

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: P130094

Luminaire Tested: **HL618TAT - HLM6940 - HL6NFL - 73PS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130094
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33478)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL618TAT - HLM6940 - HL6NFL - 73PS
Description: HALO ALLSLOPE 6" 30W, Fresnel Glass Lens, White Polymer Trim Ring
"Dead Front", Wet Location - Showerlight using 25 Degree Optic at a 6-12
Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1699.0 lumens
Efficiency: N/A
Efficacy: 61.6 lumens/watt
Spacing Criteria (0/90/45): 1.67 / 0.76 / 1.09
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

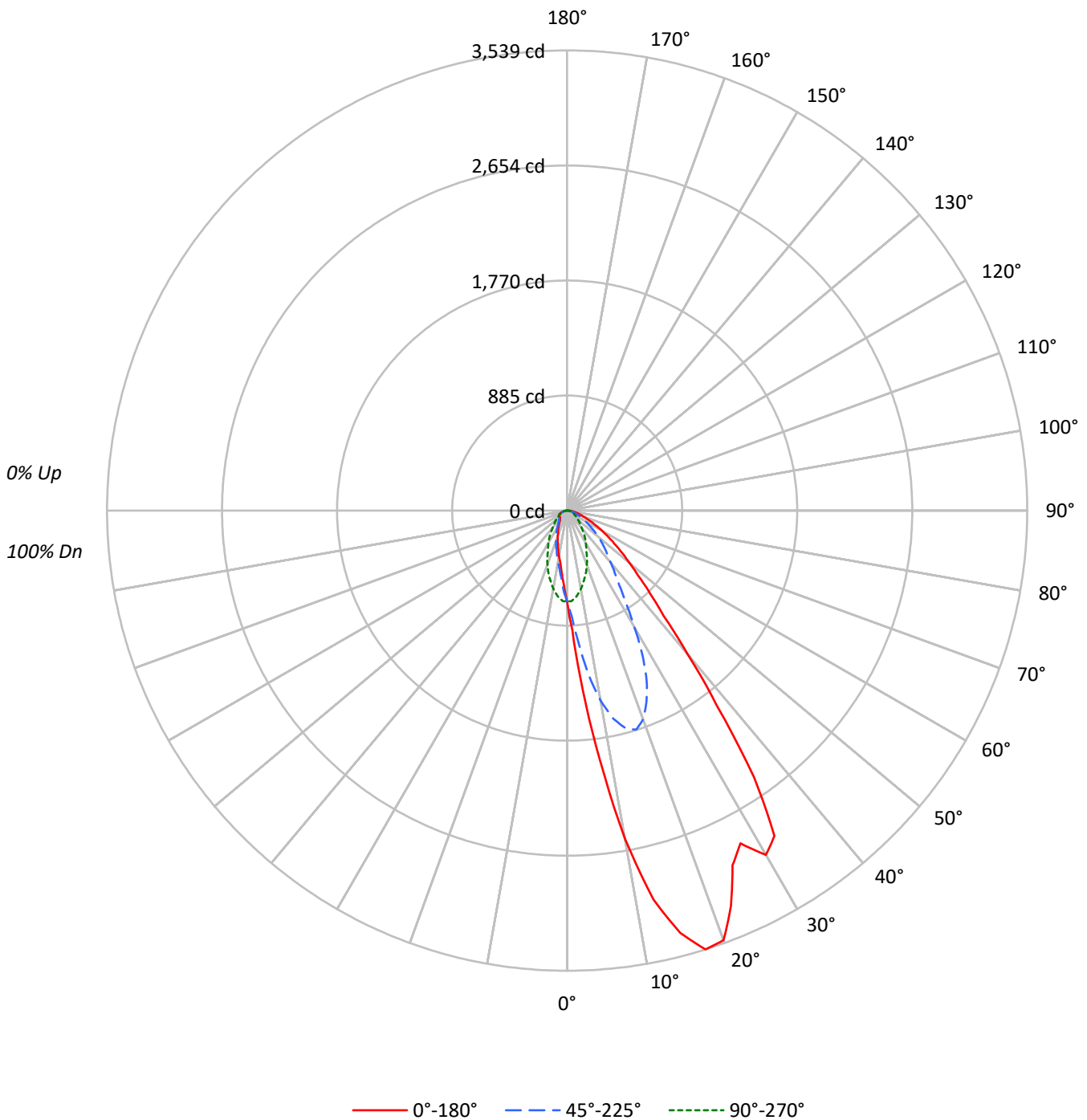
Input Watts (W): 27.6
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	99	96	97	95	93	94	92	91	89				89
2	103	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	80	78				78
3	96	88	81	76	94	86	80	75	84	78	74	81	77	73	79	75	72	70				70
4	90	80	73	67	88	79	72	67	76	71	66	74	69	65	72	68	64	63				63
5	84	73	66	60	82	72	65	60	70	64	59	68	63	59	67	62	58	56				56
6	79	67	60	54	77	66	59	54	65	58	54	63	58	53	62	57	53	51				51
7	74	62	55	49	72	61	54	49	60	54	49	59	53	49	57	52	48	47				47
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	53	48	44	43				43
9	65	54	46	42	64	53	46	41	52	46	41	51	45	41	50	45	41	39				39
10	62	50	43	38	60	49	43	38	49	42	38	48	42	38	47	42	38	36				36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	41628	41628	41628
5°	80979	39731	27914
10°	148250	35388	20768
15°	194002	30494	15726
20°	203664	25630	12163
25°	176393	20469	9540
30°	182768	17132	7547
35°	153908	14063	6162
40°	92023	11125	5416
45°	60358	9284	5115
50°	43854	7659	5409
55°	33472	6412	5877
60°	25279	5690	5788
65°	18264	4993	6154
70°	13336	4287	5236
75°	10526	3694	4504
80°	7281	3071	4045
85°	6005	2205	2205



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.8	4.8
10°-20°	307.8	18.1
20°-30°	424.3	25.0
30°-40°	364.7	21.5
40°-50°	218.4	12.9
50°-60°	145.3	8.6
60°-70°	90.0	5.3
70°-80°	48.6	2.9
80°-90°	18.2	1.1
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°	813.9	47.9
0°-40°	1178.6	69.4
0°-60°	1542.3	90.8
0°-90°	1699.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1699.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	697	697	697	697	697	
5°	1383	1029	678	518	477	169
15°	3363	1733	529	313	273	935
25°	3010	1449	349	198	163	1435
35°	2505	698	229	117	100	1488
45°	905	406	139	85	77	724
55°	444	224	85	71	78	403
65°	203	110	56	59	68	208
75°	91	50	32	35	39	94
85°	35	20	13	13	13	36
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°	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4
2.5°	921.6	888.5	895.6	886.2	883.8	855.5	857.8	843.7	826.0	811.8	811.8
5°	1382.9	1369.9	1371.1	1333.4	1294.4	1235.4	1183.5	1163.4	1090.3	1028.9	987.6
7.5°	1935.1	1911.5	1898.6	1820.7	1774.7	1675.6	1593.0	1510.4	1388.8	1276.7	1184.7
10°	2560.5	2554.6	2525.1	2417.8	2321.0	2135.7	1985.9	1849.0	1641.3	1484.4	1335.7
12.5°	3062.0	3044.3	3032.5	2939.3	2793.0	2574.7	2350.5	2125.1	1856.1	1639.0	1446.6
15°	3362.9	3364.1	3358.2	3257.9	3102.1	2854.3	2579.4	2305.7	1993.0	1733.4	1510.4
17.5°	3538.7	3519.8	3515.1	3391.2	3204.8	2929.9	2646.7	2368.2	2010.7	1766.4	1508.0
20°	3516.3	3501.0	3475.0	3338.1	3122.2	2847.3	2578.2	2315.1	1995.3	1709.8	1433.7
22.5°	3292.1	3289.7	3262.6	3145.8	2933.4	2680.9	2443.7	2201.8	1889.1	1594.1	1329.8
25°	3010.1	3023.1	3029.0	2934.6	2775.3	2570.0	2345.8	2082.6	1753.4	1449.0	1188.2
27.5°	2885.0	2903.9	2936.9	2874.4	2734.0	2501.5	2256.1	1941.0	1562.3	1255.5	1016.0
30°	3058.5	3047.9	3013.6	2879.1	2676.2	2357.6	2023.6	1668.5	1288.5	1031.3	849.6
32.5°	2966.4	2922.8	2848.4	2632.5	2364.7	2003.6	1653.1	1323.9	1030.1	840.1	713.9
35°	2505.1	2482.6	2397.7	2135.7	1875.0	1532.8	1266.1	1027.8	833.1	698.5	615.9
37.5°	1895.0	1846.6	1765.2	1590.6	1401.8	1164.6	977.0	826.0	692.6	600.6	526.3
40°	1444.3	1404.2	1347.5	1213.0	1070.2	919.2	792.9	686.7	593.5	520.4	461.4
42.5°	1098.5	1086.7	1050.2	966.4	872.0	758.7	674.9	594.7	519.2	459.0	413.0
45°	905.0	890.9	872.0	814.2	739.8	649.0	580.5	514.5	454.3	405.9	367.0
47.5°	744.6	733.9	715.1	670.2	619.5	552.2	500.3	448.4	398.8	358.7	322.1
50°	621.8	623.0	603.0	573.5	528.6	474.3	433.0	391.7	349.3	308.0	280.8
52.5°	528.6	523.9	508.6	485.0	448.4	408.3	374.0	338.7	299.7	267.9	239.5
55°	443.7	437.8	428.3	408.3	381.1	349.3	319.8	287.9	253.7	224.2	203.0
57.5°	371.7	367.0	358.7	343.4	319.8	292.6	267.9	241.9	213.6	190.0	172.3
60°	309.2	305.6	298.5	286.7	266.7	244.3	224.2	201.8	178.2	160.5	146.3
62.5°	253.7	249.0	245.4	237.2	218.3	203.0	185.3	166.4	149.9	133.3	121.5
65°	203.0	201.8	199.4	192.3	182.9	165.2	152.2	136.9	122.7	109.7	101.5
67.5°	164.0	162.8	162.8	155.8	145.1	132.2	122.7	112.1	100.3	90.9	83.8
70°	132.2	131.0	129.8	123.9	118.0	107.4	100.3	90.9	82.6	74.3	69.6
72.5°	105.0	105.0	105.0	101.5	95.6	88.5	81.4	74.3	67.3	61.4	56.6
75°	90.9	90.9	86.1	85.0	80.2	74.3	67.3	61.4	55.5	49.6	47.2
77.5°	69.6	72.0	69.6	68.4	64.9	59.0	54.3	49.6	43.7	40.1	37.8
80°	53.1	53.1	53.1	50.7	48.4	44.8	41.3	37.8	34.2	30.7	29.5
82.5°	43.7	43.7	41.3	38.9	36.6	34.2	33.0	30.7	27.1	23.6	22.4
85°	35.4	35.4	36.6	35.4	31.9	28.3	24.8	23.6	21.2	20.1	18.9
87.5°	26.0	24.8	23.6	23.6	21.2	18.9	17.7	16.5	14.2	13.0	13.0
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4
2.5°	787.0	770.5	750.5	745.7	737.5	709.2	704.4	697.4	683.2	665.5	665.5
5°	933.4	877.9	826.0	794.1	765.8	719.8	698.5	678.5	653.7	623.0	615.9
7.5°	1069.0	972.3	887.3	827.2	776.4	712.7	678.5	646.6	613.6	577.0	561.7
10°	1172.9	1034.8	923.9	837.8	767.0	690.3	646.6	611.2	569.9	532.2	513.3
12.5°	1237.8	1064.3	927.5	824.8	743.4	658.4	610.0	568.7	527.4	486.1	464.9
15°	1259.0	1058.4	907.4	796.5	708.0	621.8	572.3	528.6	485.0	446.0	428.3
17.5°	1228.3	1016.0	862.6	746.9	662.0	579.4	532.2	487.3	448.4	408.3	389.4
20°	1159.9	945.2	798.8	692.6	608.9	529.8	482.6	442.5	405.9	369.3	348.1
22.5°	1059.6	860.2	725.7	630.1	553.4	479.1	435.4	400.0	362.2	330.4	312.7
25°	940.4	768.2	652.5	562.8	494.4	430.7	390.6	349.3	324.5	295.0	278.5
27.5°	811.8	674.9	571.1	503.8	441.3	383.5	349.3	317.4	292.6	265.5	249.0
30°	691.5	587.6	506.2	442.5	391.7	341.0	315.1	286.7	262.0	236.0	221.8
32.5°	601.8	512.1	444.8	396.5	352.8	310.3	284.4	258.4	233.6	210.0	197.1
35°	514.5	446.0	396.5	352.8	315.1	277.3	253.7	228.9	205.3	185.3	172.3
37.5°	454.3	397.6	350.5	313.9	278.5	245.4	221.8	199.4	180.5	161.7	151.0
40°	401.2	352.8	311.5	277.3	245.4	212.4	193.5	174.6	158.1	142.8	133.3
42.5°	359.9	315.1	278.5	244.3	215.9	187.6	169.9	154.6	141.6	128.6	120.4
45°	318.6	277.3	243.1	214.8	190.0	166.4	152.2	139.2	126.3	115.6	108.6
47.5°	280.8	243.1	212.4	190.0	168.7	147.5	133.3	123.9	113.3	102.7	97.9
50°	244.3	210.0	185.3	165.2	146.3	129.8	119.2	108.6	100.3	92.0	88.5
52.5°	208.9	179.4	158.1	141.6	125.1	110.9	103.8	95.6	89.7	83.8	81.4
55°	177.0	154.6	135.7	120.4	108.6	96.8	90.9	85.0	81.4	77.9	75.5
57.5°	149.9	132.2	115.6	105.0	96.8	86.1	81.4	76.7	74.3	70.8	69.6
60°	126.3	110.9	97.9	89.7	81.4	75.5	73.2	69.6	67.3	64.9	64.9
62.5°	105.0	93.2	83.8	79.1	70.8	67.3	64.9	62.5	61.4	59.0	60.2
65°	87.3	77.9	70.8	66.1	62.5	59.0	57.8	55.5	54.3	53.1	54.3
67.5°	74.3	66.1	60.2	56.6	54.3	51.9	50.7	48.4	48.4	48.4	49.6
70°	61.4	55.5	51.9	48.4	46.0	43.7	43.7	42.5	42.5	42.5	42.5
72.5°	50.7	46.0	42.5	41.3	38.9	37.8	37.8	37.8	37.8	36.6	37.8
75°	42.5	37.8	35.4	34.2	33.0	31.9	31.9	31.9	31.9	30.7	31.9
77.5°	34.2	31.9	30.7	29.5	28.3	28.3	28.3	27.1	27.1	27.1	27.1
80°	27.1	26.0	23.6	23.6	22.4	22.4	22.4	22.4	22.4	22.4	22.4
82.5°	21.2	18.9	18.9	18.9	17.7	17.7	17.7	17.7	16.5	17.7	17.7
85°	16.5	15.3	14.2	14.2	13.0	13.0	13.0	13.0	13.0	13.0	13.0
87.5°	10.6	10.6	9.4	9.4	8.3	8.3	8.3	8.3	7.1	7.1	7.1
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°	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4	697.4
2.5°	646.6	647.8	630.1	621.8	618.3	618.3	595.9	597.1	588.8	597.1	584.1
5°	590.0	577.0	560.5	546.3	536.9	518.0	507.4	505.0	497.9	499.1	488.5
7.5°	532.2	520.4	495.6	482.6	468.4	451.9	437.8	435.4	427.1	424.8	416.5
10°	481.4	463.7	437.8	426.0	414.2	401.2	388.2	384.7	376.4	376.4	369.3
12.5°	435.4	418.9	398.8	383.5	371.7	357.5	344.6	342.2	332.8	331.6	322.1
15°	395.3	381.1	359.9	345.7	332.8	312.7	305.6	302.1	292.6	290.3	283.2
17.5°	358.7	343.4	322.1	308.0	298.5	283.2	271.4	266.7	259.6	256.1	249.0
20°	322.1	308.0	287.9	272.6	263.1	249.0	238.4	234.8	226.6	225.4	219.5
22.5°	289.1	273.8	254.9	244.3	233.6	220.7	211.2	207.7	200.6	198.2	192.3
25°	257.2	244.3	227.7	219.5	208.9	198.2	188.8	185.3	178.2	175.8	171.1
27.5°	228.9	217.1	204.1	194.7	187.6	174.6	166.4	164.0	156.9	153.4	148.7
30°	204.1	193.5	180.5	171.1	164.0	151.0	145.1	142.8	136.9	134.5	131.0
32.5°	180.5	169.9	158.1	149.9	141.6	133.3	126.3	123.9	120.4	119.2	115.6
35°	158.1	148.7	138.1	131.0	123.9	116.8	112.1	110.9	107.4	106.2	102.7
37.5°	138.1	129.8	121.5	115.6	110.9	105.0	101.5	99.1	96.8	95.6	93.2
40°	122.7	115.6	109.7	105.0	101.5	95.6	92.0	92.0	89.7	88.5	86.1
42.5°	109.7	105.0	100.3	96.8	93.2	89.7	86.1	86.1	83.8	83.8	80.2
45°	101.5	97.9	93.2	89.7	87.3	85.0	82.6	82.6	81.4	80.2	79.1
47.5°	92.0	89.7	86.1	83.8	81.4	80.2	77.9	80.2	79.1	79.1	79.1
50°	83.8	82.6	80.2	79.1	77.9	76.7	76.7	77.9	77.9	77.9	77.9
52.5°	77.9	76.7	75.5	74.3	75.5	74.3	73.2	74.3	74.3	75.5	76.7
55°	73.2	72.0	72.0	72.0	73.2	70.8	70.8	73.2	73.2	74.3	74.3
57.5°	68.4	68.4	68.4	68.4	68.4	68.4	68.4	69.6	70.8	73.2	73.2
60°	63.7	63.7	63.7	64.9	64.9	64.9	64.9	67.3	67.3	68.4	69.6
62.5°	57.8	59.0	59.0	60.2	61.4	62.5	63.7	66.1	66.1	67.3	68.4
65°	53.1	54.3	55.5	56.6	57.8	59.0	59.0	61.4	61.4	62.5	63.7
67.5°	48.4	49.6	49.6	50.7	51.9	51.9	51.9	55.5	55.5	56.6	57.8
70°	42.5	43.7	43.7	44.8	46.0	46.0	47.2	48.4	47.2	48.4	49.6
72.5°	36.6	38.9	40.1	40.1	41.3	41.3	41.3	42.5	42.5	42.5	43.7
75°	31.9	33.0	33.0	34.2	35.4	35.4	35.4	36.6	37.8	37.8	37.8
77.5°	28.3	28.3	29.5	29.5	29.5	30.7	30.7	31.9	31.9	31.9	31.9
80°	22.4	23.6	23.6	24.8	24.8	26.0	26.0	28.3	27.1	27.1	27.1
82.5°	17.7	17.7	18.9	18.9	18.9	20.1	20.1	21.2	20.1	20.1	20.1
85°	13.0	13.0	13.0	13.0	13.0	13.0	13.0	14.2	13.0	14.2	13.0
87.5°	7.1	7.1	7.1	5.9	5.9	5.9	5.9	7.1	5.9	5.9	5.9
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°	697.4	697.4	697.4	697.4
2.5°	580.5	575.8	579.4	573.5
5°	483.8	477.9	480.2	476.7
7.5°	411.8	408.3	407.1	404.7
10°	363.4	361.1	361.1	358.7
12.5°	319.8	313.9	315.1	315.1
15°	278.5	274.9	274.9	272.6
17.5°	244.3	239.5	240.7	237.2
20°	214.8	210.0	211.2	210.0
22.5°	190.0	185.3	185.3	182.9
25°	167.6	165.2	164.0	162.8
27.5°	146.3	144.0	144.0	142.8
30°	129.8	126.3	127.4	126.3
32.5°	115.6	113.3	113.3	112.1
35°	102.7	100.3	100.3	100.3
37.5°	93.2	90.9	90.9	90.9
40°	85.0	83.8	85.0	85.0
42.5°	81.4	79.1	80.2	80.2
45°	77.9	76.7	76.7	76.7
47.5°	77.9	75.5	75.5	74.3
50°	79.1	77.9	77.9	76.7
52.5°	77.9	79.1	81.4	80.2
55°	76.7	76.7	77.9	77.9
57.5°	73.2	73.2	73.2	73.2
60°	70.8	70.8	70.8	70.8
62.5°	69.6	69.6	70.8	69.6
65°	66.1	67.3	68.4	68.4
67.5°	59.0	59.0	60.2	59.0
70°	51.9	51.9	51.9	51.9
72.5°	43.7	43.7	44.8	46.0
75°	38.9	37.8	38.9	38.9
77.5°	33.0	31.9	31.9	31.9
80°	28.3	27.1	28.3	29.5
82.5°	20.1	18.9	20.1	18.9
85°	14.2	13.0	13.0	13.0
87.5°	5.9	5.9	5.9	5.9
90°	0.0	0.0	0.0	0.0

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