

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: P130175

Luminaire Tested: **HL612ICAT - HLM6935 - HL6FL - 456W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130175
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 - HLM6935 - 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1676.6 lumens
Efficiency: N/A
Efficacy: 87.8 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

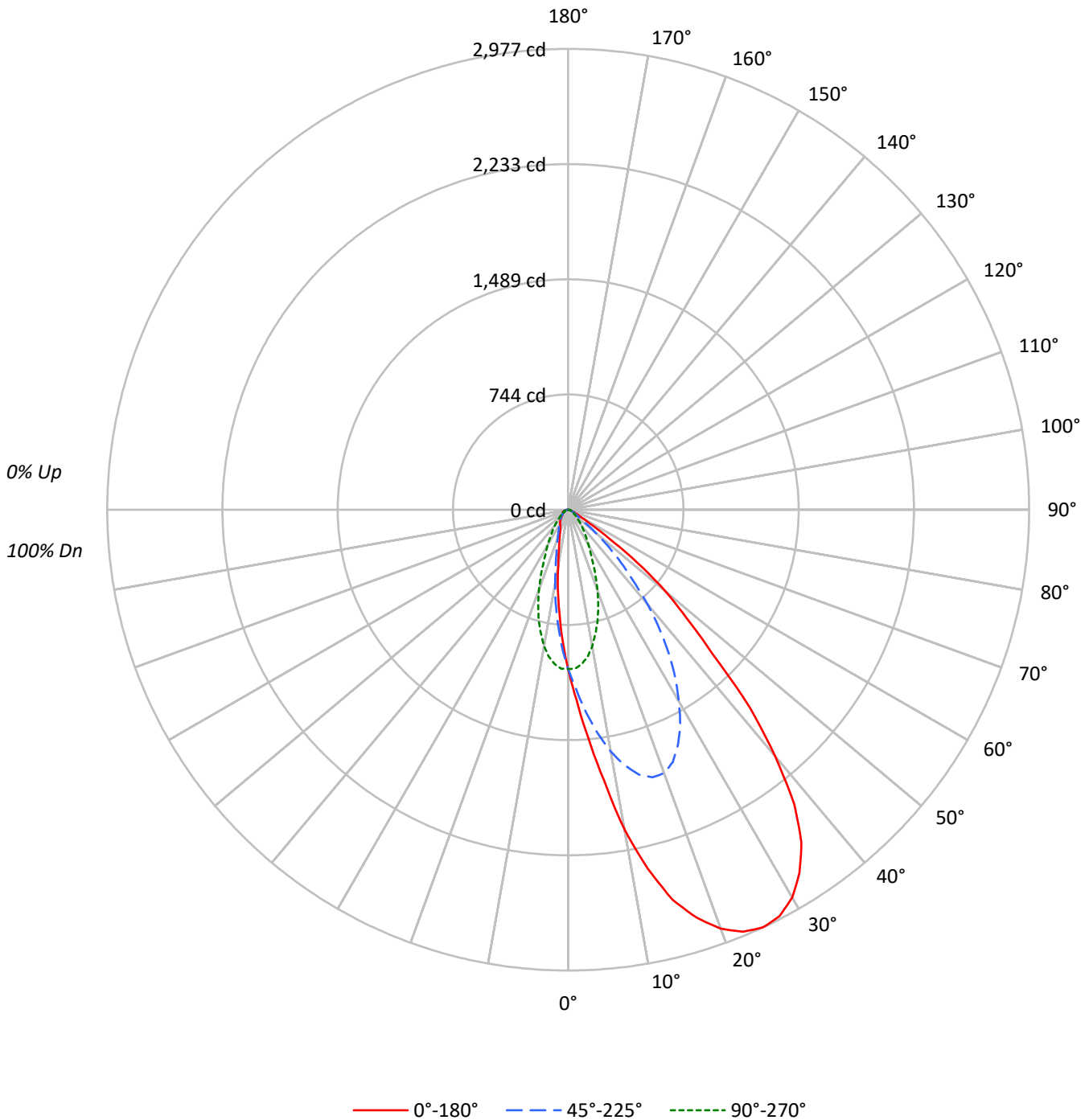
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	61404	61404	61404
5°	86478	58645	38636
10°	121616	51779	21417
15°	150574	42419	12772
20°	166844	31902	8856
25°	174471	21981	7003
30°	172872	15752	6197
35°	161274	11391	5505
40°	132322	8678	4645
45°	87709	6209	3928
50°	58115	4711	3407
55°	23794	3780	3184
60°	7611	3017	3303
65°	4589	2375	3320
70°	2663	2129	3188
75°	1320	1934	2849
80°	960	1563	2290
85°	594	1035	1340



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	99.4	5.9
10°-20°	298.5	17.8
20°-30°	437.7	26.1
30°-40°	429.6	25.6
40°-50°	261.9	15.6
50°-60°	90.0	5.4
60°-70°	34.7	2.1
70°-80°	18.3	1.1
80°-90°	6.4	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°	835.7	49.8
0°-40°	1265.3	75.5
0°-60°	1617.2	96.5
0°-90°	1676.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1676.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1029	1029	1029	1029	1029	
5°	1477	1312	1002	746	660	160
15°	2610	1772	735	293	221	737
25°	2977	1676	375	145	120	1363
35°	2625	1132	185	99	90	1606
45°	1315	481	93	63	59	1059
55°	315	82	50	41	42	330
65°	51	35	26	32	37	53
75°	11	11	17	22	25	14
85°	4	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°	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7
2.5°	1229.9	1218.5	1219.4	1212.4	1216.7	1224.6	1215.9	1190.4	1174.6	1158.8	1149.1
5°	1476.8	1474.1	1477.7	1455.7	1449.5	1447.8	1419.7	1381.9	1375.8	1311.6	1306.4
7.5°	1760.5	1751.8	1747.4	1707.8	1694.7	1673.6	1629.6	1569.9	1514.6	1456.6	1403.0
10°	2100.5	2073.3	2060.1	2011.8	1979.3	1930.1	1860.7	1758.8	1665.7	1586.6	1501.4
12.5°	2372.9	2353.5	2344.8	2291.2	2252.5	2170.8	2078.6	1939.8	1815.9	1692.0	1579.6
15°	2610.1	2581.1	2564.4	2506.4	2456.3	2378.1	2268.3	2104.0	1934.5	1772.0	1623.5
17.5°	2764.7	2742.7	2724.3	2669.8	2613.6	2522.2	2398.3	2206.8	2011.8	1812.4	1634.9
20°	2880.6	2856.1	2828.8	2772.6	2709.3	2611.8	2467.7	2261.3	2039.9	1811.5	1612.1
22.5°	2950.9	2915.8	2893.8	2827.1	2763.8	2654.9	2498.5	2263.1	2017.1	1764.1	1555.0
25°	2977.3	2943.0	2914.0	2841.1	2769.1	2646.1	2473.0	2210.3	1933.6	1676.2	1472.4
27.5°	2958.8	2921.9	2888.6	2813.9	2730.4	2585.5	2385.2	2096.1	1812.4	1568.1	1360.8
30°	2892.9	2858.7	2818.3	2741.8	2644.3	2473.0	2241.1	1932.7	1656.0	1428.5	1226.4
32.5°	2780.5	2749.8	2700.6	2616.2	2488.8	2291.2	2040.8	1735.1	1527.7	1285.3	1086.7
35°	2625.0	2587.2	2520.5	2422.1	2262.2	2036.4	1795.7	1543.6	1334.5	1132.4	938.3
37.5°	2398.3	2348.3	2298.2	2149.7	1974.9	1771.1	1564.6	1360.8	1142.9	966.4	790.7
40°	2076.8	2033.8	1977.5	1819.4	1682.4	1518.1	1336.2	1145.6	972.5	794.2	638.7
42.5°	1740.3	1672.7	1628.8	1514.6	1402.1	1239.6	1063.0	894.3	753.8	615.8	492.8
45°	1315.1	1294.1	1247.5	1163.2	1078.8	961.1	846.9	709.0	589.5	481.4	378.6
47.5°	1037.5	1018.2	983.1	920.7	860.1	761.7	662.4	553.5	452.4	350.5	275.9
50°	824.0	793.3	762.6	709.8	650.1	576.3	493.7	393.6	293.4	226.7	185.4
52.5°	564.9	543.8	521.0	478.8	430.5	373.4	293.4	220.5	166.9	130.9	108.9
55°	315.4	312.8	288.2	259.2	215.2	182.7	139.7	111.6	93.1	81.7	72.9
57.5°	161.6	158.1	140.6	124.7	109.8	94.0	82.6	74.7	69.4	64.1	61.5
60°	93.1	89.6	85.2	81.7	75.6	70.3	65.0	60.6	58.0	53.6	51.0
62.5°	66.8	66.8	64.1	61.5	58.9	55.3	51.8	49.2	47.4	43.9	42.2
65°	51.0	51.0	49.2	47.4	45.7	43.9	41.3	38.7	37.8	35.1	33.4
67.5°	38.7	37.8	36.9	36.0	34.3	33.4	30.7	29.0	28.1	26.4	25.5
70°	26.4	26.4	25.5	25.5	25.5	23.7	22.0	21.1	20.2	19.3	19.3
72.5°	16.7	16.7	16.7	16.7	15.8	14.9	14.9	14.9	14.9	14.1	14.1
75°	11.4	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.4	11.4	11.4
77.5°	7.9	7.9	7.9	7.9	7.9	8.8	8.8	8.8	9.7	9.7	10.5
80°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.9	7.9	8.8
82.5°	5.3	5.3	5.3	5.3	5.3	5.3	6.1	6.1	6.1	6.1	7.0
85°	3.5	3.5	3.5	3.5	3.5	3.5	4.4	4.4	4.4	4.4	4.4
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6	2.6	2.6	2.6
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°	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7
2.5°	1141.2	1133.3	1101.7	1090.2	1086.7	1046.3	1052.5	1027.9	1006.8	988.3	972.5
5°	1258.0	1233.4	1174.6	1143.8	1119.2	1057.7	1042.8	1001.5	962.9	930.3	896.1
7.5°	1358.2	1308.1	1226.4	1176.3	1129.8	1047.2	1013.8	956.7	901.4	855.7	810.0
10°	1431.1	1356.4	1254.5	1185.1	1117.5	1013.8	963.7	894.3	821.4	768.7	716.0
12.5°	1480.3	1383.7	1258.0	1164.0	1079.7	962.0	900.5	815.3	739.7	680.0	614.1
15°	1497.0	1378.4	1234.3	1123.6	1022.6	901.4	824.9	735.3	651.9	580.7	521.0
17.5°	1484.7	1345.9	1184.2	1062.1	949.7	819.7	738.0	643.1	558.7	492.8	425.2
20°	1441.6	1287.9	1116.6	983.9	864.5	733.6	645.7	550.8	468.2	400.6	344.4
22.5°	1373.1	1208.8	1029.6	890.8	773.1	643.1	550.8	460.3	382.2	328.6	286.4
25°	1280.0	1113.1	929.5	794.2	675.6	542.0	457.7	375.1	315.4	274.1	240.7
27.5°	1166.7	998.9	824.9	694.9	577.2	455.1	375.1	312.8	264.4	232.8	203.8
30°	1041.9	881.2	716.0	586.8	480.5	369.9	311.0	263.6	224.9	197.7	175.7
32.5°	909.3	763.4	607.1	485.8	386.5	306.6	260.0	222.3	190.6	169.6	152.0
35°	774.8	639.6	499.0	389.2	313.6	254.8	216.1	185.4	163.4	145.8	132.7
37.5°	649.2	519.2	390.9	309.2	253.0	207.3	180.1	157.3	140.6	127.4	116.8
40°	506.0	395.3	299.6	246.0	207.3	172.2	153.7	136.2	122.1	111.6	103.7
42.5°	384.8	304.0	243.3	201.2	170.4	145.0	130.0	115.1	104.5	94.0	87.9
45°	291.7	238.1	195.0	159.0	139.7	117.7	104.5	93.1	85.2	79.9	75.6
47.5°	217.9	177.5	144.1	118.6	105.4	88.7	81.7	75.6	72.0	70.3	66.8
50°	146.7	118.6	97.5	85.2	79.1	71.2	69.4	66.8	63.3	60.6	58.0
52.5°	91.4	79.9	72.0	68.5	66.8	64.1	60.6	58.0	54.5	53.6	51.8
55°	68.5	65.9	61.5	58.9	57.1	52.7	51.0	50.1	48.3	47.4	45.7
57.5°	58.0	55.3	51.8	49.2	48.3	45.7	44.8	42.2	41.3	40.4	39.5
60°	48.3	46.6	43.9	42.2	41.3	38.7	37.8	36.9	36.0	35.1	34.3
62.5°	39.5	38.7	36.0	35.1	34.3	32.5	31.6	31.6	30.7	30.7	29.9
65°	31.6	30.7	29.0	28.1	27.2	26.4	27.2	26.4	26.4	27.2	27.2
67.5°	24.6	24.6	22.8	22.8	22.8	22.0	22.8	22.8	23.7	24.6	25.5
70°	18.4	18.4	18.4	18.4	19.3	19.3	20.2	21.1	22.0	22.8	23.7
72.5°	14.1	14.9	14.9	15.8	16.7	16.7	18.4	18.4	19.3	20.2	21.1
75°	12.3	13.2	13.2	14.1	14.9	14.9	15.8	16.7	17.6	17.6	18.4
77.5°	10.5	11.4	11.4	12.3	13.2	13.2	14.1	14.1	14.9	15.8	15.8
80°	8.8	8.8	9.7	9.7	10.5	10.5	11.4	11.4	11.4	12.3	12.3
82.5°	7.0	7.0	7.0	7.9	7.9	7.9	8.8	8.8	8.8	9.7	9.7
85°	4.4	5.3	5.3	5.3	5.3	5.3	6.1	6.1	6.1	6.1	6.1
87.5°	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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°	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7	1028.7
2.5°	958.5	951.4	931.2	921.6	908.4	892.6	882.9	882.0	886.4	856.6	850.4
5°	870.6	846.9	812.6	793.3	764.3	745.9	730.0	723.0	710.7	694.9	676.5
7.5°	773.1	737.1	700.2	666.8	640.4	611.4	591.2	571.0	562.2	541.2	527.1
10°	671.2	629.9	584.2	545.6	514.8	480.5	458.6	439.3	424.3	405.9	390.9
12.5°	564.0	520.1	465.6	429.6	398.8	370.7	347.9	336.5	324.2	313.6	297.8
15°	464.7	415.5	372.5	340.0	316.3	293.4	279.4	267.9	255.6	245.1	238.1
17.5°	373.4	334.7	301.3	275.9	256.5	238.1	225.8	216.1	209.1	196.8	193.3
20°	306.6	275.0	250.4	229.3	210.8	196.8	186.2	181.0	175.7	166.0	161.6
22.5°	255.6	231.9	209.1	191.5	181.0	168.7	159.9	154.6	150.2	143.2	141.4
25°	214.4	196.8	178.3	166.0	154.6	145.0	139.7	135.3	131.8	126.5	124.7
27.5°	184.5	169.6	154.6	144.1	136.2	129.1	122.1	121.2	120.4	115.1	114.2
30°	159.0	147.6	136.2	128.3	122.1	116.8	113.3	109.8	110.7	107.2	106.3
32.5°	139.7	130.9	122.1	115.1	111.6	107.2	104.5	104.5	103.7	100.2	100.2
35°	123.0	116.8	110.7	105.4	102.8	99.3	96.6	95.8	95.8	91.4	91.4
37.5°	110.7	104.5	99.3	95.8	93.1	88.7	87.0	86.1	85.2	82.6	82.6
40°	96.6	92.2	87.9	84.3	81.7	79.1	77.3	77.3	77.3	74.7	74.7
42.5°	82.6	79.9	77.3	74.7	73.8	71.2	69.4	69.4	69.4	65.9	66.8
45°	72.9	72.0	69.4	66.8	65.0	63.3	61.5	62.4	62.4	59.7	60.6
47.5°	65.0	63.3	60.6	58.9	58.0	57.1	56.2	56.2	56.2	54.5	54.5
50°	57.1	55.3	54.5	53.6	52.7	51.8	50.1	50.1	50.1	49.2	49.2
52.5°	51.0	50.1	48.3	47.4	47.4	45.7	45.7	43.9	45.7	43.9	44.8
55°	44.8	43.9	43.0	42.2	42.2	41.3	41.3	41.3	41.3	41.3	42.2
57.5°	38.7	38.7	37.8	37.8	37.8	36.9	37.8	38.7	39.5	38.7	40.4
60°	34.3	34.3	33.4	34.3	35.1	35.1	36.0	36.9	38.7	38.7	39.5
62.5°	29.9	31.6	31.6	32.5	33.4	34.3	35.1	36.0	37.8	36.9	38.7
65°	28.1	29.0	29.9	30.7	32.5	32.5	33.4	34.3	35.1	35.1	36.9
67.5°	26.4	28.1	28.1	29.0	29.9	29.9	31.6	32.5	33.4	33.4	34.3
70°	24.6	25.5	26.4	27.2	28.1	28.1	29.0	29.9	30.7	29.9	30.7
72.5°	22.0	22.8	23.7	23.7	24.6	24.6	25.5	26.4	27.2	27.2	28.1
75°	19.3	20.2	20.2	21.1	22.0	22.0	22.8	22.8	23.7	23.7	24.6
77.5°	16.7	16.7	17.6	17.6	18.4	18.4	19.3	19.3	20.2	20.2	20.2
80°	13.2	14.1	14.1	14.1	14.9	14.9	14.9	15.8	15.8	15.8	16.7
82.5°	9.7	10.5	10.5	10.5	11.4	11.4	11.4	11.4	12.3	12.3	12.3
85°	7.0	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9	7.9	7.9
87.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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):

	165°	170°	175°	180°
0°	1028.7	1028.7	1028.7	1028.7
2.5°	858.3	853.9	841.6	839.0
5°	680.0	671.2	662.4	659.8
7.5°	528.0	516.6	504.3	510.4
10°	379.5	377.8	371.6	369.9
12.5°	289.9	288.2	282.9	277.6
15°	230.2	230.2	225.8	221.4
17.5°	185.4	187.1	181.9	179.2
20°	157.3	156.4	154.6	152.9
22.5°	137.0	137.0	136.2	132.7
25°	121.2	122.1	121.2	119.5
27.5°	111.6	112.4	111.6	110.7
30°	104.5	104.5	103.7	103.7
32.5°	98.4	98.4	98.4	97.5
35°	89.6	90.5	89.6	89.6
37.5°	80.8	80.8	80.8	80.8
40°	72.9	73.8	73.8	72.9
42.5°	65.0	65.0	65.0	64.1
45°	58.9	59.7	58.9	58.9
47.5°	53.6	53.6	53.6	52.7
50°	48.3	48.3	48.3	48.3
52.5°	43.9	43.9	44.8	43.9
55°	41.3	42.2	42.2	42.2
57.5°	40.4	40.4	41.3	41.3
60°	39.5	39.5	40.4	40.4
62.5°	37.8	39.5	38.7	38.7
65°	36.0	36.0	36.9	36.9
67.5°	33.4	34.3	34.3	34.3
70°	30.7	30.7	31.6	31.6
72.5°	27.2	28.1	28.1	28.1
75°	23.7	24.6	24.6	24.6
77.5°	20.2	20.2	21.1	21.1
80°	16.7	16.7	16.7	16.7
82.5°	12.3	12.3	12.3	12.3
85°	7.9	7.9	7.9	7.9
87.5°	3.5	3.5	3.5	3.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)