

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: P242003

Luminaire Tested: **PRS410D010-S4M12-41SWWC-4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242003
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-61)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PRS410D010-S4M12-41SWWC-4000K
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM SPECULAR
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 608.3 lumens
Efficiency: N/A
Efficacy: 60.8 lumens/watt
Spacing Criteria (0/90/45): 0.94 / 0.9 / 0.99
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')
CIE Type: Direct

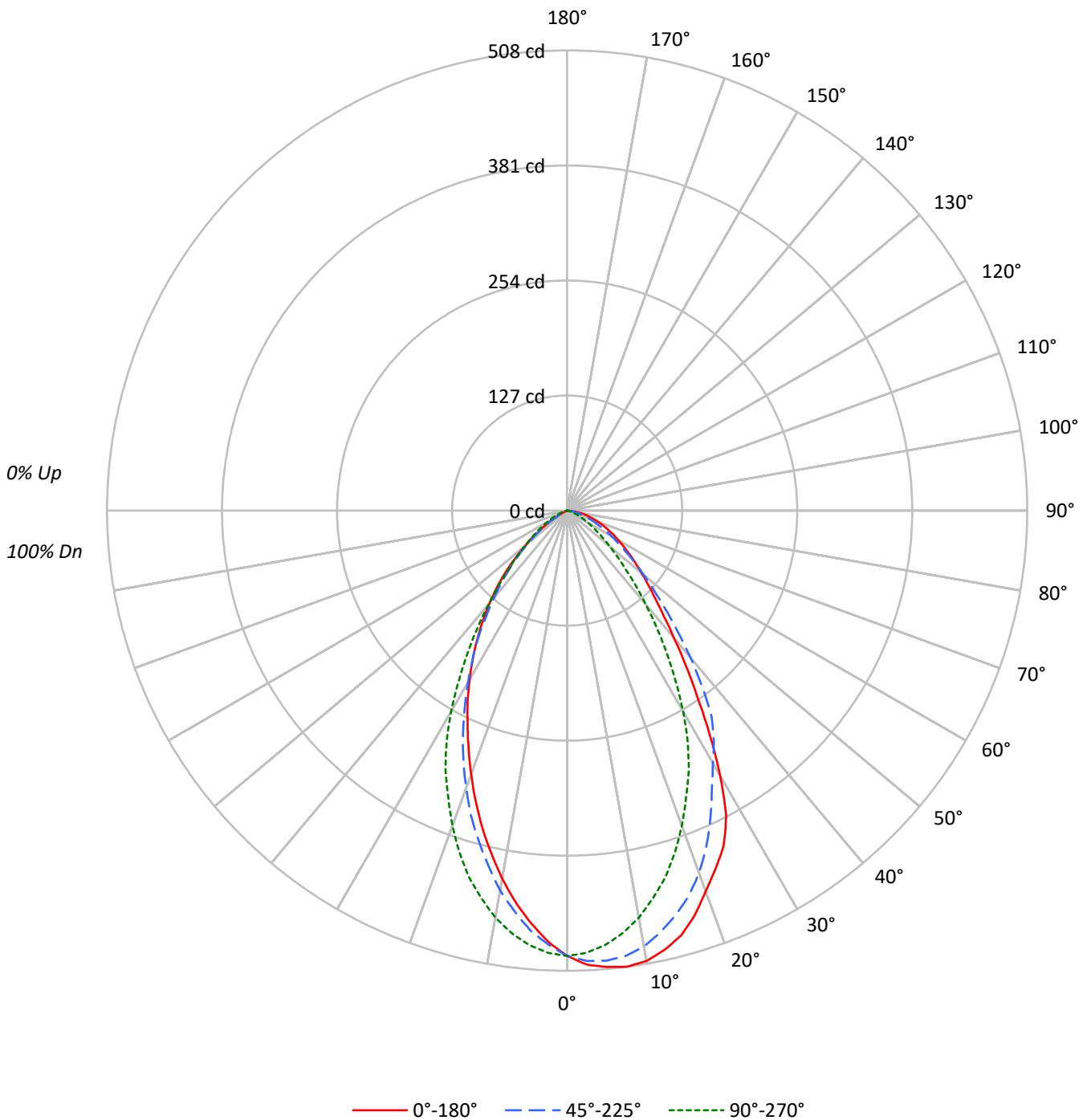
Input Watts (W): 10
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	106	103	110	107	104	101	102	100	98	99	97	95	95	94	92	91
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	85	83	81
3	98	90	84	79	96	89	83	79	86	81	77	83	79	76	81	78	75	73
4	92	83	76	71	90	81	75	70	79	74	69	77	72	69	75	71	68	66
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55
7	76	65	58	53	74	64	58	53	63	57	52	62	56	52	60	55	52	50
8	72	60	53	49	70	60	53	48	59	53	48	58	52	48	56	51	48	46
9	68	56	50	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37629	37629	37629
5°	38864	36996	35129
10°	39235	35458	32077
15°	38481	33187	28702
20°	36419	30155	25219
25°	34517	26823	21959
30°	29865	22618	19047
35°	23351	17866	16166
40°	18295	13439	13239
45°	14895	9851	10403
50°	12765	7228	7228
55°	11210	5405	4324
60°	9905	3873	2021
65°	8983	2753	362
70°	8146	1813	0
75°	7187	1183	0
80°	5819	441	0
85°	3513	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.2	7.4
10°-20°	117.5	19.3
20°-30°	148.3	24.4
30°-40°	131.5	21.6
40°-50°	87.2	14.3
50°-60°	47.5	7.8
60°-70°	21.3	3.5
70°-80°	8.3	1.4
80°-90°	1.4	0.2
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°	311.1	51.1
0°-40°	442.6	72.8
0°-60°	577.3	94.9
0°-90°	608.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	608.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	492	492	492	492	492	
5°	506	499	482	465	457	48
15°	486	462	419	377	362	136
25°	409	374	318	272	260	185
35°	250	278	191	171	173	158
45°	138	153	91	88	96	108
55°	84	79	40	31	32	76
65°	50	38	15	1	2	50
75°	24	15	4	0	0	26
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°	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6
2.5°	501.8	500.7	500.7	500.7	499.7	499.7	499.7	499.7	498.7	497.7	497.7
5°	505.8	506.8	505.8	504.8	504.8	504.8	503.8	502.8	501.8	500.7	498.7
7.5°	507.8	506.8	506.8	505.8	504.8	503.8	502.8	501.8	499.7	497.7	495.7
10°	504.8	503.8	502.8	502.8	499.7	499.7	498.7	496.7	493.7	491.6	488.6
12.5°	496.7	496.7	495.7	494.7	491.6	491.6	489.6	487.6	484.6	480.5	476.5
15°	485.6	485.6	483.5	482.5	480.5	479.5	477.5	474.4	471.4	467.4	462.3
17.5°	468.4	468.4	467.4	465.3	464.3	463.3	460.3	458.3	454.2	450.2	446.1
20°	447.1	445.1	445.1	444.1	442.1	441.1	440.0	437.0	434.0	429.9	425.9
22.5°	427.9	426.9	423.9	421.8	418.8	416.8	415.8	411.7	409.7	406.7	401.6
25°	408.7	406.7	405.7	402.6	398.6	397.6	394.5	388.5	384.4	379.4	374.3
27.5°	380.4	380.4	381.4	380.4	376.3	375.3	373.3	368.2	360.1	352.0	346.0
30°	337.9	336.9	337.9	339.9	342.9	343.9	346.0	345.0	338.9	329.8	321.7
32.5°	292.4	292.4	296.4	299.4	302.5	303.5	305.5	310.6	310.6	307.5	301.5
35°	249.9	251.9	254.9	258.0	262.0	263.0	268.1	269.1	275.2	279.2	278.2
37.5°	214.5	216.5	217.5	220.5	224.6	225.6	227.6	234.7	241.8	246.8	244.8
40°	183.1	183.1	186.1	189.2	193.2	194.2	197.3	201.3	209.4	211.4	211.4
42.5°	157.8	158.8	159.8	161.9	164.9	166.9	168.9	175.0	179.1	182.1	180.1
45°	137.6	138.6	139.6	141.6	143.6	144.7	146.7	150.7	153.8	153.8	152.8
47.5°	121.4	121.4	122.4	123.4	125.4	126.5	128.5	130.5	131.5	130.5	129.5
50°	107.2	108.2	108.2	109.3	110.3	112.3	113.3	113.3	113.3	112.3	110.3
52.5°	95.1	95.1	96.1	96.1	98.1	99.1	99.1	99.1	98.1	96.1	93.1
55°	84.0	84.0	84.0	85.0	87.0	87.0	87.0	86.0	85.0	81.9	78.9
57.5°	73.8	74.9	74.9	74.9	75.9	75.9	75.9	74.9	72.8	69.8	66.8
60°	64.7	65.8	65.8	65.8	66.8	66.8	65.8	64.7	62.7	58.7	56.6
62.5°	57.7	57.7	57.7	57.7	57.7	57.7	56.6	54.6	52.6	49.6	47.5
65°	49.6	49.6	49.6	50.6	49.6	48.6	48.6	46.5	44.5	41.5	38.4
67.5°	42.5	42.5	42.5	42.5	41.5	41.5	40.5	38.4	36.4	34.4	31.4
70°	36.4	36.4	36.4	35.4	34.4	34.4	33.4	31.4	29.3	27.3	25.3
72.5°	30.3	30.3	30.3	29.3	28.3	27.3	27.3	25.3	23.3	21.2	20.2
75°	24.3	24.3	24.3	23.3	22.3	21.2	21.2	19.2	18.2	17.2	15.2
77.5°	19.2	19.2	18.2	17.2	17.2	16.2	16.2	15.2	14.2	12.1	11.1
80°	13.2	13.2	13.2	13.2	12.1	11.1	11.1	10.1	9.1	8.1	7.1
82.5°	9.1	9.1	8.1	8.1	7.1	7.1	7.1	6.1	6.1	5.1	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	1.0	0.0	0.0	0.0	1.0	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°	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6
2.5°	496.7	495.7	495.7	493.7	493.7	492.7	491.6	490.6	489.6	488.6	487.6
5°	497.7	495.7	493.7	491.6	491.6	489.6	487.6	485.6	484.6	481.5	479.5
7.5°	493.7	490.6	488.6	485.6	484.6	482.5	479.5	476.5	473.4	470.4	467.4
10°	485.6	481.5	478.5	475.5	472.4	471.4	467.4	464.3	459.3	456.2	453.2
12.5°	473.4	469.4	465.3	460.3	459.3	457.2	452.2	447.1	443.1	438.0	434.0
15°	458.3	454.2	448.1	444.1	441.1	438.0	434.0	428.9	422.8	418.8	413.7
17.5°	441.1	435.0	428.9	423.9	419.8	417.8	410.7	404.6	400.6	395.5	390.5
20°	420.8	413.7	406.7	399.6	396.5	392.5	386.4	380.4	374.3	370.2	363.2
22.5°	396.5	389.5	382.4	374.3	372.3	368.2	361.1	355.1	350.0	342.9	336.9
25°	369.2	363.2	358.1	351.0	347.0	342.9	336.9	329.8	322.7	317.6	310.6
27.5°	341.9	337.9	332.8	325.7	321.7	317.6	309.6	302.5	293.4	288.3	280.2
30°	315.6	312.6	305.5	298.4	291.3	288.3	277.2	269.1	261.0	255.9	249.9
32.5°	292.4	283.2	274.1	264.0	260.0	255.9	244.8	236.7	229.6	222.6	216.5
35°	266.1	251.9	241.8	232.7	227.6	223.6	214.5	205.4	199.3	191.2	187.1
37.5°	237.7	225.6	213.4	202.3	198.3	192.2	185.1	175.0	168.9	161.9	155.8
40°	207.4	199.3	186.1	175.0	169.9	165.9	156.8	148.7	140.6	134.5	130.5
42.5°	176.0	171.0	160.8	149.7	144.7	140.6	132.5	123.4	116.3	111.3	106.2
45°	149.7	145.7	137.6	127.5	121.4	117.3	109.3	101.2	95.1	91.0	88.0
47.5°	126.5	122.4	115.3	106.2	101.2	97.1	89.0	81.9	77.9	74.9	72.8
50°	106.2	101.2	95.1	89.0	84.0	79.9	72.8	67.8	63.7	60.7	59.7
52.5°	89.0	85.0	78.9	72.8	68.8	65.8	58.7	54.6	52.6	49.6	47.5
55°	74.9	70.8	65.8	59.7	56.6	53.6	48.6	45.5	42.5	40.5	38.4
57.5°	62.7	58.7	53.6	48.6	45.5	43.5	39.5	36.4	34.4	32.4	30.3
60°	52.6	48.6	44.5	39.5	37.4	35.4	32.4	29.3	27.3	25.3	23.3
62.5°	43.5	39.5	35.4	31.4	30.3	28.3	26.3	23.3	21.2	20.2	18.2
65°	36.4	32.4	28.3	25.3	24.3	22.3	20.2	18.2	16.2	15.2	14.2
67.5°	29.3	25.3	22.3	20.2	19.2	18.2	16.2	14.2	13.2	11.1	10.1
70°	23.3	20.2	17.2	15.2	14.2	13.2	12.1	11.1	9.1	8.1	7.1
72.5°	17.2	15.2	13.2	11.1	11.1	10.1	9.1	8.1	7.1	6.1	5.1
75°	13.2	11.1	10.1	8.1	8.1	7.1	6.1	5.1	4.0	4.0	3.0
77.5°	9.1	8.1	7.1	6.1	5.1	5.1	4.0	3.0	3.0	2.0	2.0
80°	6.1	5.1	4.0	3.0	3.0	3.0	2.0	2.0	2.0	1.0	1.0
82.5°	4.0	3.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	0.0
85°	1.0	1.0	1.0	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6
2.5°	486.6	485.6	484.6	483.5	483.5	481.5	481.5	480.5	479.5	479.5	478.5
5°	477.5	475.5	473.4	472.4	472.4	469.4	467.4	466.3	465.3	464.3	462.3
7.5°	464.3	462.3	459.3	457.2	456.2	453.2	451.2	448.1	446.1	445.1	442.1
10°	449.2	446.1	441.1	440.0	438.0	435.0	432.0	428.9	425.9	422.8	420.8
12.5°	429.9	424.9	421.8	418.8	416.8	413.7	408.7	404.6	401.6	399.6	396.5
15°	408.7	403.6	399.6	396.5	394.5	390.5	384.4	381.4	377.3	373.3	372.3
17.5°	384.4	378.3	374.3	371.3	368.2	365.2	359.1	356.1	353.0	349.0	346.0
20°	358.1	352.0	348.0	343.9	340.9	337.9	333.8	328.8	325.7	323.7	319.7
22.5°	330.8	325.7	319.7	317.6	315.6	308.5	305.5	301.5	299.4	296.4	294.4
25°	304.5	297.4	293.4	290.3	287.3	282.2	277.2	274.1	272.1	270.1	267.1
27.5°	275.2	271.1	266.1	262.0	261.0	255.9	250.9	247.8	244.8	242.8	239.7
30°	243.8	238.7	234.7	234.7	232.7	228.6	226.6	222.6	218.5	217.5	216.5
32.5°	211.4	208.4	205.4	203.3	203.3	200.3	197.3	196.3	194.2	192.2	192.2
35°	182.1	179.1	176.0	175.0	175.0	173.0	172.0	171.0	171.0	169.9	168.9
37.5°	153.8	149.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	148.7	147.7
40°	127.5	125.4	124.4	123.4	123.4	123.4	124.4	124.4	125.4	127.5	128.5
42.5°	104.2	104.2	103.2	103.2	102.2	103.2	104.2	105.2	106.2	106.2	108.2
45°	87.0	86.0	85.0	85.0	86.0	85.0	86.0	88.0	88.0	89.0	90.0
47.5°	70.8	69.8	69.8	69.8	69.8	69.8	69.8	70.8	71.8	71.8	72.8
50°	57.7	56.6	55.6	56.6	55.6	55.6	56.6	56.6	56.6	57.7	57.7
52.5°	45.5	44.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
55°	35.4	34.4	33.4	33.4	32.4	32.4	31.4	31.4	31.4	31.4	31.4
57.5°	28.3	26.3	25.3	24.3	24.3	22.3	21.2	21.2	20.2	20.2	20.2
60°	21.2	20.2	18.2	18.2	17.2	15.2	14.2	12.1	12.1	11.1	11.1
62.5°	16.2	15.2	14.2	13.2	12.1	10.1	8.1	6.1	4.0	4.0	5.1
65°	12.1	11.1	9.1	8.1	8.1	6.1	4.0	2.0	1.0	1.0	2.0
67.5°	9.1	8.1	6.1	5.1	4.0	3.0	1.0	0.0	0.0	0.0	0.0
70°	6.1	5.1	3.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.0	0.0	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°	491.6	491.6	491.6	491.6	491.6	491.6	491.6	491.6
2.5°	477.5	477.5	477.5	477.5	476.5	476.5	476.5	476.5
5°	462.3	459.3	459.3	459.3	459.3	459.3	458.3	457.2
7.5°	441.1	439.0	439.0	438.0	438.0	437.0	437.0	436.0
10°	418.8	416.8	416.8	414.8	414.8	413.7	412.7	412.7
12.5°	393.5	391.5	391.5	391.5	389.5	389.5	387.4	387.4
15°	368.2	366.2	365.2	365.2	363.2	363.2	362.2	362.2
17.5°	341.9	340.9	338.9	338.9	337.9	335.9	335.9	335.9
20°	317.6	314.6	313.6	313.6	310.6	310.6	309.6	309.6
22.5°	291.3	289.3	288.3	287.3	285.3	286.3	284.3	284.3
25°	265.0	265.0	263.0	263.0	262.0	261.0	260.0	260.0
27.5°	239.7	239.7	238.7	238.7	237.7	236.7	236.7	237.7
30°	215.5	215.5	215.5	216.5	215.5	214.5	215.5	215.5
32.5°	192.2	192.2	193.2	192.2	193.2	193.2	193.2	193.2
35°	169.9	169.9	171.0	171.0	172.0	172.0	173.0	173.0
37.5°	147.7	149.7	149.7	149.7	151.7	151.7	152.8	152.8
40°	128.5	128.5	129.5	130.5	131.5	132.5	133.5	132.5
42.5°	109.3	109.3	110.3	111.3	112.3	113.3	114.3	114.3
45°	90.0	91.0	92.1	92.1	94.1	95.1	95.1	96.1
47.5°	72.8	74.9	74.9	74.9	75.9	76.9	77.9	76.9
50°	57.7	58.7	58.7	58.7	59.7	60.7	60.7	60.7
52.5°	43.5	44.5	44.5	44.5	45.5	45.5	45.5	46.5
55°	31.4	31.4	31.4	32.4	32.4	32.4	32.4	32.4
57.5°	20.2	20.2	20.2	21.2	22.3	22.3	21.2	21.2
60°	11.1	12.1	13.2	13.2	13.2	14.2	13.2	13.2
62.5°	6.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
65°	2.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
67.5°	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
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)