

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: METALUX

Report Number: P176127

Luminaire Tested: **2BCLED-LD4-20SL-F-UNV-L830-CD1-U**

Test Date: 04/06/15



**Test Information**

Test Method: LM-79-08  
Report Number: P176127  
Test Lab: INNOVATION CENTER-P3  
Test Date: 04/06/15  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 2BCLED-LD4-20SL-F-UNV-L830-CD1-U  
Description:  
Light Source: (56) COOPER LIGHTING 3000K LEDS  
Ballast/Driver: (1) ELECTRONIC DRIVER PROGRAMED

**Summary**

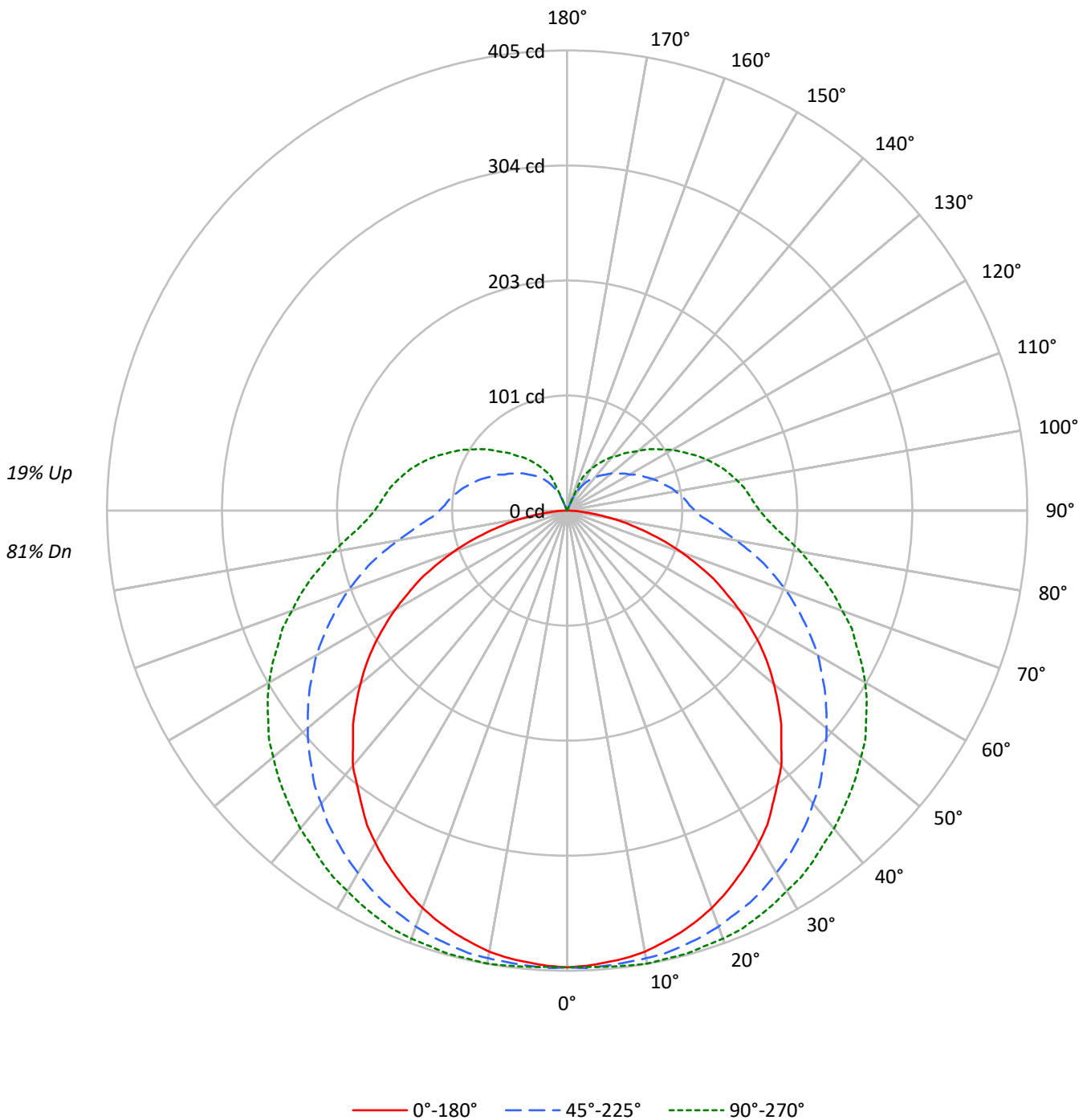
Lumens per Lamp: N/A  
Luminaire Lumens: 1913.1 lumens  
Efficiency: N/A  
Efficacy: 81.4 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.44 / 1.51  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 0.38' x H: 0.21')  
CIE Type: Semi-Direct

Input Watts (W): 23.5  
Input Voltage (V): NR  
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	115	115	115	115	110	110	110	110	101	101	101	92	92	92	85	85	85	81
1	102	96	91	86	97	92	87	83	84	80	77	77	74	71	70	68	66	62
2	91	82	74	68	87	78	71	65	72	66	61	66	61	57	60	56	53	50
3	83	71	62	55	78	68	60	53	62	56	50	57	51	47	52	48	44	41
4	75	62	53	46	71	60	51	44	55	48	42	50	44	39	46	41	37	34
5	69	55	46	39	65	53	44	38	49	41	36	45	39	34	41	36	32	29
6	63	50	40	33	60	48	39	33	44	36	31	40	34	29	37	32	27	25
7	59	45	36	29	56	43	34	28	40	32	27	37	30	26	34	28	24	22
8	54	41	32	26	52	39	31	25	36	29	24	33	27	23	31	25	21	19
9	51	37	29	23	48	36	28	22	33	26	21	31	25	20	28	23	19	17
10	47	34	26	21	45	33	25	20	31	24	19	28	22	18	26	21	17	15

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

	0°	45°	90°
0°	5769	5769	5769
5°	5483	5564	5753
10°	5234	5388	5794
15°	4975	5233	5838
20°	4728	5085	5901
25°	4475	4953	5970
30°	4236	4808	6043
35°	3978	4674	6156
40°	3748	4532	6296
45°	3476	4405	6470
50°	3190	4278	6705
55°	2898	4160	6996
60°	2560	4047	7365
65°	2205	3901	7795
70°	1772	3766	8407
75°	1285	3619	9331
80°	804	3423	10843
85°	302	3326	13876



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.3	2.0
10°-20°	111.8	5.8
20°-30°	174.6	9.1
30°-40°	219.7	11.5
40°-50°	242.9	12.7
50°-60°	243.1	12.7
60°-70°	219.6	11.5
70°-80°	176.8	9.2
80°-90°	128.6	6.7
90°-100°	102.8	5.4
100°-110°	85.5	4.5
110°-120°	66.2	3.5
120°-130°	47.5	2.5
130°-140°	31.4	1.6
140°-150°	18.2	1.0
150°-160°	5.9	0.3
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	324.7	17.0
0°-40°	544.5	28.5
0°-60°	1030.5	53.9
0°-90°	1555.4	81.3
90°-120°	254.5	13.3
90°-150°	351.8	18.4
90°-180°	358.0	18.7
0°-180°	1913.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	402	402	402	402	402	
5°	399	401	402	403	403	38
15°	385	389	396	402	404	109
25°	356	365	381	392	395	164
35°	315	331	354	371	377	198
45°	266	287	318	343	352	205
55°	208	235	277	310	321	185
65°	142	176	230	267	281	140
75°	71	118	179	219	234	76
85°	14	67	128	170	185	17
90°	0	51	112	154	169	1
95°	0	45	105	146	161	0
105°	0	35	88	128	142	0
115°	0	28	72	106	118	0
125°	0	24	57	84	94	0
135°	0	18	44	64	71	0
145°	0	11	32	47	52	0
155°	0	5	17	29	33	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	402.0	402.0	402.0	402.0	402.0	402.0	402.0	402.0	402.0	402.0	402.0
2.5°	401.0	401.0	401.0	401.0	402.0	402.0	403.0	403.0	403.0	403.0	403.0
5°	399.1	399.1	399.1	400.1	400.1	401.0	401.0	402.0	402.0	402.0	402.0
7.5°	397.2	397.2	397.2	397.2	398.1	399.1	400.1	401.0	402.0	401.0	402.0
10°	394.3	393.3	394.3	394.3	395.3	397.2	398.1	399.1	400.1	400.1	401.0
12.5°	389.5	389.5	390.5	391.4	392.4	393.3	394.3	397.2	398.1	399.1	400.1
15°	384.7	384.7	385.6	386.6	387.6	389.5	391.4	394.3	395.3	396.2	398.1
17.5°	378.9	378.9	379.9	380.8	382.8	385.6	387.6	389.5	391.4	393.3	395.3
20°	372.2	372.2	373.1	375.1	377.0	379.9	381.8	384.7	387.6	389.5	392.4
22.5°	364.5	364.5	366.4	368.3	371.2	373.1	377.0	379.9	382.8	384.7	388.5
25°	355.8	356.8	357.8	360.6	363.5	367.4	370.3	374.1	377.9	380.8	383.7
27.5°	347.2	348.1	350.1	352.9	355.8	359.7	363.5	367.4	371.2	375.1	378.9
30°	337.6	338.5	340.4	343.3	347.2	352.0	355.8	360.6	364.5	368.3	372.2
32.5°	327.9	327.9	330.8	334.7	338.5	343.3	348.1	352.9	357.8	361.6	366.4
35°	315.4	317.4	320.2	323.1	328.9	333.7	338.5	344.3	349.1	353.9	359.7
37.5°	303.9	305.8	308.7	313.5	318.3	324.1	328.9	335.6	340.4	346.2	352.0
40°	293.3	293.3	297.2	302.0	306.8	312.6	319.3	325.1	330.8	336.6	342.4
42.5°	278.9	280.8	284.7	289.5	295.2	302.0	307.7	315.4	321.2	328.9	334.7
45°	266.4	267.4	272.2	277.9	283.7	290.4	297.2	303.9	311.6	318.3	325.1
47.5°	252.0	254.9	258.7	264.5	271.2	278.9	285.6	294.3	301.0	308.7	315.4
50°	237.5	240.4	244.3	251.0	257.7	266.4	273.1	281.8	289.5	298.1	304.9
52.5°	223.1	225.0	229.8	237.5	245.2	252.9	261.6	270.2	278.9	287.5	296.2
55°	207.7	209.7	215.4	222.2	230.8	239.5	249.1	257.7	267.4	277.0	285.6
57.5°	191.4	194.3	200.0	207.7	216.4	225.0	234.7	246.2	255.8	265.4	275.0
60°	175.0	177.9	183.7	192.3	201.0	211.6	222.2	233.7	244.3	254.9	264.5
62.5°	157.7	161.6	168.3	177.0	186.6	197.1	208.7	220.2	231.8	242.3	252.9
65°	142.3	144.3	151.0	160.6	170.2	182.7	195.2	206.8	218.3	229.8	239.5
67.5°	124.1	126.9	134.6	144.3	155.8	168.3	181.8	194.3	206.8	217.3	227.0
70°	106.7	109.6	118.3	128.9	140.4	153.9	167.3	180.8	192.3	204.8	215.4
72.5°	89.4	93.3	101.9	112.5	126.0	140.4	153.9	167.3	179.8	191.4	202.9
75°	71.2	76.0	85.6	97.1	111.6	125.0	139.4	152.9	165.4	178.9	188.5
77.5°	55.8	59.6	70.2	82.7	97.1	111.6	126.0	139.4	152.9	164.5	176.0
80°	40.4	44.2	54.8	69.2	83.7	98.1	112.5	126.0	139.4	151.0	162.5
82.5°	25.0	30.8	42.3	55.8	71.2	85.6	100.0	113.5	126.9	138.5	151.0
85°	13.5	18.3	29.8	44.2	59.6	74.1	88.5	101.9	115.4	127.9	139.4
87.5°	4.8	10.6	22.1	35.6	50.0	64.4	79.8	93.3	106.7	118.3	129.8
90°	0.0	5.8	16.3	29.8	44.2	58.7	73.1	86.6	100.0	112.5	123.1
92.5°	0.0	3.8	14.4	26.9	41.4	54.8	69.2	83.7	96.2	107.7	119.3
95°	0.0	3.8	12.5	25.0	38.5	51.9	66.4	79.8	92.3	104.8	115.4
97.5°	0.0	2.9	11.5	22.1	35.6	49.0	63.5	76.0	89.4	101.0	111.6
100°	0.0	2.9	10.6	21.2	32.7	46.2	59.6	73.1	85.6	97.1	107.7
102.5°	0.0	2.9	9.6	19.2	30.8	43.3	56.7	69.2	81.7	93.3	103.9
105°	0.0	2.9	9.6	18.3	28.9	41.4	53.9	65.4	77.9	88.5	99.1
107.5°	0.0	2.9	9.6	17.3	27.9	38.5	50.0	62.5	74.1	84.6	94.2
110°	0.0	2.9	8.7	17.3	26.0	36.5	47.1	58.7	70.2	80.8	90.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0.0	1.9	8.7	16.3	25.0	34.6	45.2	55.8	66.4	76.0	85.6
115°	0.0	1.9	7.7	15.4	24.0	32.7	42.3	51.9	62.5	72.1	80.8
117.5°	0.0	1.9	7.7	14.4	23.1	31.7	40.4	49.0	58.7	68.3	76.0
120°	0.0	1.9	6.7	14.4	22.1	29.8	38.5	47.1	55.8	63.5	72.1
122.5°	0.0	1.9	6.7	13.5	21.2	28.9	36.5	44.2	51.9	60.6	67.3
125°	0.0	1.0	5.8	12.5	20.2	26.9	34.6	42.3	50.0	56.7	63.5
127.5°	0.0	1.0	4.8	11.5	18.3	26.0	33.7	40.4	47.1	53.9	59.6
130°	0.0	1.0	4.8	10.6	17.3	24.0	31.7	37.5	44.2	51.0	56.7
132.5°	0.0	1.0	3.8	9.6	16.3	22.1	28.9	35.6	41.4	47.1	52.9
135°	0.0	1.0	3.8	8.7	14.4	21.2	26.9	33.7	39.4	44.2	50.0
137.5°	0.0	1.0	2.9	7.7	13.5	19.2	25.0	30.8	36.5	41.4	46.2
140°	0.0	1.0	2.9	6.7	11.5	17.3	23.1	28.9	33.7	38.5	43.3
142.5°	0.0	1.0	2.9	5.8	10.6	15.4	20.2	25.0	30.8	35.6	39.4
145°	0.0	1.0	1.9	4.8	8.7	13.5	17.3	22.1	26.9	31.7	36.5
147.5°	0.0	0.0	1.9	3.8	6.7	11.5	15.4	19.2	24.0	27.9	31.7
150°	0.0	0.0	1.0	3.8	5.8	9.6	13.5	16.3	20.2	24.0	27.9
152.5°	0.0	0.0	1.0	2.9	4.8	7.7	10.6	14.4	17.3	20.2	24.0
155°	0.0	0.0	1.0	1.9	3.8	5.8	8.7	11.5	14.4	17.3	20.2
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	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°
0°	402.0	402.0	402.0	402.0	402.0	402.0	402.0	402.0
2.5°	403.0	403.0	403.0	403.0	403.0	403.0	402.0	402.0
5°	403.0	402.0	403.0	403.0	403.0	403.0	403.0	403.0
7.5°	403.0	403.0	403.9	403.9	403.9	403.9	403.9	403.9
10°	402.0	403.0	403.9	403.9	404.9	404.9	404.9	404.9
12.5°	401.0	402.0	403.0	403.9	403.9	404.9	403.9	403.9
15°	400.1	401.0	402.0	403.0	403.9	403.9	403.9	403.9
17.5°	397.2	398.1	400.1	401.0	402.0	402.0	403.0	402.0
20°	394.3	396.2	398.1	399.1	400.1	401.0	401.0	401.0
22.5°	390.5	392.4	394.3	396.2	397.2	398.1	398.1	399.1
25°	385.6	388.5	391.4	392.4	394.3	395.3	395.3	395.3
27.5°	381.8	384.7	386.6	389.5	389.5	390.5	391.4	391.4
30°	376.0	378.9	381.8	383.7	385.6	386.6	386.6	386.6
32.5°	369.3	373.1	376.0	377.9	379.9	381.8	382.8	382.8
35°	362.6	366.4	370.3	372.2	375.1	376.0	377.0	377.0
37.5°	355.8	359.7	362.6	366.4	368.3	370.3	371.2	370.3
40°	347.2	352.0	356.8	359.7	361.6	363.5	364.5	365.4
42.5°	339.5	344.3	349.1	352.0	354.9	356.8	357.8	358.7
45°	330.8	336.6	341.4	344.3	348.1	350.1	352.0	352.0
47.5°	322.2	327.9	334.7	338.5	341.4	344.3	345.3	345.3
50°	312.6	320.2	325.1	329.9	333.7	336.6	337.6	337.6
52.5°	303.9	310.6	316.4	322.2	326.0	327.9	329.9	330.8
55°	293.3	301.0	306.8	312.6	316.4	319.3	321.2	321.2
57.5°	283.7	291.4	297.2	302.9	307.7	309.7	311.6	312.6
60°	273.1	280.8	287.5	292.4	297.2	300.1	302.0	302.9
62.5°	261.6	270.2	277.0	282.7	286.6	290.4	292.4	292.4
65°	249.1	257.7	264.5	270.2	275.0	277.9	280.8	280.8
67.5°	237.5	246.2	252.9	258.7	264.5	267.4	269.3	271.2
70°	225.0	233.7	241.4	247.2	252.0	255.8	256.8	257.7
72.5°	211.6	220.2	228.9	234.7	239.5	243.3	246.2	246.2
75°	199.1	207.7	215.4	222.2	227.0	229.8	232.7	233.7
77.5°	185.6	195.2	202.9	208.7	213.5	218.3	219.3	220.2
80°	173.1	182.7	189.5	197.1	202.0	204.8	207.7	208.7
82.5°	160.6	170.2	177.9	184.6	189.5	193.3	195.2	196.2
85°	150.0	158.7	166.4	174.1	178.9	182.7	184.6	184.6
87.5°	140.4	149.1	157.7	164.5	169.3	173.1	175.0	176.0
90°	133.7	143.3	151.0	157.7	162.5	166.4	168.3	169.3
92.5°	129.8	138.5	147.1	152.9	158.7	161.6	164.5	164.5
95°	126.0	134.6	142.3	149.1	153.9	157.7	160.6	160.6
97.5°	122.1	130.8	138.5	145.2	150.0	153.9	155.8	156.8
100°	117.3	126.9	134.6	140.4	145.2	149.1	151.0	151.9
102.5°	113.5	122.1	129.8	135.6	140.4	144.3	146.2	147.1
105°	108.7	117.3	125.0	130.8	135.6	139.4	141.4	142.3
107.5°	103.9	112.5	120.2	126.0	130.8	133.7	135.6	136.6
110°	99.1	107.7	114.4	120.2	125.0	128.9	130.8	130.8





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	94.2	101.9	108.7	114.4	119.3	122.1	124.1	125.0
115°	89.4	97.1	103.9	108.7	113.5	116.4	118.3	118.3
117.5°	84.6	91.4	98.1	102.9	107.7	110.6	112.5	112.5
120°	79.8	86.6	92.3	97.1	101.0	104.8	105.8	106.7
122.5°	75.0	81.7	86.6	91.4	95.2	98.1	100.0	100.0
125°	70.2	76.0	81.7	85.6	89.4	92.3	93.3	94.2
127.5°	65.4	71.2	76.9	80.8	83.7	86.6	87.5	88.5
130°	61.5	66.4	71.2	75.0	77.9	80.8	81.7	81.7
132.5°	57.7	62.5	66.4	70.2	73.1	75.0	76.0	76.0
135°	54.8	58.7	62.5	65.4	68.3	69.2	70.2	71.2
137.5°	51.0	54.8	57.7	60.6	63.5	64.4	65.4	65.4
140°	47.1	51.0	53.9	56.7	58.7	60.6	60.6	61.5
142.5°	43.3	47.1	50.0	51.9	53.9	55.8	56.7	56.7
145°	39.4	43.3	45.2	48.1	50.0	51.0	51.9	51.9
147.5°	35.6	38.5	41.4	43.3	45.2	46.2	47.1	47.1
150°	31.7	34.6	37.5	39.4	40.4	41.4	42.3	42.3
152.5°	26.9	29.8	32.7	34.6	35.6	36.5	37.5	37.5
155°	22.1	25.0	27.9	29.8	30.8	31.7	32.7	32.7
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)