

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: P130212

Luminaire Tested: **HL612ICAT - HLM6935 - HL6NFL - 456W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130212  
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 - HLM6935 - 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 / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1586.1 lumens  
Efficiency: N/A  
Efficacy: 83.0 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

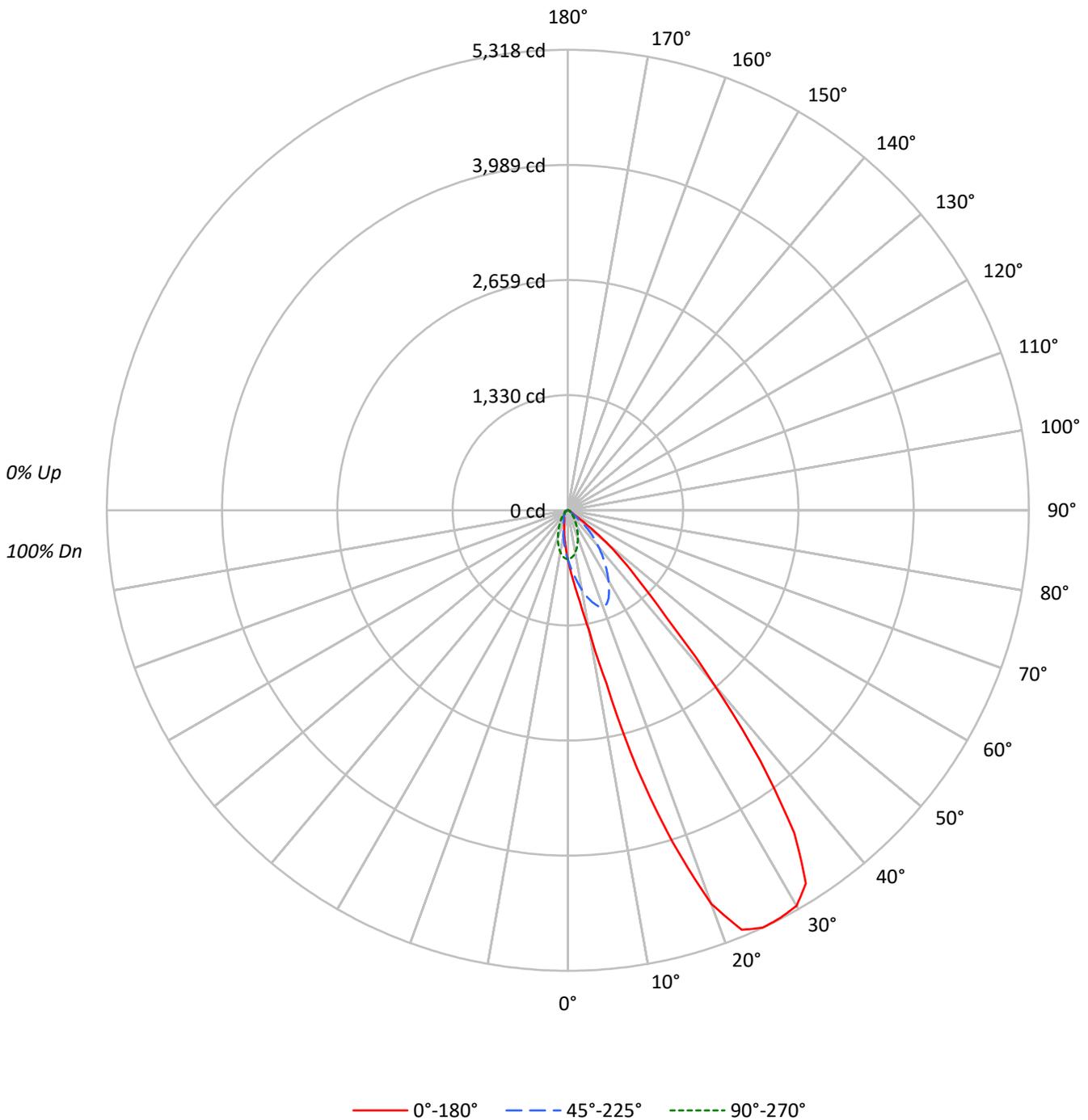
Input Watts (W): 19.1  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	33713	33713	33713
5°	49803	31884	21719
10°	81614	28614	13861
15°	177895	24062	9271
20°	280135	19507	6910
25°	311625	15025	5661
30°	315208	11444	5044
35°	279604	8724	4534
40°	166231	6671	3982
45°	78745	4602	3515
50°	40518	3604	3265
55°	8200	3063	3184
60°	3712	2583	3385
65°	2627	2186	3428
70°	1554	1886	3279
75°	845	1783	3011
80°	672	1440	2564
85°	407	967	1646



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	56.5	3.6
10°-20°	237.9	15.0
20°-30°	494.2	31.2
30°-40°	469.8	29.6
40°-50°	216.9	13.7
50°-60°	58.6	3.7
60°-70°	28.7	1.8
70°-80°	17.1	1.1
80°-90°	6.3	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°	788.6	49.7
0°-40°	1258.4	79.3
0°-60°	1533.9	96.7
0°-90°	1586.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1586.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	565	565	565	565	565	
5°	850	738	544	420	371	98
15°	3084	1100	417	201	161	922
25°	5318	1113	256	114	97	2425
35°	4551	737	142	82	74	2674
45°	1181	373	69	54	53	1012
55°	109	51	41	40	42	167
65°	29	25	24	33	38	29
75°	7	10	15	23	26	9
85°	2	3	6	9	10	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°	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8
2.5°	694.7	671.1	678.4	679.2	667.1	672.7	663.8	658.9	645.2	646.8	633.8
5°	850.5	822.1	830.2	824.5	805.0	803.4	782.3	770.9	749.0	738.5	709.3
7.5°	1072.0	1033.9	1039.5	1026.6	986.8	968.1	924.3	902.4	853.7	832.6	788.0
10°	1409.6	1351.2	1352.8	1314.6	1244.0	1191.3	1115.0	1059.0	977.9	931.6	861.0
12.5°	2045.0	1907.9	1846.2	1748.8	1614.1	1482.6	1352.0	1240.8	1112.6	1024.1	924.3
15°	3083.7	2837.0	2751.0	2505.9	2209.7	1905.4	1627.1	1425.0	1240.0	1100.4	972.2
17.5°	4017.8	3806.8	3704.5	3423.0	2985.5	2504.3	1988.2	1631.1	1344.7	1161.3	997.3
20°	4836.6	4673.5	4482.0	4121.7	3598.2	3061.0	2328.2	1792.6	1414.5	1186.4	995.7
22.5°	5243.2	5151.5	5006.2	4632.1	4026.7	3388.9	2553.8	1868.1	1425.0	1170.2	964.1
25°	5317.8	5276.4	5196.9	4854.5	4217.4	3491.9	2579.8	1874.6	1375.5	1113.4	909.7
27.5°	5306.5	5274.8	5208.3	4848.8	4159.8	3372.6	2436.2	1708.2	1286.2	1029.0	842.3
30°	5274.8	5238.3	5109.3	4650.0	3889.6	3067.5	2120.5	1521.6	1163.7	934.0	769.3
32.5°	5108.5	5055.7	4806.6	4205.2	3423.8	2573.3	1750.4	1311.4	1020.1	839.1	693.0
35°	4551.0	4599.6	4119.2	3515.5	2761.6	2006.1	1421.0	1115.8	880.5	736.9	613.5
37.5°	3638.8	3579.6	3279.3	2717.7	2026.3	1532.9	1178.3	946.2	767.7	644.3	532.4
40°	2609.0	2617.1	2312.8	1868.1	1464.8	1200.2	960.8	792.0	654.9	547.0	448.0
42.5°	1687.9	1669.3	1514.3	1311.4	1127.2	943.8	777.4	663.0	545.3	457.7	375.7
45°	1180.7	1165.3	1101.2	977.1	858.6	753.9	636.2	548.6	448.8	373.3	300.3
47.5°	869.9	866.7	821.2	749.8	667.1	583.5	500.7	426.9	339.2	270.2	209.4
50°	574.5	572.1	545.3	493.4	436.6	379.0	316.5	254.0	197.2	155.0	116.9
52.5°	286.5	275.9	271.9	239.4	214.2	180.2	149.3	113.6	92.5	76.3	64.1
55°	108.7	112.8	106.3	94.9	86.0	75.5	68.2	60.1	54.4	51.1	48.7
57.5°	57.6	59.2	57.6	55.2	52.7	51.1	48.7	47.1	44.6	43.8	42.2
60°	45.4	45.4	45.4	43.8	43.8	42.2	40.6	39.8	38.1	37.3	35.7
62.5°	35.7	35.7	36.5	35.7	34.9	34.9	33.3	33.3	31.6	30.8	30.0
65°	29.2	28.4	29.2	28.4	28.4	27.6	26.8	26.8	25.2	25.2	24.3
67.5°	21.9	21.1	21.9	21.9	21.1	21.9	20.3	20.3	19.5	20.3	19.5
70°	15.4	16.2	16.2	16.2	16.2	16.2	15.4	15.4	15.4	15.4	15.4
72.5°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
75°	7.3	7.3	7.3	8.1	8.1	8.1	8.1	8.9	8.9	9.7	9.7
77.5°	5.7	5.7	5.7	6.5	6.5	6.5	7.3	7.3	7.3	8.1	8.1
80°	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	6.5	6.5	7.3
82.5°	3.2	3.2	3.2	4.1	4.1	4.1	4.1	4.9	4.9	4.9	4.9
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
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°	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8
2.5°	618.4	615.1	607.8	603.8	589.2	586.7	568.9	559.1	549.4	540.5	532.4
5°	681.7	668.7	650.0	633.0	609.4	593.2	565.6	544.5	525.0	509.6	492.6
7.5°	745.0	703.6	682.5	653.3	616.7	590.0	552.6	524.2	495.8	473.1	448.8
10°	793.7	748.2	687.3	660.6	613.5	577.0	530.7	494.2	458.5	431.7	403.3
12.5°	834.2	767.7	710.9	657.3	599.7	551.8	500.7	459.3	418.7	389.5	357.1
15°	857.8	773.4	702.8	640.3	574.5	521.8	462.6	417.1	377.4	344.1	313.2
17.5°	861.0	762.8	682.5	611.1	540.5	482.8	424.4	378.2	335.2	300.3	271.0
20°	843.2	737.7	650.8	574.5	499.1	440.7	382.2	336.8	293.8	260.5	232.9
22.5°	805.8	699.5	609.4	530.7	458.5	396.0	340.8	295.4	255.6	226.4	200.4
25°	758.0	650.8	561.6	482.8	412.2	353.0	298.6	256.4	220.7	195.6	173.7
27.5°	700.3	596.5	508.0	433.3	360.3	309.2	258.1	222.4	195.6	169.6	150.9
30°	638.7	537.2	453.6	380.6	315.7	267.8	223.2	191.5	166.4	146.9	134.7
32.5°	571.3	475.5	400.1	333.5	273.5	228.0	191.5	164.7	145.3	129.8	120.1
35°	505.6	413.1	344.1	284.0	232.9	194.0	163.9	142.0	125.8	114.4	105.5
37.5°	435.0	353.8	293.8	238.6	195.6	166.4	139.6	122.5	110.4	100.6	94.1
40°	365.2	296.2	241.8	198.0	164.7	139.6	120.1	104.7	94.9	87.6	81.2
42.5°	298.6	245.1	198.0	161.5	134.7	114.4	98.2	86.0	78.7	73.0	69.0
45°	239.4	189.9	150.9	122.5	103.1	87.6	76.3	69.0	64.9	62.5	60.9
47.5°	161.5	126.6	103.9	83.6	73.0	65.7	60.9	58.4	56.8	55.2	53.6
50°	92.5	75.5	66.5	60.1	56.8	55.2	52.7	51.1	50.3	48.7	47.9
52.5°	56.8	54.4	52.7	51.1	49.5	47.9	46.3	44.6	43.8	43.0	43.0
55°	47.9	46.3	45.4	43.8	43.0	41.4	40.6	40.6	39.8	39.0	39.0
57.5°	40.6	39.8	39.0	38.1	37.3	36.5	35.7	35.7	34.9	34.9	34.9
60°	34.9	34.1	33.3	32.5	32.5	32.5	31.6	31.6	31.6	31.6	31.6
62.5°	29.2	28.4	28.4	27.6	27.6	27.6	27.6	27.6	28.4	28.4	28.4
65°	24.3	23.5	23.5	23.5	23.5	24.3	24.3	24.3	24.3	25.2	26.0
67.5°	19.5	19.5	19.5	19.5	19.5	20.3	20.3	21.1	21.9	22.7	24.3
70°	15.4	15.4	16.2	16.2	17.0	17.9	17.9	18.7	20.3	21.1	21.9
72.5°	12.2	12.2	13.8	13.8	14.6	15.4	16.2	17.0	17.9	18.7	20.3
75°	10.5	10.5	11.4	12.2	13.0	13.8	14.6	15.4	16.2	17.0	17.9
77.5°	8.9	9.7	9.7	10.5	11.4	11.4	12.2	13.0	13.8	14.6	14.6
80°	7.3	7.3	8.1	8.9	8.9	9.7	9.7	10.5	11.4	11.4	12.2
82.5°	5.7	5.7	6.5	6.5	6.5	7.3	7.3	8.1	8.1	8.9	9.7
85°	4.1	4.1	4.1	4.9	4.9	4.9	4.9	5.7	5.7	6.5	6.5
87.5°	1.6	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8	564.8
2.5°	527.5	511.3	516.9	499.9	502.3	495.0	489.3	486.1	479.6	468.2	469.9
5°	478.0	456.9	458.5	433.3	427.7	419.6	406.6	401.7	396.0	386.3	379.8
7.5°	432.5	403.3	399.3	375.7	363.6	354.6	337.6	330.3	318.1	312.4	305.1
10°	380.6	351.4	343.3	315.7	304.3	293.0	275.9	267.8	258.9	250.8	245.1
12.5°	333.5	303.5	290.5	266.2	254.8	242.6	225.6	220.7	211.8	205.3	199.6
15°	288.9	259.7	245.1	224.0	214.2	201.3	191.5	184.2	176.1	169.6	165.5
17.5°	248.3	221.5	211.0	190.7	181.0	169.6	161.5	154.2	148.5	143.6	139.6
20°	212.6	189.1	179.3	162.3	154.2	146.9	138.0	133.9	132.3	125.0	121.7
22.5°	182.6	163.1	155.0	141.2	134.7	129.0	121.7	117.7	114.4	110.4	107.9
25°	158.2	142.0	136.3	124.2	120.1	114.4	109.6	106.3	103.1	100.6	98.2
27.5°	139.6	125.8	120.9	111.2	107.9	103.9	99.8	97.4	94.9	92.5	90.9
30°	124.2	112.8	109.6	101.4	99.0	95.8	92.5	90.9	89.3	86.8	85.2
32.5°	111.2	101.4	99.0	93.3	91.7	89.3	86.8	85.2	82.8	81.2	79.5
35°	99.0	92.5	90.9	85.2	84.4	82.0	79.5	77.9	76.3	74.7	73.8
37.5°	88.5	82.8	82.0	77.1	75.5	73.8	71.4	70.6	69.8	69.0	68.2
40°	77.1	72.2	71.4	67.4	67.4	66.5	64.9	64.1	63.3	63.3	61.7
42.5°	64.9	63.3	63.3	60.9	60.9	60.1	58.4	58.4	56.8	56.8	56.0
45°	59.2	56.8	56.8	54.4	54.4	53.6	52.7	52.7	52.7	52.7	51.9
47.5°	52.7	50.3	51.1	49.5	49.5	49.5	49.5	49.5	48.7	48.7	48.7
50°	47.1	45.4	47.1	45.4	46.3	46.3	45.4	46.3	46.3	45.4	45.4
52.5°	43.0	42.2	43.0	42.2	43.0	43.0	42.2	43.0	43.0	43.0	43.0
55°	39.0	38.1	39.8	39.0	39.8	39.8	39.8	40.6	40.6	41.4	40.6
57.5°	35.7	34.9	36.5	35.7	36.5	37.3	37.3	38.1	39.0	39.8	39.8
60°	32.5	32.5	33.3	33.3	34.9	35.7	36.5	37.3	38.1	39.8	39.8
62.5°	29.2	30.0	31.6	30.8	33.3	34.9	35.7	36.5	37.3	38.1	38.1
65°	27.6	27.6	30.0	30.8	32.5	33.3	34.1	34.9	35.7	36.5	36.5
67.5°	26.0	26.0	28.4	28.4	30.8	30.8	31.6	33.3	33.3	34.1	34.1
70°	23.5	24.3	26.0	26.8	27.6	28.4	29.2	30.0	30.8	31.6	31.6
72.5°	21.1	21.9	23.5	23.5	25.2	26.0	26.8	27.6	27.6	28.4	28.4
75°	18.7	18.7	20.3	21.1	21.9	22.7	23.5	24.3	24.3	25.2	25.2
77.5°	15.4	16.2	17.0	17.9	18.7	19.5	20.3	21.1	21.1	21.9	21.9
80°	13.0	13.0	13.8	14.6	15.4	16.2	16.2	17.0	17.0	17.9	17.9
82.5°	9.7	10.5	10.5	11.4	12.2	12.2	13.0	13.0	13.8	13.8	13.8
85°	7.3	7.3	7.3	8.1	8.1	8.9	8.9	8.9	9.7	9.7	9.7
87.5°	4.1	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7
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°	564.8	564.8	564.8	564.8
2.5°	470.7	465.0	471.5	465.0
5°	379.8	370.9	377.4	370.9
7.5°	305.9	299.4	298.6	296.2
10°	243.5	237.0	236.1	239.4
12.5°	198.8	193.1	193.1	194.0
15°	163.9	159.1	160.7	160.7
17.5°	138.8	138.0	136.3	136.3
20°	122.5	118.5	118.5	119.3
22.5°	108.7	105.5	105.5	106.3
25°	99.8	95.8	96.6	96.6
27.5°	90.9	89.3	90.1	90.1
30°	85.2	83.6	84.4	84.4
32.5°	80.3	77.9	78.7	79.5
35°	74.7	73.0	73.8	73.8
37.5°	69.0	67.4	68.2	69.0
40°	62.5	61.7	61.7	62.5
42.5°	56.0	55.2	56.0	56.8
45°	52.7	51.9	51.9	52.7
47.5°	49.5	48.7	48.7	49.5
50°	46.3	45.4	46.3	46.3
52.5°	43.0	43.0	43.0	43.8
55°	41.4	41.4	42.2	42.2
57.5°	41.4	41.4	41.4	42.2
60°	40.6	40.6	41.4	41.4
62.5°	39.0	39.8	39.8	39.8
65°	37.3	36.5	38.1	38.1
67.5°	34.9	34.9	34.9	35.7
70°	32.5	32.5	32.5	32.5
72.5°	29.2	29.2	29.2	29.2
75°	26.0	26.0	26.0	26.0
77.5°	21.9	21.9	21.9	22.7
80°	17.9	17.9	17.9	18.7
82.5°	13.8	13.8	13.8	13.8
85°	9.7	9.7	9.7	9.7
87.5°	5.7	5.7	5.7	5.7
90°	0.0	0.0	0.0	0.0

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