

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: P130068

Luminaire Tested: **HL618TAT - HLM6930 - HL6NFL - 455SN**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130068  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33469)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6930 - HL6NFL - 455SN  
Description: HALO ALLSLOPE 6" 30W, Satin Nickel Reflector, Satin Nickel 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: 2015.3 lumens  
Efficiency: N/A  
Efficacy: 73.0 lumens/watt  
Spacing Criteria (0/90/45): 1.85 / 0.72 / 1.15  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

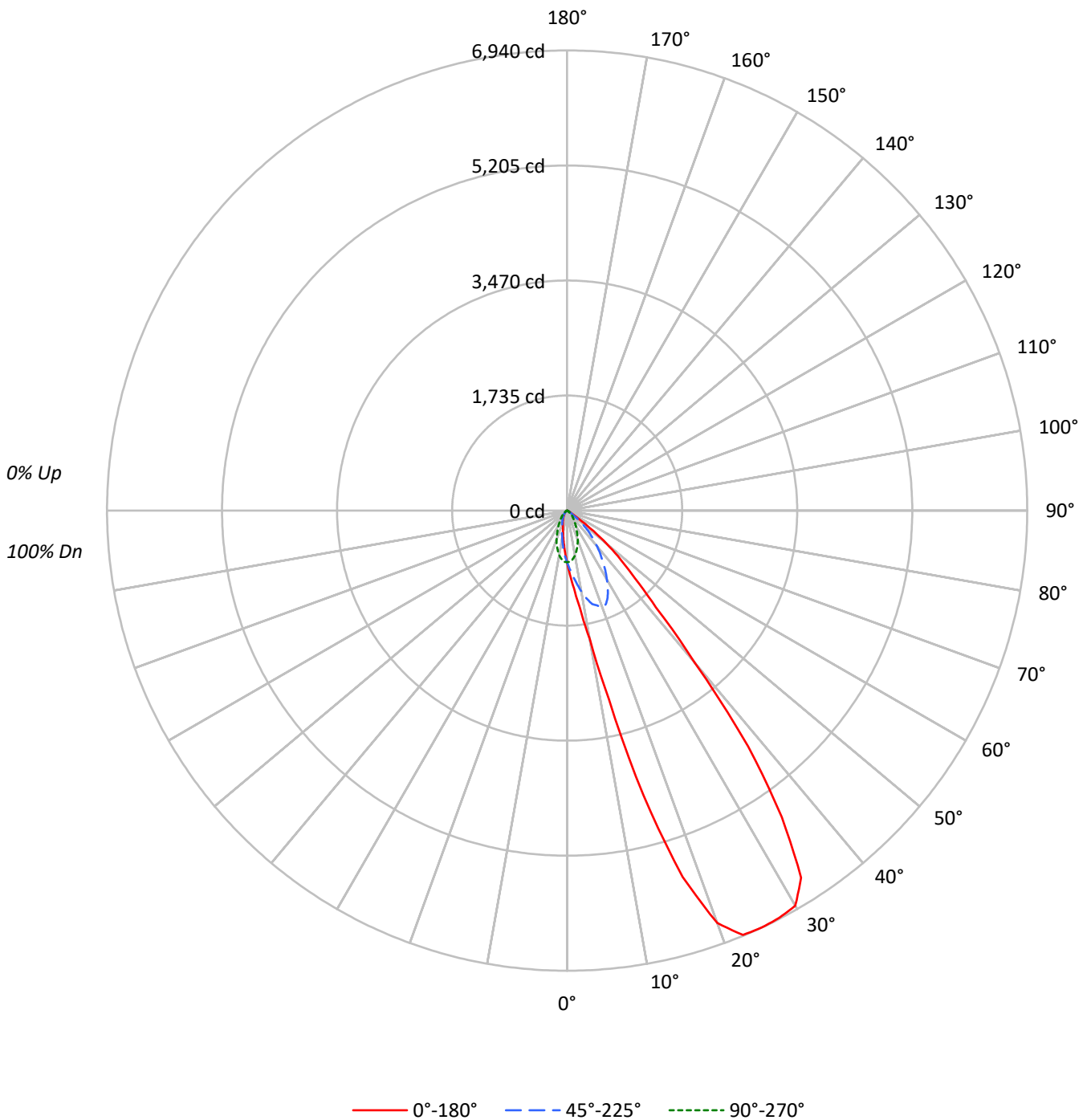
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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				
1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	94	92				
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	89	87	85	83				
3	99	92	86	82	97	91	85	81	88	83	80	85	82	78	83	80	77	75				
4	93	84	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70	68				
5	87	78	71	66	86	77	70	66	75	69	65	73	68	64	71	67	64	62				
6	82	72	65	60	80	71	64	59	69	63	59	68	62	59	66	62	58	56				
7	77	66	59	54	75	65	59	54	64	58	54	63	57	53	62	57	53	52				
8	72	61	54	50	71	61	54	49	59	53	49	58	53	49	57	52	49	47				
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43				
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40				

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

	0°	90°	180°
0°	46481	46481	46481
5°	68834	44223	30860
10°	114136	39591	20317
15°	256675	33413	14336
20°	383308	26939	10628
25°	406687	20375	8315
30°	411214	15298	6693
35°	346755	11532	5241
40°	190710	8563	4078
45°	96186	5976	2848
50°	55294	3985	1806
55°	13277	2738	966
60°	4276	1921	695
65°	2780	1152	477
70°	1503	535	323
75°	498	371	243
80°	151	288	151
85°	0	356	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	78.0	3.9
10°-20°	331.3	16.4
20°-30°	657.5	32.6
30°-40°	591.8	29.4
40°-50°	268.5	13.3
50°-60°	66.9	3.3
60°-70°	16.0	0.8
70°-80°	4.0	0.2
80°-90°	1.4	0.1
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°	1066.8	52.9
0°-40°	1658.5	82.3
0°-60°	1993.9	98.9
0°-90°	2015.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2015.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	779	779	779	779	779	
5°	1176	994	755	598	527	136
15°	4449	1461	579	305	248	1310
25°	6940	1444	348	168	142	3189
35°	5644	937	188	104	85	3348
45°	1442	474	90	54	43	1218
55°	176	65	36	21	13	242
65°	31	24	13	8	5	31
75°	4	3	3	3	2	6
85°	0	2	2	1	0	0
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°	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7
2.5°	962.2	914.2	935.5	915.2	917.4	915.2	900.3	911.0	888.6	879.0	866.2
5°	1175.5	1114.7	1139.2	1105.1	1092.3	1089.1	1055.0	1047.5	1015.5	994.2	963.2
7.5°	1478.5	1418.7	1427.3	1385.7	1340.9	1319.5	1260.9	1225.7	1161.6	1108.3	1058.2
10°	1971.3	1866.7	1897.7	1781.4	1690.7	1612.9	1513.7	1434.7	1327.0	1238.5	1153.1
12.5°	2913.2	2674.2	2631.6	2421.4	2232.6	2024.6	1818.7	1682.2	1500.9	1359.0	1234.2
15°	4449.3	4099.4	4014.0	3580.9	3121.2	2639.0	2213.4	1946.7	1660.9	1461.4	1292.9
17.5°	5792.2	5431.7	5321.8	4743.7	4256.2	3519.1	2730.8	2223.0	1805.9	1498.7	1320.6
20°	6617.9	6430.1	6416.3	5674.9	4979.4	4209.2	3189.5	2438.5	1848.6	1554.2	1307.8
22.5°	6927.2	6819.5	6765.1	6223.2	5507.4	4576.2	3434.8	2528.1	1897.7	1527.5	1258.7
25°	6940.0	6886.7	6910.2	6397.1	5658.9	4654.1	3420.9	2449.2	1811.3	1444.3	1177.6
27.5°	6925.1	6870.7	6882.4	6328.8	5527.7	4436.5	3172.4	2242.2	1671.5	1328.1	1083.8
30°	6881.4	6804.5	6688.3	5999.2	5110.6	3923.4	2695.6	1964.9	1497.7	1200.0	989.9
32.5°	6566.7	6479.2	6199.7	5344.2	4371.4	3183.1	2195.3	1681.1	1309.9	1067.8	886.4
35°	5644.0	5596.0	5219.4	4338.3	3407.1	2428.9	1804.9	1435.8	1138.2	936.6	780.8
37.5°	4482.3	4434.3	4010.8	3255.6	2443.8	1884.9	1484.9	1216.1	979.2	818.2	681.6
40°	2993.2	3050.8	2782.0	2243.3	1819.8	1469.9	1212.9	1028.3	835.2	694.4	576.0
42.5°	1984.1	1991.5	1889.1	1618.2	1382.5	1169.1	986.7	851.2	695.5	580.3	474.7
45°	1442.2	1440.1	1382.5	1209.7	1077.4	935.5	807.5	698.7	575.0	473.6	382.9
47.5°	1089.1	1091.2	1057.1	947.2	870.4	755.2	651.8	557.9	454.4	368.0	291.2
50°	784.0	790.4	764.8	687.0	623.0	536.6	450.2	378.7	301.9	240.0	182.4
52.5°	437.4	453.4	432.0	388.3	342.4	288.0	236.8	199.5	153.6	121.6	96.0
55°	176.0	187.7	181.3	160.0	141.9	119.5	105.6	89.6	73.6	65.1	59.7
57.5°	75.7	74.7	74.7	68.3	65.1	60.8	56.5	55.5	51.2	50.1	48.0
60°	52.3	52.3	52.3	50.1	49.1	48.0	45.9	44.8	42.7	40.5	38.4
62.5°	40.5	40.5	40.5	39.5	38.4	38.4	36.3	36.3	34.1	32.0	29.9
65°	30.9	30.9	32.0	30.9	29.9	29.9	28.8	27.7	25.6	24.5	22.4
67.5°	22.4	22.4	22.4	22.4	22.4	21.3	20.3	19.2	18.1	17.1	17.1
70°	14.9	14.9	14.9	14.9	14.9	13.9	13.9	12.8	12.8	11.7	10.7
72.5°	9.6	9.6	9.6	8.5	8.5	8.5	8.5	7.5	7.5	6.4	6.4
75°	4.3	4.3	4.3	4.3	4.3	3.2	4.3	3.2	3.2	3.2	3.2
77.5°	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1
82.5°	1.1	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7
2.5°	863.0	843.8	839.5	817.1	803.2	793.6	787.2	774.4	748.8	744.6	737.1
5°	947.2	907.8	889.6	852.3	823.5	801.1	780.8	755.2	715.8	698.7	684.8
7.5°	1024.0	941.9	928.0	874.7	832.0	793.6	760.6	724.3	675.2	652.8	628.3
10°	1088.0	1003.8	951.5	882.2	825.6	775.5	730.7	683.8	629.4	597.4	567.5
12.5°	1137.1	1028.3	954.7	870.4	801.1	739.2	689.1	631.5	576.0	538.7	506.7
15°	1162.7	1030.4	940.8	863.0	764.8	695.5	637.9	579.2	518.4	482.2	442.7
17.5°	1159.5	1009.1	908.8	803.2	715.8	642.2	581.4	525.9	463.0	418.2	381.9
20°	1129.6	972.8	865.1	753.1	661.4	582.4	524.8	465.1	402.1	361.6	327.5
22.5°	1076.3	919.5	807.5	692.3	603.8	525.9	463.0	405.4	346.7	313.6	280.5
25°	1010.2	854.4	739.2	626.2	537.6	463.0	403.2	347.7	297.6	267.7	241.1
27.5°	931.2	779.8	665.6	563.2	475.8	403.2	345.6	299.7	254.9	231.5	208.0
30°	844.8	698.7	592.0	490.7	409.6	345.6	295.5	256.0	219.7	194.1	181.3
32.5°	752.0	615.5	519.5	424.6	349.9	294.4	251.7	218.7	188.8	171.7	157.9
35°	658.2	533.4	443.8	359.5	297.6	247.5	214.4	187.7	162.1	149.3	136.5
37.5°	565.4	452.3	373.3	301.9	248.5	210.1	182.4	158.9	138.7	129.1	119.5
40°	472.6	375.5	307.2	248.5	204.8	174.9	152.5	134.4	118.4	110.9	103.5
42.5°	385.1	306.1	249.6	209.1	170.7	146.1	128.0	113.1	99.2	92.8	86.4
45°	309.3	244.3	200.5	163.2	136.5	115.2	101.3	89.6	80.0	74.7	71.5
47.5°	229.3	179.2	144.0	117.3	98.1	84.3	76.8	69.3	64.0	61.9	58.7
50°	141.9	110.9	93.9	77.9	69.3	64.0	60.8	56.5	52.3	50.1	46.9
52.5°	81.1	68.3	62.9	58.7	55.5	53.3	50.1	46.9	41.6	39.5	37.3
55°	55.5	52.3	51.2	48.0	44.8	41.6	39.5	36.3	33.1	33.1	30.9
57.5°	45.9	42.7	41.6	37.3	35.2	33.1	32.0	29.9	27.7	25.6	24.5
60°	37.3	34.1	33.1	30.9	28.8	26.7	25.6	23.5	21.3	20.3	19.2
62.5°	28.8	26.7	25.6	24.5	22.4	20.3	19.2	18.1	16.0	14.9	13.9
65°	22.4	20.3	19.2	18.1	16.0	14.9	13.9	12.8	11.7	10.7	9.6
67.5°	16.0	13.9	13.9	12.8	11.7	10.7	9.6	8.5	7.5	7.5	6.4
70°	10.7	9.6	8.5	7.5	7.5	6.4	5.3	5.3	5.3	5.3	5.3
72.5°	6.4	5.3	5.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
75°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	2.1	2.1	3.2	3.2	3.2	3.2	3.2	3.2	2.1	3.2	3.2
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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°	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7
2.5°	724.3	721.1	706.2	703.0	689.1	698.7	685.9	665.6	662.4	667.8	656.0
5°	659.2	646.4	628.3	617.6	600.6	598.4	587.8	560.0	556.8	551.5	540.8
7.5°	595.2	580.3	553.6	533.4	519.5	511.0	498.2	472.6	463.0	457.6	443.8
10°	533.4	512.0	480.0	463.0	439.5	427.8	413.9	390.4	380.8	377.6	361.6
12.5°	470.4	442.7	410.7	393.6	369.1	358.4	345.6	326.4	317.9	310.4	302.9
15°	405.4	379.7	349.9	333.9	314.7	305.1	294.4	275.2	267.7	263.5	261.3
17.5°	348.8	324.3	296.5	284.8	266.7	257.1	249.6	234.7	228.3	224.0	219.7
20°	299.7	278.4	254.9	244.3	229.3	222.9	214.4	202.7	198.4	195.2	190.9
22.5°	256.0	237.9	219.7	211.2	199.5	194.1	186.7	178.1	173.9	170.7	167.5
25°	219.7	205.9	192.0	184.5	173.9	168.5	163.2	155.7	151.5	150.4	147.2
27.5°	190.9	180.3	168.5	161.1	152.5	148.3	144.0	137.6	135.5	133.3	130.1
30°	167.5	157.9	147.2	141.9	135.5	132.3	128.0	123.7	120.5	121.6	117.3
32.5°	146.1	138.7	130.1	126.9	120.5	118.4	115.2	109.9	106.7	105.6	103.5
35°	128.0	121.6	115.2	113.1	107.7	104.5	101.3	97.1	96.0	92.8	90.7
37.5°	112.0	106.7	101.3	99.2	94.9	90.7	88.5	83.2	81.1	80.0	78.9
40°	97.1	92.8	86.4	84.3	80.0	77.9	74.7	71.5	69.3	69.3	67.2
42.5°	81.1	77.9	72.5	71.5	67.2	66.1	62.9	60.8	58.7	57.6	56.5
45°	67.2	65.1	60.8	59.7	56.5	54.4	53.3	49.1	46.9	45.9	44.8
47.5°	55.5	53.3	48.0	46.9	45.9	42.7	40.5	39.5	37.3	36.3	36.3
50°	43.7	41.6	38.4	38.4	36.3	34.1	33.1	30.9	29.9	28.8	27.7
52.5°	35.2	34.1	30.9	30.9	28.8	27.7	25.6	24.5	22.4	22.4	21.3
55°	28.8	26.7	24.5	23.5	22.4	21.3	19.2	18.1	17.1	16.0	14.9
57.5°	22.4	21.3	19.2	18.1	17.1	16.0	13.9	12.8	11.7	11.7	10.7
60°	17.1	16.0	13.9	13.9	11.7	10.7	10.7	9.6	9.6	9.6	8.5
62.5°	12.8	11.7	10.7	9.6	8.5	8.5	8.5	8.5	7.5	7.5	7.5
65°	8.5	8.5	7.5	7.5	7.5	7.5	7.5	6.4	6.4	6.4	6.4
67.5°	6.4	6.4	6.4	6.4	6.4	5.3	5.3	5.3	5.3	5.3	5.3
70°	5.3	5.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.2
72.5°	4.3	4.3	4.3	4.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2
75°	3.2	3.2	3.2	3.2	3.2	3.2	2.1	2.1	2.1	2.1	2.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1
85°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	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°	778.7	778.7	778.7	778.7
2.5°	652.8	661.4	650.7	642.2
5°	541.9	546.2	535.5	527.0
7.5°	442.7	443.8	434.2	426.7
10°	364.8	363.7	356.3	350.9
12.5°	302.9	301.9	295.5	291.2
15°	253.9	254.9	250.7	248.5
17.5°	218.7	218.7	214.4	213.3
20°	188.8	189.9	186.7	183.5
22.5°	166.4	166.4	164.3	161.1
25°	146.1	146.1	144.0	141.9
27.5°	130.1	131.2	129.1	125.9
30°	116.3	116.3	114.1	112.0
32.5°	102.4	102.4	101.3	99.2
35°	88.5	89.6	87.5	85.3
37.5°	77.9	77.9	76.8	74.7
40°	66.1	67.2	66.1	64.0
42.5°	55.5	55.5	55.5	54.4
45°	43.7	44.8	43.7	42.7
47.5°	35.2	35.2	35.2	34.1
50°	26.7	27.7	26.7	25.6
52.5°	20.3	20.3	19.2	19.2
55°	14.9	13.9	13.9	12.8
57.5°	10.7	10.7	10.7	9.6
60°	8.5	8.5	8.5	8.5
62.5°	7.5	7.5	7.5	7.5
65°	6.4	6.4	6.4	5.3
67.5°	4.3	4.3	4.3	4.3
70°	3.2	3.2	3.2	3.2
72.5°	3.2	3.2	2.1	2.1
75°	2.1	2.1	2.1	2.1
77.5°	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1
82.5°	1.1	0.0	0.0	0.0
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

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