

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: P130165

Luminaire Tested: **HL612ICAT - HLM6927 - HL6FL - 455SN**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130165
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33450)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6FL - 455SN
Description: HALO ALLSLOPE 6" 21W, Satin Nickel Reflector, Satin Nickel Metal Trim Ring using 40 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1400.0 lumens
Efficiency: N/A
Efficacy: 73.3 lumens/watt
Spacing Criteria (0/90/45): 1.56 / 0.66 / 1.06
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

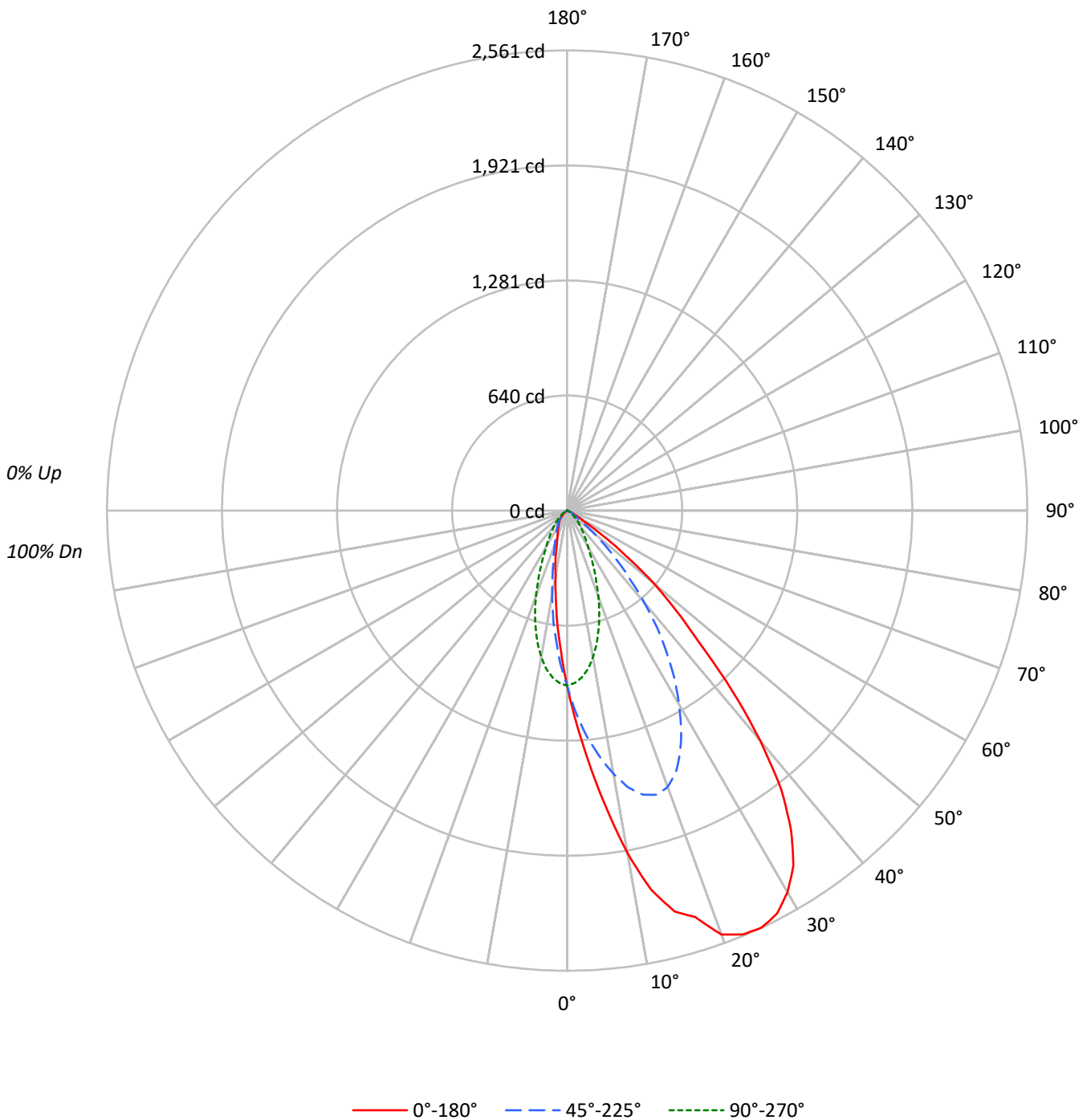
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92				92
2	106	101	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	84				84
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76				76
4	94	85	79	74	92	84	78	73	81	76	72	79	75	72	77	74	71	69				69
5	88	78	72	67	86	77	71	66	75	70	66	74	69	65	72	68	65	63				63
6	83	72	66	61	81	72	65	60	70	64	60	68	63	60	67	63	59	57				57
7	78	67	60	55	76	66	60	55	65	59	55	64	59	55	63	58	54	53				53
8	73	62	56	51	72	62	55	51	61	55	51	60	54	50	58	54	50	49				49
9	69	58	51	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45				45
10	65	54	48	43	64	54	48	43	53	47	43	52	47	43	51	47	43	42				42

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	58192	58192	58192
5°	82607	54622	36680
10°	112138	47934	21330
15°	133204	39055	13384
20°	145402	29452	9180
25°	150070	20375	7003
30°	146585	13959	5629
35°	133529	10021	4657
40°	106467	7321	3708
45°	69208	5209	2554
50°	44129	3456	1672
55°	17736	2369	807
60°	5134	1562	564
65°	3032	828	342
70°	1473	383	232
75°	266	266	174
80°	110	206	110
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.6	6.7
10°-20°	272.8	19.5
20°-30°	384.2	27.4
30°-40°	361.9	25.8
40°-50°	209.2	14.9
50°-60°	60.8	4.3
60°-70°	13.9	1.0
70°-80°	2.7	0.2
80°-90°	0.9	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°	750.6	53.6
0°-40°	1112.5	79.5
0°-60°	1382.5	98.8
0°-90°	1400.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1400.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	975	975	975	975	975	
5°	1411	1261	933	718	626	151
15°	2309	1637	677	298	232	650
25°	2561	1487	348	145	120	1171
35°	2173	965	163	87	76	1331
45°	1038	396	78	47	38	834
55°	235	62	31	17	11	241
65°	34	21	9	5	4	35
75°	2	2	2	2	2	5
85°	0	1	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°	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9
2.5°	1180.9	1171.0	1180.1	1158.7	1174.0	1143.4	1137.3	1131.9	1131.9	1126.5	1097.4
5°	1410.7	1387.7	1399.2	1374.7	1379.3	1331.8	1318.0	1295.0	1284.3	1261.3	1213.1
7.5°	1668.0	1641.2	1644.2	1599.8	1602.1	1538.6	1492.6	1465.0	1427.5	1378.5	1313.4
10°	1936.8	1911.5	1913.0	1872.5	1845.7	1759.1	1687.9	1631.2	1564.6	1488.0	1395.3
12.5°	2161.2	2144.3	2135.1	2083.8	2044.8	1950.6	1865.6	1779.8	1689.4	1579.1	1452.8
15°	2309.0	2308.2	2305.1	2242.4	2202.5	2093.0	2006.5	1897.7	1782.1	1637.3	1482.6
17.5°	2372.5	2422.3	2420.8	2353.4	2308.2	2193.3	2096.1	1970.5	1832.6	1658.8	1510.2
20°	2510.4	2498.9	2495.8	2421.6	2375.6	2252.3	2141.3	1997.3	1838.0	1636.6	1440.5
22.5°	2553.3	2540.3	2532.6	2453.7	2403.2	2273.7	2146.6	1981.2	1796.6	1579.1	1376.2
25°	2560.9	2544.1	2534.9	2450.7	2393.2	2250.8	2104.5	1913.8	1707.0	1487.2	1289.7
27.5°	2528.8	2511.2	2489.7	2407.8	2341.9	2184.9	2013.4	1802.0	1579.1	1375.4	1181.7
30°	2453.0	2437.6	2417.7	2332.0	2249.2	2071.6	1874.8	1632.8	1415.3	1244.5	1058.4
32.5°	2343.4	2322.0	2300.6	2194.9	2095.3	1901.6	1691.7	1460.4	1267.4	1112.8	941.2
35°	2173.4	2163.5	2124.4	2002.6	1887.0	1671.8	1481.1	1289.7	1139.6	964.9	807.2
37.5°	1958.2	1978.9	1901.6	1765.2	1634.3	1436.7	1288.1	1112.8	973.4	822.5	675.5
40°	1671.0	1654.2	1602.9	1479.6	1373.1	1221.5	1092.8	943.5	800.3	667.0	537.6
42.5°	1360.9	1334.1	1307.3	1205.4	1114.3	975.7	859.3	729.8	618.8	516.2	405.9
45°	1037.7	1034.6	1006.3	925.1	861.6	761.2	670.9	580.5	487.1	395.9	301.0
47.5°	818.7	816.4	783.4	728.3	680.8	597.3	523.1	446.5	359.9	284.1	221.3
50°	625.7	627.2	601.9	562.1	510.0	444.9	377.6	307.9	236.6	186.9	147.8
52.5°	412.8	418.1	403.6	363.0	318.6	263.4	212.9	167.7	131.0	106.5	84.2
55°	235.1	225.2	208.3	189.2	155.5	118.7	98.8	82.7	72.0	62.0	55.1
57.5°	106.5	105.7	97.3	85.8	74.3	65.1	59.0	53.6	50.5	46.7	43.7
60°	62.8	62.0	60.5	56.7	52.8	49.0	45.2	42.1	40.6	37.5	34.5
62.5°	45.9	45.2	44.4	42.1	39.8	36.8	35.2	34.5	31.4	29.1	26.8
65°	33.7	32.9	32.9	31.4	29.9	28.3	26.8	25.3	23.0	21.4	19.9
67.5°	24.5	23.7	23.7	22.2	20.7	19.9	18.4	16.8	16.1	14.6	13.8
70°	14.6	14.6	14.6	13.8	13.0	11.5	10.7	10.0	9.2	8.4	7.7
72.5°	6.9	7.7	6.9	6.9	6.1	6.1	5.4	5.4	4.6	4.6	3.8
75°	2.3	3.1	3.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.5	1.5
82.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.5
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9
2.5°	1092.1	1061.4	1049.2	1040.0	1015.5	1004.8	983.3	960.4	943.5	932.8	912.1
5°	1191.6	1141.1	1108.2	1082.1	1040.0	1012.4	987.9	932.8	900.6	876.1	842.4
7.5°	1275.1	1203.9	1150.3	1103.6	1043.1	998.6	956.5	888.4	842.4	808.0	762.0
10°	1331.0	1240.6	1167.1	1101.3	1023.1	964.2	906.7	827.9	768.9	724.5	676.2
12.5°	1366.2	1251.4	1160.2	1078.3	984.1	911.3	841.6	758.2	691.5	635.6	585.1
15°	1371.6	1238.3	1131.1	1032.3	925.1	843.9	765.8	677.0	606.5	551.4	487.8
17.5°	1350.9	1200.1	1076.8	966.5	853.9	766.6	681.6	594.3	523.8	457.2	400.5
20°	1301.9	1138.8	1007.1	887.6	773.5	682.4	595.8	508.5	438.1	374.5	327.8
22.5°	1232.2	1062.2	922.8	801.1	688.5	593.5	510.8	421.2	354.6	307.1	271.1
25°	1139.6	968.0	828.6	708.4	594.3	502.4	423.5	347.7	290.2	255.8	225.9
27.5°	1010.1	863.9	727.5	611.9	509.3	415.1	343.9	283.4	243.5	214.4	189.9
30°	912.9	753.6	626.4	517.7	416.6	337.7	281.1	233.6	203.7	179.2	159.3
32.5°	791.9	643.3	526.9	424.3	334.7	275.7	232.8	196.1	170.0	152.4	137.1
35°	667.8	538.4	427.3	337.0	270.3	227.5	193.8	163.1	143.2	128.7	117.2
37.5°	550.6	431.2	333.1	265.7	220.6	184.6	158.5	136.3	121.0	110.3	101.1
40°	431.9	331.6	258.1	210.6	175.4	150.1	131.0	114.9	102.6	94.2	88.1
42.5°	323.2	248.9	202.2	167.7	142.4	124.8	110.3	97.3	87.3	81.2	74.3
45°	242.8	193.0	160.1	135.6	114.9	101.1	88.8	78.1	70.5	65.1	60.5
47.5°	181.5	145.5	121.0	101.9	86.5	75.8	67.4	59.7	55.1	52.8	49.8
50°	121.8	98.0	82.7	70.5	62.0	55.9	52.1	49.0	45.9	43.7	41.4
52.5°	74.3	62.8	56.7	50.5	48.2	45.9	42.9	39.8	36.0	34.5	32.2
55°	51.3	46.7	44.4	41.4	39.1	36.8	33.7	31.4	29.1	28.3	26.0
57.5°	41.4	38.3	36.0	32.9	30.6	29.1	27.6	25.3	23.0	22.2	20.7
60°	32.2	29.9	28.3	26.0	24.5	23.0	21.4	19.1	17.6	16.1	14.6
62.5°	25.3	23.0	21.4	19.9	18.4	16.8	15.3	13.8	12.3	11.5	10.0
65°	19.1	16.8	15.3	13.8	12.3	11.5	10.0	9.2	7.7	7.7	6.1
67.5°	12.3	10.7	10.0	9.2	8.4	6.9	6.1	5.4	5.4	4.6	4.6
70°	6.9	6.1	5.4	5.4	4.6	4.6	3.8	3.8	3.1	3.1	3.1
72.5°	3.8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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°	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9	974.9
2.5°	910.6	886.8	866.2	863.1	850.8	853.1	835.5	819.4	834.8	798.0	798.0
5°	827.1	794.2	760.5	747.5	726.0	717.6	696.9	679.3	672.4	647.9	643.3
7.5°	740.6	697.7	657.1	637.2	608.8	598.9	573.6	549.9	533.0	513.9	504.7
10°	640.2	595.1	552.9	530.0	497.0	478.6	454.1	425.8	420.4	389.0	382.1
12.5°	542.2	493.2	453.4	423.5	392.9	377.6	351.5	333.1	320.1	301.7	296.4
15°	447.2	401.3	361.5	338.5	311.7	297.9	281.1	266.5	256.6	243.5	238.9
17.5°	365.3	323.2	291.8	274.9	255.8	243.5	231.3	217.5	210.6	199.9	195.3
20°	294.8	266.5	238.9	225.2	211.4	201.4	191.5	180.0	176.1	168.5	164.7
22.5°	248.1	224.4	200.6	187.6	176.1	170.8	162.4	153.2	150.1	143.2	141.7
25°	206.8	184.6	169.2	160.1	150.9	144.7	137.8	131.0	128.7	123.3	122.5
27.5°	173.1	157.8	144.7	137.1	128.7	124.8	119.5	114.1	115.6	108.7	107.2
30°	145.5	134.8	124.1	118.7	111.8	109.5	105.7	101.1	98.8	96.5	96.5
32.5°	127.1	116.4	108.0	104.2	98.8	98.0	95.0	90.4	91.1	87.3	86.5
35°	110.3	101.1	95.7	91.9	88.8	87.3	85.0	81.2	80.4	78.1	77.3
37.5°	95.7	88.8	84.2	81.9	78.9	77.3	75.1	70.5	71.2	68.9	68.2
40°	83.5	78.1	73.5	72.0	68.2	67.4	65.1	61.3	61.3	59.0	59.0
42.5°	70.5	66.6	62.0	59.7	57.4	56.7	55.1	52.1	51.3	49.8	49.0
45°	58.2	54.4	52.1	49.8	48.2	46.7	45.2	42.9	42.1	40.6	39.8
47.5°	48.2	45.2	42.1	40.6	38.3	37.5	36.0	34.5	33.7	32.2	31.4
50°	39.1	36.0	33.7	32.2	30.6	30.6	29.1	26.8	26.0	25.3	24.5
52.5°	30.6	29.1	27.6	26.0	24.5	23.7	22.2	19.9	19.1	18.4	17.6
55°	24.5	23.0	20.7	19.9	17.6	16.8	15.3	14.6	13.0	12.3	12.3
57.5°	19.1	16.8	15.3	13.8	12.3	12.3	10.7	10.0	9.2	8.4	8.4
60°	13.8	11.5	10.7	9.2	8.4	7.7	7.7	6.9	6.9	6.1	6.1
62.5°	9.2	7.7	6.9	6.9	6.1	6.1	5.4	5.4	5.4	5.4	5.4
65°	6.1	5.4	5.4	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
67.5°	4.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.1	3.1
70°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3
72.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
75°	2.3	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8
80°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
87.5°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	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°	974.9	974.9	974.9	974.9
2.5°	804.1	799.5	793.4	784.2
5°	646.4	626.4	632.6	626.4
7.5°	510.8	493.2	491.7	484.8
10°	380.6	372.2	367.6	368.4
12.5°	297.9	288.7	284.9	304.8
15°	239.7	230.5	230.5	232.0
17.5°	193.8	189.9	188.4	186.9
20°	163.9	160.8	158.5	158.5
22.5°	140.1	137.8	135.6	137.1
25°	121.8	119.5	118.7	119.5
27.5°	108.0	105.7	103.4	104.9
30°	96.5	95.0	94.2	94.2
32.5°	87.3	85.8	85.0	85.0
35°	78.1	75.8	75.8	75.8
37.5°	68.2	66.6	66.6	67.4
40°	59.0	55.1	57.4	58.2
42.5°	49.0	47.5	47.5	48.2
45°	39.1	38.3	38.3	38.3
47.5°	31.4	30.6	29.9	30.6
50°	23.7	23.0	23.0	23.7
52.5°	16.8	16.1	16.1	16.1
55°	11.5	11.5	10.7	10.7
57.5°	8.4	7.7	7.7	7.7
60°	6.1	6.1	6.1	6.9
62.5°	5.4	5.4	5.4	5.4
65°	4.6	4.6	3.8	3.8
67.5°	3.1	3.1	3.1	3.1
70°	2.3	2.3	2.3	2.3
72.5°	1.5	1.5	1.5	1.5
75°	1.5	1.5	1.5	1.5
77.5°	0.8	0.8	0.8	0.8
80°	0.8	0.8	0.8	0.8
82.5°	0.0	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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