

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: P130082

Luminaire Tested: **HL618TAT - HLM6940 - HL6NFL - 456P**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130082  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33472)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6940 - HL6NFL - 456P  
Description: HALO ALLSLOPE 6" 30W, Black Coilex Baffle, White Metal Trim Ring using 25 Degree Optic at a 6-12 Pitch  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2125.0 lumens  
Efficiency: N/A  
Efficacy: 77.0 lumens/watt  
Spacing Criteria (0/90/45): 1.94 / 0.71 / 1.18  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

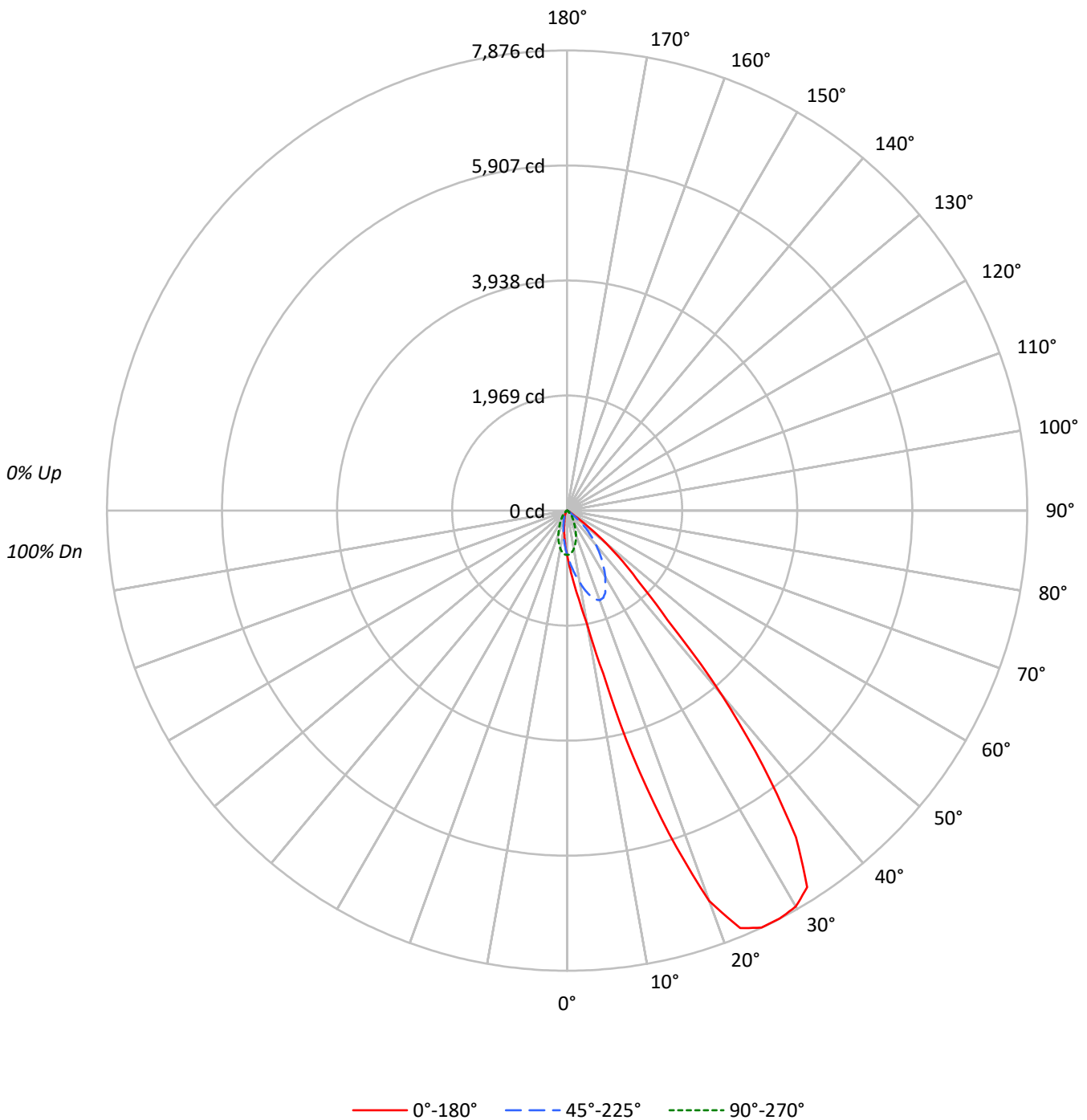
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	94	92				92
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	89	87	85	83				83
3	99	92	86	82	97	90	85	81	88	83	80	85	81	78	83	80	77	75				75
4	93	84	78	73	91	83	77	73	81	76	72	79	74	71	77	73	70	68				68
5	87	77	71	66	85	76	70	65	75	69	65	73	68	64	71	67	64	62				62
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56				56
7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	51				51
8	72	61	54	49	71	60	54	49	59	53	49	58	52	48	57	52	48	47				47
9	68	56	49	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43				43
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°	45066	45066	45066
5°	70462	43104	28184
10°	115091	38317	16872
15°	251397	32052	10344
20°	411746	25352	6968
25°	461519	19010	5116
30°	467673	13959	4016
35°	419289	10217	3041
40°	262249	7442	2179
45°	116760	4642	1180
50°	61239	2913	501
55°	11927	1871	91
60°	4341	1161	98
65°	2546	531	216
70°	1311	242	242
75°	278	278	139
80°	0	329	0
85°	0	407	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	75.6	3.6
10°-20°	322.3	15.2
20°-30°	691.8	32.6
30°-40°	665.7	31.3
40°-50°	295.2	13.9
50°-60°	58.6	2.8
60°-70°	11.6	0.5
70°-80°	2.7	0.1
80°-90°	1.5	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°	1089.7	51.3
0°-40°	1755.4	82.6
0°-60°	2109.2	99.3
0°-90°	2125.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2125.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	755	755	755	755	755	
5°	1203	991	736	542	481	139
15°	4358	1504	556	237	179	1323
25°	7876	1547	324	114	87	3589
35°	6825	1038	166	67	50	4027
45°	1751	523	70	27	18	1532
55°	158	57	25	7	1	247
65°	28	20	6	2	2	30
75°	2	2	2	2	1	4
85°	0	2	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°	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0
2.5°	965.0	923.7	897.8	915.5	901.3	903.7	884.8	888.3	887.1	864.7	856.5
5°	1203.3	1107.7	1114.8	1127.8	1094.8	1092.4	1062.9	1047.6	1031.1	991.0	968.5
7.5°	1524.2	1441.6	1402.7	1390.9	1337.8	1314.2	1270.5	1224.5	1178.5	1120.7	1075.9
10°	1987.8	1895.8	1820.3	1783.7	1681.1	1622.1	1530.1	1439.2	1350.8	1252.8	1176.2
12.5°	2856.1	2621.3	2476.2	2364.1	2162.4	2012.6	1841.5	1678.7	1545.4	1388.5	1265.8
15°	4357.8	4025.2	3690.1	3402.3	2941.0	2558.8	2230.8	1937.1	1724.7	1504.1	1334.2
17.5°	5795.9	5477.4	5138.8	4775.4	4106.5	3358.6	2680.3	2219.0	1879.3	1591.4	1374.4
20°	7108.9	6697.2	6290.2	5863.1	5063.3	4221.0	3199.4	2452.6	1986.6	1633.9	1376.7
22.5°	7734.1	7454.6	7100.6	6660.6	5725.1	4733.0	3546.2	2581.2	2019.7	1616.2	1337.8
25°	7875.7	7679.9	7412.1	7045.2	6046.0	4943.0	3626.4	2547.0	1963.0	1546.6	1263.5
27.5°	7872.2	7682.2	7449.8	7086.5	6022.4	4835.6	3410.5	2373.6	1827.4	1410.9	1171.4
30°	7826.2	7640.9	7333.0	6845.8	5685.0	4420.4	2998.8	2130.5	1652.8	1308.3	1072.4
32.5°	7645.7	7418.0	6935.5	6245.4	5032.6	3718.4	2517.5	1858.0	1471.1	1167.9	967.4
35°	6824.6	6704.3	6023.6	5291.0	4055.8	2857.2	2056.2	1584.3	1277.6	1038.1	854.1
37.5°	5508.0	5425.5	4828.5	4077.1	2963.4	2220.2	1681.1	1362.6	1107.7	907.2	739.7
40°	4116.0	3980.3	3422.3	2813.6	2151.8	1728.3	1375.5	1138.4	948.5	768.0	627.6
42.5°	2542.3	2550.5	2215.5	1979.5	1617.4	1354.3	1120.7	942.6	792.8	639.4	515.5
45°	1750.7	1742.4	1607.9	1466.4	1248.1	1105.4	913.1	775.1	655.9	522.6	417.6
47.5°	1289.4	1284.7	1213.9	1114.8	980.3	860.0	726.7	611.1	497.8	391.7	302.0
50°	868.3	864.7	817.5	768.0	668.9	585.1	482.5	382.2	305.5	231.2	173.4
52.5°	438.8	437.7	410.5	396.4	346.8	296.1	233.6	182.9	148.6	109.7	80.2
55°	158.1	162.8	158.1	149.8	130.9	112.1	89.7	76.7	66.1	56.6	50.7
57.5°	74.3	72.0	69.6	67.2	62.5	57.8	53.1	50.7	48.4	44.8	42.5
60°	53.1	51.9	50.7	50.7	47.2	46.0	42.5	41.3	38.9	35.4	33.0
62.5°	40.1	38.9	38.9	37.8	36.6	35.4	33.0	31.9	30.7	28.3	26.0
65°	28.3	28.3	28.3	29.5	27.1	26.0	24.8	23.6	22.4	20.1	18.9
67.5°	20.1	18.9	18.9	20.1	18.9	18.9	16.5	16.5	15.3	14.2	13.0
70°	13.0	13.0	11.8	11.8	11.8	10.6	10.6	9.4	9.4	8.3	7.1
72.5°	7.1	7.1	5.9	5.9	5.9	5.9	4.7	4.7	4.7	4.7	3.5
75°	2.4	1.2	1.2	1.2	1.2	2.4	1.2	2.4	2.4	2.4	2.4
77.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4
80°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4
82.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4
85°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4
87.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4
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°	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0
2.5°	835.2	822.3	806.9	801.0	783.3	772.7	759.7	755.0	743.2	720.8	712.5
5°	935.5	896.6	865.9	851.7	809.3	783.3	756.2	736.1	710.2	676.0	654.7
7.5°	1016.9	960.3	910.7	881.2	821.1	778.6	737.3	704.3	667.7	622.9	593.4
10°	1093.6	1008.6	940.2	895.4	816.4	752.7	705.5	661.8	618.2	562.7	528.5
12.5°	1150.2	1039.3	953.2	889.5	796.3	729.1	665.4	611.1	562.7	503.7	466.0
15°	1183.2	1051.1	944.9	865.9	763.3	686.6	614.6	555.6	500.2	442.4	402.3
17.5°	1189.1	1037.0	916.6	827.0	718.4	633.5	546.2	497.8	440.0	384.6	343.3
20°	1169.1	1006.3	875.3	778.6	663.0	574.5	501.4	437.7	381.0	326.8	290.2
22.5°	1124.3	955.6	819.9	718.4	600.5	514.4	440.0	377.5	324.4	276.1	243.0
25°	1060.6	890.7	755.0	651.2	536.8	451.8	381.0	324.4	277.2	233.6	205.3
27.5°	975.6	815.2	678.3	581.6	471.9	394.0	325.6	274.9	234.8	197.0	173.4
30°	894.2	735.0	604.0	508.5	409.4	338.6	278.4	233.6	198.2	168.7	148.6
32.5°	798.7	653.6	528.5	442.4	350.4	286.7	234.8	198.2	168.7	143.9	127.4
35°	697.2	565.1	451.8	375.1	296.1	239.5	197.0	166.3	142.7	122.7	109.7
37.5°	599.3	480.1	381.0	312.6	244.2	200.5	164.0	141.6	120.3	105.0	93.2
40°	500.2	397.6	311.4	254.8	200.5	165.2	135.7	116.8	100.3	87.3	77.9
42.5°	410.5	322.1	253.6	205.3	160.4	132.1	108.5	93.2	79.0	68.4	61.3
45°	325.6	253.6	194.7	154.5	118.0	96.7	80.2	69.6	60.2	53.1	48.4
47.5°	232.4	173.4	128.6	100.3	80.2	64.9	55.4	51.9	47.2	42.5	38.9
50°	127.4	96.7	75.5	63.7	54.3	49.5	44.8	41.3	37.8	33.0	28.3
52.5°	68.4	57.8	50.7	48.4	43.6	40.1	35.4	31.9	28.3	24.8	22.4
55°	48.4	44.8	41.3	38.9	34.2	30.7	27.1	24.8	22.4	20.1	17.7
57.5°	38.9	35.4	33.0	30.7	27.1	23.6	21.2	18.9	17.7	15.3	13.0
60°	30.7	28.3	26.0	23.6	21.2	18.9	16.5	14.2	13.0	10.6	9.4
62.5°	23.6	21.2	18.9	17.7	15.3	14.2	11.8	10.6	8.3	7.1	5.9
65°	16.5	15.3	14.2	11.8	10.6	9.4	7.1	5.9	5.9	4.7	3.5
67.5°	11.8	9.4	9.4	8.3	7.1	5.9	4.7	3.5	3.5	3.5	2.4
70°	7.1	5.9	4.7	4.7	3.5	3.5	2.4	2.4	2.4	2.4	2.4
72.5°	3.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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°	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0
2.5°	698.4	683.0	670.1	674.8	665.4	647.7	650.0	627.6	631.1	628.8	620.5
5°	630.0	607.5	585.1	579.2	552.1	541.5	536.8	506.1	510.8	494.3	491.9
7.5°	560.4	529.7	504.9	489.6	474.2	447.1	437.7	414.1	408.2	399.9	385.8
10°	490.8	455.4	437.7	407.0	385.8	362.2	345.7	328.0	320.9	311.4	299.6
12.5°	423.5	388.1	358.6	336.2	317.3	292.6	279.6	263.1	256.0	246.6	237.1
15°	359.8	325.6	298.5	276.1	257.2	237.1	223.0	207.6	201.7	194.7	187.6
17.5°	304.4	272.5	245.4	227.7	210.0	194.7	184.0	169.9	162.8	158.1	152.2
20°	254.8	225.3	202.9	188.8	174.6	160.4	152.2	140.4	135.7	130.9	125.0
22.5°	212.3	188.8	169.9	160.4	146.3	134.5	127.4	119.2	113.3	109.7	105.0
25°	179.3	160.4	145.1	135.7	123.9	114.4	107.4	100.3	96.7	93.2	90.8
27.5°	152.2	136.8	123.9	115.6	106.2	99.1	93.2	87.3	84.9	81.4	79.0
30°	132.1	118.0	107.4	100.3	93.2	87.3	82.6	77.9	75.5	72.0	69.6
32.5°	114.4	102.6	94.4	89.7	82.6	77.9	73.1	68.4	66.1	62.5	60.2
35°	97.9	88.5	82.6	79.0	72.0	67.2	63.7	59.0	56.6	53.1	51.9
37.5°	84.9	76.7	70.8	66.1	60.2	56.6	51.9	48.4	47.2	44.8	43.6
40°	70.8	62.5	57.8	53.1	48.4	46.0	43.6	40.1	38.9	37.8	35.4
42.5°	54.3	49.5	46.0	43.6	40.1	36.6	34.2	30.7	29.5	28.3	26.0
45°	43.6	41.3	36.6	33.0	29.5	27.1	24.8	22.4	21.2	20.1	18.9
47.5°	34.2	30.7	27.1	24.8	22.4	21.2	18.9	17.7	16.5	15.3	14.2
50°	26.0	23.6	21.2	20.1	17.7	15.3	14.2	11.8	10.6	10.6	9.4
52.5°	20.1	18.9	16.5	14.2	13.0	11.8	9.4	8.3	7.1	5.9	4.7
55°	15.3	14.2	11.8	10.6	8.3	7.1	5.9	4.7	3.5	2.4	1.2
57.5°	11.8	9.4	8.3	7.1	5.9	3.5	3.5	2.4	1.2	1.2	1.2
60°	7.1	5.9	4.7	3.5	3.5	2.4	2.4	2.4	2.4	1.2	1.2
62.5°	4.7	3.5	3.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
65°	3.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	2.4	2.4	2.4	3.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2
80°	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2
82.5°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2
85°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	0.0
87.5°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	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°	755.0	755.0	755.0	755.0
2.5°	618.2	619.3	613.4	622.9
5°	490.8	487.2	487.2	481.3
7.5°	383.4	378.7	375.1	375.1
10°	297.3	296.1	289.0	291.4
12.5°	232.4	231.2	225.3	227.7
15°	184.0	182.9	178.1	179.3
17.5°	148.6	146.3	145.1	145.1
20°	122.7	120.3	119.2	120.3
22.5°	103.8	102.6	101.5	101.5
25°	88.5	88.5	87.3	87.3
27.5°	77.9	76.7	75.5	75.5
30°	68.4	67.2	67.2	67.2
32.5°	59.0	57.8	57.8	57.8
35°	49.5	49.5	49.5	49.5
37.5°	42.5	42.5	42.5	42.5
40°	35.4	34.2	34.2	34.2
42.5°	24.8	24.8	23.6	23.6
45°	18.9	17.7	17.7	17.7
47.5°	13.0	11.8	11.8	11.8
50°	8.3	7.1	7.1	7.1
52.5°	3.5	3.5	3.5	3.5
55°	1.2	1.2	1.2	1.2
57.5°	1.2	1.2	1.2	1.2
60°	1.2	1.2	1.2	1.2
62.5°	2.4	2.4	2.4	2.4
65°	2.4	2.4	2.4	2.4
67.5°	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	2.4
72.5°	1.2	1.2	1.2	1.2
75°	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2
80°	1.2	0.0	0.0	0.0
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)