

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: P130211

Luminaire Tested: **HL612ICAT - HLM6930 - HL6NFL - 456W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130211
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33471)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6930 - HL6NFL - 456W
Description: HALO ALLSLOPE 6" 21W, White Coilex Baffle, White Metal Trim Ring using 25 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1519.7 lumens
Efficiency: N/A
Efficacy: 79.6 lumens/watt
Spacing Criteria (0/90/45): 1.91 / 0.72 / 1.18
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

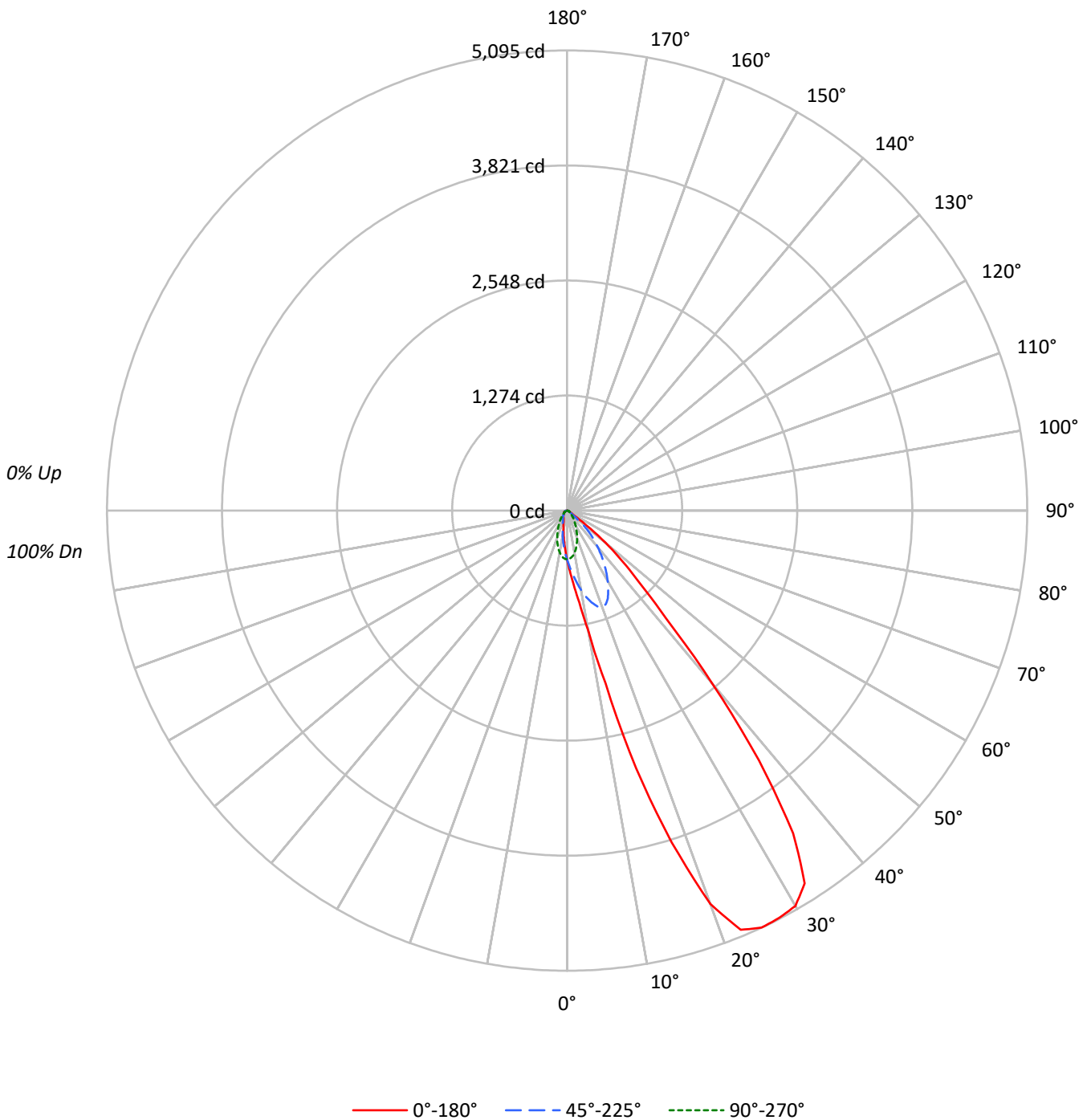
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	112	109	106	103	110	107	104	101	103	100	98	99	97	95	95	94	93	91					91			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	84	82					82			
3	98	91	85	80	96	89	84	79	86	82	78	84	80	77	82	78	75	74					74			
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66					66			
5	86	76	69	64	84	75	69	64	73	67	63	71	66	62	70	65	62	60					60			
6	81	70	63	58	79	69	62	57	67	61	57	66	61	57	65	60	56	54					54			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	50					50			
8	71	60	52	48	70	59	52	47	58	52	47	57	51	47	56	51	47	45					45			
9	67	55	48	43	65	55	48	43	54	48	43	53	47	43	52	47	43	41					41			
10	63	51	44	40	62	51	44	40	50	44	40	49	43	40	48	43	39	38					38			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	32305	32305	32305
5°	47718	30549	20805
10°	78198	27415	13282
15°	170453	23058	8884
20°	268412	18691	6620
25°	298581	14398	5421
30°	302013	10965	4834
35°	267900	8362	4350
40°	159274	6391	3817
45°	75450	4408	3368
50°	38826	3456	3124
55°	7861	2935	3048
60°	3556	2477	3246
65°	2519	2096	3284
70°	1493	1806	3137
75°	811	1714	2883
80°	644	1385	2454
85°	390	916	1578



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.2	3.6
10°-20°	228.0	15.0
20°-30°	473.5	31.2
30°-40°	450.1	29.6
40°-50°	207.8	13.7
50°-60°	56.1	3.7
60°-70°	27.5	1.8
70°-80°	16.4	1.1
80°-90°	6.1	0.4
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°	755.6	49.7
0°-40°	1205.7	79.3
0°-60°	1469.7	96.7
0°-90°	1519.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1519.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	541	541	541	541	541	
5°	815	708	522	402	355	94
15°	2955	1054	400	193	154	883
25°	5095	1067	246	110	92	2324
35°	4360	706	136	78	71	2562
45°	1131	358	66	51	50	970
55°	104	49	39	38	40	160
65°	28	24	23	32	36	28
75°	7	9	15	22	25	9
85°	2	3	5	9	9	2
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°	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2
2.5°	665.6	643.0	650.0	650.8	639.1	644.6	636.0	631.4	618.1	619.7	607.3
5°	814.9	787.7	795.4	790.0	771.3	769.8	749.6	738.7	717.7	707.6	679.6
7.5°	1027.1	990.6	996.0	983.6	945.5	927.6	885.6	864.6	818.0	797.8	755.0
10°	1350.6	1294.6	1296.2	1259.6	1192.0	1141.4	1068.3	1014.7	936.9	892.6	825.0
12.5°	1959.4	1828.0	1768.9	1675.6	1546.5	1420.6	1295.4	1188.9	1066.0	981.3	885.6
15°	2954.7	2718.3	2635.9	2401.1	2117.3	1825.7	1559.0	1365.4	1188.1	1054.3	931.5
17.5°	3849.6	3647.5	3549.5	3279.7	2860.6	2399.5	1905.0	1562.9	1288.4	1112.7	955.6
20°	4634.2	4477.9	4294.4	3949.1	3447.6	2932.9	2230.8	1717.6	1355.3	1136.8	954.0
22.5°	5023.7	4935.8	4796.7	4438.2	3858.2	3247.0	2446.9	1789.9	1365.4	1121.2	923.7
25°	5095.2	5055.6	4979.4	4651.3	4040.9	3345.8	2471.8	1796.1	1317.9	1066.8	871.6
27.5°	5084.4	5054.0	4990.3	4645.8	3985.7	3231.5	2334.2	1636.7	1232.4	985.9	807.1
30°	5054.0	5019.0	4895.4	4455.3	3726.8	2939.1	2031.7	1457.9	1115.0	895.0	737.1
32.5°	4894.6	4844.1	4605.4	4029.2	3280.5	2465.6	1677.2	1256.5	977.4	804.0	664.0
35°	4360.5	4407.1	3946.8	3368.3	2646.0	1922.1	1361.5	1069.1	843.6	706.0	587.8
37.5°	3486.5	3429.7	3142.1	2604.0	1941.5	1468.8	1129.0	906.6	735.6	617.4	510.1
40°	2499.8	2507.6	2216.0	1789.9	1403.5	1150.0	920.6	758.9	627.5	524.1	429.2
42.5°	1617.3	1599.4	1450.9	1256.5	1080.0	904.3	744.9	635.3	522.5	438.5	360.0
45°	1131.3	1116.6	1055.1	936.2	822.6	722.3	609.6	525.6	430.0	357.7	287.7
47.5°	833.5	830.4	786.9	718.5	639.1	559.1	479.7	409.0	325.0	258.9	200.6
50°	550.5	548.2	522.5	472.7	418.3	363.1	303.2	243.4	188.9	148.5	112.0
52.5°	274.5	264.4	260.5	229.4	205.3	172.6	143.1	108.9	88.6	73.1	61.4
55°	104.2	108.1	101.9	91.0	82.4	72.3	65.3	57.5	52.1	49.0	46.7
57.5°	55.2	56.8	55.2	52.9	50.5	49.0	46.7	45.1	42.8	42.0	40.4
60°	43.5	43.5	43.5	42.0	42.0	40.4	38.9	38.1	36.5	35.8	34.2
62.5°	34.2	34.2	35.0	34.2	33.4	33.4	31.9	31.9	30.3	29.5	28.8
65°	28.0	27.2	28.0	27.2	27.2	26.4	25.7	25.7	24.1	24.1	23.3
67.5°	21.0	20.2	21.0	21.0	20.2	21.0	19.4	19.4	18.7	19.4	18.7
70°	14.8	15.6	15.6	15.6	15.6	15.6	14.8	14.8	14.8	14.8	14.8
72.5°	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
75°	7.0	7.0	7.0	7.8	7.8	7.8	7.8	8.6	8.6	9.3	9.3
77.5°	5.4	5.4	5.4	6.2	6.2	6.2	7.0	7.0	7.0	7.8	7.8
80°	4.7	4.7	4.7	4.7	4.7	5.4	5.4	5.4	6.2	6.2	7.0
82.5°	3.1	3.1	3.1	3.9	3.9	3.9	3.9	4.7	4.7	4.7	4.7
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6
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°	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2
2.5°	592.5	589.4	582.4	578.5	564.5	562.2	545.1	535.7	526.4	517.8	510.1
5°	653.1	640.7	622.8	606.5	583.9	568.4	541.9	521.7	503.1	488.3	472.0
7.5°	713.8	674.1	653.9	625.9	590.9	565.3	529.5	502.3	475.1	453.3	430.0
10°	760.4	716.9	658.6	632.9	587.8	552.8	508.5	473.5	439.3	413.7	386.4
12.5°	799.3	735.6	681.1	629.8	574.6	528.7	479.7	440.1	401.2	373.2	342.1
15°	821.9	741.0	673.4	613.5	550.5	500.0	443.2	399.7	361.6	329.7	300.1
17.5°	825.0	730.9	653.9	585.5	517.8	462.6	406.7	362.3	321.1	287.7	259.7
20°	807.9	706.8	623.6	550.5	478.2	422.2	366.2	322.7	281.5	249.6	223.2
22.5°	772.1	670.2	583.9	508.5	439.3	379.4	326.6	283.0	244.9	216.9	192.1
25°	726.2	623.6	538.1	462.6	395.0	338.2	286.1	245.7	211.5	187.4	166.4
27.5°	671.0	571.5	486.7	415.2	345.2	296.2	247.3	213.0	187.4	162.5	144.6
30°	611.9	514.7	434.6	364.7	302.5	256.6	213.8	183.5	159.4	140.7	129.1
32.5°	547.4	455.6	383.3	319.6	262.0	218.5	183.5	157.8	139.2	124.4	115.1
35°	484.4	395.8	329.7	272.1	223.2	185.8	157.1	136.1	120.5	109.6	101.1
37.5°	416.8	339.0	281.5	228.6	187.4	159.4	133.7	117.4	105.7	96.4	90.2
40°	349.9	283.8	231.7	189.7	157.8	133.7	115.1	100.3	91.0	84.0	77.8
42.5°	286.1	234.8	189.7	154.7	129.1	109.6	94.1	82.4	75.4	70.0	66.1
45°	229.4	181.9	144.6	117.4	98.7	84.0	73.1	66.1	62.2	59.9	58.3
47.5°	154.7	121.3	99.5	80.1	70.0	63.0	58.3	56.0	54.4	52.9	51.3
50°	88.6	72.3	63.8	57.5	54.4	52.9	50.5	49.0	48.2	46.7	45.9
52.5°	54.4	52.1	50.5	49.0	47.4	45.9	44.3	42.8	42.0	41.2	41.2
55°	45.9	44.3	43.5	42.0	41.2	39.7	38.9	38.9	38.1	37.3	37.3
57.5°	38.9	38.1	37.3	36.5	35.8	35.0	34.2	34.2	33.4	33.4	33.4
60°	33.4	32.7	31.9	31.1	31.1	31.1	30.3	30.3	30.3	30.3	30.3
62.5°	28.0	27.2	27.2	26.4	26.4	26.4	26.4	26.4	27.2	27.2	27.2
65°	23.3	22.5	22.5	22.5	22.5	23.3	23.3	23.3	23.3	24.1	24.9
67.5°	18.7	18.7	18.7	18.7	18.7	19.4	19.4	20.2	21.0	21.8	23.3
70°	14.8	14.8	15.6	15.6	16.3	17.1	17.1	17.9	19.4	20.2	21.0
72.5°	11.7	11.7	13.2	13.2	14.0	14.8	15.6	16.3	17.1	17.9	19.4
75°	10.1	10.1	10.9	11.7	12.4	13.2	14.0	14.8	15.6	16.3	17.1
77.5°	8.6	9.3	9.3	10.1	10.9	10.9	11.7	12.4	13.2	14.0	14.0
80°	7.0	7.0	7.8	8.6	8.6	9.3	9.3	10.1	10.9	10.9	11.7
82.5°	5.4	5.4	6.2	6.2	6.2	7.0	7.0	7.8	7.8	8.6	9.3
85°	3.9	3.9	3.9	4.7	4.7	4.7	4.7	5.4	5.4	6.2	6.2
87.5°	1.6	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.9
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°	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2	541.2
2.5°	505.4	489.9	495.3	479.0	481.3	474.3	468.9	465.7	459.5	448.6	450.2
5°	458.0	437.8	439.3	415.2	409.8	402.0	389.5	384.9	379.4	370.1	363.9
7.5°	414.4	386.4	382.6	360.0	348.3	339.8	323.5	316.5	304.8	299.4	292.4
10°	364.7	336.7	328.9	302.5	291.6	280.7	264.4	256.6	248.0	240.3	234.8
12.5°	319.6	290.8	278.4	255.0	244.1	232.5	216.2	211.5	202.9	196.7	191.3
15°	276.8	248.8	234.8	214.6	205.3	192.8	183.5	176.5	168.7	162.5	158.6
17.5°	237.9	212.3	202.2	182.7	173.4	162.5	154.7	147.7	142.3	137.6	133.7
20°	203.7	181.2	171.8	155.5	147.7	140.7	132.2	128.3	126.7	119.7	116.6
22.5°	174.9	156.3	148.5	135.3	129.1	123.6	116.6	112.7	109.6	105.7	103.4
25°	151.6	136.1	130.6	119.0	115.1	109.6	105.0	101.9	98.7	96.4	94.1
27.5°	133.7	120.5	115.9	106.5	103.4	99.5	95.6	93.3	91.0	88.6	87.1
30°	119.0	108.1	105.0	97.2	94.9	91.8	88.6	87.1	85.5	83.2	81.6
32.5°	106.5	97.2	94.9	89.4	87.9	85.5	83.2	81.6	79.3	77.8	76.2
35°	94.9	88.6	87.1	81.6	80.9	78.5	76.2	74.6	73.1	71.5	70.8
37.5°	84.8	79.3	78.5	73.9	72.3	70.8	68.4	67.6	66.9	66.1	65.3
40°	73.9	69.2	68.4	64.5	64.5	63.8	62.2	61.4	60.6	60.6	59.1
42.5°	62.2	60.6	60.6	58.3	58.3	57.5	56.0	56.0	54.4	54.4	53.7
45°	56.8	54.4	54.4	52.1	52.1	51.3	50.5	50.5	50.5	50.5	49.8
47.5°	50.5	48.2	49.0	47.4	47.4	47.4	47.4	47.4	46.7	46.7	46.7
50°	45.1	43.5	45.1	43.5	44.3	44.3	43.5	44.3	44.3	43.5	43.5
52.5°	41.2	40.4	41.2	40.4	41.2	41.2	40.4	41.2	41.2	41.2	41.2
55°	37.3	36.5	38.1	37.3	38.1	38.1	38.1	38.9	38.9	39.7	38.9
57.5°	34.2	33.4	35.0	34.2	35.0	35.8	35.8	36.5	37.3	38.1	38.1
60°	31.1	31.1	31.9	31.9	33.4	34.2	35.0	35.8	36.5	38.1	38.1
62.5°	28.0	28.8	30.3	29.5	31.9	33.4	34.2	35.0	35.8	36.5	36.5
65°	26.4	26.4	28.8	29.5	31.1	31.9	32.7	33.4	34.2	35.0	35.0
67.5°	24.9	24.9	27.2	27.2	29.5	29.5	30.3	31.9	31.9	32.7	32.7
70°	22.5	23.3	24.9	25.7	26.4	27.2	28.0	28.8	29.5	30.3	30.3
72.5°	20.2	21.0	22.5	22.5	24.1	24.9	25.7	26.4	26.4	27.2	27.2
75°	17.9	17.9	19.4	20.2	21.0	21.8	22.5	23.3	23.3	24.1	24.1
77.5°	14.8	15.6	16.3	17.1	17.9	18.7	19.4	20.2	20.2	21.0	21.0
80°	12.4	12.4	13.2	14.0	14.8	15.6	15.6	16.3	16.3	17.1	17.1
82.5°	9.3	10.1	10.1	10.9	11.7	11.7	12.4	12.4	13.2	13.2	13.2
85°	7.0	7.0	7.0	7.8	7.8	8.6	8.6	8.6	9.3	9.3	9.3
87.5°	3.9	3.9	3.9	4.7	4.7	4.7	4.7	4.7	5.4	5.4	5.4
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°	541.2	541.2	541.2	541.2
2.5°	451.0	445.5	451.8	445.5
5°	363.9	355.3	361.6	355.3
7.5°	293.1	286.9	286.1	283.8
10°	233.3	227.0	226.3	229.4
12.5°	190.5	185.1	185.1	185.8
15°	157.1	152.4	154.0	154.0
17.5°	133.0	132.2	130.6	130.6
20°	117.4	113.5	113.5	114.3
22.5°	104.2	101.1	101.1	101.9
25°	95.6	91.8	92.5	92.5
27.5°	87.1	85.5	86.3	86.3
30°	81.6	80.1	80.9	80.9
32.5°	77.0	74.6	75.4	76.2
35°	71.5	70.0	70.8	70.8
37.5°	66.1	64.5	65.3	66.1
40°	59.9	59.1	59.1	59.9
42.5°	53.7	52.9	53.7	54.4
45°	50.5	49.8	49.8	50.5
47.5°	47.4	46.7	46.7	47.4
50°	44.3	43.5	44.3	44.3
52.5°	41.2	41.2	41.2	42.0
55°	39.7	39.7	40.4	40.4
57.5°	39.7	39.7	39.7	40.4
60°	38.9	38.9	39.7	39.7
62.5°	37.3	38.1	38.1	38.1
65°	35.8	35.0	36.5	36.5
67.5°	33.4	33.4	33.4	34.2
70°	31.1	31.1	31.1	31.1
72.5°	28.0	28.0	28.0	28.0
75°	24.9	24.9	24.9	24.9
77.5°	21.0	21.0	21.0	21.8
80°	17.1	17.1	17.1	17.9
82.5°	13.2	13.2	13.2	13.2
85°	9.3	9.3	9.3	9.3
87.5°	5.4	5.4	5.4	5.4
90°	0.0	0.0	0.0	0.0

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