

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: P130228

Luminaire Tested: **HL612ICAT - HLM6935 - HL6NFL - 73PS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130228
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: HL612ICAT - HLM6935 - HL6NFL - 73PS
Description: HALO ALLSLOPE 6" 21W, 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1168.8 lumens
Efficiency: N/A
Efficacy: 61.2 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

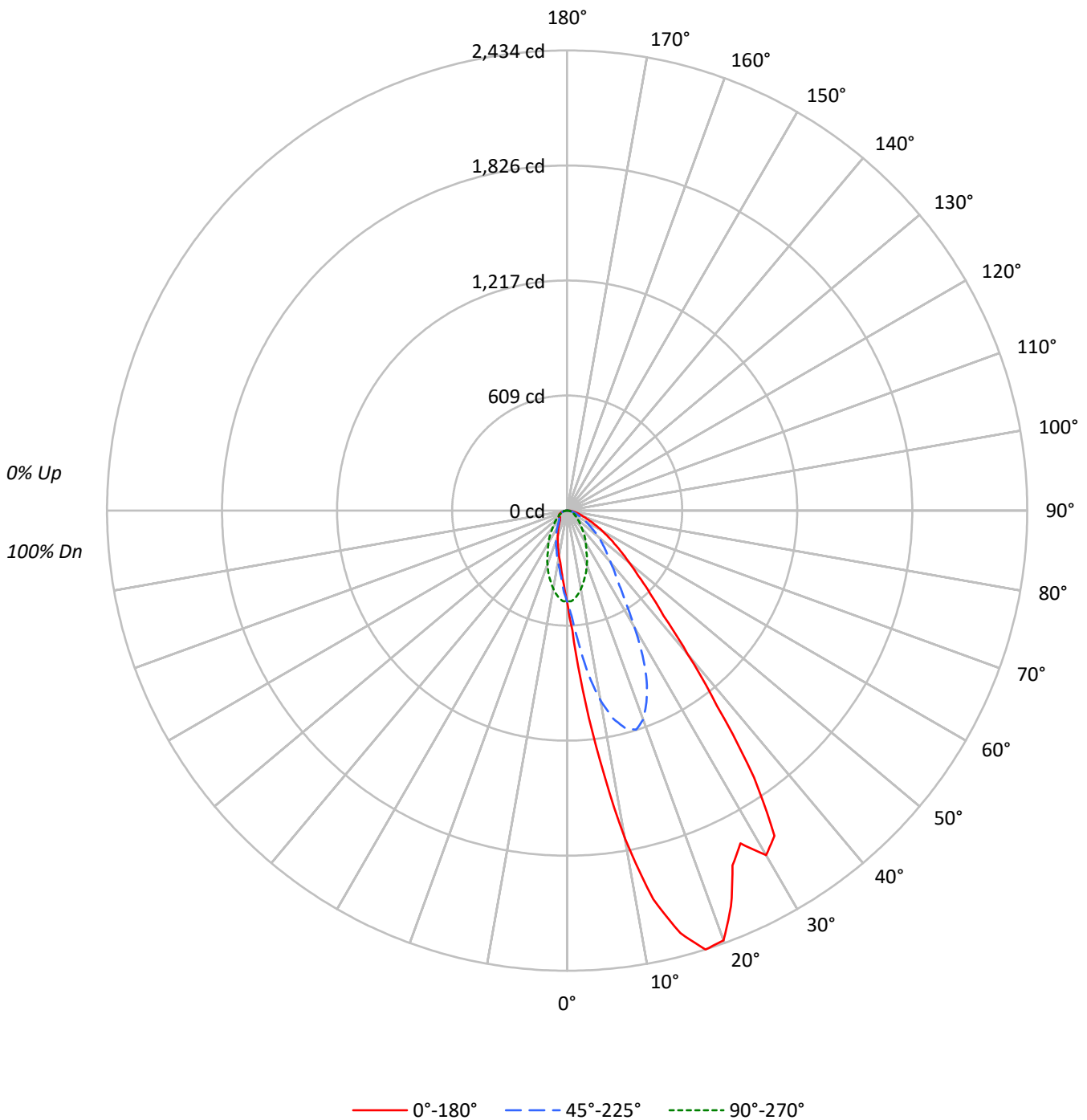
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	28640	28640	28640
5°	55711	27335	19207
10°	101994	24346	14289
15°	133469	20981	10817
20°	140114	17631	8369
25°	121356	14082	6563
30°	125735	11790	5193
35°	105882	9676	4239
40°	63307	7652	3721
45°	41523	6389	3521
50°	30172	5268	3724
55°	23024	4406	4044
60°	17389	3916	3981
65°	12560	3437	4238
70°	9170	2946	3601
75°	7237	2536	3103
80°	5005	2112	2783
85°	4139	1510	1510



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.3	4.8
10°-20°	211.8	18.1
20°-30°	291.9	25.0
30°-40°	250.9	21.5
40°-50°	150.2	12.9
50°-60°	100.0	8.6
60°-70°	61.9	5.3
70°-80°	33.4	2.9
80°-90°	12.5	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°	560.0	47.9
0°-40°	810.8	69.4
0°-60°	1061.0	90.8
0°-90°	1168.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1168.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	480	480	480	480	480	
5°	951	708	467	356	328	116
15°	2314	1192	364	215	188	643
25°	2071	997	240	136	112	987
35°	1723	481	158	80	69	1024
45°	623	279	96	58	53	498
55°	305	154	58	49	54	277
65°	140	76	38	41	47	143
75°	62	34	22	24	27	65
85°	24	14	9	9	9	25
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°	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8
2.5°	634.0	611.3	616.1	609.7	608.0	588.5	590.2	580.4	568.3	558.5	558.5
5°	951.4	942.5	943.3	917.3	890.5	849.9	814.2	800.4	750.1	707.9	679.5
7.5°	1331.3	1315.1	1306.2	1252.6	1220.9	1152.7	1095.9	1039.1	955.5	878.4	815.0
10°	1761.6	1757.5	1737.2	1663.3	1596.8	1469.3	1366.2	1272.1	1129.2	1021.2	918.9
12.5°	2106.6	2094.4	2086.3	2022.2	1921.5	1771.3	1617.1	1462.0	1276.9	1127.6	995.2
15°	2313.6	2314.4	2310.3	2241.3	2134.2	1963.7	1774.6	1586.2	1371.1	1192.5	1039.1
17.5°	2434.5	2421.6	2418.3	2333.1	2204.8	2015.7	1820.8	1629.3	1383.3	1215.2	1037.5
20°	2419.1	2408.6	2390.7	2296.5	2148.0	1958.8	1773.8	1592.7	1372.7	1176.3	986.3
22.5°	2264.9	2263.3	2244.6	2164.2	2018.1	1844.4	1681.2	1514.8	1299.7	1096.7	914.9
25°	2070.9	2079.8	2083.9	2018.9	1909.3	1768.1	1613.8	1432.8	1206.3	996.9	817.5
27.5°	1984.8	1997.8	2020.5	1977.5	1880.9	1721.0	1552.1	1335.4	1074.8	863.7	698.9
30°	2104.1	2096.8	2073.3	1980.8	1841.1	1621.9	1392.2	1147.9	886.5	709.5	584.5
32.5°	2040.8	2010.8	1959.7	1811.1	1626.8	1378.4	1137.3	910.8	708.7	578.0	491.1
35°	1723.4	1708.0	1649.5	1469.3	1289.9	1054.5	871.0	707.1	573.1	480.6	423.8
37.5°	1303.7	1270.4	1214.4	1094.3	964.4	801.2	672.2	568.3	476.5	413.2	362.1
40°	993.6	966.0	927.1	834.5	736.3	632.4	545.5	472.5	408.3	358.0	317.4
42.5°	755.8	747.7	722.5	664.9	599.9	522.0	464.3	409.1	357.2	315.8	284.1
45°	622.6	612.9	599.9	560.1	509.0	446.5	399.4	353.9	312.5	279.3	252.5
47.5°	512.2	504.9	491.9	461.1	426.2	379.9	344.2	308.5	274.4	246.8	221.6
50°	427.8	428.6	414.8	394.5	363.7	326.3	297.9	269.5	240.3	211.9	193.2
52.5°	363.7	360.4	349.9	333.6	308.5	280.9	257.3	233.0	206.2	184.3	164.8
55°	305.2	301.2	294.7	280.9	262.2	240.3	220.0	198.1	174.5	154.2	139.6
57.5°	255.7	252.5	246.8	236.2	220.0	201.3	184.3	166.4	146.9	130.7	118.5
60°	212.7	210.3	205.4	197.3	183.5	168.0	154.2	138.8	122.6	110.4	100.7
62.5°	174.5	171.3	168.9	163.2	150.2	139.6	127.5	114.5	103.1	91.7	83.6
65°	139.6	138.8	137.2	132.3	125.8	113.7	104.7	94.2	84.4	75.5	69.8
67.5°	112.8	112.0	112.0	107.2	99.8	90.9	84.4	77.1	69.0	62.5	57.6
70°	90.9	90.1	89.3	85.2	81.2	73.9	69.0	62.5	56.8	51.1	47.9
72.5°	72.2	72.2	72.2	69.8	65.8	60.9	56.0	51.1	46.3	42.2	39.0
75°	62.5	62.5	59.3	58.4	55.2	51.1	46.3	42.2	38.2	34.1	32.5
77.5°	47.9	49.5	47.9	47.1	44.6	40.6	37.3	34.1	30.0	27.6	26.0
80°	36.5	36.5	36.5	34.9	33.3	30.8	28.4	26.0	23.5	21.1	20.3
82.5°	30.0	30.0	28.4	26.8	25.2	23.5	22.7	21.1	18.7	16.2	15.4
85°	24.4	24.4	25.2	24.4	21.9	19.5	17.0	16.2	14.6	13.8	13.0
87.5°	17.9	17.0	16.2	16.2	14.6	13.0	12.2	11.4	9.7	8.9	8.9
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8
2.5°	541.5	530.1	516.3	513.0	507.4	487.9	484.6	479.8	470.0	457.8	457.8
5°	642.1	604.0	568.3	546.3	526.8	495.2	480.6	466.8	449.7	428.6	423.8
7.5°	735.5	668.9	610.5	569.1	534.2	490.3	466.8	444.9	422.1	397.0	386.4
10°	806.9	711.9	635.6	576.4	527.7	474.9	444.9	420.5	392.1	366.1	353.1
12.5°	851.6	732.2	638.1	567.4	511.4	453.0	419.7	391.3	362.9	334.5	319.8
15°	866.2	728.2	624.3	548.0	487.1	427.8	393.7	363.7	333.6	306.9	294.7
17.5°	845.1	698.9	593.4	513.9	455.4	398.6	366.1	335.3	308.5	280.9	267.9
20°	798.0	650.2	549.6	476.5	418.9	364.5	332.0	304.4	279.3	254.1	239.5
22.5°	729.0	591.8	499.2	433.5	380.7	329.6	299.5	275.2	249.2	227.3	215.1
25°	647.0	528.5	448.9	387.2	340.1	296.3	268.7	240.3	223.2	202.9	191.6
27.5°	558.5	464.3	392.9	346.6	303.6	263.8	240.3	218.4	201.3	182.7	171.3
30°	475.7	404.3	348.3	304.4	269.5	234.6	216.7	197.3	180.2	162.4	152.6
32.5°	414.0	352.3	306.0	272.8	242.7	213.5	195.6	177.8	160.7	144.5	135.6
35°	353.9	306.9	272.8	242.7	216.7	190.8	174.5	157.5	141.3	127.5	118.5
37.5°	312.5	273.6	241.1	215.9	191.6	168.9	152.6	137.2	124.2	111.2	103.9
40°	276.0	242.7	214.3	190.8	168.9	146.1	133.1	120.1	108.8	98.2	91.7
42.5°	247.6	216.7	191.6	168.0	148.6	129.1	116.9	106.3	97.4	88.5	82.8
45°	219.2	190.8	167.2	147.7	130.7	114.5	104.7	95.8	86.9	79.6	74.7
47.5°	193.2	167.2	146.1	130.7	116.1	101.5	91.7	85.2	77.9	70.6	67.4
50°	168.0	144.5	127.5	113.7	100.7	89.3	82.0	74.7	69.0	63.3	60.9
52.5°	143.7	123.4	108.8	97.4	86.0	76.3	71.4	65.8	61.7	57.6	56.0
55°	121.8	106.3	93.4	82.8	74.7	66.6	62.5	58.4	56.0	53.6	52.0
57.5°	103.1	90.9	79.6	72.2	66.6	59.3	56.0	52.8	51.1	48.7	47.9
60°	86.9	76.3	67.4	61.7	56.0	52.0	50.3	47.9	46.3	44.6	44.6
62.5°	72.2	64.1	57.6	54.4	48.7	46.3	44.6	43.0	42.2	40.6	41.4
65°	60.1	53.6	48.7	45.5	43.0	40.6	39.8	38.2	37.3	36.5	37.3
67.5°	51.1	45.5	41.4	39.0	37.3	35.7	34.9	33.3	33.3	33.3	34.1
70°	42.2	38.2	35.7	33.3	31.7	30.0	30.0	29.2	29.2	29.2	29.2
72.5°	34.9	31.7	29.2	28.4	26.8	26.0	26.0	26.0	26.0	25.2	26.0
75°	29.2	26.0	24.4	23.5	22.7	21.9	21.9	21.9	21.9	21.1	21.9
77.5°	23.5	21.9	21.1	20.3	19.5	19.5	19.5	18.7	18.7	18.7	18.7
80°	18.7	17.9	16.2	16.2	15.4	15.4	15.4	15.4	15.4	15.4	15.4
82.5°	14.6	13.0	13.0	13.0	12.2	12.2	12.2	12.2	11.4	12.2	12.2
85°	11.4	10.6	9.7	9.7	8.9	8.9	8.9	8.9	8.9	8.9	8.9
87.5°	7.3	7.3	6.5	6.5	5.7	5.7	5.7	5.7	4.9	4.9	4.9
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8
2.5°	444.9	445.7	433.5	427.8	425.4	425.4	410.0	410.8	405.1	410.8	401.8
5°	405.9	397.0	385.6	375.9	369.4	356.4	349.1	347.4	342.6	343.4	336.1
7.5°	366.1	358.0	341.0	332.0	322.3	310.9	301.2	299.5	293.9	292.2	286.6
10°	331.2	319.0	301.2	293.1	284.9	276.0	267.1	264.6	259.0	259.0	254.1
12.5°	299.5	288.2	274.4	263.8	255.7	246.0	237.0	235.4	228.9	228.1	221.6
15°	271.9	262.2	247.6	237.9	228.9	215.1	210.3	207.8	201.3	199.7	194.8
17.5°	246.8	236.2	221.6	211.9	205.4	194.8	186.7	183.5	178.6	176.2	171.3
20°	221.6	211.9	198.1	187.5	181.0	171.3	164.0	161.5	155.9	155.1	151.0
22.5°	198.9	188.3	175.3	168.0	160.7	151.8	145.3	142.9	138.0	136.4	132.3
25°	177.0	168.0	156.7	151.0	143.7	136.4	129.9	127.5	122.6	121.0	117.7
27.5°	157.5	149.4	140.4	133.9	129.1	120.1	114.5	112.8	108.0	105.5	102.3
30°	140.4	133.1	124.2	117.7	112.8	103.9	99.8	98.2	94.2	92.5	90.1
32.5°	124.2	116.9	108.8	103.1	97.4	91.7	86.9	85.2	82.8	82.0	79.6
35°	108.8	102.3	95.0	90.1	85.2	80.4	77.1	76.3	73.9	73.1	70.6
37.5°	95.0	89.3	83.6	79.6	76.3	72.2	69.8	68.2	66.6	65.8	64.1
40°	84.4	79.6	75.5	72.2	69.8	65.8	63.3	63.3	61.7	60.9	59.3
42.5°	75.5	72.2	69.0	66.6	64.1	61.7	59.3	59.3	57.6	57.6	55.2
45°	69.8	67.4	64.1	61.7	60.1	58.4	56.8	56.8	56.0	55.2	54.4
47.5°	63.3	61.7	59.3	57.6	56.0	55.2	53.6	55.2	54.4	54.4	54.4
50°	57.6	56.8	55.2	54.4	53.6	52.8	52.8	53.6	53.6	53.6	53.6
52.5°	53.6	52.8	52.0	51.1	52.0	51.1	50.3	51.1	51.1	52.0	52.8
55°	50.3	49.5	49.5	49.5	50.3	48.7	48.7	50.3	50.3	51.1	51.1
57.5°	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.9	48.7	50.3	50.3
60°	43.8	43.8	43.8	44.6	44.6	44.6	44.6	46.3	46.3	47.1	47.9
62.5°	39.8	40.6	40.6	41.4	42.2	43.0	43.8	45.5	45.5	46.3	47.1
65°	36.5	37.3	38.2	39.0	39.8	40.6	40.6	42.2	42.2	43.0	43.8
67.5°	33.3	34.1	34.1	34.9	35.7	35.7	35.7	38.2	38.2	39.0	39.8
70°	29.2	30.0	30.0	30.8	31.7	31.7	32.5	33.3	32.5	33.3	34.1
72.5°	25.2	26.8	27.6	27.6	28.4	28.4	28.4	29.2	29.2	29.2	30.0
75°	21.9	22.7	22.7	23.5	24.4	24.4	24.4	25.2	26.0	26.0	26.0
77.5°	19.5	19.5	20.3	20.3	20.3	21.1	21.1	21.9	21.9	21.9	21.9
80°	15.4	16.2	16.2	17.0	17.0	17.9	17.9	19.5	18.7	18.7	18.7
82.5°	12.2	12.2	13.0	13.0	13.0	13.8	13.8	14.6	13.8	13.8	13.8
85°	8.9	8.9	8.9	8.9	8.9	8.9	8.9	9.7	8.9	9.7	8.9
87.5°	4.9	4.9	4.9	4.1	4.1	4.1	4.1	4.9	4.1	4.1	4.1
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):

	165°	170°	175°	180°
0°	479.8	479.8	479.8	479.8
2.5°	399.4	396.2	398.6	394.5
5°	332.8	328.8	330.4	328.0
7.5°	283.3	280.9	280.1	278.4
10°	250.0	248.4	248.4	246.8
12.5°	220.0	215.9	216.7	216.7
15°	191.6	189.1	189.1	187.5
17.5°	168.0	164.8	165.6	163.2
20°	147.7	144.5	145.3	144.5
22.5°	130.7	127.5	127.5	125.8
25°	115.3	113.7	112.8	112.0
27.5°	100.7	99.0	99.0	98.2
30°	89.3	86.9	87.7	86.9
32.5°	79.6	77.9	77.9	77.1
35°	70.6	69.0	69.0	69.0
37.5°	64.1	62.5	62.5	62.5
40°	58.4	57.6	58.4	58.4
42.5°	56.0	54.4	55.2	55.2
45°	53.6	52.8	52.8	52.8
47.5°	53.6	52.0	52.0	51.1
50°	54.4	53.6	53.6	52.8
52.5°	53.6	54.4	56.0	55.2
55°	52.8	52.8	53.6	53.6
57.5°	50.3	50.3	50.3	50.3
60°	48.7	48.7	48.7	48.7
62.5°	47.9	47.9	48.7	47.9
65°	45.5	46.3	47.1	47.1
67.5°	40.6	40.6	41.4	40.6
70°	35.7	35.7	35.7	35.7
72.5°	30.0	30.0	30.8	31.7
75°	26.8	26.0	26.8	26.8
77.5°	22.7	21.9	21.9	21.9
80°	19.5	18.7	19.5	20.3
82.5°	13.8	13.0	13.8	13.0
85°	9.7	8.9	8.9	8.9
87.5°	4.1	4.1	4.1	4.1
90°	0.0	0.0	0.0	0.0

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