

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: HALO COMMERCIAL

Report Number: P242023

Luminaire Tested: **PRS410D010-S4M12-41SWWMW-3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242023
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-63)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PRS410D010-S4M12-41SWWMW-3000K
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM MATTE WHITE
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 573.5 lumens
Efficiency: N/A
Efficacy: 57.3 lumens/watt
Spacing Criteria (0/90/45): 1 / 0.97 / 1.07
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')
CIE Type: Direct

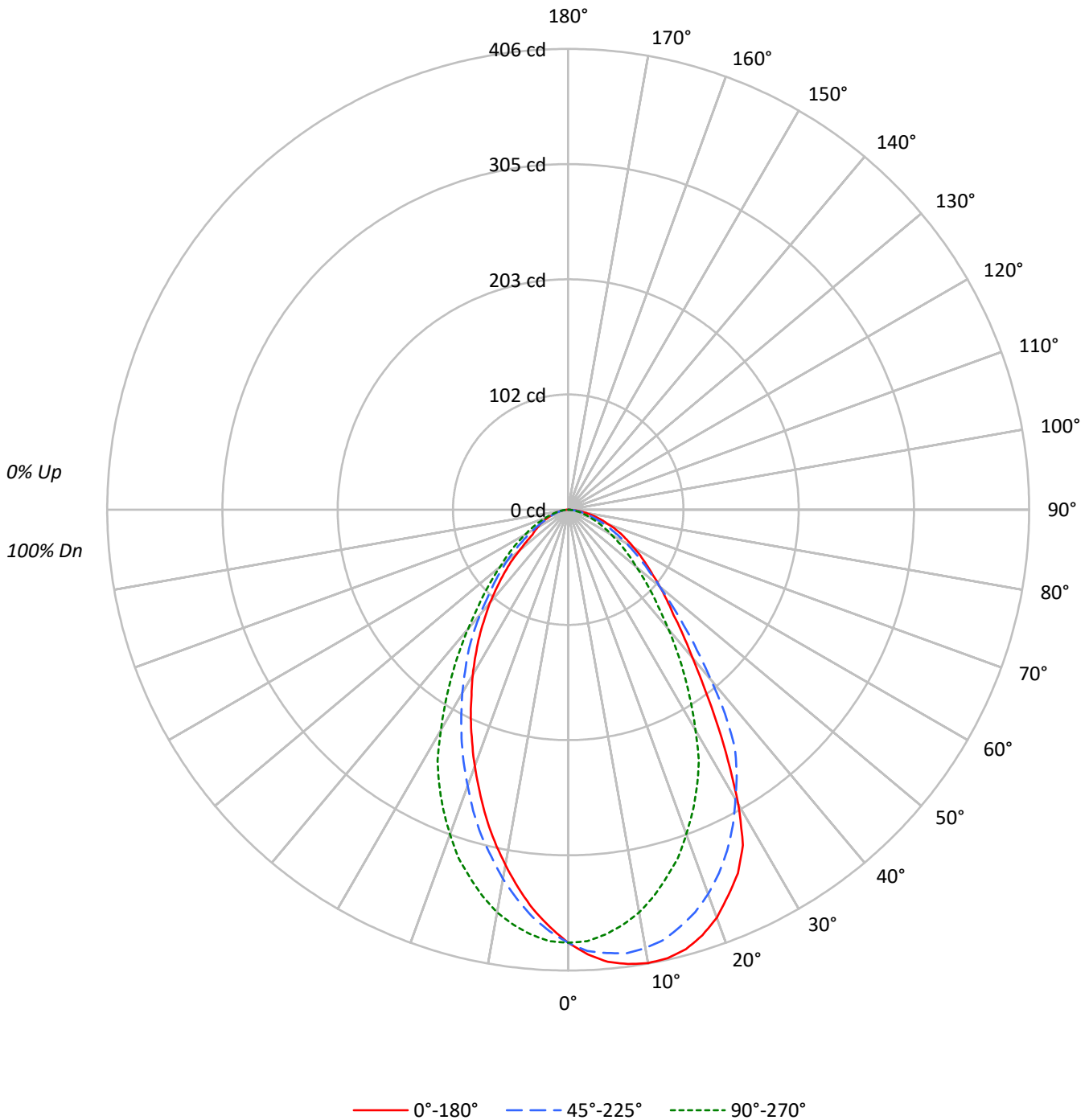
Input Watts (W): 10
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					100			
1	111	107	104	101	109	105	102	99	101	98	96	97	95	93	94	92	91	89					89			
2	103	97	91	86	101	95	90	85	91	87	84	88	85	82	85	82	80	78					78			
3	96	87	81	75	94	86	80	75	83	78	73	80	76	72	78	74	71	69					69			
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	62					62			
5	83	72	65	59	81	71	64	59	69	63	58	67	62	58	66	61	57	55					55			
6	78	66	59	53	76	65	58	53	64	57	53	62	57	52	61	56	52	50					50			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45					45			
8	68	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42					42			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38					38			
10	61	49	42	37	60	49	42	37	48	41	37	47	41	37	46	41	37	35					35			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29201	29201	29201
5°	30727	28867	27161
10°	31525	28004	24701
15°	31761	26555	22196
20°	31157	24779	19590
25°	29855	22677	17128
30°	26462	19807	14857
35°	21211	16698	12727
40°	16986	13699	10711
45°	14224	11290	8682
50°	12539	9312	6669
55°	11210	7994	5151
60°	10196	6659	4730
65°	9454	5778	4365
70°	8437	4745	3894
75°	7719	3993	3431
80°	6832	3394	2997
85°	4216	2547	2547



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.4	6.2
10°-20°	94.7	16.5
20°-30°	125.8	21.9
30°-40°	118.5	20.7
40°-50°	86.7	15.1
50°-60°	57.0	9.9
60°-70°	34.3	6.0
70°-80°	16.9	2.9
80°-90°	4.0	0.7
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°	256.0	44.6
0°-40°	374.5	65.3
0°-60°	518.2	90.4
0°-90°	573.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	573.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	382	382	382	382	382	
5°	400	392	376	360	354	38
15°	401	380	335	296	280	113
25°	354	331	268	222	203	160
35°	227	256	179	154	136	143
45°	131	144	104	93	80	103
55°	84	79	60	50	39	76
65°	52	42	32	23	24	52
75°	26	19	14	12	12	28
85°	5	4	3	3	3	7
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5
2.5°	392.1	392.1	392.1	392.1	391.2	391.2	391.2	390.2	390.2	389.2	389.2
5°	399.9	399.9	398.9	398.9	397.9	397.9	397.0	396.0	395.0	394.1	392.1
7.5°	403.7	403.7	402.8	402.8	401.8	401.8	400.8	399.9	397.9	396.0	394.1
10°	405.6	404.7	404.7	403.7	402.8	401.8	400.8	399.9	397.0	395.0	392.1
12.5°	404.7	403.7	403.7	401.8	400.8	399.9	398.9	397.0	394.1	391.2	388.3
15°	400.8	399.9	398.9	397.9	396.0	395.0	394.1	391.2	388.3	384.4	380.5
17.5°	393.1	392.1	392.1	390.2	388.3	387.3	386.3	383.4	379.6	375.7	371.8
20°	382.5	381.5	380.5	379.6	377.6	376.7	375.7	372.8	368.9	365.1	360.3
22.5°	368.0	367.0	367.0	366.1	364.1	363.2	362.2	359.3	356.4	351.6	346.7
25°	353.5	352.5	351.6	350.6	348.7	346.7	345.8	342.9	340.0	337.1	331.3
27.5°	333.2	334.2	334.2	333.2	332.2	331.3	330.3	326.5	322.6	318.7	313.9
30°	299.4	297.5	299.4	302.3	305.2	306.2	309.1	309.1	305.2	300.4	294.6
32.5°	261.7	262.7	263.7	267.5	271.4	272.4	274.3	280.1	284.9	282.0	276.2
35°	227.0	227.9	229.9	232.8	235.7	240.5	242.4	247.3	252.1	257.9	255.9
37.5°	196.1	197.0	199.0	200.9	205.7	207.7	211.5	215.4	223.1	227.9	227.0
40°	170.0	171.0	171.9	173.8	179.6	180.6	182.5	188.3	193.2	197.0	195.1
42.5°	149.7	148.7	150.7	152.6	155.5	156.5	158.4	162.3	166.1	168.1	168.1
45°	131.4	132.3	133.3	135.2	136.2	138.1	139.1	142.0	142.9	143.9	143.9
47.5°	117.8	117.8	118.8	119.8	120.7	121.7	122.7	123.6	123.6	123.6	122.7
50°	105.3	105.3	106.2	107.2	107.2	108.2	108.2	108.2	107.2	106.2	105.3
52.5°	93.7	93.7	94.7	95.6	95.6	95.6	95.6	94.7	93.7	92.7	90.8
55°	84.0	84.0	85.0	85.0	85.0	85.0	85.0	83.1	81.1	80.2	79.2
57.5°	75.3	75.3	75.3	75.3	75.3	75.3	74.4	72.4	71.5	69.5	68.6
60°	66.6	66.6	66.6	66.6	66.6	65.7	64.7	63.7	61.8	59.9	58.9
62.5°	58.9	58.9	58.9	58.9	57.9	57.0	57.0	55.1	54.1	52.2	50.2
65°	52.2	52.2	51.2	51.2	50.2	49.3	49.3	47.3	46.4	44.4	42.5
67.5°	45.4	44.4	44.4	44.4	43.5	42.5	41.5	40.6	39.6	37.7	35.7
70°	37.7	37.7	38.6	37.7	36.7	35.7	35.7	33.8	32.8	31.9	29.9
72.5°	31.9	31.9	31.9	30.9	30.9	29.9	29.0	28.0	27.0	26.1	24.1
75°	26.1	26.1	26.1	25.1	24.1	24.1	24.1	22.2	22.2	20.3	19.3
77.5°	20.3	20.3	20.3	19.3	19.3	19.3	18.4	17.4	16.4	16.4	15.5
80°	15.5	15.5	14.5	14.5	13.5	13.5	13.5	12.6	12.6	11.6	10.6
82.5°	10.6	9.7	9.7	9.7	9.7	9.7	8.7	8.7	7.7	7.7	6.8
85°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.9	3.9	3.9
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5
2.5°	387.3	387.3	386.3	385.4	384.4	384.4	383.4	382.5	381.5	380.5	378.6
5°	391.2	389.2	387.3	385.4	385.4	384.4	381.5	379.6	377.6	375.7	373.8
7.5°	391.2	388.3	386.3	383.4	382.5	380.5	377.6	374.7	371.8	368.9	366.1
10°	389.2	385.4	382.5	378.6	376.7	374.7	370.9	367.0	363.2	360.3	355.4
12.5°	383.4	379.6	375.7	370.9	368.9	367.0	362.2	357.4	353.5	348.7	344.8
15°	375.7	371.8	367.0	362.2	359.3	357.4	351.6	345.8	340.0	335.1	330.3
17.5°	367.0	361.2	356.4	350.6	347.7	343.8	338.0	332.2	326.5	321.6	315.8
20°	354.5	349.6	342.9	336.1	333.2	329.3	323.6	316.8	311.0	304.2	298.4
22.5°	341.9	335.1	328.4	320.7	317.8	313.9	307.1	299.4	293.6	286.9	280.1
25°	325.5	318.7	312.0	305.2	300.4	297.5	290.7	283.0	276.2	268.5	261.7
27.5°	308.1	301.3	294.6	286.9	283.0	279.1	270.4	262.7	255.0	249.2	241.5
30°	288.8	283.0	275.3	264.6	259.8	255.9	246.3	237.6	229.9	224.1	219.2
32.5°	269.5	260.8	250.2	239.5	234.7	229.9	220.2	212.5	206.7	200.9	195.1
35°	244.4	234.7	225.0	215.4	210.6	205.7	198.0	190.3	183.5	178.7	173.8
37.5°	221.2	210.6	199.9	191.2	186.4	182.5	173.8	168.1	162.3	157.4	152.6
40°	193.2	187.4	175.8	168.1	163.2	159.4	151.6	145.8	141.0	137.1	133.3
42.5°	166.1	163.2	153.6	145.8	142.0	139.1	132.3	127.5	122.7	118.8	116.9
45°	142.0	138.1	134.3	126.5	123.6	120.7	114.9	110.1	106.2	104.3	101.4
47.5°	121.7	118.8	114.9	109.1	106.2	104.3	99.5	95.6	92.7	90.8	88.9
50°	103.3	101.4	98.5	94.7	91.8	89.8	86.0	83.1	80.2	78.2	77.3
52.5°	88.9	86.9	84.0	81.1	79.2	77.3	74.4	71.5	70.5	68.6	66.6
55°	76.3	74.4	72.4	69.5	68.6	67.6	64.7	62.8	60.8	59.9	58.9
57.5°	66.6	64.7	61.8	59.9	58.9	57.9	56.0	54.1	52.2	51.2	50.2
60°	57.0	55.1	53.1	51.2	50.2	49.3	48.3	46.4	44.4	43.5	43.5
62.5°	49.3	47.3	45.4	43.5	43.5	42.5	40.6	39.6	38.6	37.7	36.7
65°	41.5	39.6	38.6	36.7	35.7	35.7	34.8	32.8	31.9	31.9	30.9
67.5°	34.8	33.8	31.9	30.9	29.9	29.9	28.0	28.0	27.0	26.1	25.1
70°	29.0	27.0	26.1	25.1	25.1	24.1	23.2	23.2	22.2	21.2	20.3
72.5°	23.2	22.2	21.2	20.3	20.3	19.3	19.3	18.4	17.4	17.4	16.4
75°	18.4	17.4	17.4	15.5	15.5	15.5	14.5	14.5	13.5	13.5	12.6
77.5°	14.5	13.5	12.6	12.6	11.6	11.6	11.6	10.6	10.6	10.6	9.7
80°	9.7	9.7	8.7	8.7	8.7	8.7	7.7	7.7	7.7	7.7	6.8
82.5°	6.8	5.8	5.8	5.8	5.8	5.8	4.8	4.8	4.8	4.8	4.8
85°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5
2.5°	377.6	376.7	375.7	375.7	374.7	373.8	373.8	372.8	371.8	370.9	369.9
5°	371.8	369.9	368.0	367.0	366.1	365.1	363.2	361.2	360.3	358.3	357.4
7.5°	363.2	360.3	358.3	356.4	355.4	352.5	350.6	348.7	345.8	344.8	342.9
10°	352.5	348.7	344.8	343.8	341.9	339.0	336.1	332.2	330.3	328.4	326.5
12.5°	340.0	336.1	331.3	329.3	327.4	323.6	319.7	316.8	312.9	311.0	308.1
15°	325.5	320.7	315.8	313.9	312.0	307.1	303.3	299.4	296.5	292.6	289.7
17.5°	310.0	304.2	298.4	296.5	294.6	289.7	285.9	281.1	278.2	274.3	271.4
20°	292.6	286.9	281.1	280.1	276.2	271.4	266.6	262.7	258.8	255.9	252.1
22.5°	274.3	268.5	263.7	260.8	257.9	253.0	248.2	244.4	240.5	235.7	232.8
25°	256.9	250.2	244.4	243.4	239.5	235.7	230.8	226.0	222.1	218.3	215.4
27.5°	236.6	231.8	226.0	223.1	221.2	216.3	212.5	207.7	203.8	199.9	197.0
30°	213.4	208.6	204.8	202.8	200.9	198.0	193.2	190.3	186.4	182.5	179.6
32.5°	191.2	188.3	184.5	182.5	181.6	177.7	175.8	172.9	169.0	166.1	163.2
35°	169.0	167.1	163.2	163.2	161.3	159.4	157.4	155.5	153.6	150.7	147.8
37.5°	149.7	147.8	144.9	142.9	142.9	141.0	140.0	138.1	137.1	135.2	133.3
40°	131.4	128.5	126.5	125.6	124.6	123.6	121.7	120.7	120.7	119.8	117.8
42.5°	113.0	112.0	110.1	109.1	110.1	108.2	108.2	107.2	105.3	104.3	103.3
45°	99.5	97.5	97.5	96.6	96.6	95.6	94.7	93.7	92.7	90.8	90.8
47.5°	86.9	86.0	85.0	85.0	84.0	84.0	83.1	82.1	81.1	80.2	78.2
50°	76.3	75.3	74.4	74.4	73.4	73.4	72.4	71.5	70.5	68.6	66.6
52.5°	66.6	65.7	64.7	64.7	63.7	63.7	62.8	60.8	59.9	58.9	57.0
55°	57.9	57.0	56.0	56.0	55.1	55.1	54.1	52.2	50.2	49.3	47.3
57.5°	49.3	49.3	48.3	48.3	47.3	46.4	45.4	43.5	42.5	41.5	39.6
60°	42.5	41.5	41.5	40.6	40.6	39.6	37.7	36.7	34.8	33.8	31.9
62.5°	35.7	35.7	34.8	33.8	33.8	31.9	30.9	29.9	29.0	27.0	28.0
65°	29.9	29.0	29.0	28.0	28.0	26.1	25.1	24.1	23.2	23.2	24.1
67.5°	25.1	24.1	23.2	23.2	22.2	21.2	20.3	20.3	20.3	20.3	20.3
70°	20.3	19.3	18.4	18.4	18.4	17.4	16.4	16.4	16.4	17.4	17.4
72.5°	16.4	15.5	14.5	14.5	13.5	13.5	13.5	13.5	13.5	14.5	14.5
75°	12.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
77.5°	9.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
85°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	381.5	381.5	381.5	381.5	381.5	381.5	381.5	381.5
2.5°	369.9	369.9	369.9	368.9	368.9	368.9	368.9	368.0
5°	356.4	356.4	355.4	355.4	354.5	354.5	354.5	353.5
7.5°	340.9	340.0	340.0	339.0	338.0	337.1	337.1	336.1
10°	324.5	322.6	320.7	321.6	319.7	319.7	317.8	317.8
12.5°	306.2	304.2	304.2	302.3	300.4	300.4	299.4	299.4
15°	286.9	284.9	284.0	283.0	282.0	281.1	281.1	280.1
17.5°	267.5	266.6	265.6	264.6	262.7	261.7	260.8	259.8
20°	249.2	246.3	245.3	245.3	242.4	242.4	240.5	240.5
22.5°	229.9	227.0	227.0	226.0	224.1	222.1	222.1	221.2
25°	211.5	209.6	207.7	206.7	205.7	203.8	203.8	202.8
27.5°	193.2	191.2	190.3	189.3	187.4	186.4	185.4	184.5
30°	176.7	173.8	172.9	171.9	170.0	169.0	168.1	168.1
32.5°	160.3	157.4	157.4	155.5	154.5	152.6	151.6	151.6
35°	144.9	142.9	141.0	140.0	138.1	138.1	136.2	136.2
37.5°	129.4	127.5	127.5	125.6	123.6	122.7	121.7	120.7
40°	115.9	113.0	113.0	111.1	109.1	108.2	107.2	107.2
42.5°	102.4	99.5	98.5	97.5	95.6	93.7	93.7	92.7
45°	88.9	86.9	86.0	85.0	83.1	81.1	81.1	80.2
47.5°	76.3	75.3	73.4	72.4	71.5	69.5	68.6	68.6
50°	65.7	64.7	62.8	61.8	59.9	57.9	57.0	56.0
52.5°	55.1	54.1	53.1	52.2	50.2	48.3	47.3	46.4
55°	46.4	45.4	43.5	43.5	41.5	40.6	39.6	38.6
57.5°	37.7	36.7	35.7	35.7	34.8	34.8	34.8	34.8
60°	30.9	31.9	31.9	31.9	31.9	31.9	31.9	30.9
62.5°	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
65°	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
67.5°	20.3	20.3	21.2	20.3	20.3	20.3	20.3	20.3
70°	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4
72.5°	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
75°	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
77.5°	9.7	9.7	8.7	8.7	9.7	9.7	8.7	9.7
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
85°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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