

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: P130177

Luminaire Tested: **HL612ICAT - HLM6927 - HL6FL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130177
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33453)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6FL - 456P
Description: HALO ALLSLOPE 6" 21W, Black Coilex Baffle, White 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: 1355.5 lumens
Efficiency: N/A
Efficacy: 71.0 lumens/watt
Spacing Criteria (0/90/45): 1.62 / 0.66 / 1.08
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

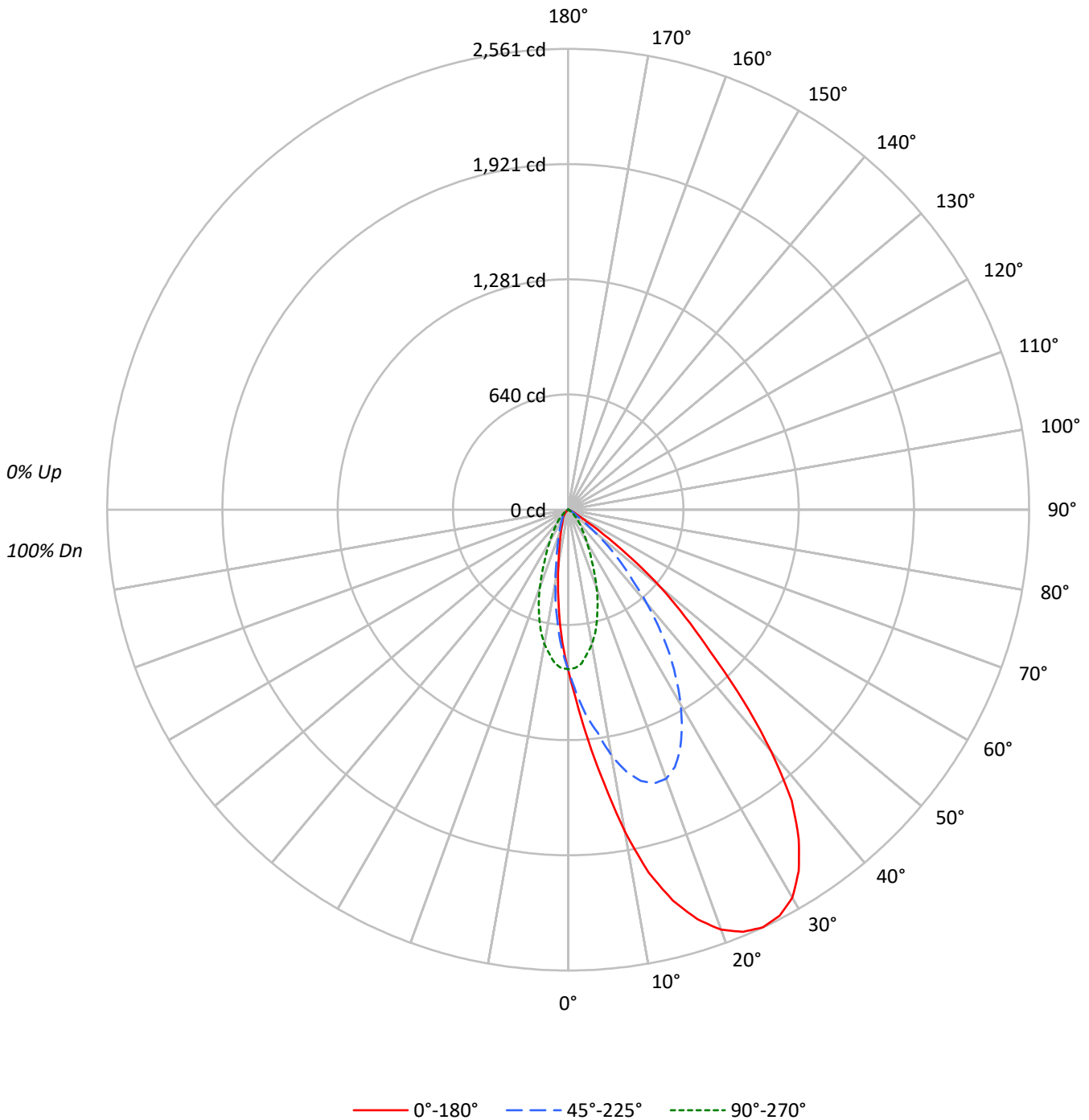
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	83					83			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	77	76					76			
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69					69			
5	88	78	71	66	86	77	71	66	75	70	66	73	69	65	72	68	64	63					63			
6	82	72	65	60	81	71	65	60	70	64	60	68	63	59	67	62	59	57					57			
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52					52			
8	73	62	55	51	72	61	55	50	60	54	50	59	54	50	58	53	50	48					48			
9	69	58	51	47	68	57	51	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	54	47	43	53	47	43	52	46	43	51	46	43	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	52928	52928	52928
5°	75510	50178	33630
10°	105208	43939	17821
15°	129696	35784	10072
20°	143879	26701	6296
25°	150058	17902	4442
30°	148808	12220	3526
35°	137234	8423	2869
40°	111730	6097	2052
45°	74357	3935	1274
50°	47204	2539	592
55°	18309	1675	113
60°	5322	1006	65
65°	2897	342	135
70°	1311	151	151
75°	174	174	93
80°	0	206	110
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	85.5	6.3
10°-20°	256.1	18.9
20°-30°	372.8	27.5
30°-40°	360.6	26.6
40°-50°	209.8	15.5
50°-60°	57.5	4.2
60°-70°	10.7	0.8
70°-80°	1.8	0.1
80°-90°	0.8	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°	714.4	52.7
0°-40°	1075.0	79.3
0°-60°	1342.2	99.0
0°-90°	1355.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1355.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	887	887	887	887	887	
5°	1290	1146	857	650	574	139
15°	2248	1561	620	238	175	637
25°	2561	1470	306	101	76	1172
35°	2234	983	137	57	47	1370
45°	1115	409	59	27	19	888
55°	243	57	22	7	2	256
65°	32	18	4	2	2	34
75°	2	1	2	1	1	3
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°	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7
2.5°	1065.9	1059.8	1052.1	1062.1	1045.2	1047.5	1034.5	1040.7	1011.6	1016.9	1007.0
5°	1289.5	1281.9	1272.7	1262.0	1245.1	1241.3	1211.4	1209.1	1164.7	1146.3	1128.7
7.5°	1533.8	1530.0	1512.4	1493.2	1464.1	1437.3	1390.6	1377.6	1310.2	1249.7	1230.6
10°	1817.1	1812.5	1772.7	1763.5	1716.0	1666.3	1582.8	1539.2	1445.0	1388.3	1321.7
12.5°	2064.5	2051.4	2021.6	2004.7	1937.3	1879.1	1778.8	1704.6	1575.9	1489.4	1385.2
15°	2248.2	2241.3	2217.6	2194.6	2128.8	2061.4	1937.3	1848.5	1680.1	1560.6	1428.1
17.5°	2386.1	2374.6	2355.4	2329.4	2262.8	2177.8	2040.0	1941.2	1749.0	1593.5	1437.3
20°	2484.1	2472.6	2501.7	2422.1	2345.5	2261.3	2104.3	1987.1	1770.4	1591.2	1415.9
22.5°	2539.2	2483.3	2506.3	2476.4	2391.4	2298.0	2129.5	1987.9	1745.9	1548.3	1364.6
25°	2560.7	2506.3	2524.7	2488.7	2397.6	2291.1	2105.8	1939.6	1677.0	1470.2	1288.0
27.5°	2543.1	2533.1	2502.5	2461.1	2363.1	2239.0	2076.7	1840.1	1569.0	1367.6	1190.7
30°	2490.2	2473.4	2440.4	2396.0	2289.6	2139.5	1904.4	1696.1	1438.1	1251.2	1078.9
32.5°	2382.2	2373.8	2341.7	2280.4	2155.6	1979.5	1736.0	1529.2	1294.9	1119.5	954.9
35°	2233.7	2229.9	2188.5	2108.9	1952.7	1763.5	1524.6	1356.9	1143.3	983.2	820.9
37.5°	2039.2	2021.6	1968.7	1873.8	1703.8	1527.7	1326.3	1180.0	991.6	832.4	689.2
40°	1753.6	1755.9	1693.1	1583.6	1438.8	1301.8	1128.7	996.2	819.4	678.5	546.7
42.5°	1440.4	1427.4	1379.9	1290.3	1186.9	1052.9	894.4	783.4	633.3	524.5	419.6
45°	1114.9	1091.2	1062.1	997.0	917.4	827.8	703.7	616.4	498.5	408.9	314.7
47.5°	879.8	862.2	843.9	788.0	727.5	643.2	549.0	477.1	379.0	299.4	226.7
50°	669.3	663.1	647.1	604.2	541.4	478.6	403.5	331.6	249.6	189.1	147.8
52.5°	438.0	464.8	420.4	399.7	344.6	291.8	235.9	180.0	131.7	102.6	82.7
55°	242.7	239.7	232.8	202.2	169.2	138.6	104.9	84.2	66.6	57.4	50.5
57.5°	118.7	119.5	111.0	95.0	77.3	67.4	57.4	52.1	45.9	42.1	39.1
60°	65.1	65.1	62.8	57.4	51.3	48.2	42.9	39.8	36.0	33.7	30.6
62.5°	45.2	44.4	43.6	41.4	39.1	36.0	32.9	30.6	27.6	26.0	23.0
65°	32.2	32.2	31.4	29.9	28.3	26.0	23.7	22.2	19.9	18.4	16.8
67.5°	22.2	21.4	21.4	21.4	19.1	18.4	16.1	15.3	13.0	11.5	10.7
70°	13.0	13.0	12.3	12.3	11.5	10.0	9.2	8.4	6.9	6.1	5.4
72.5°	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3	2.3
75°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	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°	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7
2.5°	997.8	971.7	963.3	931.2	930.4	912.8	892.1	880.6	861.5	845.4	837.0
5°	1106.5	1056.0	1029.9	977.1	959.5	923.5	885.2	856.9	822.4	791.0	767.3
7.5°	1190.7	1127.2	1076.6	1003.9	945.7	914.3	859.2	806.3	768.8	725.2	693.8
10°	1255.1	1171.6	1100.4	1008.5	954.9	886.0	815.5	758.9	703.7	648.6	608.8
12.5°	1298.7	1193.0	1102.7	993.2	923.5	840.8	759.6	696.1	627.9	569.0	523.0
15°	1313.3	1190.0	1082.0	957.2	873.7	782.6	694.5	620.3	549.0	487.8	434.9
17.5°	1301.8	1161.6	1036.8	907.4	809.4	710.6	619.5	542.9	469.4	402.8	349.2
20°	1267.3	1111.9	975.6	837.7	738.2	633.3	540.6	461.0	387.5	323.1	278.7
22.5°	1206.8	1042.9	901.3	758.1	654.7	551.3	457.9	379.0	314.0	264.9	228.2
25°	1123.4	953.4	809.4	667.0	568.2	464.8	377.5	305.5	253.5	216.7	189.1
27.5°	1026.1	859.2	716.0	579.7	484.0	391.3	298.6	251.9	209.8	176.9	153.9
30°	912.0	748.1	617.2	491.6	399.7	309.4	246.6	204.5	173.8	146.3	129.4
32.5°	794.1	645.5	523.8	407.4	319.3	249.6	202.9	169.2	142.4	122.5	108.0
35°	673.9	541.4	425.0	323.1	253.5	204.5	164.6	137.1	118.7	101.8	90.4
37.5°	555.9	435.7	334.6	248.9	200.6	163.1	134.0	114.1	98.8	86.5	77.3
40°	428.8	327.7	252.7	193.7	158.5	130.9	111.0	95.7	82.7	72.7	65.1
42.5°	323.1	248.1	196.8	156.2	127.9	108.0	91.1	78.9	67.4	59.0	53.6
45°	241.2	190.7	152.4	121.8	100.3	84.2	69.7	59.0	51.3	45.9	41.4
47.5°	176.1	140.1	112.6	86.5	71.2	59.7	50.5	44.4	40.6	36.8	33.7
50°	112.6	87.3	72.0	56.7	48.2	43.6	39.1	36.0	32.9	29.9	26.8
52.5°	64.3	53.6	46.7	41.4	37.5	35.2	31.4	28.3	25.3	23.0	20.7
55°	44.4	40.6	37.5	32.9	30.6	26.8	24.5	22.2	19.9	17.6	16.1
57.5°	36.0	32.9	29.1	26.0	23.0	21.4	19.9	16.8	15.3	13.0	11.5
60°	27.6	25.3	23.0	19.9	18.4	16.1	14.5	12.3	10.7	8.4	7.7
62.5°	20.7	19.1	16.8	14.5	13.0	10.7	9.2	7.7	6.9	5.4	3.8
65°	15.3	13.0	11.5	9.2	8.4	6.9	5.4	3.8	3.8	3.1	2.3
67.5°	9.2	7.7	6.9	5.4	4.6	3.8	3.1	2.3	1.5	1.5	1.5
70°	4.6	3.8	3.1	2.3	2.3	1.5	1.5	1.5	1.5	1.5	1.5
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
75°	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
77.5°	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
80°	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	0.8	0.8	1.5	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°	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7	886.7
2.5°	828.5	810.2	806.3	787.2	777.2	778.0	756.6	757.3	746.6	742.0	733.6
5°	748.9	722.1	686.9	679.2	655.5	650.1	621.8	611.8	595.0	583.5	578.1
7.5°	660.8	626.4	601.1	565.9	539.9	526.8	503.1	490.8	464.8	464.8	441.1
10°	565.9	526.8	497.7	459.4	428.8	409.7	385.9	363.7	347.6	330.0	322.4
12.5°	474.8	426.5	396.7	357.6	329.3	307.1	288.7	271.1	255.0	245.8	235.9
15°	385.9	338.5	310.9	278.7	255.0	238.1	219.0	207.5	196.0	188.4	184.5
17.5°	311.7	269.5	244.3	219.8	199.1	189.1	173.1	163.1	153.1	147.0	139.4
20°	247.3	216.7	196.8	176.1	160.0	149.3	138.6	129.4	124.1	117.9	114.9
22.5°	200.6	177.7	160.0	140.9	130.2	123.3	112.6	106.4	101.1	96.5	94.2
25°	163.9	144.0	130.9	117.9	107.2	101.1	95.7	88.8	85.0	81.2	78.9
27.5°	135.5	121.0	109.5	98.0	90.4	85.8	79.6	75.8	72.7	70.4	68.2
30°	114.1	101.1	92.7	84.2	77.3	74.3	69.7	66.6	63.6	62.0	60.5
32.5°	95.7	86.5	79.6	72.7	67.4	65.1	62.0	59.7	57.4	55.9	54.4
35°	81.2	72.7	68.9	64.3	59.7	57.4	54.4	52.8	51.3	49.0	48.2
37.5°	69.7	64.3	59.0	55.9	52.1	49.8	46.7	44.4	42.9	42.1	40.6
40°	59.0	54.4	50.5	46.7	42.9	41.4	38.3	36.8	36.0	34.5	32.9
42.5°	47.5	42.9	41.4	38.3	35.2	33.7	31.4	29.9	29.1	27.6	26.8
45°	38.3	35.2	33.7	30.6	28.3	26.8	24.5	23.0	22.2	20.7	19.9
47.5°	31.4	28.3	26.8	23.7	22.2	21.4	19.1	18.4	16.8	16.1	14.5
50°	23.7	22.2	20.7	18.4	17.6	16.1	14.5	13.0	11.5	10.7	10.0
52.5°	19.1	17.6	16.1	13.8	12.3	10.7	9.2	8.4	7.7	6.1	5.4
55°	14.5	13.0	10.7	9.2	8.4	6.9	5.4	4.6	3.8	3.1	2.3
57.5°	10.0	8.4	6.9	5.4	4.6	3.8	2.3	2.3	1.5	1.5	1.5
60°	6.1	4.6	3.8	3.1	2.3	1.5	1.5	1.5	1.5	0.8	0.8
62.5°	3.1	2.3	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
65°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
67.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.8
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8
75°	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	1.5	1.5	1.5	0.8	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	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
87.5°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	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°	886.7	886.7	886.7	886.7
2.5°	734.4	728.2	717.5	741.2
5°	575.8	562.1	560.5	574.3
7.5°	435.7	421.9	419.6	429.6
10°	317.8	307.8	306.3	307.8
12.5°	230.5	228.2	224.4	226.7
15°	178.4	172.3	172.3	174.6
17.5°	137.1	134.8	132.5	134.0
20°	111.0	108.7	106.4	108.7
22.5°	91.1	89.6	88.1	89.6
25°	77.3	75.8	74.3	75.8
27.5°	67.4	65.9	65.1	65.9
30°	59.7	58.2	58.2	59.0
32.5°	53.6	52.8	52.1	52.8
35°	47.5	46.7	45.9	46.7
37.5°	39.8	39.1	38.3	39.1
40°	32.9	32.2	31.4	32.2
42.5°	26.0	24.5	24.5	25.3
45°	19.1	18.4	18.4	19.1
47.5°	13.8	13.8	13.8	13.8
50°	9.2	8.4	8.4	8.4
52.5°	5.4	4.6	4.6	4.6
55°	2.3	1.5	1.5	1.5
57.5°	0.8	0.8	0.8	0.8
60°	0.8	0.8	0.8	0.8
62.5°	1.5	1.5	0.8	1.5
65°	1.5	1.5	1.5	1.5
67.5°	1.5	1.5	1.5	1.5
70°	1.5	1.5	0.8	1.5
72.5°	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8
77.5°	0.8	0.8	0.8	0.8
80°	0.8	0.8	0.0	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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