2	140.5	139.8	139.0	138.1	137.3	136.5	135.6	134.8	133.9
72.5°	124.4	123.6	122.9	122.2	121.4	120.7	120.0	119.4	118.7	118.0	117.2
75°	98.5	98.0	97.5	96.8	96.3	95.8	95.3	94.7	94.2	93.7	93.3
77.5°	73.7	73.5	73.2	73.0	72.8	72.4	72.0	71.5	71.0	70.6	70.4
80°	58.8	58.5	58.2	57.9	57.6	57.3	57.1	56.9	56.7	56.5	56.1
82.5°	44.2	44.1	43.9	43.8	43.6	43.5	43.5	43.5	43.4	43.4	43.3
85°	25.9	25.9	25.9	25.9	25.9	25.8	25.4	25.2	25.0	24.8	24.8
87.5°	10.2	10.4	10.5	10.6	10.8	10.9	11.0	11.0	11.1	11.2	11.3
90°	1.4	2.5	3.6	4.7	5.9	6.8	7.7	8.5	9.3	10.1	10.7
92.5°	5.8	5.9	5.9	6.0	6.1	6.5	7.3	8.1	8.9	9.7	10.3
95°	25.1	21.7	18.3	14.8	11.3	9.7	9.8	9.9	10.0	10.1	10.7
97.5°	53.4	55.6	57.8	59.9	62.1	57.5	46.2	34.7	23.4	12.1	12.1
100°	75.0	76.9	78.8	80.6	82.4	76.2	62.2	48.2	34.1	20.1	18.4
102.5°	99.3	100.6	101.9	103.2	104.6	104.3	102.5	100.7	98.9	97.0	78.4
105°	137.7	138.4	139.0	139.6	140.2	140.8	141.3	141.8	142.3	142.8	143.7
107.5°	173.6	173.9	174.2	174.5	174.8	175.3	175.9	176.6	177.3	178.0	178.4
110°	197.7	198.0	198.3	198.6	198.9	199.3	200.0	200.7	201.3	201.9	202.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	221.2	221.7	222.3	222.8	223.4	223.8	224.1	224.3	224.6	224.9	224.9
115°	257.2	257.5	257.8	258.1	258.4	258.5	258.4	258.3	258.2	258.1	258.3
117.5°	289.7	290.1	290.5	290.9	291.3	291.6	291.9	292.1	292.4	292.6	292.5
120°	311.6	312.0	312.5	312.9	313.3	313.5	313.4	313.3	313.2	313.1	313.3
122.5°	332.1	332.4	332.6	333.0	333.2	333.4	333.5	333.7	333.8	334.0	334.1
125°	361.5	361.9	362.3	362.7	363.1	363.2	363.0	362.8	362.6	362.4	362.7
127.5°	389.4	389.5	389.6	389.7	389.8	390.1	390.5	391.0	391.5	391.9	391.9
130°	407.3	407.4	407.6	407.7	407.8	408.0	408.3	408.6	408.9	409.2	409.3
132.5°	423.8	423.9	424.1	424.3	424.5	424.9	425.3	425.6	426.0	426.4	426.5
135°	448.5	448.4	448.3	448.2	448.1	448.3	448.7	449.1	449.5	449.9	450.1
137.5°	470.4	470.4	470.5	470.5	470.6	470.8	471.2	471.7	472.1	472.6	472.8
140°	484.6	484.8	485.0	485.2	485.4	485.6	485.8	486.1	486.4	486.6	486.9
142.5°	497.5	497.9	498.3	498.6	499.0	499.2	499.3	499.5	499.6	499.7	499.9
145°	517.2	517.5	517.8	518.1	518.4	518.6	518.6	518.6	518.6	518.6	518.7
147.5°	532.8	533.4	533.9	534.5	535.1	535.3	535.2	535.1	535.0	534.9	535.0
150°	544.2	544.6	545.0	545.4	545.8	545.9	545.8	545.7	545.6	545.5	545.5
152.5°	553.7	554.0	554.3	554.6	555.0	555.0	554.9	554.7	554.5	554.3	554.5
155°	567.0	567.1	567.2	567.3	567.4	567.3	567.0	566.7	566.4	566.1	566.5
157.5°	578.3	578.2	578.1	578.1	578.0	577.8	577.5	577.1	576.8	576.5	577.0
160°	584.9	584.6	584.3	584.0	583.7	583.5	583.4	583.3	583.2	583.1	583.7
162.5°	590.8	590.4	590.0	589.6	589.3	589.0	588.9	588.8	588.7	588.5	589.2
165°	598.1	597.6	597.1	596.6	596.1	595.9	595.9	595.9	595.9	595.9	596.7
167.5°	604.0	603.5	603.0	602.5	601.9	601.6	601.6	601.5	601.5	601.4	602.3
170°	607.3	606.7	606.1	605.5	604.9	604.6	604.7	604.8	604.9	605.0	605.8
172.5°	609.6	608.9	608.3	607.7	607.1	606.8	606.9	607.0	607.1	607.2	608.0
175°	611.9	611.3	610.7	610.1	609.5	609.3	609.4	609.5	609.6	609.7	610.6
177.5°	613.0	612.5	611.9	611.3	610.8	610.6	610.7	610.9	611.0	611.2	611.8
180°	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5
2.5°	594.4	595.3	596.1	596.5	596.4	596.3	596.2	596.1
5°	591.3	592.4	593.6	594.0	593.8	593.6	593.4	593.2
7.5°	584.6	585.6	586.5	586.9	586.8	586.6	586.5	586.4
10°	579.2	580.0	580.9	581.2	581.0	580.7	580.5	580.3
12.5°	572.4	573.3	574.3	574.6	574.3	574.0	573.7	573.4
15°	559.6	560.2	560.9	561.0	560.7	560.4	560.1	559.8
17.5°	544.9	545.3	545.7	545.8	545.6	545.4	545.2	545.0
20°	534.1	534.4	534.7	534.8	534.5	534.3	534.1	533.9
22.5°	522.7	523.3	523.9	524.0	523.6	523.2	522.8	522.5
25°	504.0	504.1	504.2	504.1	503.6	503.2	502.8	502.4
27.5°	483.0	482.8	482.5	482.1	481.6	481.1	480.5	480.0
30°	468.6	468.2	467.7	467.3	466.7	466.2	465.6	465.1
32.5°	453.8	453.3	452.8	452.3	451.8	451.2	450.7	450.2
35°	430.6	429.9	429.1	428.5	428.0	427.5	426.9	426.4
37.5°	406.3	405.5	404.7	403.9	403.2	402.5	401.8	401.1
40°	389.4	388.3	387.3	386.5	385.9	385.4	384.9	384.4
42.5°	372.9	371.7	370.5	369.7	369.3	369.0	368.6	368.3
45°	347.6	346.4	345.3	344.5	344.2	343.9	343.6	343.3
47.5°	323.0	321.6	320.3	319.3	318.5	317.7	316.9	316.1
50°	305.8	304.4	302.9	301.7	301.1	300.5	299.8	299.2
52.5°	288.2	286.9	285.6	284.5	283.7	282.9	282.1	281.2
55°	262.3	260.9	259.7	258.7	258.1	257.5	256.8	256.2
57.5°	236.3	235.1	233.9	233.0	232.4	231.8	231.2	230.5
60°	218.4	217.5	216.5	215.8	215.3	214.7	214.2	213.7
62.5°	201.1	200.2	199.2	198.5	198.0	197.5	197.0	196.4
65°	175.7	174.6	173.6	172.8	172.3	171.7	171.2	170.7
67.5°	149.6	148.6	147.5	146.9	146.8	146.6	146.5	146.3
70°	133.1	132.3	131.4	130.8	130.5	130.2	129.9	129.6
72.5°	116.6	115.9	115.2	114.7	114.4	114.1	113.8	113.5
75°	92.8	92.4	92.0	91.7	91.6	91.5	91.4	91.3
77.5°	70.3	70.2	70.1	69.9	69.6	69.3	69.0	68.8
80°	55.9	55.7	55.5	55.4	55.2	55.1	55.0	54.9
82.5°	43.1	43.0	42.9	42.8	42.7	42.5	42.4	42.3
85°	24.8	24.8	24.8	24.8	24.7	24.6	24.4	24.3
87.5°	11.4	11.5	11.7	11.7	11.8	11.8	11.9	11.9
90°	11.3	11.9	12.5	12.9	13.1	13.3	13.5	13.7
92.5°	10.9	11.5	12.1	12.4	12.5	12.5	12.6	12.6
95°	11.3	11.9	12.5	12.8	12.9	13.0	13.1	13.2
97.5°	12.2	12.2	12.3	12.4	12.5	12.6	12.7	12.8
100°	16.7	14.9	13.2	12.4	12.5	12.6	12.7	12.8
102.5°	59.7	41.1	22.4	13.1	13.1	13.1	13.1	13.2
105°	144.6	145.5	146.4	145.1	141.4	137.7	134.1	130.5
107.5°	178.9	179.4	179.9	180.3	180.7	181.0	181.4	181.8
110°	202.3	202.5	202.7	202.9	203.2	203.5	203.8	204.1



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	224.8	224.8	224.7	224.9	225.3	225.7	226.1	226.4
115°	258.5	258.7	258.9	259.0	259.0	259.0	259.0	259.0
117.5°	292.5	292.5	292.4	292.4	292.3	292.3	292.3	292.2
120°	313.5	313.7	313.9	313.9	313.7	313.5	313.3	313.1
122.5°	334.2	334.3	334.4	334.4	334.2	334.0	333.8	333.6
125°	363.0	363.3	363.7	363.9	364.0	364.1	364.2	364.3
127.5°	391.8	391.7	391.7	391.6	391.5	391.4	391.4	391.3
130°	409.4	409.5	409.6	409.6	409.6	409.6	409.6	409.6
132.5°	426.6	426.7	426.8	426.8	426.7	426.7	426.6	426.5
135°	450.3	450.5	450.7	450.9	451.1	451.3	451.5	451.7
137.5°	473.0	473.2	473.5	473.5	473.5	473.4	473.4	473.3
140°	487.2	487.5	487.8	488.0	488.1	488.2	488.3	488.4
142.5°	500.1	500.4	500.6	500.7	500.7	500.8	500.8	500.8
145°	518.8	518.9	519.0	519.1	519.3	519.5	519.7	519.9
147.5°	535.1	535.1	535.2	535.3	535.4	535.5	535.6	535.7
150°	545.5	545.5	545.5	545.6	545.7	545.8	545.9	546.0
152.5°	554.6	554.8	555.0	555.0	555.0	554.9	554.8	554.8
155°	566.9	567.3	567.7	567.8	567.5	567.2	566.9	566.6
157.5°	577.5	578.0	578.6	578.6	578.0	577.5	577.0	576.5
160°	584.3	584.9	585.5	585.5	584.9	584.3	583.7	583.1
162.5°	589.8	590.4	591.0	591.0	590.3	589.6	588.9	588.2
165°	597.5	598.3	599.2	599.1	598.1	597.2	596.3	595.4
167.5°	603.2	604.1	605.0	604.9	603.9	602.9	601.9	600.9
170°	606.6	607.4	608.3	608.2	607.1	606.1	605.1	604.1
172.5°	608.8	609.7	610.5	610.4	609.3	608.1	607.0	605.9
175°	611.5	612.4	613.3	613.1	611.9	610.7	609.5	608.2
177.5°	612.5	613.1	613.8	613.6	612.7	611.7	610.7	609.8
180°	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9

(END OF REPORT)