

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: P242043

Luminaire Tested: **PRS410D010-S4M12-41SWWMB**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242043
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-64)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PRS410D010-S4M12-41SWWMB
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM MATTE BLACK
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 456.0 lumens
Efficiency: N/A
Efficacy: 45.6 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 0.94 / 1.03
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')
CIE Type: Direct

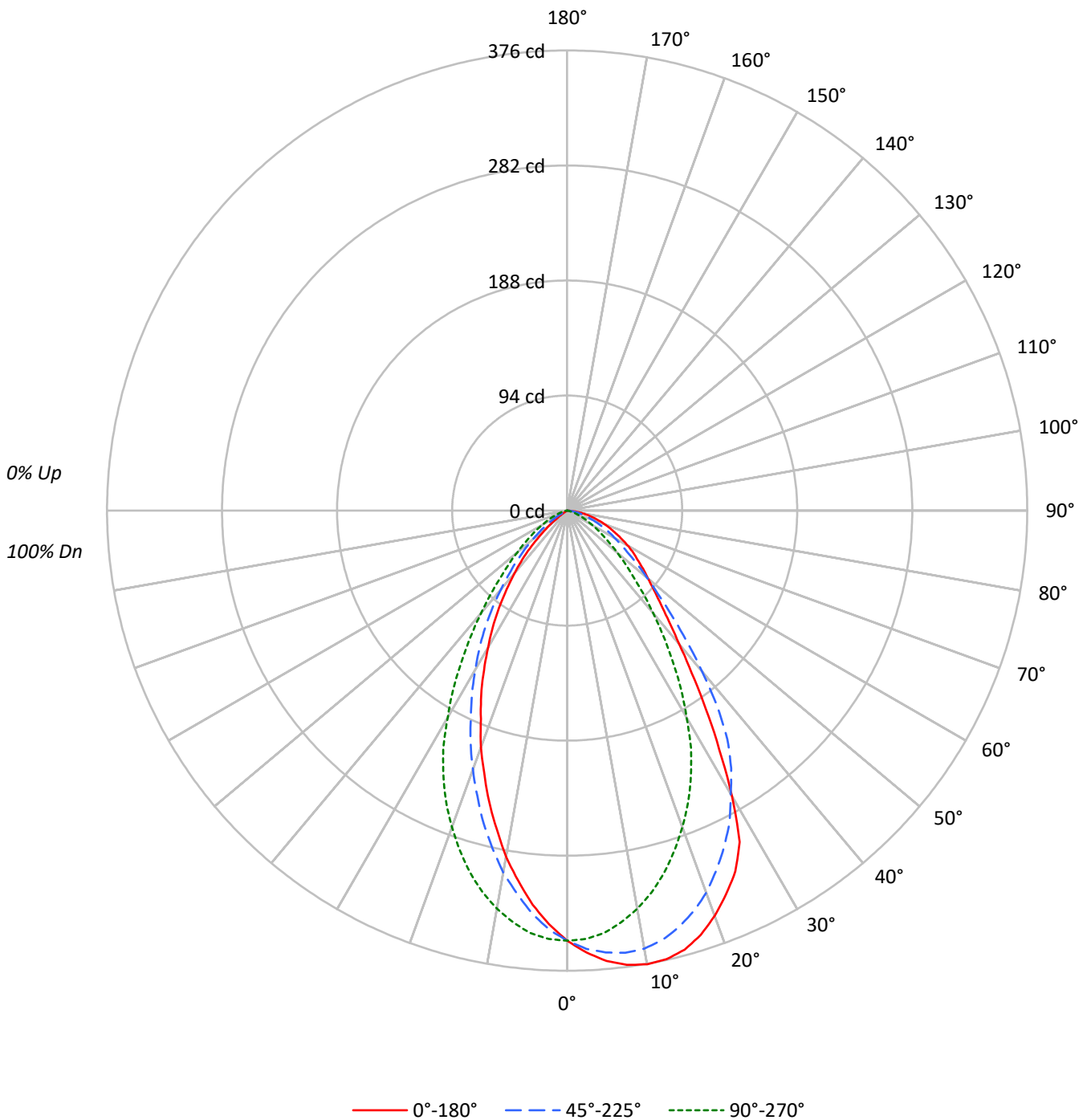
Input Watts (W): 10
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	103	109	106	104	101	102	100	98	98	97	95	95	93	92	90
2	105	99	94	89	102	97	92	88	93	90	86	90	87	84	88	85	83	81
3	98	90	84	79	96	88	83	78	86	81	77	83	79	76	81	77	74	73
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	71	67	65
5	86	76	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	50
8	71	60	53	48	70	59	53	48	58	52	48	57	51	47	56	51	47	46
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42
10	64	52	46	41	62	52	45	41	51	45	41	50	45	41	49	44	41	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	26897	26897	26897
5°	28383	26616	24841
10°	29255	25672	22330
15°	29431	24272	19518
20°	28705	22425	16796
25°	27474	20202	14037
30°	23802	17253	11410
35°	18427	14035	9073
40°	14199	10901	6705
45°	11702	8238	4438
50°	10253	6323	2263
55°	9355	4804	534
60°	8741	3674	153
65°	7969	2717	0
70°	7385	1790	0
75°	6506	1183	0
80°	5730	441	0
85°	3513	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.6	7.1
10°-20°	86.2	18.9
20°-30°	111.4	24.4
30°-40°	98.9	21.7
40°-50°	64.3	14.1
50°-60°	35.7	7.8
60°-70°	18.0	4.0
70°-80°	7.6	1.7
80°-90°	1.3	0.3
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°	230.1	50.5
0°-40°	329.0	72.1
0°-60°	429.0	94.1
0°-90°	456.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	456.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	351	351	351	351	351	
5°	369	362	346	330	323	35
15°	371	352	306	264	246	104
25°	325	303	239	186	166	147
35°	197	228	150	117	97	124
45°	108	120	76	58	41	85
55°	70	61	36	21	4	63
65°	44	32	15	1	0	44
75°	22	14	4	0	0	23
85°	4	2	0	0	0	5
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°	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4
2.5°	361.4	360.4	361.4	360.4	360.4	360.4	360.4	359.4	359.4	358.4	358.4
5°	369.4	369.4	368.4	368.4	367.4	367.4	367.4	366.4	365.4	364.4	362.4
7.5°	374.4	374.4	373.4	373.4	372.4	371.4	371.4	369.4	368.4	366.4	364.4
10°	376.4	376.4	375.4	374.4	373.4	372.4	372.4	370.4	368.4	365.4	363.4
12.5°	375.4	375.4	374.4	373.4	372.4	371.4	370.4	368.4	365.4	362.4	359.4
15°	371.4	371.4	370.4	369.4	367.4	366.4	365.4	363.4	360.4	356.4	352.4
17.5°	363.4	363.4	362.4	361.4	360.4	359.4	357.4	355.4	351.4	347.4	343.4
20°	352.4	352.4	352.4	351.4	349.4	348.4	347.4	344.4	341.4	337.3	332.3
22.5°	339.3	339.3	338.3	337.3	335.3	335.3	333.3	330.3	327.3	323.3	318.3
25°	325.3	324.3	323.3	323.3	320.3	319.3	318.3	315.3	312.3	308.3	303.3
27.5°	305.3	304.3	305.3	305.3	304.3	303.3	302.3	299.3	294.3	290.3	287.3
30°	269.3	270.3	270.3	272.3	276.3	279.3	281.3	281.3	277.3	273.3	267.3
32.5°	231.2	233.2	234.2	238.2	242.2	245.3	247.3	251.3	256.3	255.3	249.3
35°	197.2	199.2	200.2	203.2	208.2	210.2	213.2	219.2	225.2	230.2	228.2
37.5°	167.2	167.2	170.2	173.2	177.2	180.2	183.2	188.2	196.2	200.2	201.2
40°	142.1	143.1	144.1	148.2	151.2	154.2	156.2	161.2	168.2	171.2	171.2
42.5°	123.1	123.1	124.1	126.1	130.1	131.1	133.1	137.1	141.1	143.1	144.1
45°	108.1	108.1	108.1	110.1	112.1	113.1	115.1	118.1	119.1	120.1	120.1
47.5°	96.1	96.1	96.1	97.1	98.1	99.1	100.1	101.1	102.1	102.1	100.1
50°	86.1	86.1	87.1	87.1	87.1	88.1	88.1	88.1	87.1	86.1	85.1
52.5°	78.1	78.1	78.1	78.1	78.1	78.1	78.1	77.1	75.1	74.1	72.1
55°	70.1	71.1	71.1	71.1	70.1	70.1	69.1	68.1	65.1	63.1	61.1
57.5°	64.1	64.1	64.1	63.1	63.1	62.1	61.1	59.1	57.1	55.1	52.1
60°	57.1	57.1	57.1	56.1	56.1	55.1	54.1	52.1	50.1	47.0	45.0
62.5°	50.1	50.1	50.1	50.1	49.1	48.0	47.0	45.0	43.0	41.0	39.0
65°	44.0	44.0	44.0	44.0	42.0	41.0	40.0	38.0	36.0	34.0	32.0
67.5°	38.0	38.0	38.0	37.0	36.0	35.0	34.0	33.0	31.0	29.0	27.0
70°	33.0	33.0	32.0	31.0	30.0	30.0	29.0	27.0	26.0	24.0	22.0
72.5°	27.0	27.0	27.0	26.0	25.0	24.0	23.0	22.0	21.0	19.0	18.0
75°	22.0	22.0	22.0	21.0	20.0	19.0	19.0	17.0	16.0	15.0	14.0
77.5°	17.0	17.0	17.0	16.0	15.0	15.0	14.0	13.0	12.0	11.0	10.0
80°	13.0	13.0	12.0	12.0	11.0	11.0	10.0	10.0	9.0	8.0	7.0
82.5°	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	6.0	5.0	4.0
85°	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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°	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4
2.5°	357.4	356.4	355.4	354.4	354.4	353.4	353.4	352.4	351.4	350.4	349.4
5°	361.4	359.4	357.4	356.4	355.4	354.4	352.4	350.4	348.4	346.4	344.4
7.5°	361.4	359.4	356.4	354.4	352.4	351.4	348.4	345.4	342.4	339.3	336.3
10°	360.4	356.4	353.4	350.4	347.4	345.4	342.4	338.3	334.3	330.3	326.3
12.5°	355.4	351.4	347.4	343.4	340.4	338.3	333.3	328.3	324.3	319.3	314.3
15°	348.4	344.4	339.3	333.3	331.3	328.3	323.3	317.3	312.3	306.3	301.3
17.5°	339.3	333.3	328.3	322.3	319.3	316.3	310.3	303.3	298.3	291.3	285.3
20°	327.3	322.3	314.3	309.3	305.3	302.3	295.3	288.3	281.3	275.3	267.3
22.5°	313.3	307.3	300.3	293.3	290.3	286.3	279.3	271.3	265.3	258.3	250.3
25°	298.3	291.3	284.3	276.3	273.3	270.3	262.3	255.3	247.3	239.2	233.2
27.5°	280.3	274.3	267.3	259.3	256.3	252.3	243.3	235.2	227.2	219.2	212.2
30°	262.3	257.3	248.3	239.2	234.2	229.2	220.2	211.2	202.2	195.2	189.2
32.5°	244.3	234.2	224.2	214.2	208.2	203.2	195.2	187.2	179.2	173.2	166.2
35°	220.2	210.2	199.2	189.2	184.2	180.2	171.2	163.2	156.2	150.2	144.1
37.5°	195.2	185.2	175.2	165.2	161.2	157.2	148.2	141.1	134.1	129.1	123.1
40°	168.2	163.2	152.2	143.1	139.1	135.1	128.1	120.1	115.1	109.1	104.1
42.5°	143.1	138.1	130.1	122.1	118.1	115.1	108.1	102.1	97.1	92.1	88.1
45°	120.1	116.1	110.1	104.1	100.1	97.1	90.1	85.1	81.1	76.1	73.1
47.5°	100.1	97.1	93.1	87.1	84.1	81.1	75.1	71.1	67.1	64.1	61.1
50°	83.1	81.1	77.1	73.1	70.1	68.1	63.1	59.1	56.1	53.1	51.1
52.5°	70.1	67.1	64.1	60.1	58.1	56.1	53.1	49.1	47.0	44.0	42.0
55°	59.1	57.1	54.1	50.1	48.0	47.0	44.0	41.0	38.0	36.0	34.0
57.5°	50.1	48.0	45.0	42.0	41.0	39.0	36.0	33.0	31.0	30.0	28.0
60°	43.0	40.0	38.0	35.0	33.0	32.0	29.0	27.0	25.0	24.0	22.0
62.5°	36.0	34.0	31.0	28.0	27.0	26.0	24.0	22.0	20.0	19.0	17.0
65°	30.0	28.0	26.0	23.0	22.0	21.0	19.0	17.0	16.0	15.0	14.0
67.5°	25.0	23.0	21.0	19.0	18.0	16.0	15.0	14.0	12.0	11.0	10.0
70°	20.0	18.0	16.0	14.0	14.0	13.0	11.0	10.0	9.0	8.0	7.0
72.5°	16.0	14.0	13.0	11.0	10.0	10.0	9.0	8.0	7.0	6.0	5.0
75°	12.0	11.0	9.0	8.0	7.0	7.0	6.0	5.0	5.0	4.0	3.0
77.5°	9.0	8.0	7.0	6.0	5.0	5.0	4.0	3.0	3.0	2.0	2.0
80°	6.0	5.0	4.0	3.0	3.0	3.0	2.0	2.0	2.0	1.0	1.0
82.5°	3.0	3.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	0.0
85°	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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°	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4
2.5°	348.4	347.4	346.4	346.4	345.4	344.4	343.4	343.4	342.4	341.4	341.4
5°	342.4	340.4	338.3	337.3	336.3	334.3	333.3	331.3	330.3	328.3	327.3
7.5°	333.3	330.3	327.3	326.3	325.3	323.3	320.3	317.3	315.3	314.3	312.3
10°	323.3	319.3	315.3	313.3	312.3	308.3	305.3	302.3	300.3	297.3	294.3
12.5°	309.3	305.3	301.3	299.3	297.3	293.3	290.3	286.3	282.3	279.3	276.3
15°	295.3	290.3	285.3	283.3	280.3	276.3	272.3	268.3	264.3	260.3	257.3
17.5°	279.3	274.3	268.3	265.3	263.3	258.3	252.3	249.3	244.3	241.2	237.2
20°	262.3	256.3	250.3	248.3	245.3	239.2	234.2	229.2	225.2	221.2	217.2
22.5°	244.3	237.2	231.2	229.2	226.2	220.2	215.2	211.2	206.2	201.2	197.2
25°	226.2	219.2	213.2	209.2	206.2	201.2	195.2	191.2	186.2	182.2	179.2
27.5°	206.2	199.2	193.2	190.2	188.2	183.2	178.2	173.2	168.2	164.2	160.2
30°	183.2	178.2	173.2	171.2	168.2	164.2	159.2	155.2	150.2	146.2	142.1
32.5°	161.2	156.2	151.2	150.2	148.2	144.1	141.1	137.1	133.1	129.1	126.1
35°	140.1	135.1	132.1	130.1	128.1	125.1	122.1	120.1	117.1	113.1	110.1
37.5°	119.1	117.1	112.1	111.1	110.1	107.1	105.1	103.1	100.1	98.1	95.1
40°	101.1	98.1	95.1	94.1	92.1	90.1	88.1	86.1	84.1	83.1	80.1
42.5°	84.1	82.1	79.1	79.1	77.1	75.1	73.1	72.1	70.1	68.1	67.1
45°	71.1	68.1	67.1	65.1	65.1	63.1	61.1	60.1	58.1	56.1	54.1
47.5°	59.1	57.1	55.1	54.1	54.1	52.1	50.1	48.0	47.0	44.0	42.0
50°	49.1	47.0	46.0	45.0	44.0	43.0	41.0	39.0	37.0	35.0	32.0
52.5°	40.0	39.0	37.0	37.0	36.0	34.0	32.0	30.0	28.0	26.0	23.0
55°	33.0	31.0	30.0	29.0	28.0	27.0	25.0	23.0	21.0	18.0	16.0
57.5°	26.0	25.0	23.0	23.0	22.0	20.0	18.0	16.0	14.0	11.0	9.0
60°	21.0	19.0	18.0	17.0	16.0	15.0	12.0	10.0	8.0	6.0	3.0
62.5°	16.0	15.0	13.0	13.0	12.0	10.0	8.0	6.0	3.0	1.0	0.0
65°	12.0	11.0	10.0	9.0	8.0	6.0	4.0	2.0	1.0	0.0	0.0
67.5°	9.0	8.0	6.0	6.0	5.0	3.0	1.0	0.0	0.0	0.0	0.0
70°	6.0	5.0	4.0	3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0
72.5°	4.0	3.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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°	351.4	351.4	351.4	351.4	351.4	351.4	351.4	351.4
2.5°	340.4	339.3	340.4	339.3	339.3	338.3	339.3	338.3
5°	326.3	325.3	325.3	324.3	324.3	324.3	323.3	323.3
7.5°	310.3	309.3	308.3	308.3	307.3	306.3	306.3	305.3
10°	293.3	291.3	289.3	290.3	288.3	288.3	287.3	287.3
12.5°	274.3	272.3	272.3	270.3	268.3	268.3	266.3	266.3
15°	255.3	253.3	251.3	250.3	248.3	248.3	247.3	246.3
17.5°	234.2	232.2	230.2	229.2	228.2	227.2	226.2	225.2
20°	214.2	211.2	210.2	209.2	207.2	206.2	205.2	206.2
22.5°	195.2	191.2	190.2	189.2	188.2	186.2	185.2	184.2
25°	175.2	172.2	170.2	170.2	168.2	167.2	165.2	166.2
27.5°	156.2	154.2	152.2	151.2	149.2	148.2	147.2	147.2
30°	139.1	136.1	135.1	133.1	132.1	130.1	129.1	129.1
32.5°	122.1	119.1	118.1	117.1	115.1	113.1	113.1	113.1
35°	107.1	104.1	103.1	101.1	99.1	97.1	97.1	97.1
37.5°	92.1	89.1	87.1	86.1	84.1	83.1	81.1	81.1
40°	78.1	75.1	73.1	72.1	70.1	68.1	67.1	67.1
42.5°	64.1	62.1	60.1	59.1	57.1	55.1	54.1	54.1
45°	51.1	49.1	48.0	47.0	45.0	42.0	41.0	41.0
47.5°	40.0	38.0	37.0	35.0	33.0	31.0	29.0	29.0
50°	30.0	28.0	26.0	25.0	23.0	21.0	19.0	19.0
52.5°	21.0	19.0	18.0	16.0	14.0	12.0	11.0	10.0
55°	13.0	11.0	10.0	9.0	7.0	6.0	4.0	4.0
57.5°	7.0	5.0	4.0	3.0	2.0	1.0	1.0	1.0
60°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
62.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)