

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: P130201

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130201
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33468)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6NFL - 455SC
Description: HALO ALLSLOPE 6" 21W, Specular Clear Reflector, White 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: 1455.1 lumens
Efficiency: N/A
Efficacy: 76.2 lumens/watt
Spacing Criteria (0/90/45): 1.96 / 0.82 / 1.16
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

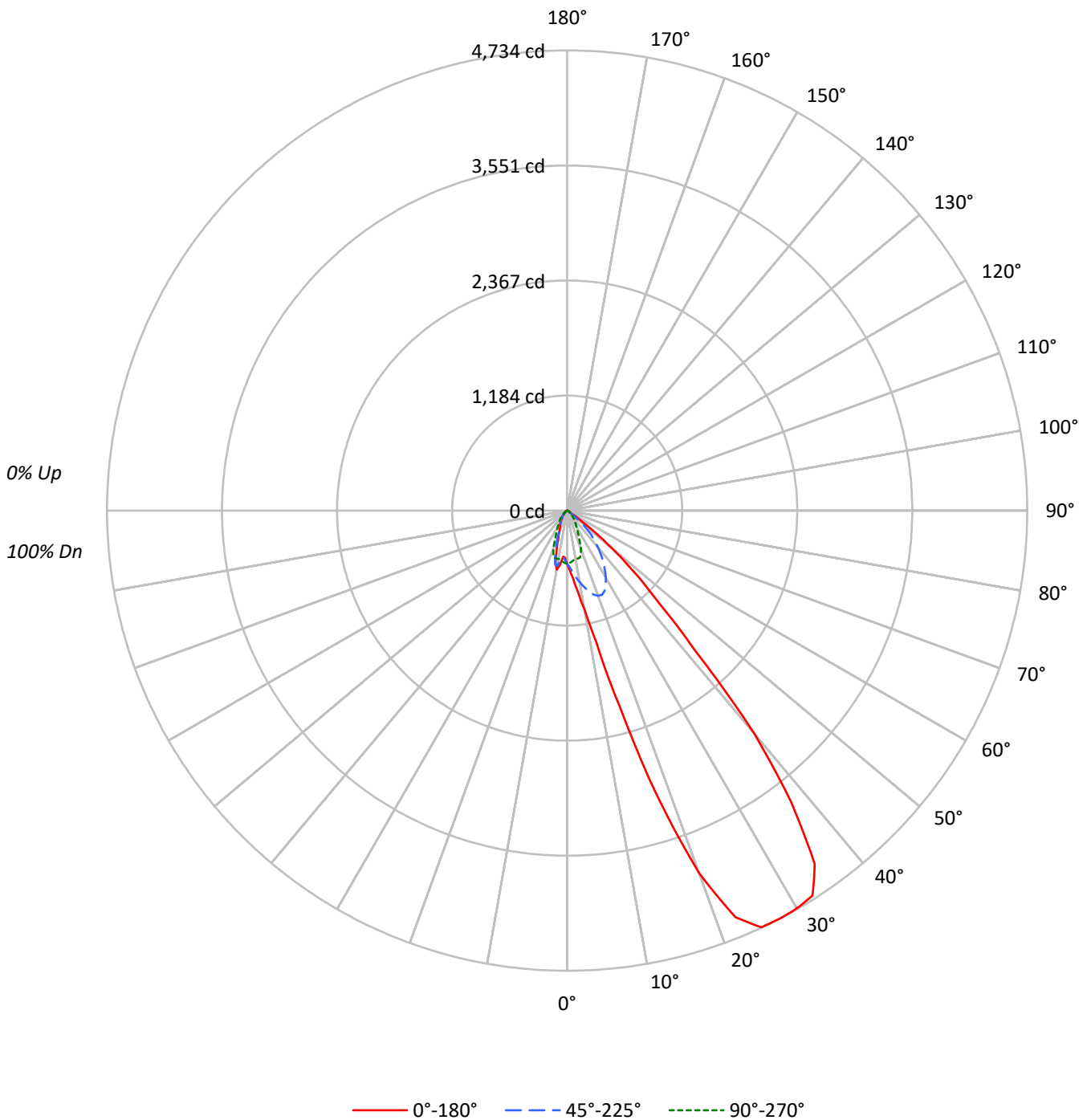
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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				
1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	93	92				
2	106	100	96	92	104	98	94	91	95	92	89	92	89	87	89	87	85	83				
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	80	77	75				
4	93	84	78	73	91	83	77	72	81	75	71	79	74	70	77	73	70	68				
5	87	77	70	65	85	76	70	65	74	69	64	73	68	64	71	67	63	61				
6	81	71	64	59	80	70	64	59	69	63	58	67	62	58	66	61	57	56				
7	76	65	58	53	75	65	58	53	63	57	53	62	57	53	61	56	52	51				
8	72	60	53	49	70	60	53	49	59	53	48	58	52	48	57	52	48	46				
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	53	48	44	42				
10	63	52	45	41	62	52	45	41	51	45	41	50	44	40	49	44	40	39				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	32681	32681	32681
5°	41113	30994	27791
10°	60192	29250	35712
15°	119906	28937	23595
20°	229843	23776	13513
25°	277186	15892	9827
30°	282395	11455	7667
35°	272827	8644	5333
40°	190774	6550	3899
45°	86595	4622	2574
50°	41753	2934	1643
55°	8857	1924	385
60°	2984	1308	0
65°	1772	720	0
70°	958	151	0
75°	255	174	0
80°	0	206	0
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.2	3.9
10°-20°	222.8	15.3
20°-30°	444.8	30.6
30°-40°	453.9	31.2
40°-50°	218.3	15.0
50°-60°	46.4	3.2
60°-70°	9.0	0.6
70°-80°	1.8	0.1
80°-90°	0.9	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°	724.8	49.8
0°-40°	1178.7	81.0
0°-60°	1443.4	99.2
0°-90°	1455.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1455.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	548	548	548	548	548	
5°	702	634	529	478	475	77
15°	2078	860	502	473	409	685
25°	4730	912	271	172	168	2131
35°	4441	648	141	100	87	2615
45°	1298	344	69	46	39	1128
55°	117	44	26	17	5	172
65°	20	15	8	1	0	20
75°	2	2	2	1	0	3
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°	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5
2.5°	612.4	605.1	601.5	603.7	608.0	602.2	600.0	597.8	597.8	580.3	584.0
5°	702.1	690.4	681.7	685.3	690.4	675.8	670.7	662.7	656.9	634.3	632.1
7.5°	839.9	817.3	808.5	804.9	799.0	772.8	758.9	743.6	721.8	691.1	678.8
10°	1039.6	1017.0	998.8	980.6	964.5	908.4	873.4	838.4	796.9	748.0	721.8
12.5°	1385.9	1328.3	1272.9	1244.5	1173.8	1084.1	1023.6	952.9	882.9	803.4	759.7
15°	2078.5	1979.4	1821.2	1705.3	1523.7	1364.1	1194.2	1087.8	971.8	859.6	793.2
17.5°	3072.2	2949.8	2759.5	2472.2	2153.6	1719.8	1438.4	1226.3	1060.0	905.5	815.8
20°	3968.3	3840.7	3570.9	3268.4	2841.9	2222.2	1706.0	1375.7	1126.4	933.2	820.9
22.5°	4529.6	4466.9	4230.0	3877.1	3377.7	2664.7	1942.2	1446.4	1154.8	937.6	807.1
25°	4730.1	4698.8	4527.4	4216.1	3694.9	2908.2	2053.0	1473.4	1138.8	912.0	773.5
27.5°	4733.8	4727.9	4606.9	4318.9	3773.6	2927.9	2015.8	1421.7	1088.5	859.6	724.7
30°	4725.7	4720.6	4584.3	4252.6	3642.4	2747.8	1848.2	1307.2	1011.9	793.2	672.9
32.5°	4696.6	4662.3	4438.5	3990.1	3309.9	2370.9	1600.3	1164.3	911.3	722.5	610.9
35°	4440.7	4391.1	4032.4	3478.3	2774.8	1898.5	1340.7	1009.0	799.8	648.1	543.9
37.5°	3792.5	3718.9	3352.2	2798.1	2090.9	1468.3	1107.4	863.9	697.7	569.4	474.6
40°	2994.2	2869.6	2529.8	1994.0	1532.5	1149.0	909.1	734.2	603.7	489.9	405.4
42.5°	1932.0	1983.0	1655.7	1391.8	1148.3	918.6	748.0	616.8	509.6	415.6	338.3
45°	1298.4	1307.9	1162.1	1019.2	882.2	733.4	613.1	514.0	425.0	344.1	277.8
47.5°	927.4	935.4	862.5	769.2	665.6	574.5	487.0	400.3	331.0	261.0	207.1
50°	592.0	604.4	560.6	497.2	443.3	385.7	323.0	258.1	210.0	160.4	123.2
52.5°	304.0	319.3	284.3	271.2	229.7	197.6	164.8	129.0	105.7	81.7	66.3
55°	117.4	125.4	113.7	101.3	90.4	80.2	67.1	56.9	51.0	44.5	40.8
57.5°	53.2	52.5	49.6	47.4	45.2	41.6	39.4	36.5	35.0	32.8	32.8
60°	36.5	36.5	35.0	35.0	33.5	32.1	30.6	29.2	28.4	26.2	26.2
62.5°	26.2	27.0	26.2	26.2	26.2	24.8	24.1	22.6	22.6	21.1	20.4
65°	19.7	20.4	19.7	19.7	19.7	19.0	18.2	17.5	16.8	15.3	14.6
67.5°	13.9	14.6	13.9	13.9	13.9	13.1	13.1	12.4	11.7	10.9	10.2
70°	9.5	9.5	8.7	9.5	9.5	8.7	8.7	8.0	8.0	7.3	6.6
72.5°	5.8	5.8	5.1	5.1	5.1	5.1	5.1	4.4	4.4	3.6	2.9
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.5	1.5	1.5	1.5
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	1.5	1.5
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
82.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	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°	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5
2.5°	581.8	579.6	572.3	564.3	560.6	557.7	541.7	539.5	541.7	530.0	533.7
5°	624.1	610.9	597.8	581.1	569.4	559.9	537.3	529.3	525.6	508.2	508.2
7.5°	660.5	640.1	616.1	590.5	571.6	555.5	527.1	514.0	508.9	492.1	494.3
10°	691.1	660.5	627.7	595.6	569.4	546.8	516.9	505.2	503.0	493.6	503.8
12.5°	713.7	669.3	629.2	587.6	557.7	537.3	511.8	506.0	508.2	508.9	524.9
15°	728.3	672.2	624.1	580.3	548.3	528.6	505.2	501.6	508.9	503.0	513.3
17.5°	732.0	667.1	613.1	567.2	532.9	511.1	485.6	472.4	471.0	451.3	443.3
20°	725.4	654.0	593.5	540.2	503.0	472.4	436.0	410.5	394.4	366.0	352.1
22.5°	705.7	627.0	558.5	497.9	449.1	411.2	366.0	335.4	313.5	286.5	269.0
25°	669.3	584.0	508.9	446.2	390.8	347.0	301.8	271.2	252.3	227.5	216.5
27.5°	623.3	532.9	455.7	391.5	336.1	291.6	253.0	226.0	209.2	190.3	182.3
30°	565.7	479.7	403.9	339.0	288.7	249.3	214.3	191.7	177.9	162.6	156.7
32.5°	511.8	423.6	355.8	293.1	247.2	212.2	183.7	164.8	153.8	140.7	135.6
35°	449.8	370.4	312.0	250.1	209.2	180.8	156.7	140.7	132.0	121.8	118.1
37.5°	387.9	315.7	258.8	215.1	177.2	154.6	134.9	120.3	113.0	105.7	105.7
40°	328.8	262.5	213.6	176.4	147.3	129.8	113.7	102.8	97.0	91.1	89.7
42.5°	270.5	217.3	175.0	144.4	121.8	107.9	94.8	86.8	81.7	76.6	74.4
45°	217.3	175.0	139.2	114.5	97.0	85.3	75.8	69.3	66.3	62.0	59.8
47.5°	158.9	126.9	102.1	81.7	71.4	64.2	57.6	53.2	51.8	48.8	47.4
50°	97.0	79.5	65.6	55.4	50.3	47.4	43.7	41.6	40.8	38.6	37.2
52.5°	56.1	48.8	44.5	40.8	38.6	37.2	35.0	32.8	32.1	29.2	29.2
55°	38.6	36.5	35.0	33.5	31.3	29.2	27.0	25.5	25.5	23.3	23.3
57.5°	30.6	29.2	27.7	25.5	24.1	23.3	21.9	20.4	20.4	19.0	17.5
60°	24.8	22.6	21.9	20.4	19.0	18.2	16.8	16.0	15.3	13.9	13.1
62.5°	19.0	17.5	17.5	16.0	15.3	13.9	12.4	11.7	10.9	9.5	9.5
65°	13.9	13.1	12.4	11.7	10.9	9.5	8.7	8.0	6.6	5.8	5.1
67.5°	10.2	9.5	8.7	8.0	6.6	5.8	5.1	4.4	3.6	2.2	2.2
70°	5.8	5.1	5.1	4.4	2.9	2.9	2.2	1.5	1.5	1.5	1.5
72.5°	2.9	2.2	2.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
75°	1.5	1.5	1.5	1.5	1.5	1.5	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	1.5
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°	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5
2.5°	531.5	528.6	514.0	508.9	509.6	508.2	506.0	506.7	495.8	496.5	495.0
5°	503.0	497.2	481.9	476.8	477.5	477.5	477.5	481.2	472.4	480.4	479.0
7.5°	492.1	492.8	485.6	491.4	502.3	512.5	519.8	535.9	537.3	552.6	556.3
10°	511.1	524.9	527.8	539.5	559.9	574.5	581.8	600.0	596.4	613.9	613.1
12.5°	538.0	546.1	545.3	554.8	561.4	570.9	569.4	573.0	559.9	561.4	554.1
15°	516.2	511.8	496.5	492.8	485.6	473.2	459.3	460.0	441.1	436.0	429.4
17.5°	432.3	424.3	396.6	376.2	366.0	353.6	339.0	350.7	320.8	317.9	312.8
20°	333.2	317.1	295.3	280.7	271.9	266.1	258.8	257.4	245.7	245.0	242.8
22.5°	253.7	242.8	227.5	218.7	215.1	208.5	204.1	203.4	196.1	196.1	193.2
25°	204.9	198.3	185.9	179.3	175.0	172.1	169.9	168.4	163.3	166.2	169.1
27.5°	173.5	167.0	156.7	151.6	148.7	148.0	148.7	150.2	148.7	153.1	153.8
30°	149.5	143.6	134.9	132.0	132.0	134.9	136.3	137.1	132.7	134.1	131.2
32.5°	130.5	126.1	121.0	121.0	121.0	121.0	118.1	114.5	107.9	107.2	103.5
35°	114.5	112.3	109.4	107.9	103.5	99.9	97.0	94.0	89.7	89.7	88.2
37.5°	100.6	99.2	94.0	91.1	87.5	84.6	83.1	82.4	80.2	80.9	78.7
40°	86.8	83.8	78.7	75.8	74.4	73.6	72.9	72.2	70.0	67.1	64.2
42.5°	71.4	68.5	64.9	64.2	62.0	61.2	58.3	54.0	51.0	51.0	49.6
45°	57.6	56.1	53.2	51.0	46.7	45.9	44.5	43.0	41.6	40.8	40.1
47.5°	45.9	44.5	40.8	38.6	36.5	36.5	35.7	35.0	32.8	32.1	32.1
50°	35.0	33.5	32.1	30.6	29.9	29.2	27.7	27.0	26.2	25.5	24.8
52.5°	27.7	27.0	25.5	24.8	23.3	22.6	21.1	20.4	19.0	18.2	17.5
55°	21.9	21.1	19.7	19.0	17.5	16.8	15.3	13.9	11.7	10.2	8.0
57.5°	16.8	16.0	14.6	13.1	11.7	10.2	8.7	6.6	4.4	2.2	0.7
60°	12.4	10.9	9.5	8.0	5.8	4.4	2.2	0.7	0.0	0.0	0.0
62.5°	8.0	6.6	5.1	3.6	2.2	0.7	0.7	0.7	0.0	0.0	0.0
65°	3.6	2.9	1.5	1.5	0.7	0.7	0.7	0.7	0.0	0.0	0.0
67.5°	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0
70°	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0
72.5°	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.0	0.0	0.0
75°	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.0	0.0	0.0
77.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
80°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
82.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
85°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
87.5°	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.0	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°	547.5	547.5	547.5	547.5
2.5°	498.7	499.4	495.0	484.1
5°	484.1	487.0	486.3	474.6
7.5°	565.7	573.8	573.8	562.1
10°	626.3	629.9	628.4	616.8
12.5°	560.6	564.3	554.8	551.2
15°	430.1	430.9	421.4	409.0
17.5°	312.8	316.4	311.3	302.6
20°	242.0	243.5	239.9	233.3
22.5°	193.9	193.9	193.9	188.8
25°	168.4	170.6	170.6	167.7
27.5°	156.0	158.2	158.2	155.3
30°	131.2	130.5	129.8	128.3
32.5°	102.1	102.1	101.3	97.0
35°	88.9	88.9	88.2	86.8
37.5°	80.9	80.9	80.2	78.0
40°	64.2	63.4	62.7	61.2
42.5°	50.3	49.6	48.8	48.1
45°	40.1	40.1	39.4	38.6
47.5°	32.1	32.1	31.3	30.6
50°	24.8	24.8	24.1	23.3
52.5°	16.8	16.0	15.3	14.6
55°	7.3	5.8	5.1	5.1
57.5°	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0
80°	0.0	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)