

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P85568

Luminaire Tested: **ML712840TUNVD010-495WW06-H750ICAT**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P85568  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: ML712840TUNVD010-495WW06-H750ICAT  
Description: HALO 6 INCH LED DOWNLIGHT WITH 1200 Lmn MODULE, DIFFUSE LENS AND SEMI-SPECULAR REFLECTOR WITH PLASTIC SPECULAR KICKER  
---ABSOLUTE PHOTOMETRY IS BASED ON CALIBRATION FACTORS  
CREATED USING A 500 WATT, NIST TRACEABLE, OMNI-DIRECTIONAL LAB LUMEN STANDARD IN THE GONIOPHOTOMETER WITH TEST DISTANCE OF 28.75 FEET----  
Light Source: (1)SMT LED 4000K  
CL-L241-C26L2-A  
Ballast/Driver: (1)ELECTRONIC DRIVER  
RHPS314D-CLO

**Summary**

Lumens per Lamp: 1416 (1 lamp)  
Luminaire Lumens: 1416.9 lumens  
Efficiency: 100.1%  
Efficacy: 58.3 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.31 / 1.32  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

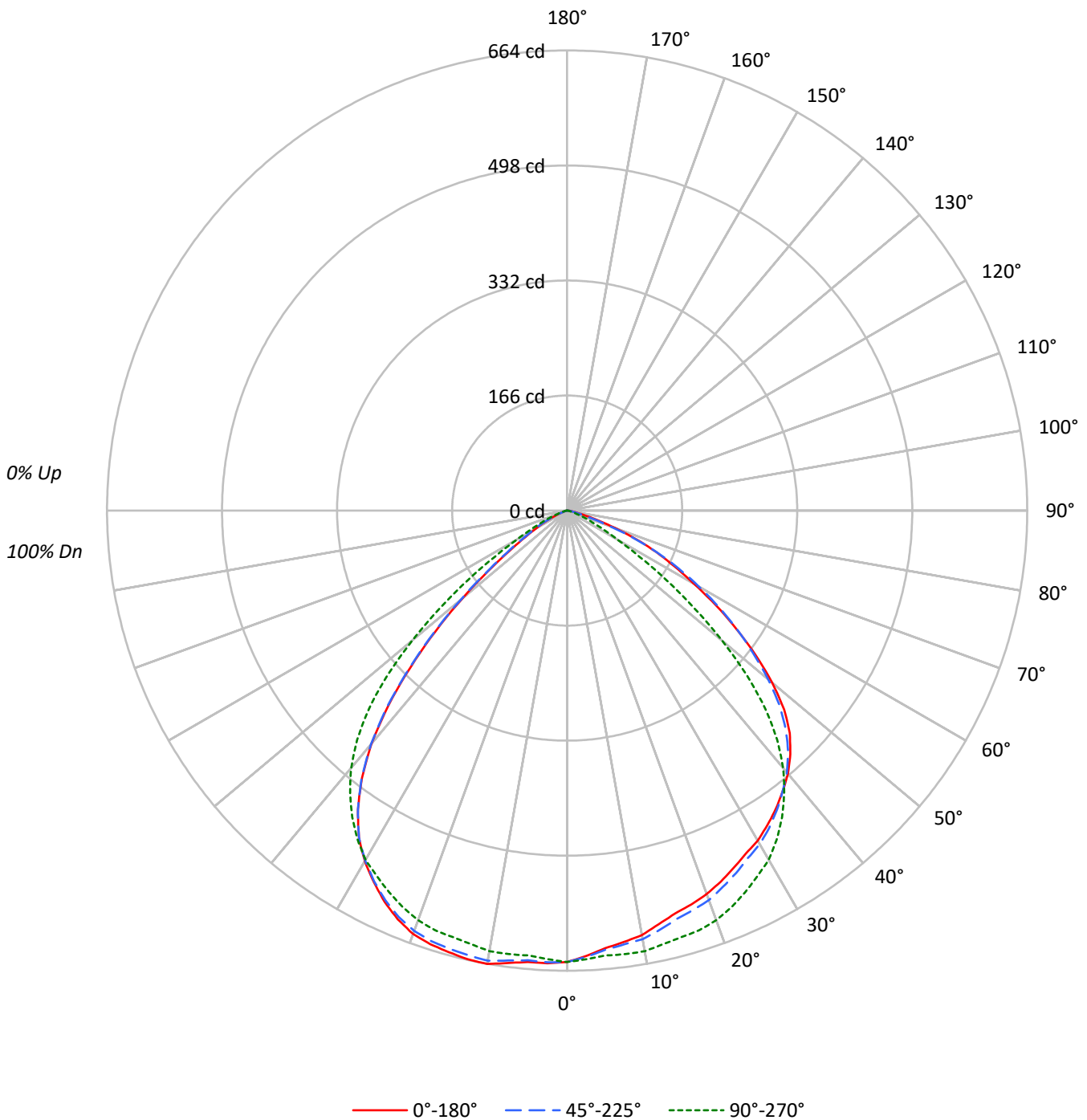
Input Watts (W): 24.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 0.2041  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: 6 HR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	111	108	104	101	109	105	102	100	101	99	97	98	96	94	94	92	91	89
2	103	97	91	86	101	95	90	85	91	87	84	88	85	82	85	82	80	78
3	95	87	80	74	93	85	79	74	82	77	73	80	75	71	77	73	70	68
4	88	78	71	65	86	77	70	64	74	68	64	72	67	63	70	66	62	60
5	82	71	63	57	80	70	62	57	68	61	56	66	60	56	64	59	55	53
6	76	64	56	50	74	63	56	50	62	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	40	52	45	40	51	45	40	50	44	40	38
9	62	49	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	34
10	58	46	38	34	57	45	38	33	44	38	33	43	37	33	43	37	33	31

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

	0°	90°	180°
0°	38883	38883	38883
5°	37108	37729	38279
10°	36007	37374	38462
15°	34717	36759	38052
20°	34103	36426	37659
25°	33332	35611	36508
30°	32861	34761	34904
35°	32261	33201	32335
40°	31577	30902	27971
45°	30299	26991	21329
50°	27217	20559	13901
55°	22519	13172	7657
60°	17267	6851	4243
65°	12740	3608	2231
70°	7384	1664	837
75°	2872	683	278
80°	1138	329	165
85°	594	204	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	61.5	4.3	4.3
10°-20°	179.3	12.7	12.7
20°-30°	276.6	19.5	19.5
30°-40°	329.6	23.3	23.3
40°-50°	297.0	21.0	21.0
50°-60°	179.1	12.6	12.6
60°-70°	77.1	5.4	5.4
70°-80°	14.7	1.0	1.0
80°-90°	2.0	0.1	0.1
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	517.4	36.5	36.5
0°-40°	847.0	59.8	59.8
0°-60°	1323.1	93.4	93.4
0°-90°	1416.9	100.0	100.1
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	1416.9	100.0	100.1

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	651	651	651	651	651	
5°	634	636	644	651	654	60
15°	602	610	637	655	660	171
25°	569	577	608	621	623	263
35°	525	528	540	526	526	329
45°	454	446	405	323	320	347
55°	298	300	175	106	102	267
65°	142	144	40	27	25	140
75°	25	19	6	4	2	33
85°	4	4	1	0	0	4
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4
2.5°	643.1	643.1	643.1	643.1	643.1	643.1	643.1	643.1	644.3	644.3	644.3
5°	633.7	632.5	632.5	632.5	632.5	633.7	633.7	634.8	634.8	636.0	637.2
7.5°	627.8	626.6	627.8	627.8	627.8	628.9	628.9	630.1	631.3	631.3	632.5
10°	621.9	620.7	620.7	621.9	621.9	623.0	624.2	625.4	626.6	627.8	628.9
12.5°	611.2	610.1	611.2	611.2	612.4	613.6	614.8	616.0	617.1	619.5	621.9
15°	601.8	601.8	601.8	601.8	603.0	604.2	605.3	607.7	608.9	610.1	613.6
17.5°	595.9	594.7	594.7	594.7	597.1	597.1	599.4	600.6	603.0	604.2	607.7
20°	588.8	587.6	587.6	588.8	590.0	591.2	592.4	593.5	595.9	598.3	600.6
22.5°	579.4	577.0	578.2	579.4	579.4	580.6	581.7	584.1	585.3	587.6	591.2
25°	568.8	567.6	567.6	567.6	568.8	569.9	571.1	572.3	574.7	577.0	579.4
27.5°	558.1	557.0	557.0	558.1	558.1	559.3	560.5	561.7	562.9	565.2	568.8
30°	549.9	548.7	548.7	548.7	549.9	549.9	549.9	552.2	553.4	555.8	557.0
32.5°	538.1	538.1	536.9	538.1	538.1	538.1	539.3	540.4	541.6	542.8	544.0
35°	525.1	523.9	523.9	523.9	523.9	525.1	525.1	525.1	526.3	527.5	528.6
37.5°	510.9	509.8	509.8	509.8	509.8	509.8	509.8	509.8	509.8	510.9	510.9
40°	495.6	494.4	494.4	494.4	494.4	493.2	493.2	493.2	493.2	493.2	493.2
42.5°	476.7	476.7	476.7	475.5	475.5	474.4	474.4	473.2	472.0	472.0	470.8
45°	454.3	453.1	453.1	453.1	451.9	450.8	450.8	448.4	448.4	446.0	446.0
47.5°	424.8	423.6	423.6	422.4	422.4	421.3	420.1	418.9	417.7	415.4	414.2
50°	385.9	385.9	385.9	385.9	384.7	384.7	383.5	381.1	381.1	378.8	376.4
52.5°	343.4	343.4	343.4	343.4	343.4	343.4	343.4	342.2	341.0	338.7	337.5
55°	298.5	298.5	299.7	300.9	302.1	302.1	302.1	300.9	300.9	299.7	298.5
57.5°	254.9	254.9	254.9	257.2	258.4	259.6	259.6	260.8	260.8	259.6	258.4
60°	211.2	211.2	212.4	214.8	217.1	218.3	218.3	219.5	219.5	219.5	219.5
62.5°	174.6	174.6	175.8	178.2	179.4	180.5	180.5	181.7	181.7	181.7	181.7
65°	141.6	141.6	141.6	142.8	142.8	142.8	144.0	144.0	144.0	144.0	144.0
67.5°	107.4	107.4	107.4	106.2	106.2	106.2	105.0	103.8	103.8	103.8	103.8
70°	73.2	73.2	73.2	72.0	70.8	69.6	68.4	66.1	66.1	64.9	66.1
72.5°	44.8	44.8	43.7	42.5	41.3	40.1	38.9	37.8	36.6	35.4	35.4
75°	24.8	24.8	24.8	23.6	22.4	22.4	21.2	20.1	18.9	18.9	17.7
77.5°	14.2	14.2	13.0	13.0	13.0	11.8	11.8	11.8	10.6	10.6	9.4
80°	8.3	8.3	8.3	8.3	8.3	7.1	7.1	7.1	7.1	7.1	7.1
82.5°	5.9	5.9	5.9	5.9	5.9	4.7	4.7	4.7	4.7	4.7	4.7
85°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4
2.5°	644.3	645.5	645.5	646.6	646.6	646.6	647.8	647.8	649.0	649.0	650.2
5°	637.2	638.4	638.4	639.6	640.7	641.9	643.1	644.3	645.5	645.5	646.6
7.5°	634.8	636.0	637.2	638.4	640.7	641.9	643.1	645.5	646.6	647.8	649.0
10°	631.3	633.7	634.8	637.2	639.6	641.9	643.1	645.5	647.8	649.0	651.4
12.5°	623.0	626.6	628.9	631.3	633.7	637.2	638.4	640.7	644.3	646.6	649.0
15°	616.0	618.3	621.9	624.2	627.8	631.3	633.7	637.2	639.6	641.9	644.3
17.5°	611.2	613.6	617.1	620.7	624.2	627.8	631.3	634.8	637.2	639.6	641.9
20°	604.2	607.7	611.2	614.8	618.3	621.9	626.6	628.9	632.5	634.8	637.2
22.5°	593.5	597.1	601.8	605.3	608.9	613.6	617.1	619.5	623.0	625.4	627.8
25°	582.9	586.5	590.0	593.5	598.3	601.8	605.3	607.7	611.2	613.6	614.8
27.5°	571.1	574.7	578.2	581.7	585.3	588.8	592.4	594.7	597.1	599.4	600.6
30°	559.3	562.9	566.4	569.9	573.5	575.8	579.4	581.7	582.9	584.1	584.1
32.5°	546.3	549.9	552.2	555.8	558.1	560.5	562.9	562.9	564.0	564.0	564.0
35°	529.8	532.2	534.5	536.9	539.3	540.4	540.4	540.4	540.4	538.1	535.7
37.5°	512.1	513.3	514.5	515.7	516.8	516.8	516.8	514.5	512.1	508.6	503.9
40°	493.2	493.2	493.2	493.2	492.1	490.9	488.5	485.0	479.1	473.2	464.9
42.5°	470.8	469.6	468.5	466.1	462.6	459.0	454.3	448.4	440.1	429.5	417.7
45°	443.7	441.3	439.0	434.2	428.3	420.1	413.0	404.7	392.9	380.0	364.6
47.5°	410.6	407.1	402.4	394.1	384.7	374.1	363.4	351.6	337.5	322.1	306.8
50°	372.9	369.3	361.1	350.5	336.3	321.0	306.8	291.5	277.3	262.0	245.4
52.5°	333.9	328.0	317.4	303.3	284.4	265.5	247.8	231.3	217.1	201.8	186.4
55°	295.0	289.1	276.1	257.2	234.8	211.2	191.2	174.6	160.5	147.5	135.7
57.5°	256.1	250.2	236.0	215.9	190.0	164.0	140.4	123.9	112.1	102.7	95.6
60°	217.1	211.2	198.2	177.0	151.0	123.9	100.3	83.8	75.5	69.6	66.1
62.5°	181.7	175.8	164.0	144.0	119.2	93.2	72.0	57.8	51.9	48.4	47.2
65°	144.0	140.4	129.8	112.1	90.9	68.4	50.7	40.1	35.4	33.0	31.9
67.5°	103.8	101.5	94.4	81.4	64.9	47.2	34.2	27.1	23.6	21.2	20.1
70°	64.9	64.9	61.4	53.1	41.3	29.5	21.2	16.5	14.2	13.0	11.8
72.5°	35.4	35.4	34.2	29.5	23.6	16.5	11.8	9.4	8.3	7.1	7.1
75°	16.5	16.5	16.5	15.3	13.0	9.4	7.1	5.9	4.7	4.7	4.7
77.5°	9.4	9.4	8.3	8.3	7.1	5.9	4.7	3.5	3.5	3.5	2.4
80°	5.9	5.9	5.9	4.7	4.7	3.5	3.5	2.4	2.4	2.4	2.4
82.5°	4.7	4.7	3.5	3.5	3.5	2.4	2.4	2.4	1.2	1.2	1.2
85°	3.5	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	0.0
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4	651.4
2.5°	650.2	650.2	651.4	651.4	652.5	652.5	652.5	652.5	652.5	653.7	653.7
5°	647.8	647.8	649.0	650.2	650.2	651.4	652.5	652.5	652.5	653.7	653.7
7.5°	650.2	651.4	652.5	653.7	654.9	654.9	656.1	656.1	657.3	657.3	658.4
10°	652.5	653.7	656.1	657.3	658.4	659.6	660.8	662.0	662.0	663.2	662.0
12.5°	650.2	652.5	653.7	654.9	657.3	657.3	658.4	659.6	660.8	662.0	662.0
15°	646.6	649.0	650.2	652.5	653.7	654.9	656.1	657.3	657.3	658.4	658.4
17.5°	644.3	646.6	647.8	649.0	650.2	651.4	652.5	653.7	653.7	654.9	654.9
20°	639.6	640.7	641.9	643.1	644.3	645.5	646.6	647.8	647.8	649.0	649.0
22.5°	628.9	631.3	631.3	632.5	633.7	634.8	634.8	636.0	636.0	637.2	637.2
25°	616.0	617.1	618.3	619.5	619.5	620.7	620.7	620.7	621.9	621.9	621.9
27.5°	601.8	601.8	601.8	601.8	603.0	603.0	603.0	603.0	603.0	604.2	604.2
30°	584.1	584.1	584.1	584.1	584.1	582.9	584.1	584.1	584.1	584.1	584.1
32.5°	562.9	561.7	560.5	559.3	559.3	559.3	558.1	558.1	558.1	558.1	558.1
35°	533.4	532.2	529.8	527.5	527.5	526.3	526.3	526.3	526.3	526.3	526.3
37.5°	499.1	494.4	492.1	489.7	488.5	487.3	487.3	487.3	487.3	486.2	486.2
40°	456.7	450.8	444.9	442.5	441.3	440.1	440.1	440.1	439.0	439.0	439.0
42.5°	407.1	397.7	390.6	387.0	384.7	384.7	383.5	383.5	383.5	383.5	383.5
45°	350.5	338.7	330.4	326.9	323.3	323.3	323.3	322.1	322.1	321.0	322.1
47.5°	290.3	277.3	267.9	264.3	262.0	260.8	259.6	259.6	259.6	258.4	258.4
50°	230.1	217.1	208.9	204.1	201.8	200.6	200.6	199.4	199.4	198.2	198.2
52.5°	172.3	161.7	154.6	151.0	148.7	147.5	147.5	146.3	146.3	145.1	145.1
55°	123.9	115.6	110.9	108.6	106.2	106.2	105.0	103.8	103.8	102.7	102.7
57.5°	88.5	82.6	80.2	77.9	76.7	76.7	75.5	74.3	74.3	73.2	73.2
60°	62.5	61.4	59.0	57.8	57.8	56.6	55.5	55.5	54.3	54.3	53.1
62.5°	46.0	44.8	43.7	42.5	41.3	41.3	40.1	40.1	38.9	38.9	38.9
65°	31.9	30.7	29.5	28.3	28.3	27.1	27.1	27.1	26.0	26.0	26.0
67.5°	20.1	18.9	17.7	17.7	16.5	16.5	16.5	15.3	15.3	15.3	15.3
70°	11.8	10.6	10.6	9.4	9.4	9.4	9.4	9.4	9.4	8.3	8.3
72.5°	7.1	5.9	5.9	5.9	5.9	4.7	4.7	4.7	4.7	4.7	4.7
75°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.4	2.4	2.4
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	2.4
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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):**

	165°	170°	175°	180°
0°	651.4	651.4	651.4	651.4
2.5°	653.7	653.7	653.7	653.7
5°	653.7	653.7	654.9	653.7
7.5°	658.4	658.4	658.4	658.4
10°	663.2	663.2	664.3	664.3
12.5°	662.0	663.2	663.2	663.2
15°	659.6	659.6	659.6	659.6
17.5°	656.1	656.1	656.1	656.1
20°	649.0	650.2	650.2	650.2
22.5°	637.2	637.2	638.4	638.4
25°	621.9	623.0	623.0	623.0
27.5°	604.2	604.2	604.2	604.2
30°	584.1	584.1	584.1	584.1
32.5°	558.1	558.1	558.1	559.3
35°	526.3	526.3	526.3	526.3
37.5°	486.2	486.2	486.2	486.2
40°	439.0	439.0	439.0	439.0
42.5°	382.3	382.3	382.3	382.3
45°	321.0	321.0	321.0	319.8
47.5°	257.2	258.4	257.2	257.2
50°	197.1	197.1	197.1	197.1
52.5°	144.0	144.0	144.0	144.0
55°	101.5	101.5	101.5	101.5
57.5°	72.0	72.0	72.0	72.0
60°	53.1	51.9	51.9	51.9
62.5°	37.8	37.8	37.8	37.8
65°	24.8	24.8	24.8	24.8
67.5°	15.3	15.3	15.3	15.3
70°	8.3	8.3	8.3	8.3
72.5°	4.7	4.7	4.7	4.7
75°	2.4	2.4	2.4	2.4
77.5°	1.2	1.2	2.4	2.4
80°	1.2	1.2	1.2	1.2
82.5°	1.2	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)