

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: P130032

Luminaire Tested: **HL618TAT - HLM6935 - HL6FL - 455SN**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130032
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: HL618TAT - HLM6935 - HL6FL - 455SN
Description: HALO ALLSLOPE 6" 30W, Satin Nickel Reflector, Satin Nickel 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: 2097.4 lumens
Efficiency: N/A
Efficacy: 76.0 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

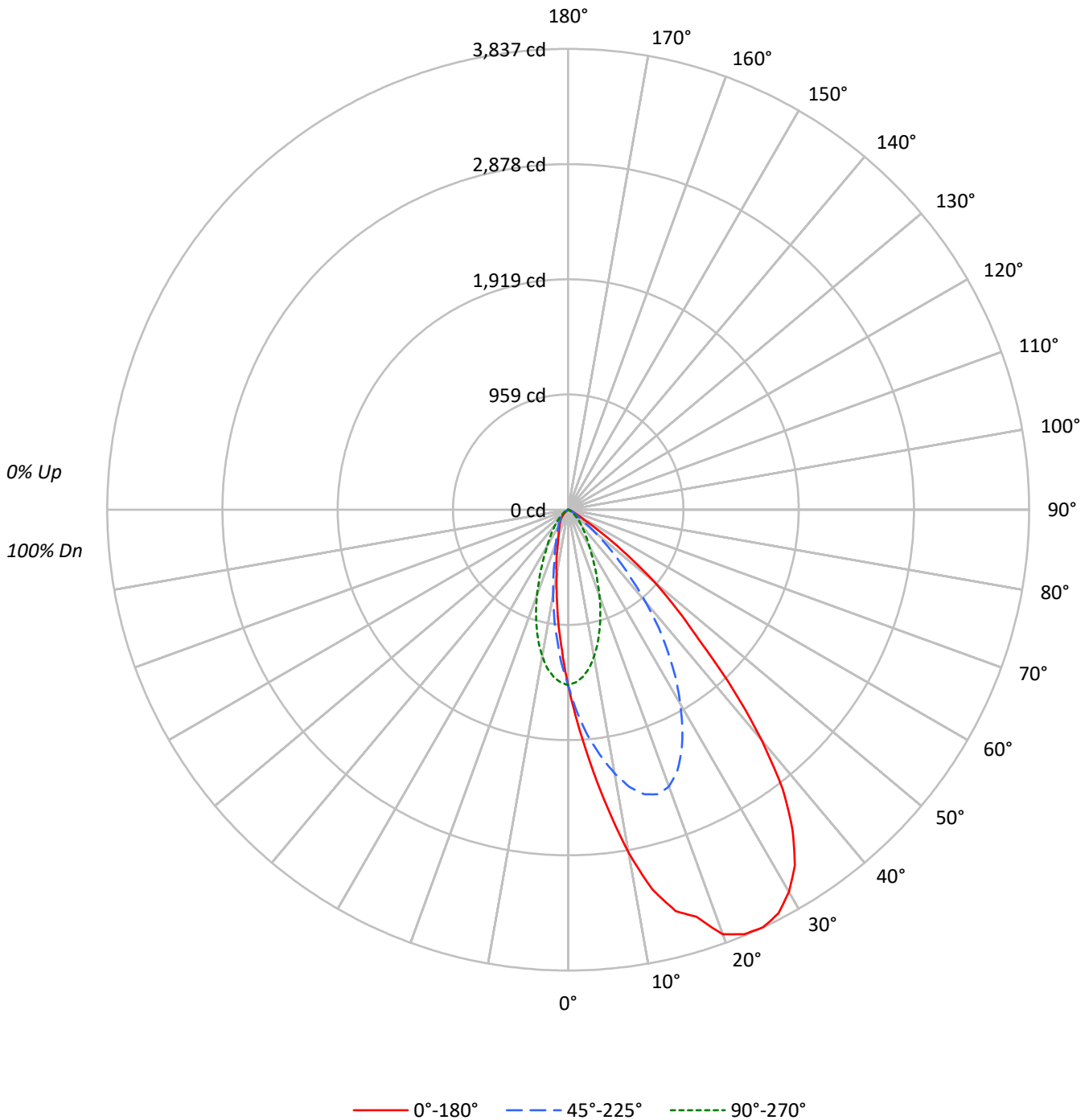
Input Watts (W): 27.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92
2	106	101	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	84
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76
4	94	85	79	74	92	84	78	73	81	76	72	79	75	72	77	74	71	69
5	88	78	72	67	86	77	71	66	75	70	66	74	69	65	72	68	65	63
6	83	72	66	61	81	72	65	60	70	64	60	68	63	60	67	63	59	57
7	78	67	60	55	76	66	60	55	65	59	55	64	59	55	63	58	54	53
8	73	62	56	51	72	62	55	51	61	55	51	60	54	50	58	54	50	49
9	69	58	51	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45
10	65	54	48	43	64	54	48	43	53	47	43	52	47	43	51	47	43	42

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	87190	87190	87190
5°	123761	81840	54962
10°	168011	71818	31954
15°	199575	58514	20058
20°	217848	44129	13756
25°	224850	30525	10489
30°	219620	20915	8432
35°	200066	15015	6979
40°	159522	10965	5556
45°	103689	7803	3828
50°	66113	5177	2511
55°	26577	3546	1215
60°	7693	2346	842
65°	4544	1242	513
70°	2199	575	343
75°	394	394	266
80°	151	315	151
85°	0	390	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	140.2	6.7
10°-20°	408.8	19.5
20°-30°	575.6	27.4
30°-40°	542.2	25.9
40°-50°	313.5	14.9
50°-60°	91.1	4.3
60°-70°	20.8	1.0
70°-80°	4.0	0.2
80°-90°	1.3	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°	1124.6	53.6
0°-40°	1666.8	79.5
0°-60°	2071.3	98.8
0°-90°	2097.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2097.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1461	1461	1461	1461	1461	
5°	2114	1890	1398	1075	939	226
15°	3460	2453	1014	446	348	974
25°	3837	2228	521	217	179	1754
35°	3256	1446	244	131	114	1995
45°	1555	593	117	70	57	1250
55°	352	93	47	25	16	362
65°	50	32	14	7	6	53
75°	3	3	3	2	2	7
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°	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7
2.5°	1769.3	1754.4	1768.2	1736.0	1759.0	1713.1	1703.9	1695.9	1695.9	1687.8	1644.2
5°	2113.5	2079.1	2096.3	2059.6	2066.5	1995.4	1974.7	1940.3	1924.2	1889.8	1817.5
7.5°	2499.1	2458.9	2463.5	2396.9	2400.4	2305.2	2236.3	2195.0	2138.8	2065.3	1967.8
10°	2901.8	2863.9	2866.2	2805.4	2765.3	2635.6	2528.9	2444.0	2344.2	2229.4	2090.6
12.5°	3238.0	3212.8	3199.0	3122.1	3063.6	2922.5	2795.1	2666.6	2531.2	2366.0	2176.6
15°	3459.5	3458.3	3453.7	3359.6	3300.0	3135.9	3006.2	2843.3	2670.0	2453.2	2221.4
17.5°	3554.7	3629.3	3627.0	3526.0	3458.3	3286.2	3140.5	2952.3	2745.8	2485.3	2262.7
20°	3761.2	3744.0	3739.4	3628.1	3559.3	3374.5	3208.2	2992.5	2753.8	2452.0	2158.3
22.5°	3825.5	3806.0	3794.5	3676.3	3600.6	3406.7	3216.2	2968.4	2691.8	2366.0	2061.9
25°	3837.0	3811.7	3797.9	3671.7	3585.7	3372.3	3153.1	2867.4	2557.6	2228.3	1932.2
27.5°	3788.8	3762.4	3730.2	3607.5	3508.8	3273.6	3016.6	2699.9	2366.0	2060.8	1770.5
30°	3675.2	3652.2	3622.4	3493.9	3370.0	3103.8	2808.9	2446.3	2120.4	1864.5	1585.7
32.5°	3511.1	3479.0	3446.8	3288.5	3139.3	2849.0	2534.6	2188.1	1899.0	1667.2	1410.2
35°	3256.4	3241.4	3182.9	3000.5	2827.2	2504.8	2219.1	1932.2	1707.4	1445.7	1209.4
37.5°	2933.9	2964.9	2849.0	2644.8	2448.6	2152.6	1930.0	1667.2	1458.4	1232.3	1012.0
40°	2503.7	2478.4	2401.5	2216.8	2057.3	1830.1	1637.4	1413.6	1199.0	999.4	805.5
42.5°	2039.0	1998.8	1958.6	1806.0	1669.5	1461.8	1287.4	1093.5	927.1	773.4	608.1
45°	1554.7	1550.2	1507.7	1386.1	1290.8	1140.5	1005.1	869.7	729.8	593.2	450.9
47.5°	1226.6	1223.1	1173.8	1091.2	1020.1	895.0	783.7	668.9	539.3	425.7	331.6
50°	937.4	939.7	901.9	842.2	764.2	666.6	565.7	461.3	354.6	280.0	221.5
52.5°	618.5	626.5	604.7	543.9	477.3	394.7	319.0	251.3	196.2	159.5	126.2
55°	352.3	337.3	312.1	283.4	232.9	177.8	148.0	123.9	107.9	92.9	82.6
57.5°	159.5	158.3	145.7	128.5	111.3	97.5	88.4	80.3	75.7	70.0	65.4
60°	94.1	92.9	90.6	84.9	79.2	73.4	67.7	63.1	60.8	56.2	51.6
62.5°	68.8	67.7	66.6	63.1	59.7	55.1	52.8	51.6	47.0	43.6	40.2
65°	50.5	49.3	49.3	47.0	44.7	42.5	40.2	37.9	34.4	32.1	29.8
67.5°	36.7	35.6	35.6	33.3	31.0	29.8	27.5	25.2	24.1	21.8	20.7
70°	21.8	21.8	21.8	20.7	19.5	17.2	16.1	14.9	13.8	12.6	11.5
72.5°	10.3	11.5	10.3	10.3	9.2	9.2	8.0	8.0	6.9	6.9	5.7
75°	3.4	4.6	4.6	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.3
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7
2.5°	1636.2	1590.3	1572.0	1558.2	1521.5	1505.4	1473.3	1438.9	1413.6	1397.6	1366.6
5°	1785.4	1709.6	1660.3	1621.3	1558.2	1516.9	1480.2	1397.6	1349.4	1312.6	1262.2
7.5°	1910.4	1803.7	1723.4	1653.4	1562.8	1496.2	1433.1	1331.0	1262.2	1210.5	1141.7
10°	1994.2	1858.8	1748.7	1650.0	1532.9	1444.6	1358.5	1240.4	1152.0	1085.5	1013.2
12.5°	2047.0	1874.9	1738.3	1615.6	1474.4	1365.4	1261.0	1135.9	1036.1	952.4	876.6
15°	2055.0	1855.4	1694.7	1546.7	1386.1	1264.5	1147.4	1014.3	908.8	826.1	730.9
17.5°	2024.0	1798.0	1613.3	1448.0	1279.4	1148.6	1021.2	890.4	784.8	685.0	600.1
20°	1950.6	1706.2	1508.9	1329.9	1158.9	1022.3	892.7	761.9	656.3	561.1	491.1
22.5°	1846.2	1591.5	1382.6	1200.2	1031.5	889.2	765.3	631.1	531.3	460.1	406.2
25°	1707.4	1450.3	1241.5	1061.4	890.4	752.7	634.5	520.9	434.9	383.2	338.5
27.5°	1513.4	1294.3	1090.0	916.8	763.0	621.9	515.2	424.5	364.9	321.3	284.6
30°	1367.7	1129.1	938.6	775.7	624.2	506.0	421.1	350.0	305.2	268.5	238.7
32.5°	1186.4	963.8	789.4	635.7	501.4	413.1	348.8	293.7	254.7	228.3	205.4
35°	1000.5	806.6	640.3	504.9	405.0	340.8	290.3	244.4	214.6	192.8	175.6
37.5°	825.0	646.0	499.1	398.2	330.5	276.5	237.5	204.2	181.3	165.2	151.5
40°	647.1	496.8	386.7	315.5	262.8	224.9	196.2	172.1	153.8	141.1	132.0
42.5°	484.2	372.9	302.9	251.3	213.4	187.0	165.2	145.7	130.8	121.6	111.3
45°	363.7	289.1	239.8	203.1	172.1	151.5	133.1	117.0	105.6	97.5	90.6
47.5°	271.9	218.0	181.3	152.6	129.7	113.6	101.0	89.5	82.6	79.2	74.6
50°	182.4	146.9	123.9	105.6	92.9	83.8	78.0	73.4	68.8	65.4	62.0
52.5°	111.3	94.1	84.9	75.7	72.3	68.8	64.3	59.7	53.9	51.6	48.2
55°	76.9	70.0	66.6	62.0	58.5	55.1	50.5	47.0	43.6	42.5	39.0
57.5°	62.0	57.4	53.9	49.3	45.9	43.6	41.3	37.9	34.4	33.3	31.0
60°	48.2	44.7	42.5	39.0	36.7	34.4	32.1	28.7	26.4	24.1	21.8
62.5°	37.9	34.4	32.1	29.8	27.5	25.2	22.9	20.7	18.4	17.2	14.9
65°	28.7	25.2	22.9	20.7	18.4	17.2	14.9	13.8	11.5	11.5	9.2
67.5°	18.4	16.1	14.9	13.8	12.6	10.3	9.2	8.0	8.0	6.9	6.9
70°	10.3	9.2	8.0	8.0	6.9	6.9	5.7	5.7	4.6	4.6	4.6
72.5°	5.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6	3.4	3.4	3.4
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7	1460.7
2.5°	1364.3	1328.7	1297.7	1293.1	1274.8	1278.2	1251.8	1227.7	1250.7	1195.6	1195.6
5°	1239.2	1189.9	1139.4	1119.9	1087.7	1075.1	1044.1	1017.8	1007.4	970.7	963.8
7.5°	1109.6	1045.3	984.5	954.6	912.2	897.3	859.4	823.8	798.6	769.9	756.1
10°	959.2	891.5	828.4	794.0	744.7	717.1	680.4	638.0	629.9	582.9	572.6
12.5°	812.4	738.9	679.3	634.5	588.6	565.7	526.7	499.1	479.6	452.1	444.0
15°	670.1	601.2	541.6	507.2	467.0	446.3	421.1	399.3	384.4	364.9	358.0
17.5°	547.3	484.2	437.2	411.9	383.2	364.9	346.5	325.9	315.5	299.5	292.6
20°	441.8	399.3	358.0	337.3	316.7	301.8	286.9	269.6	263.9	252.4	246.7
22.5°	371.8	336.2	300.6	281.1	263.9	255.9	243.3	229.5	224.9	214.6	212.3
25°	309.8	276.5	253.6	239.8	226.0	216.9	206.5	196.2	192.8	184.7	183.6
27.5°	259.3	236.4	216.9	205.4	192.8	187.0	179.0	171.0	173.3	162.9	160.6
30°	218.0	201.9	185.9	177.8	167.5	164.1	158.3	151.5	148.0	144.6	144.6
32.5°	190.5	174.4	161.8	156.0	148.0	146.9	142.3	135.4	136.5	130.8	129.7
35°	165.2	151.5	143.4	137.7	133.1	130.8	127.4	121.6	120.5	117.0	115.9
37.5°	143.4	133.1	126.2	122.8	118.2	115.9	112.4	105.6	106.7	103.3	102.1
40°	125.1	117.0	110.2	107.9	102.1	101.0	97.5	91.8	91.8	88.4	88.4
42.5°	105.6	99.8	92.9	89.5	86.1	84.9	82.6	78.0	76.9	74.6	73.4
45°	87.2	81.5	78.0	74.6	72.3	70.0	67.7	64.3	63.1	60.8	59.7
47.5°	72.3	67.7	63.1	60.8	57.4	56.2	53.9	51.6	50.5	48.2	47.0
50°	58.5	53.9	50.5	48.2	45.9	45.9	43.6	40.2	39.0	37.9	36.7
52.5°	45.9	43.6	41.3	39.0	36.7	35.6	33.3	29.8	28.7	27.5	26.4
55°	36.7	34.4	31.0	29.8	26.4	25.2	22.9	21.8	19.5	18.4	18.4
57.5°	28.7	25.2	22.9	20.7	18.4	18.4	16.1	14.9	13.8	12.6	12.6
60°	20.7	17.2	16.1	13.8	12.6	11.5	11.5	10.3	10.3	9.2	9.2
62.5°	13.8	11.5	10.3	10.3	9.2	9.2	8.0	8.0	8.0	8.0	8.0
65°	9.2	8.0	8.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
67.5°	6.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.6	4.6
70°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	3.4	3.4	3.4	3.4
72.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.3	2.3
75°	3.4	3.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1
80°	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
87.5°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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°	1460.7	1460.7	1460.7	1460.7
2.5°	1204.8	1197.9	1188.7	1175.0
5°	968.4	938.6	947.8	938.6
7.5°	765.3	738.9	736.6	726.3
10°	570.3	557.6	550.8	551.9
12.5°	446.3	432.6	426.8	456.7
15°	359.1	345.4	345.4	347.7
17.5°	290.3	284.6	282.3	280.0
20°	245.5	241.0	237.5	237.5
22.5°	210.0	206.5	203.1	205.4
25°	182.4	179.0	177.8	179.0
27.5°	161.8	158.3	154.9	157.2
30°	144.6	142.3	141.1	141.1
32.5°	130.8	128.5	127.4	127.4
35°	117.0	113.6	113.6	113.6
37.5°	102.1	99.8	99.8	101.0
40°	88.4	82.6	86.1	87.2
42.5°	73.4	71.1	71.1	72.3
45°	58.5	57.4	57.4	57.4
47.5°	47.0	45.9	44.7	45.9
50°	35.6	34.4	34.4	35.6
52.5°	25.2	24.1	24.1	24.1
55°	17.2	17.2	16.1	16.1
57.5°	12.6	11.5	11.5	11.5
60°	9.2	9.2	9.2	10.3
62.5°	8.0	8.0	8.0	8.0
65°	6.9	6.9	5.7	5.7
67.5°	4.6	4.6	4.6	4.6
70°	3.4	3.4	3.4	3.4
72.5°	2.3	2.3	2.3	2.3
75°	2.3	2.3	2.3	2.3
77.5°	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1
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

(END OF REPORT)