

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: P130174

Luminaire Tested: **HL612ICAT - HLM6930 - HL6FL - 456W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130174
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33452)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6930 - HL6FL - 456W
Description: HALO ALLSLOPE 6" 21W, White Coilex Baffle, White Metal Trim Ring using 40 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: 1580.2 lumens
Efficiency: N/A
Efficacy: 82.7 lumens/watt
Spacing Criteria (0/90/45): 1.64 / 0.67 / 1.09
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

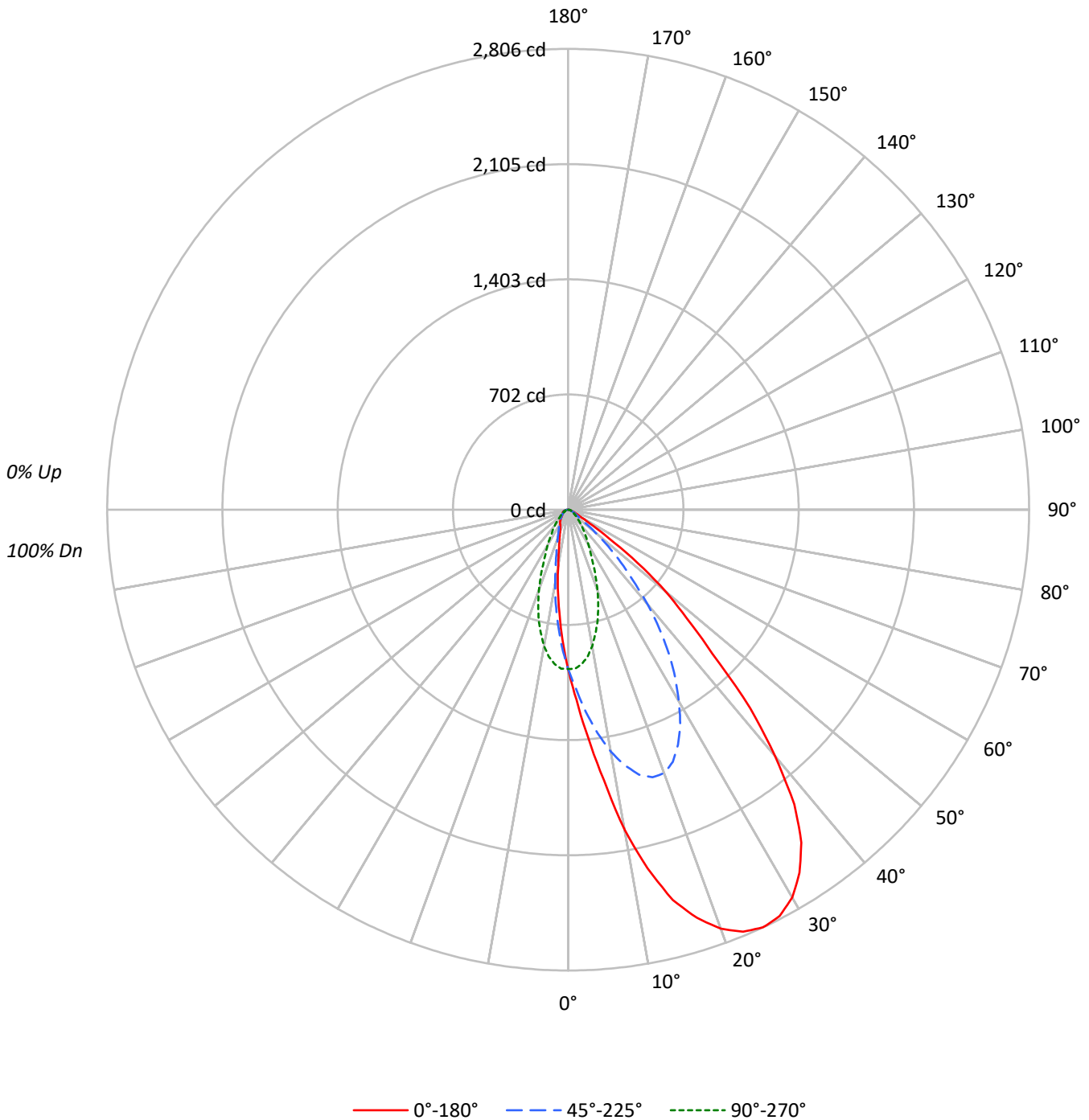
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	102	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	80	74	70	77	73	69	75	72	68	67				67
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60				60
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55				55
7	76	65	58	53	75	64	58	53	63	57	52	62	56	52	60	56	52	50				50
8	71	60	53	48	70	60	53	48	58	52	48	57	52	48	56	51	48	46				46
9	67	56	49	45	66	56	49	44	55	48	44	54	48	44	53	48	44	42				42
10	64	52	46	41	62	52	45	41	51	45	41	50	45	41	49	44	41	39				39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	57876	57876	57876
5°	81500	55272	36411
10°	114622	48803	20184
15°	141915	39978	12040
20°	157252	30066	8346
25°	164439	20721	6598
30°	162934	14844	5838
35°	151997	10733	5191
40°	124715	8175	4377
45°	82667	5856	3701
50°	54779	4436	3209
55°	22421	3561	2995
60°	7178	2845	3115
65°	4319	2231	3131
70°	2502	2007	3006
75°	1251	1818	2686
80°	905	1481	2153
85°	560	984	1272



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.7	5.9
10°-20°	281.4	17.8
20°-30°	412.5	26.1
30°-40°	404.9	25.6
40°-50°	246.9	15.6
50°-60°	84.8	5.4
60°-70°	32.7	2.1
70°-80°	17.3	1.1
80°-90°	6.0	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°	787.6	49.8
0°-40°	1192.5	75.5
0°-60°	1524.2	96.5
0°-90°	1580.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1580.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	970	970	970	970	970	
5°	1392	1236	944	703	622	151
15°	2460	1670	693	276	209	694
25°	2806	1580	354	137	113	1284
35°	2474	1067	175	94	84	1514
45°	1240	454	88	60	56	998
55°	297	77	47	39	40	311
65°	48	33	25	31	35	50
75°	11	11	16	21	23	13
85°	3	4	6	8	8	4
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°	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6
2.5°	1159.2	1148.4	1149.2	1142.6	1146.8	1154.2	1145.9	1121.9	1107.0	1092.1	1083.0
5°	1391.8	1389.4	1392.7	1372.0	1366.2	1364.5	1338.0	1302.4	1296.6	1236.2	1231.2
7.5°	1659.3	1651.0	1646.9	1609.6	1597.2	1577.3	1535.9	1479.6	1427.5	1372.8	1322.3
10°	1979.7	1954.1	1941.6	1896.1	1865.5	1819.1	1753.7	1657.6	1569.9	1495.3	1415.0
12.5°	2236.4	2218.2	2209.9	2159.4	2123.0	2046.0	1959.0	1828.2	1711.5	1594.7	1488.7
15°	2460.0	2432.6	2416.9	2362.2	2315.1	2241.4	2137.9	1983.0	1823.2	1670.1	1530.1
17.5°	2605.7	2585.0	2567.6	2516.3	2463.3	2377.2	2260.4	2079.9	1896.1	1708.1	1540.9
20°	2715.0	2691.8	2666.1	2613.1	2553.5	2461.6	2325.8	2131.2	1922.6	1707.3	1519.4
22.5°	2781.2	2748.1	2727.4	2664.5	2604.8	2502.2	2354.8	2132.9	1901.1	1662.6	1465.5
25°	2806.1	2773.8	2746.4	2677.7	2609.8	2493.9	2330.8	2083.2	1822.4	1579.8	1387.7
27.5°	2788.7	2753.9	2722.4	2652.0	2573.4	2436.8	2248.0	1975.6	1708.1	1478.0	1282.6
30°	2726.6	2694.3	2656.2	2584.1	2492.2	2330.8	2112.2	1821.6	1560.8	1346.3	1155.9
32.5°	2620.6	2591.6	2545.2	2465.7	2345.7	2159.4	1923.4	1635.3	1439.9	1211.3	1024.2
35°	2474.0	2438.4	2375.5	2282.8	2132.1	1919.3	1692.4	1454.8	1257.7	1067.3	884.3
37.5°	2260.4	2213.2	2166.0	2026.1	1861.3	1669.2	1474.6	1282.6	1077.2	910.8	745.2
40°	1957.4	1916.8	1863.8	1714.8	1585.6	1430.8	1259.4	1079.7	916.6	748.5	601.9
42.5°	1640.2	1576.5	1535.1	1427.5	1321.5	1168.3	1001.9	842.9	710.4	580.4	464.5
45°	1239.5	1219.6	1175.7	1096.3	1016.8	905.8	798.2	668.2	555.6	453.7	356.9
47.5°	977.9	959.6	926.5	867.7	810.6	717.9	624.3	521.6	426.4	330.4	260.0
50°	776.7	747.7	718.7	669.0	612.7	543.2	465.3	370.9	276.5	213.6	174.7
52.5°	532.4	512.5	491.0	451.3	405.7	351.9	276.5	207.8	157.3	123.4	102.7
55°	297.2	294.8	271.6	244.3	202.9	172.2	131.7	105.2	87.8	77.0	68.7
57.5°	152.3	149.0	132.5	117.6	103.5	88.6	77.8	70.4	65.4	60.4	58.0
60°	87.8	84.5	80.3	77.0	71.2	66.2	61.3	57.1	54.6	50.5	48.0
62.5°	62.9	62.9	60.4	58.0	55.5	52.2	48.9	46.4	44.7	41.4	39.7
65°	48.0	48.0	46.4	44.7	43.1	41.4	38.9	36.4	35.6	33.1	31.5
67.5°	36.4	35.6	34.8	33.9	32.3	31.5	29.0	27.3	26.5	24.8	24.0
70°	24.8	24.8	24.0	24.0	24.0	22.4	20.7	19.9	19.0	18.2	18.2
72.5°	15.7	15.7	15.7	15.7	14.9	14.1	14.1	14.1	14.1	13.2	13.2
75°	10.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.8	10.8	10.8
77.5°	7.5	7.5	7.5	7.5	7.5	8.3	8.3	8.3	9.1	9.1	9.9
80°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	7.5	7.5	8.3
82.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.8	5.8	5.8	5.8	6.6
85°	3.3	3.3	3.3	3.3	3.3	3.3	4.1	4.1	4.1	4.1	4.1
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.5	2.5	2.5	2.5	2.5
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6
2.5°	1075.6	1068.1	1038.3	1027.5	1024.2	986.1	991.9	968.7	948.9	931.5	916.6
5°	1185.7	1162.5	1107.0	1078.0	1054.9	996.9	982.8	943.9	907.5	876.8	844.5
7.5°	1280.1	1232.9	1155.9	1108.7	1064.8	987.0	955.5	901.7	849.5	806.5	763.4
10°	1348.8	1278.4	1182.4	1117.0	1053.2	955.5	908.3	842.9	774.2	724.5	674.8
12.5°	1395.2	1304.1	1185.7	1097.1	1017.6	906.6	848.7	768.4	697.2	640.9	578.8
15°	1410.9	1299.1	1163.3	1059.0	963.8	849.5	777.5	693.0	614.4	547.3	491.0
17.5°	1399.3	1268.5	1116.1	1001.0	895.1	772.5	695.5	606.1	526.6	464.5	400.7
20°	1358.7	1213.8	1052.4	927.3	814.7	691.4	608.6	519.1	441.3	377.6	324.6
22.5°	1294.1	1139.3	970.4	839.6	728.6	606.1	519.1	433.9	360.2	309.7	269.9
25°	1206.4	1049.1	876.0	748.5	636.7	510.9	431.4	353.6	297.2	258.3	226.9
27.5°	1099.6	941.4	777.5	654.9	544.0	428.9	353.6	294.8	249.2	219.4	192.1
30°	982.0	830.5	674.8	553.1	452.9	348.6	293.1	248.4	212.0	186.3	165.6
32.5°	857.0	719.5	572.1	457.9	364.3	289.0	245.1	209.5	179.7	159.8	143.2
35°	730.3	602.8	470.3	366.8	295.6	240.1	203.7	174.7	154.0	137.4	125.0
37.5°	611.9	489.3	368.5	291.5	238.5	195.4	169.7	148.2	132.5	120.1	110.1
40°	476.9	372.6	282.3	231.8	195.4	162.3	144.9	128.3	115.1	105.2	97.7
42.5°	362.7	286.5	229.4	189.6	160.6	136.6	122.5	108.5	98.5	88.6	82.8
45°	274.9	224.4	183.8	149.9	131.7	111.0	98.5	87.8	80.3	75.3	71.2
47.5°	205.3	167.3	135.8	111.8	99.4	83.6	77.0	71.2	67.9	66.2	62.9
50°	138.3	111.8	91.9	80.3	74.5	67.1	65.4	62.9	59.6	57.1	54.6
52.5°	86.1	75.3	67.9	64.6	62.9	60.4	57.1	54.6	51.3	50.5	48.9
55°	64.6	62.1	58.0	55.5	53.8	49.7	48.0	47.2	45.5	44.7	43.1
57.5°	54.6	52.2	48.9	46.4	45.5	43.1	42.2	39.7	38.9	38.1	37.3
60°	45.5	43.9	41.4	39.7	38.9	36.4	35.6	34.8	33.9	33.1	32.3
62.5°	37.3	36.4	33.9	33.1	32.3	30.6	29.8	29.8	29.0	29.0	28.2
65°	29.8	29.0	27.3	26.5	25.7	24.8	25.7	24.8	24.8	25.7	25.7
67.5°	23.2	23.2	21.5	21.5	21.5	20.7	21.5	21.5	22.4	23.2	24.0
70°	17.4	17.4	17.4	17.4	18.2	18.2	19.0	19.9	20.7	21.5	22.4
72.5°	13.2	14.1	14.1	14.9	15.7	15.7	17.4	17.4	18.2	19.0	19.9
75°	11.6	12.4	12.4	13.2	14.1	14.1	14.9	15.7	16.6	16.6	17.4
77.5°	9.9	10.8	10.8	11.6	12.4	12.4	13.2	13.2	14.1	14.9	14.9
80°	8.3	8.3	9.1	9.1	9.9	9.9	10.8	10.8	10.8	11.6	11.6
82.5°	6.6	6.6	6.6	7.5	7.5	7.5	8.3	8.3	8.3	9.1	9.1
85°	4.1	5.0	5.0	5.0	5.0	5.0	5.8	5.8	5.8	5.8	5.8
87.5°	2.5	2.5	2.5	2.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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°	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6	969.6
2.5°	903.3	896.7	877.7	868.6	856.1	841.2	832.1	831.3	835.4	807.3	801.5
5°	820.5	798.2	765.9	747.7	720.3	703.0	688.1	681.4	669.8	654.9	637.6
7.5°	728.6	694.7	659.9	628.4	603.6	576.3	557.2	538.2	529.9	510.0	496.8
10°	632.6	593.7	550.6	514.2	485.2	452.9	432.2	414.0	399.9	382.5	368.5
12.5°	531.6	490.2	438.8	404.9	375.9	349.4	327.9	317.1	305.5	295.6	280.7
15°	438.0	391.6	351.1	320.4	298.1	276.5	263.3	252.5	240.9	231.0	224.4
17.5°	351.9	315.5	284.0	260.0	241.8	224.4	212.8	203.7	197.1	185.5	182.2
20°	289.0	259.2	236.0	216.1	198.7	185.5	175.5	170.6	165.6	156.5	152.3
22.5°	240.9	218.6	197.1	180.5	170.6	159.0	150.7	145.7	141.6	135.0	133.3
25°	202.0	185.5	168.1	156.5	145.7	136.6	131.7	127.5	124.2	119.2	117.6
27.5°	173.9	159.8	145.7	135.8	128.3	121.7	115.1	114.3	113.4	108.5	107.6
30°	149.9	139.1	128.3	120.9	115.1	110.1	106.8	103.5	104.3	101.0	100.2
32.5°	131.7	123.4	115.1	108.5	105.2	101.0	98.5	98.5	97.7	94.4	94.4
35°	115.9	110.1	104.3	99.4	96.9	93.6	91.1	90.3	90.3	86.1	86.1
37.5°	104.3	98.5	93.6	90.3	87.8	83.6	82.0	81.1	80.3	77.8	77.8
40°	91.1	86.9	82.8	79.5	77.0	74.5	72.9	72.9	72.9	70.4	70.4
42.5°	77.8	75.3	72.9	70.4	69.6	67.1	65.4	65.4	65.4	62.1	62.9
45°	68.7	67.9	65.4	62.9	61.3	59.6	58.0	58.8	58.8	56.3	57.1
47.5°	61.3	59.6	57.1	55.5	54.6	53.8	53.0	53.0	53.0	51.3	51.3
50°	53.8	52.2	51.3	50.5	49.7	48.9	47.2	47.2	47.2	46.4	46.4
52.5°	48.0	47.2	45.5	44.7	44.7	43.1	43.1	41.4	43.1	41.4	42.2
55°	42.2	41.4	40.6	39.7	39.7	38.9	38.9	38.9	38.9	38.9	39.7
57.5°	36.4	36.4	35.6	35.6	35.6	34.8	35.6	36.4	37.3	36.4	38.1
60°	32.3	32.3	31.5	32.3	33.1	33.1	33.9	34.8	36.4	36.4	37.3
62.5°	28.2	29.8	29.8	30.6	31.5	32.3	33.1	33.9	35.6	34.8	36.4
65°	26.5	27.3	28.2	29.0	30.6	30.6	31.5	32.3	33.1	33.1	34.8
67.5°	24.8	26.5	26.5	27.3	28.2	28.2	29.8	30.6	31.5	31.5	32.3
70°	23.2	24.0	24.8	25.7	26.5	26.5	27.3	28.2	29.0	28.2	29.0
72.5°	20.7	21.5	22.4	22.4	23.2	23.2	24.0	24.8	25.7	25.7	26.5
75°	18.2	19.0	19.0	19.9	20.7	20.7	21.5	21.5	22.4	22.4	23.2
77.5°	15.7	15.7	16.6	16.6	17.4	17.4	18.2	18.2	19.0	19.0	19.0
80°	12.4	13.2	13.2	13.2	14.1	14.1	14.1	14.9	14.9	14.9	15.7
82.5°	9.1	9.9	9.9	9.9	10.8	10.8	10.8	10.8	11.6	11.6	11.6
85°	6.6	6.6	6.6	6.6	6.6	7.5	7.5	7.5	7.5	7.5	7.5
87.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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°	969.6	969.6	969.6	969.6
2.5°	808.9	804.8	793.2	790.7
5°	640.9	632.6	624.3	621.8
7.5°	497.6	486.9	475.3	481.1
10°	357.7	356.0	350.2	348.6
12.5°	273.2	271.6	266.6	261.6
15°	216.9	216.9	212.8	208.7
17.5°	174.7	176.4	171.4	168.9
20°	148.2	147.4	145.7	144.1
22.5°	129.2	129.2	128.3	125.0
25°	114.3	115.1	114.3	112.6
27.5°	105.2	106.0	105.2	104.3
30°	98.5	98.5	97.7	97.7
32.5°	92.7	92.7	92.7	91.9
35°	84.5	85.3	84.5	84.5
37.5°	76.2	76.2	76.2	76.2
40°	68.7	69.6	69.6	68.7
42.5°	61.3	61.3	61.3	60.4
45°	55.5	56.3	55.5	55.5
47.5°	50.5	50.5	50.5	49.7
50°	45.5	45.5	45.5	45.5
52.5°	41.4	41.4	42.2	41.4
55°	38.9	39.7	39.7	39.7
57.5°	38.1	38.1	38.9	38.9
60°	37.3	37.3	38.1	38.1
62.5°	35.6	37.3	36.4	36.4
65°	33.9	33.9	34.8	34.8
67.5°	31.5	32.3	32.3	32.3
70°	29.0	29.0	29.8	29.8
72.5°	25.7	26.5	26.5	26.5
75°	22.4	23.2	23.2	23.2
77.5°	19.0	19.0	19.9	19.9
80°	15.7	15.7	15.7	15.7
82.5°	11.6	11.6	11.6	11.6
85°	7.5	7.5	7.5	7.5
87.5°	3.3	3.3	3.3	3.3
90°	0.0	0.0	0.0	0.0

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