

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: P130080

Luminaire Tested: **HL618TAT - HLM6930 - HL6NFL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130080
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 - HLM6930 - 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1921.4 lumens
Efficiency: N/A
Efficacy: 69.6 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

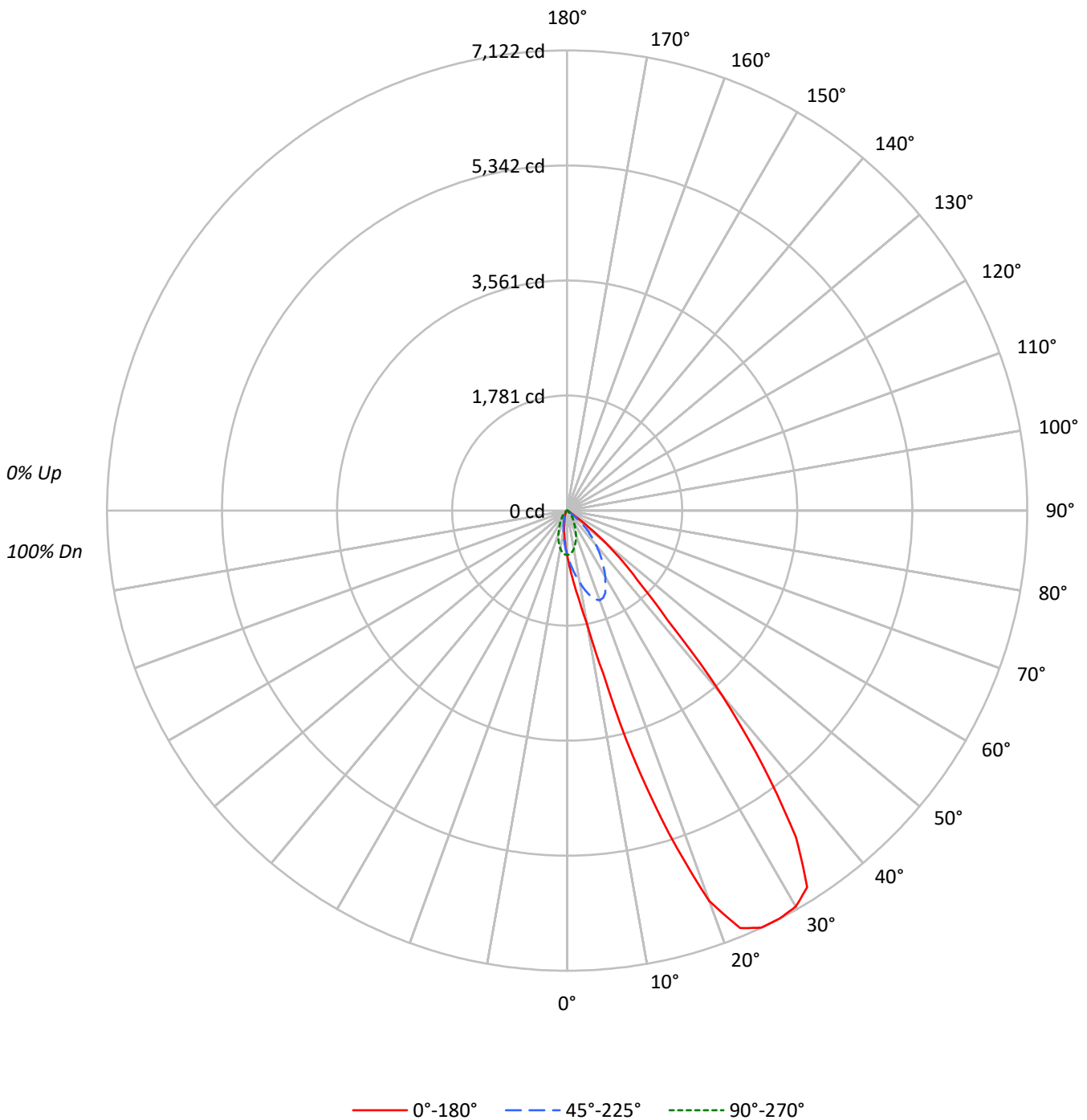
Input Watts (W): 27.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	94	92
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	89	87	85	83
3	99	92	86	82	97	91	85	81	88	83	80	85	81	78	83	80	77	75
4	93	84	78	73	91	83	77	73	81	76	72	79	74	71	77	73	70	68
5	87	77	71	66	85	76	70	65	75	69	65	73	68	64	71	67	64	62
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56
7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	51
8	72	61	54	49	71	60	54	49	59	53	49	58	52	48	57	52	48	47
9	68	56	49	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43
10	64	52	46	41	62	52	45	41	51	45	41	50	45	41	49	44	41	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	40751	40751	40751
5°	63716	38982	25484
10°	104073	34647	15256
15°	227329	28983	9351
20°	372320	22925	6302
25°	417329	17193	4624
30°	422891	12621	3633
35°	379139	9240	2752
40°	237139	6728	1969
45°	105583	4195	1067
50°	55372	2631	451
55°	10780	1690	83
60°	3924	1046	90
65°	2303	477	189
70°	1180	212	212
75°	243	243	127
80°	0	288	0
85°	0	356	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.4	3.6
10°-20°	291.5	15.2
20°-30°	625.5	32.6
30°-40°	602.0	31.3
40°-50°	266.9	13.9
50°-60°	53.0	2.8
60°-70°	10.5	0.5
70°-80°	2.4	0.1
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°	985.4	51.3
0°-40°	1587.3	82.6
0°-60°	1907.2	99.3
0°-90°	1921.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1921.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	683	683	683	683	683	
5°	1088	896	666	490	435	125
15°	3941	1360	502	214	162	1196
25°	7122	1398	293	104	79	3245
35°	6171	939	150	61	45	3642
45°	1583	473	63	24	16	1385
55°	143	51	22	6	1	223
65°	26	18	5	2	2	27
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°	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7
2.5°	872.6	835.3	811.8	827.8	815.0	817.1	800.1	803.3	802.2	781.9	774.5
5°	1088.1	1001.7	1008.1	1019.8	989.9	987.8	961.1	947.3	932.3	896.1	875.8
7.5°	1378.2	1303.6	1268.4	1257.7	1209.7	1188.4	1148.9	1107.3	1065.7	1013.4	972.9
10°	1797.5	1714.3	1646.0	1612.9	1520.1	1466.8	1383.6	1301.4	1221.4	1132.9	1063.5
12.5°	2582.6	2370.3	2239.1	2137.8	1955.3	1819.9	1665.2	1518.0	1397.4	1255.6	1144.6
15°	3940.6	3639.7	3336.8	3076.5	2659.4	2313.8	2017.2	1751.6	1559.6	1360.1	1206.5
17.5°	5240.9	4952.9	4646.8	4318.2	3713.4	3037.0	2423.7	2006.6	1699.3	1439.0	1242.8
20°	6428.2	6055.9	5687.9	5301.7	4578.5	3816.8	2893.0	2217.8	1796.4	1477.4	1244.9
22.5°	6993.6	6740.8	6420.8	6022.9	5176.9	4279.8	3206.6	2334.0	1826.3	1461.4	1209.7
25°	7121.6	6944.5	6702.4	6370.6	5467.1	4469.7	3279.2	2303.1	1775.1	1398.5	1142.5
27.5°	7118.4	6946.7	6736.5	6408.0	5445.8	4372.6	3084.0	2146.3	1652.4	1275.8	1059.3
30°	7076.8	6909.3	6630.9	6190.3	5140.7	3997.1	2711.7	1926.5	1494.5	1183.0	969.7
32.5°	6913.6	6707.7	6271.4	5647.4	4550.7	3362.4	2276.4	1680.1	1330.2	1056.1	874.7
35°	6171.1	6062.3	5446.8	4784.4	3667.5	2583.7	1859.3	1432.6	1155.3	938.7	772.3
37.5°	4980.6	4906.0	4366.2	3686.7	2679.7	2007.6	1520.1	1232.1	1001.7	820.3	668.9
40°	3721.9	3599.2	3094.6	2544.2	1945.7	1562.8	1243.8	1029.4	857.7	694.5	567.5
42.5°	2298.8	2306.3	2003.4	1790.0	1462.5	1224.6	1013.4	852.3	716.9	578.2	466.2
45°	1583.1	1575.6	1454.0	1326.0	1128.6	999.5	825.7	700.9	593.1	472.6	377.6
47.5°	1166.0	1161.7	1097.7	1008.1	886.5	777.7	657.1	552.6	450.2	354.2	273.1
50°	785.1	781.9	739.3	694.5	604.8	529.1	436.3	345.6	276.3	209.1	156.8
52.5°	396.8	395.8	371.2	358.4	313.6	267.8	211.2	165.3	134.4	99.2	72.5
55°	142.9	147.2	142.9	135.5	118.4	101.3	81.1	69.3	59.7	51.2	45.9
57.5°	67.2	65.1	62.9	60.8	56.5	52.3	48.0	45.9	43.7	40.5	38.4
60°	48.0	46.9	45.9	45.9	42.7	41.6	38.4	37.3	35.2	32.0	29.9
62.5°	36.3	35.2	35.2	34.1	33.1	32.0	29.9	28.8	27.7	25.6	23.5
65°	25.6	25.6	25.6	26.7	24.5	23.5	22.4	21.3	20.3	18.1	17.1
67.5°	18.1	17.1	17.1	18.1	17.1	17.1	14.9	14.9	13.9	12.8	11.7
70°	11.7	11.7	10.7	10.7	10.7	9.6	9.6	8.5	8.5	7.5	6.4
72.5°	6.4	6.4	5.3	5.3	5.3	5.3	4.3	4.3	4.3	4.3	3.2
75°	2.1	1.1	1.1	1.1	1.1	2.1	1.1	2.1	2.1	2.1	2.1
77.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
80°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
82.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
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°	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7
2.5°	755.3	743.5	729.7	724.3	708.3	698.7	687.0	682.7	672.1	651.8	644.3
5°	845.9	810.7	783.0	770.2	731.8	708.3	683.8	665.7	642.2	611.2	592.0
7.5°	919.5	868.3	823.5	796.9	742.5	704.1	666.7	636.8	603.8	563.2	536.6
10°	988.9	912.1	850.2	809.7	738.2	680.6	637.9	598.4	559.0	508.8	477.9
12.5°	1040.1	939.8	861.9	804.3	720.1	659.3	601.6	552.6	508.8	455.5	421.4
15°	1069.9	950.5	854.5	783.0	690.2	620.8	555.8	502.4	452.3	400.0	363.8
17.5°	1075.3	937.7	828.9	747.8	649.6	572.8	493.9	450.2	397.9	347.8	310.4
20°	1057.1	909.9	791.5	704.1	599.5	519.5	453.4	395.8	344.6	295.5	262.4
22.5°	1016.6	864.1	741.4	649.6	543.0	465.1	397.9	341.4	293.4	249.6	219.8
25°	959.0	805.4	682.7	588.8	485.4	408.6	344.6	293.4	250.7	211.2	185.6
27.5°	882.2	737.1	613.4	525.9	426.7	356.3	294.4	248.6	212.3	178.1	156.8
30°	808.6	664.6	546.2	459.8	370.2	306.2	251.8	211.2	179.2	152.5	134.4
32.5°	722.2	591.0	477.9	400.0	316.8	259.2	212.3	179.2	152.5	130.1	115.2
35°	630.4	511.0	408.6	339.2	267.8	216.5	178.1	150.4	129.1	110.9	99.2
37.5°	541.9	434.2	344.6	282.7	220.8	181.3	148.3	128.0	108.8	94.9	84.3
40°	452.3	359.5	281.6	230.4	181.3	149.3	122.7	105.6	90.7	78.9	70.4
42.5°	371.2	291.2	229.4	185.6	145.1	119.5	98.1	84.3	71.5	61.9	55.5
45°	294.4	229.4	176.0	139.7	106.7	87.5	72.5	62.9	54.4	48.0	43.7
47.5°	210.1	156.8	116.3	90.7	72.5	58.7	50.1	46.9	42.7	38.4	35.2
50°	115.2	87.5	68.3	57.6	49.1	44.8	40.5	37.3	34.1	29.9	25.6
52.5°	61.9	52.3	45.9	43.7	39.5	36.3	32.0	28.8	25.6	22.4	20.3
55°	43.7	40.5	37.3	35.2	30.9	27.7	24.5	22.4	20.3	18.1	16.0
57.5°	35.2	32.0	29.9	27.7	24.5	21.3	19.2	17.1	16.0	13.9	11.7
60°	27.7	25.6	23.5	21.3	19.2	17.1	14.9	12.8	11.7	9.6	8.5
62.5°	21.3	19.2	17.1	16.0	13.9	12.8	10.7	9.6	7.5	6.4	5.3
65°	14.9	13.9	12.8	10.7	9.6	8.5	6.4	5.3	5.3	4.3	3.2
67.5°	10.7	8.5	8.5	7.5	6.4	5.3	4.3	3.2	3.2	3.2	2.1
70°	6.4	5.3	4.3	4.3	3.2	3.2	2.1	2.1	2.1	2.1	2.1
72.5°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7	682.7
2.5°	631.5	617.6	605.9	610.2	601.6	585.6	587.8	567.5	570.7	568.6	561.1
5°	569.6	549.4	529.1	523.8	499.2	489.6	485.4	457.6	461.9	447.0	444.8
7.5°	506.7	479.0	456.6	442.7	428.8	404.3	395.8	374.4	369.1	361.6	348.8
10°	443.8	411.8	395.8	368.0	348.8	327.5	312.6	296.6	290.2	281.6	271.0
12.5°	383.0	351.0	324.3	304.0	287.0	264.6	252.8	237.9	231.5	223.0	214.4
15°	325.4	294.4	269.9	249.6	232.6	214.4	201.6	187.7	182.4	176.0	169.6
17.5°	275.2	246.4	221.9	205.9	189.9	176.0	166.4	153.6	147.2	142.9	137.6
20°	230.4	203.7	183.5	170.7	157.9	145.1	137.6	126.9	122.7	118.4	113.1
22.5°	192.0	170.7	153.6	145.1	132.3	121.6	115.2	107.7	102.4	99.2	94.9
25°	162.1	145.1	131.2	122.7	112.0	103.5	97.1	90.7	87.5	84.3	82.1
27.5°	137.6	123.7	112.0	104.5	96.0	89.6	84.3	78.9	76.8	73.6	71.5
30°	119.5	106.7	97.1	90.7	84.3	78.9	74.7	70.4	68.3	65.1	62.9
32.5°	103.5	92.8	85.3	81.1	74.7	70.4	66.1	61.9	59.7	56.5	54.4
35°	88.5	80.0	74.7	71.5	65.1	60.8	57.6	53.3	51.2	48.0	46.9
37.5°	76.8	69.3	64.0	59.7	54.4	51.2	46.9	43.7	42.7	40.5	39.5
40°	64.0	56.5	52.3	48.0	43.7	41.6	39.5	36.3	35.2	34.1	32.0
42.5°	49.1	44.8	41.6	39.5	36.3	33.1	30.9	27.7	26.7	25.6	23.5
45°	39.5	37.3	33.1	29.9	26.7	24.5	22.4	20.3	19.2	18.1	17.1
47.5°	30.9	27.7	24.5	22.4	20.3	19.2	17.1	16.0	14.9	13.9	12.8
50°	23.5	21.3	19.2	18.1	16.0	13.9	12.8	10.7	9.6	9.6	8.5
52.5°	18.1	17.1	14.9	12.8	11.7	10.7	8.5	7.5	6.4	5.3	4.3
55°	13.9	12.8	10.7	9.6	7.5	6.4	5.3	4.3	3.2	2.1	1.1
57.5°	10.7	8.5	7.5	6.4	5.3	3.2	3.2	2.1	1.1	1.1	1.1
60°	6.4	5.3	4.3	3.2	3.2	2.1	2.1	2.1	2.1	1.1	1.1
62.5°	4.3	3.2	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
65°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5°	2.1	2.1	2.1	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1
82.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
87.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	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°	682.7	682.7	682.7	682.7
2.5°	559.0	560.0	554.7	563.2
5°	443.8	440.6	440.6	435.2
7.5°	346.7	342.4	339.2	339.2
10°	268.8	267.8	261.4	263.5
12.5°	210.1	209.1	203.7	205.9
15°	166.4	165.3	161.1	162.1
17.5°	134.4	132.3	131.2	131.2
20°	110.9	108.8	107.7	108.8
22.5°	93.9	92.8	91.7	91.7
25°	80.0	80.0	78.9	78.9
27.5°	70.4	69.3	68.3	68.3
30°	61.9	60.8	60.8	60.8
32.5°	53.3	52.3	52.3	52.3
35°	44.8	44.8	44.8	44.8
37.5°	38.4	38.4	38.4	38.4
40°	32.0	30.9	30.9	30.9
42.5°	22.4	22.4	21.3	21.3
45°	17.1	16.0	16.0	16.0
47.5°	11.7	10.7	10.7	10.7
50°	7.5	6.4	6.4	6.4
52.5°	3.2	3.2	3.2	3.2
55°	1.1	1.1	1.1	1.1
57.5°	1.1	1.1	1.1	1.1
60°	1.1	1.1	1.1	1.1
62.5°	2.1	2.1	2.1	2.1
65°	2.1	2.1	2.1	2.1
67.5°	2.1	2.1	2.1	2.1
70°	2.1	2.1	2.1	2.1
72.5°	1.1	1.1	1.1	1.1
75°	1.1	1.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1
80°	1.1	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)