

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: P130205

Luminaire Tested: **HL612ICAT - HLM6927 - HL6NFL - 455SN**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130205
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33469)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6NFL - 455SN
Description: HALO ALLSLOPE 6" 21W, Satin Nickel Reflector, Satin Nickel Metal Trim Ring using 25 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1377.1 lumens
Efficiency: N/A
Efficacy: 72.1 lumens/watt
Spacing Criteria (0/90/45): 1.85 / 0.72 / 1.15
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

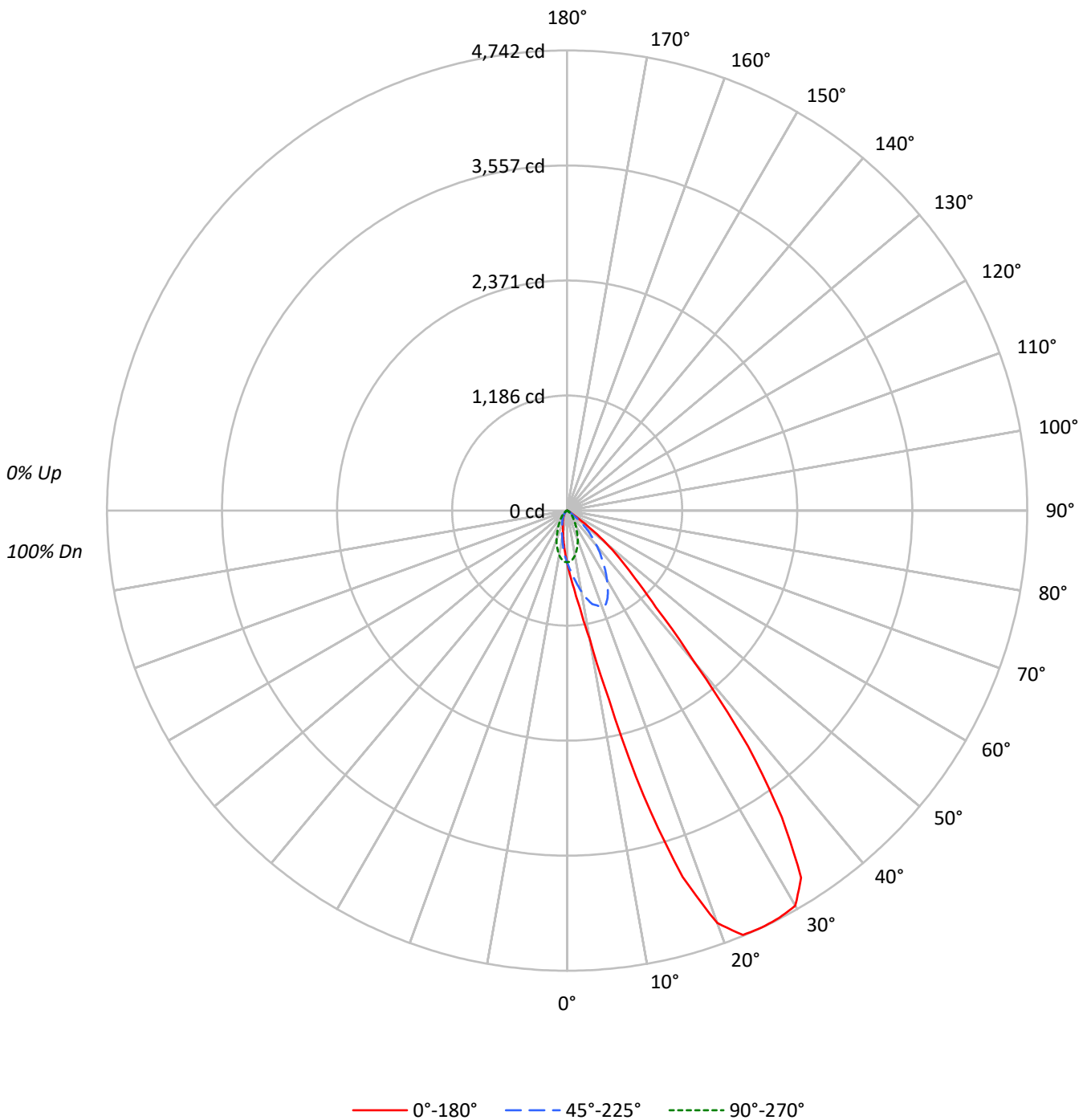
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	94
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	89	87	85
3	99	92	86	82	97	91	85	81	88	83	80	85	82	78	83	80	77
4	93	84	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70
5	87	78	71	66	86	77	70	66	75	69	65	73	68	64	71	67	64
6	82	72	65	60	80	71	64	59	69	63	59	68	62	59	66	62	58
7	77	66	59	54	75	65	59	54	64	58	54	63	57	53	62	57	53
8	72	61	54	50	71	61	54	49	59	53	49	58	53	49	57	52	49
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	31761	31761	31761
5°	47033	30216	21087
10°	77984	27050	13884
15°	175380	22833	9796
20°	261908	18407	7263
25°	277883	13923	5678
30°	280973	10452	4571
35°	236929	7882	3582
40°	130309	5849	2784
45°	65720	4082	1947
50°	37782	2722	1234
55°	9075	1871	656
60°	2919	1308	474
65°	1898	783	324
70°	1029	363	222
75°	336	255	174
80°	96	206	96
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.3	3.9
10°-20°	226.4	16.4
20°-30°	449.3	32.6
30°-40°	404.4	29.4
40°-50°	183.4	13.3
50°-60°	45.7	3.3
60°-70°	10.9	0.8
70°-80°	2.7	0.2
80°-90°	1.0	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°	728.9	52.9
0°-40°	1133.3	82.3
0°-60°	1362.4	98.9
0°-90°	1377.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1377.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	532	532	532	532	532	
5°	803	679	516	409	360	93
15°	3040	998	396	208	170	895
25°	4742	987	238	115	97	2179
35°	3856	640	128	71	58	2288
45°	985	324	61	37	29	832
55°	120	44	25	15	9	165
65°	21	17	9	5	4	21
75°	3	2	2	2	2	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°	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1
2.5°	657.4	624.6	639.2	625.4	626.8	625.4	615.2	622.5	607.1	600.6	591.8
5°	803.2	761.7	778.4	755.1	746.4	744.2	720.9	715.7	693.9	679.3	658.2
7.5°	1010.2	969.4	975.2	946.8	916.2	901.6	861.5	837.5	793.7	757.3	723.0
10°	1346.9	1275.5	1296.7	1217.2	1155.3	1102.0	1034.3	980.3	906.7	846.2	787.9
12.5°	1990.5	1827.3	1798.1	1654.5	1525.5	1383.4	1242.7	1149.4	1025.5	928.6	843.3
15°	3040.1	2801.0	2742.7	2446.8	2132.7	1803.2	1512.4	1330.2	1134.8	998.5	883.4
17.5°	3957.8	3711.4	3636.3	3241.3	2908.2	2404.5	1865.9	1519.0	1234.0	1024.1	902.3
20°	4521.9	4393.6	4384.1	3877.6	3402.4	2876.1	2179.3	1666.2	1263.1	1062.0	893.6
22.5°	4733.3	4659.7	4622.5	4252.2	3763.1	3126.8	2347.0	1727.4	1296.7	1043.7	860.1
25°	4742.0	4705.6	4721.6	4371.0	3866.6	3180.1	2337.5	1673.5	1237.6	986.9	804.7
27.5°	4731.8	4694.6	4702.7	4324.4	3777.0	3031.4	2167.7	1532.1	1142.1	907.4	740.5
30°	4701.9	4649.5	4570.0	4099.2	3492.0	2680.8	1841.9	1342.6	1023.3	820.0	676.4
32.5°	4486.9	4427.1	4236.2	3651.6	2986.9	2174.9	1500.0	1148.7	895.1	729.6	605.7
35°	3856.4	3823.6	3566.4	2964.3	2328.0	1659.6	1233.2	981.1	777.7	639.9	533.5
37.5°	3062.7	3029.9	2740.5	2224.5	1669.8	1287.9	1014.6	830.9	669.1	559.0	465.7
40°	2045.2	2084.6	1900.9	1532.8	1243.4	1004.4	828.7	702.6	570.7	474.5	393.6
42.5°	1355.7	1360.8	1290.8	1105.7	944.6	798.8	674.2	581.6	475.2	396.5	324.3
45°	985.4	984.0	944.6	826.5	736.2	639.2	551.8	477.4	392.9	323.6	261.7
47.5°	744.2	745.6	722.3	647.2	594.8	516.0	445.3	381.2	310.5	251.5	199.0
50°	535.7	540.1	522.6	469.4	425.7	366.6	307.6	258.7	206.3	164.0	124.6
52.5°	298.8	309.8	295.2	265.3	234.0	196.8	161.8	136.3	105.0	83.1	65.6
55°	120.3	128.3	123.9	109.3	96.9	81.6	72.2	61.2	50.3	44.5	40.8
57.5°	51.7	51.0	51.0	46.6	44.5	41.5	38.6	37.9	35.0	34.3	32.8
60°	35.7	35.7	35.7	34.3	33.5	32.8	31.3	30.6	29.2	27.7	26.2
62.5°	27.7	27.7	27.7	27.0	26.2	26.2	24.8	24.8	23.3	21.9	20.4
65°	21.1	21.1	21.9	21.1	20.4	20.4	19.7	19.0	17.5	16.8	15.3
67.5°	15.3	15.3	15.3	15.3	15.3	14.6	13.8	13.1	12.4	11.7	11.7
70°	10.2	10.2	10.2	10.2	10.2	9.5	9.5	8.7	8.7	8.0	7.3
72.5°	6.6	6.6	6.6	5.8	5.8	5.8	5.8	5.1	5.1	4.4	4.4
75°	2.9	2.9	2.9	2.9	2.9	2.2	2.9	2.2	2.2	2.2	2.2
77.5°	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5	1.5	1.5	1.5
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5	1.5
82.5°	0.7	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
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°	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1
2.5°	589.7	576.5	573.6	558.3	548.8	542.3	537.9	529.2	511.7	508.8	503.6
5°	647.2	620.3	607.9	582.4	562.7	547.4	533.5	516.0	489.1	477.4	467.9
7.5°	699.7	643.6	634.1	597.7	568.5	542.3	519.7	494.9	461.4	446.1	429.3
10°	743.4	685.9	650.2	602.8	564.1	529.9	499.3	467.2	430.0	408.2	387.8
12.5°	777.0	702.6	652.3	594.8	547.4	505.1	470.8	431.5	393.6	368.1	346.2
15°	794.5	704.1	642.9	589.7	522.6	475.2	435.9	395.8	354.2	329.4	302.5
17.5°	792.3	689.5	621.0	548.8	489.1	438.8	397.2	359.3	316.3	285.7	260.9
20°	771.9	664.7	591.1	514.6	451.9	398.0	358.6	317.8	274.8	247.1	223.8
22.5°	735.4	628.3	551.8	473.0	412.5	359.3	316.3	277.0	236.9	214.3	191.7
25°	690.2	583.8	505.1	427.8	367.3	316.3	275.5	237.6	203.4	182.9	164.7
27.5°	636.3	532.8	454.8	384.8	325.1	275.5	236.2	204.8	174.2	158.2	142.1
30°	577.3	477.4	404.5	335.3	279.9	236.2	201.9	174.9	150.1	132.7	123.9
32.5°	513.9	420.6	355.0	290.1	239.1	201.2	172.0	149.4	129.0	117.3	107.9
35°	449.7	364.4	303.2	245.6	203.4	169.1	146.5	128.3	110.8	102.0	93.3
37.5°	386.3	309.0	255.1	206.3	169.8	143.6	124.6	108.6	94.8	88.2	81.6
40°	322.9	256.6	209.9	169.8	139.9	119.5	104.2	91.8	80.9	75.8	70.7
42.5°	263.1	209.2	170.6	142.9	116.6	99.9	87.5	77.3	67.8	63.4	59.0
45°	211.4	166.9	137.0	111.5	93.3	78.7	69.2	61.2	54.7	51.0	48.8
47.5°	156.7	122.4	98.4	80.2	67.1	57.6	52.5	47.4	43.7	42.3	40.1
50°	96.9	75.8	64.1	53.2	47.4	43.7	41.5	38.6	35.7	34.3	32.1
52.5°	55.4	46.6	43.0	40.1	37.9	36.4	34.3	32.1	28.4	27.0	25.5
55°	37.9	35.7	35.0	32.8	30.6	28.4	27.0	24.8	22.6	22.6	21.1
57.5°	31.3	29.2	28.4	25.5	24.1	22.6	21.9	20.4	19.0	17.5	16.8
60°	25.5	23.3	22.6	21.1	19.7	18.2	17.5	16.0	14.6	13.8	13.1
62.5°	19.7	18.2	17.5	16.8	15.3	13.8	13.1	12.4	10.9	10.2	9.5
65°	15.3	13.8	13.1	12.4	10.9	10.2	9.5	8.7	8.0	7.3	6.6
67.5°	10.9	9.5	9.5	8.7	8.0	7.3	6.6	5.8	5.1	5.1	4.4
70°	7.3	6.6	5.8	5.1	5.1	4.4	3.6	3.6	3.6	3.6	3.6
72.5°	4.4	3.6	3.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.5	1.5	2.2	2.2	2.2	2.2	2.2	2.2	1.5	2.2	2.2
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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°	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1	532.1
2.5°	494.9	492.7	482.5	480.3	470.8	477.4	468.7	454.8	452.6	456.3	448.3
5°	450.4	441.7	429.3	422.0	410.4	408.9	401.6	382.7	380.5	376.8	369.5
7.5°	406.7	396.5	378.3	364.4	355.0	349.1	340.4	322.9	316.3	312.7	303.2
10°	364.4	349.9	328.0	316.3	300.3	292.3	282.8	266.8	260.2	258.0	247.1
12.5°	321.4	302.5	280.6	269.0	252.2	244.9	236.2	223.0	217.2	212.1	207.0
15°	277.0	259.5	239.1	228.1	215.0	208.5	201.2	188.0	182.9	180.0	178.6
17.5°	238.3	221.6	202.6	194.6	182.2	175.7	170.6	160.4	156.0	153.1	150.1
20°	204.8	190.2	174.2	166.9	156.7	152.3	146.5	138.5	135.6	133.4	130.5
22.5°	174.9	162.5	150.1	144.3	136.3	132.7	127.6	121.7	118.8	116.6	114.4
25°	150.1	140.7	131.2	126.1	118.8	115.2	111.5	106.4	103.5	102.8	100.6
27.5°	130.5	123.2	115.2	110.1	104.2	101.3	98.4	94.0	92.6	91.1	88.9
30°	114.4	107.9	100.6	96.9	92.6	90.4	87.5	84.5	82.4	83.1	80.2
32.5°	99.9	94.8	88.9	86.7	82.4	80.9	78.7	75.1	72.9	72.2	70.7
35°	87.5	83.1	78.7	77.3	73.6	71.4	69.2	66.3	65.6	63.4	62.0
37.5°	76.5	72.9	69.2	67.8	64.9	62.0	60.5	56.9	55.4	54.7	53.9
40°	66.3	63.4	59.0	57.6	54.7	53.2	51.0	48.8	47.4	47.4	45.9
42.5°	55.4	53.2	49.6	48.8	45.9	45.2	43.0	41.5	40.1	39.4	38.6
45°	45.9	44.5	41.5	40.8	38.6	37.2	36.4	33.5	32.1	31.3	30.6
47.5°	37.9	36.4	32.8	32.1	31.3	29.2	27.7	27.0	25.5	24.8	24.8
50°	29.9	28.4	26.2	26.2	24.8	23.3	22.6	21.1	20.4	19.7	19.0
52.5°	24.1	23.3	21.1	21.1	19.7	19.0	17.5	16.8	15.3	15.3	14.6
55°	19.7	18.2	16.8	16.0	15.3	14.6	13.1	12.4	11.7	10.9	10.2
57.5°	15.3	14.6	13.1	12.4	11.7	10.9	9.5	8.7	8.0	8.0	7.3
60°	11.7	10.9	9.5	9.5	8.0	7.3	7.3	6.6	6.6	6.6	5.8
62.5°	8.7	8.0	7.3	6.6	5.8	5.8	5.8	5.8	5.1	5.1	5.1
65°	5.8	5.8	5.1	5.1	5.1	5.1	5.1	4.4	4.4	4.4	4.4
67.5°	4.4	4.4	4.4	4.4	4.4	3.6	3.6	3.6	3.6	3.6	3.6
70°	3.6	3.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.2
72.5°	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	2.2	2.2	2.2
75°	2.2	2.2	2.2	2.2	2.2	2.2	1.5	1.5	1.5	1.5	1.5
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.7
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7
85°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.7
87.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	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°	532.1	532.1	532.1	532.1
2.5°	446.1	451.9	444.6	438.8
5°	370.3	373.2	365.9	360.1
7.5°	302.5	303.2	296.6	291.5
10°	249.3	248.5	243.4	239.8
12.5°	207.0	206.3	201.9	199.0
15°	173.5	174.2	171.3	169.8
17.5°	149.4	149.4	146.5	145.8
20°	129.0	129.7	127.6	125.4
22.5°	113.7	113.7	112.2	110.1
25°	99.9	99.9	98.4	96.9
27.5°	88.9	89.7	88.2	86.0
30°	79.4	79.4	78.0	76.5
32.5°	70.0	70.0	69.2	67.8
35°	60.5	61.2	59.8	58.3
37.5°	53.2	53.2	52.5	51.0
40°	45.2	45.9	45.2	43.7
42.5°	37.9	37.9	37.9	37.2
45°	29.9	30.6	29.9	29.2
47.5°	24.1	24.1	24.1	23.3
50°	18.2	19.0	18.2	17.5
52.5°	13.8	13.8	13.1	13.1
55°	10.2	9.5	9.5	8.7
57.5°	7.3	7.3	7.3	6.6
60°	5.8	5.8	5.8	5.8
62.5°	5.1	5.1	5.1	5.1
65°	4.4	4.4	4.4	3.6
67.5°	2.9	2.9	2.9	2.9
70°	2.2	2.2	2.2	2.2
72.5°	2.2	2.2	1.5	1.5
75°	1.5	1.5	1.5	1.5
77.5°	0.7	0.7	0.7	0.7
80°	0.7	0.7	0.7	0.7
82.5°	0.7	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)