

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: P130197

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130197
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33467)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6NFL - 455H
Description: HALO ALLSLOPE 6" 21W, Semi-Specular Haze 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: 1439.0 lumens
Efficiency: N/A
Efficacy: 75.3 lumens/watt
Spacing Criteria (0/90/45): 1.94 / 0.72 / 1.15
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

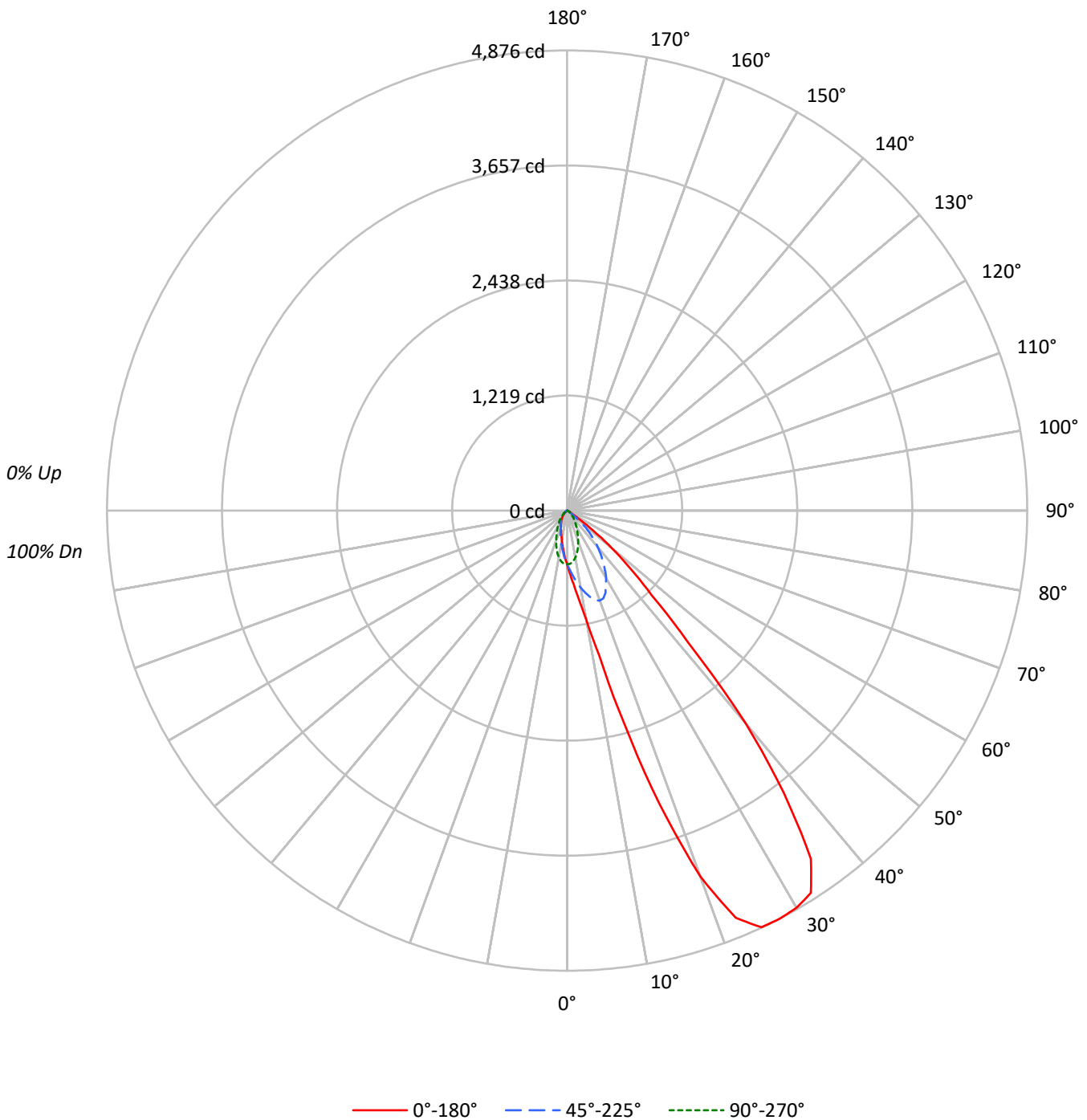
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	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	93	92					92			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83					83			
3	99	92	86	81	97	90	85	80	87	83	79	85	81	78	83	79	77	75					75			
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68					68			
5	87	77	70	65	85	76	70	65	74	68	64	72	67	63	71	66	63	61					61			
6	81	71	64	59	80	70	63	58	68	62	58	67	62	58	65	61	57	56					56			
7	76	65	58	53	75	65	58	53	63	57	53	62	56	52	61	56	52	50					50			
8	71	60	53	48	70	60	53	48	58	52	48	57	52	48	56	51	48	46					46			
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42					42			
10	63	52	45	40	62	51	45	40	50	44	40	50	44	40	49	44	40	38					38			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	33898	33898	33898
5°	45804	32529	25268
10°	68077	29164	18487
15°	134444	24685	14088
20°	238925	19716	11190
25°	285478	15207	9054
30°	290456	11677	7320
35°	276728	8958	5689
40°	187729	6830	4224
45°	84447	4762	2968
50°	44108	3237	1749
55°	10501	2203	822
60°	3156	1431	360
65°	2033	783	135
70°	1100	293	71
75°	336	174	0
80°	0	206	0
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	55.6	3.9
10°-20°	211.5	14.7
20°-30°	446.4	31.0
30°-40°	449.2	31.2
40°-50°	213.3	14.8
50°-60°	49.4	3.4
60°-70°	10.5	0.7
70°-80°	2.2	0.2
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°	713.5	49.6
0°-40°	1162.8	80.8
0°-60°	1425.5	99.1
0°-90°	1439.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1439.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	568	568	568	568	568	
5°	782	693	556	456	432	86
15°	2330	951	428	267	244	741
25°	4872	961	260	161	154	2197
35°	4504	660	146	101	93	2643
45°	1266	345	71	50	44	1111
55°	139	44	29	18	11	190
65°	23	17	9	4	2	23
75°	3	2	2	2	0	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°	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9
2.5°	665.5	646.6	654.6	637.8	656.1	641.5	641.5	635.6	632.0	626.9	612.3
5°	782.2	758.1	764.7	754.5	759.6	741.3	733.3	717.3	720.2	693.2	668.4
7.5°	938.9	904.6	915.6	885.7	883.5	860.2	837.6	808.4	783.6	761.0	723.8
10°	1175.8	1130.6	1132.1	1081.8	1070.1	1016.9	973.9	916.3	866.7	829.5	770.5
12.5°	1568.7	1485.6	1473.2	1379.9	1331.8	1222.5	1129.9	1038.8	955.7	891.5	810.6
15°	2330.5	2211.6	2114.0	1887.3	1722.5	1514.0	1332.5	1181.6	1057.7	950.6	844.1
17.5°	3266.4	3104.6	2992.3	2686.9	2361.8	1903.3	1583.3	1324.5	1136.4	995.0	862.3
20°	4125.1	3916.7	3735.9	3380.1	2990.2	2467.5	1812.2	1449.9	1192.6	1014.7	857.2
22.5°	4670.4	4510.7	4338.7	3917.4	3442.1	2806.5	2072.4	1530.8	1210.8	1004.5	828.8
25°	4871.6	4728.0	4636.9	4214.1	3700.2	3026.6	2150.4	1534.4	1183.8	960.8	790.2
27.5°	4876.0	4747.7	4702.5	4292.8	3743.9	2943.5	2077.5	1455.7	1117.5	882.8	737.7
30°	4860.6	4731.6	4655.1	4184.9	3576.2	2741.6	1877.0	1317.2	1026.4	827.4	678.7
32.5°	4803.8	4644.1	4457.5	3886.0	3226.3	2345.8	1597.9	1163.4	911.2	745.0	621.8
35°	4504.2	4300.8	3990.3	3383.1	2682.5	1857.4	1312.1	1000.8	799.7	660.4	542.3
37.5°	3770.9	3601.0	3305.8	2716.8	1996.6	1420.0	1090.5	861.6	696.1	582.4	474.5
40°	2946.4	2751.1	2406.3	1909.9	1457.2	1116.8	890.0	726.0	602.1	503.0	405.3
42.5°	1895.3	1810.0	1603.7	1321.6	1078.1	882.0	724.6	609.4	508.8	420.6	336.8
45°	1266.2	1205.7	1120.4	968.8	830.3	710.7	598.5	502.2	420.6	344.8	275.5
47.5°	909.7	857.2	823.0	734.8	646.6	564.9	480.4	398.0	323.7	263.2	206.3
50°	625.4	585.3	570.8	516.8	447.6	387.1	320.0	263.9	208.5	165.5	126.1
52.5°	344.1	322.9	316.4	287.9	255.1	212.9	168.4	134.1	105.7	83.1	65.6
55°	139.2	134.9	128.3	118.1	102.8	82.4	70.7	58.3	49.6	44.5	40.8
57.5°	56.1	53.9	53.2	49.6	46.7	42.3	39.4	37.2	35.7	35.0	33.5
60°	38.6	37.2	36.4	35.0	34.3	32.8	31.3	30.6	29.2	28.4	27.0
62.5°	29.2	28.4	28.4	27.0	27.0	26.2	25.5	24.1	23.3	22.6	21.1
65°	22.6	21.9	21.1	21.1	20.4	20.4	19.7	19.0	17.5	16.8	15.3
67.5°	16.0	16.0	15.3	15.3	14.6	14.6	13.9	13.1	12.4	11.7	10.9
70°	10.9	10.2	10.2	10.2	10.2	9.5	9.5	8.7	8.0	8.0	7.3
72.5°	6.6	6.6	6.6	5.8	5.8	5.8	5.1	5.1	5.1	4.4	4.4
75°	2.9	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5	1.5
80°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	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°	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9
2.5°	606.5	605.0	590.5	583.9	582.4	576.6	574.4	567.1	540.9	542.3	545.3
5°	654.6	641.5	618.2	602.8	592.6	579.5	568.6	555.5	533.6	516.8	513.2
7.5°	696.1	672.1	638.6	614.5	594.1	573.0	553.3	532.9	507.3	486.2	476.0
10°	730.4	694.7	648.0	614.5	586.1	556.9	530.7	503.7	472.4	447.6	435.2
12.5°	752.3	704.2	646.6	603.6	567.1	529.2	500.1	469.4	434.5	406.0	391.4
15°	765.4	700.5	634.9	581.7	538.7	495.7	462.2	427.9	391.4	362.3	346.3
17.5°	764.7	699.1	613.0	553.3	503.7	456.3	419.9	384.2	349.2	319.3	301.8
20°	746.4	663.3	580.2	517.6	466.5	414.8	375.4	340.4	305.4	278.5	261.7
22.5°	712.9	626.2	542.3	475.3	422.8	374.0	332.4	297.4	266.1	242.0	229.6
25°	673.6	583.2	501.5	428.6	378.3	329.5	291.6	259.5	231.8	209.9	199.7
27.5°	625.4	536.5	454.9	385.6	333.1	288.7	252.9	226.0	200.5	183.7	173.5
30°	567.1	485.5	402.4	341.1	290.9	250.8	218.0	195.4	174.2	158.9	153.1
32.5°	510.3	429.4	352.1	295.2	251.5	215.0	187.3	168.4	152.4	139.2	133.4
35°	451.9	371.8	305.4	251.5	215.0	183.0	161.8	145.8	131.9	121.7	117.4
37.5°	390.7	318.6	259.5	212.9	180.8	154.5	135.6	128.3	113.7	105.0	102.1
40°	327.3	266.1	217.2	179.3	151.6	130.5	116.6	107.2	97.0	91.8	88.9
42.5°	271.9	218.0	178.6	147.2	126.1	108.6	97.7	89.7	80.2	76.5	74.4
45°	218.7	174.2	140.7	116.6	99.1	86.0	77.3	71.4	65.6	62.0	60.5
47.5°	160.4	125.4	100.6	83.8	71.4	64.1	58.3	56.1	52.5	51.0	49.6
50°	97.7	78.0	64.9	56.1	51.0	48.8	46.7	45.9	43.0	41.6	39.4
52.5°	55.4	49.6	44.5	42.3	41.6	40.1	37.9	36.4	33.5	32.1	31.3
55°	38.6	37.9	36.4	35.0	33.5	31.3	29.9	29.2	27.0	26.2	24.8
57.5°	32.8	30.6	29.2	27.0	26.2	24.8	24.1	23.3	21.9	20.4	19.7
60°	25.5	24.1	22.6	21.9	21.1	19.7	18.2	17.5	16.0	15.3	14.6
62.5°	19.7	19.0	17.5	16.8	16.0	15.3	13.9	13.1	12.4	10.9	9.5
65°	14.6	13.9	13.1	12.4	11.7	10.9	9.5	8.7	8.0	7.3	6.6
67.5°	10.2	10.2	8.7	8.0	8.0	6.6	5.8	5.1	4.4	4.4	3.6
70°	6.6	6.6	5.8	5.1	4.4	3.6	3.6	2.9	2.9	2.9	2.2
72.5°	3.6	2.9	2.9	2.9	2.2	2.2	2.2	2.2	2.2	2.2	2.2
75°	2.2	1.5	1.5	2.2	2.2	2.2	2.2	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°	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9	567.9
2.5°	541.6	530.7	524.8	519.0	519.0	514.6	516.8	506.6	508.8	503.0	502.2
5°	503.7	500.8	476.7	469.4	457.8	456.3	458.5	445.4	443.9	438.1	433.0
7.5°	463.6	445.4	430.8	419.1	411.9	403.8	392.2	389.3	385.6	381.2	376.1
10°	419.9	399.5	382.7	368.8	364.5	353.5	347.7	339.0	333.1	328.0	324.4
12.5°	374.0	352.8	337.5	322.9	317.1	306.9	302.5	293.8	288.7	283.6	282.1
15°	327.3	308.3	291.6	280.6	274.1	266.8	263.2	253.7	252.2	247.8	244.9
17.5°	285.7	268.3	253.7	244.9	239.1	231.8	230.3	223.1	221.6	219.4	216.5
20°	247.1	233.3	220.9	213.6	209.9	205.6	203.4	198.3	196.8	195.4	193.9
22.5°	215.8	204.1	196.8	188.8	185.9	182.2	180.8	175.7	174.9	174.9	172.8
25°	188.1	179.3	172.8	166.2	164.7	161.1	161.1	156.7	157.5	156.0	155.3
27.5°	166.2	158.2	152.4	147.2	146.5	144.3	143.6	140.7	140.7	140.0	138.5
30°	145.8	140.0	134.9	131.2	131.2	129.0	129.0	126.1	125.4	124.7	124.7
32.5°	128.3	124.7	121.0	116.6	117.4	114.4	114.4	111.5	110.1	109.3	107.9
35°	112.3	110.1	106.4	103.5	103.5	100.6	99.1	96.2	95.5	94.8	94.0
37.5°	98.4	96.2	93.3	89.7	89.7	86.7	86.0	83.8	82.4	81.6	80.9
40°	85.3	83.1	80.2	76.5	76.5	73.6	72.9	71.4	70.7	69.3	68.5
42.5°	70.7	68.5	66.3	64.9	64.1	62.0	61.2	57.6	59.0	58.3	56.1
45°	58.3	57.6	55.4	53.2	52.5	50.3	48.8	46.7	45.9	45.9	44.5
47.5°	48.1	45.9	44.5	42.3	41.6	40.1	38.6	37.2	37.2	36.4	35.0
50°	37.9	36.4	35.7	33.5	32.8	31.3	30.6	29.2	28.4	27.0	26.2
52.5°	30.6	29.2	27.7	27.0	25.5	24.8	23.3	21.1	21.1	19.7	18.2
55°	24.1	22.6	21.1	20.4	19.0	17.5	16.8	15.3	13.9	13.1	12.4
57.5°	18.2	16.8	16.0	14.6	13.1	12.4	10.9	9.5	8.7	8.0	7.3
60°	13.1	12.4	10.9	9.5	8.7	8.0	7.3	5.8	5.8	5.1	5.1
62.5°	9.5	8.0	7.3	5.8	5.8	5.1	4.4	4.4	3.6	3.6	2.9
65°	5.8	5.1	4.4	4.4	3.6	3.6	2.9	2.9	2.2	2.2	2.2
67.5°	3.6	2.9	2.9	2.9	2.2	2.2	2.2	1.5	1.5	1.5	0.7
70°	2.2	2.2	2.2	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7
72.5°	2.2	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7
80°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
82.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
85°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
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°	567.9	567.9	567.9	567.9
2.5°	500.8	495.7	494.2	503.0
5°	434.5	428.6	427.2	431.5
7.5°	375.4	368.1	370.3	371.0
10°	322.9	317.8	317.1	319.3
12.5°	277.7	274.1	274.1	277.7
15°	243.5	241.3	240.6	244.2
17.5°	214.3	213.6	213.6	216.5
20°	191.7	191.0	191.0	193.2
22.5°	171.3	171.3	171.3	172.0
25°	153.8	154.5	153.8	154.5
27.5°	137.8	138.5	138.5	138.5
30°	125.4	122.5	123.2	122.5
32.5°	107.2	106.4	107.2	107.2
35°	92.6	92.6	92.6	92.6
37.5°	79.5	79.5	79.5	79.5
40°	67.1	67.1	67.1	66.3
42.5°	55.4	55.4	55.4	54.7
45°	43.7	43.7	43.7	44.5
47.5°	34.3	34.3	33.5	34.3
50°	25.5	24.8	24.8	24.8
52.5°	18.2	17.5	16.8	16.8
55°	11.7	10.9	10.9	10.9
57.5°	7.3	7.3	6.6	6.6
60°	4.4	4.4	4.4	4.4
62.5°	2.9	2.9	2.9	2.2
65°	1.5	1.5	1.5	1.5
67.5°	0.7	0.7	0.7	0.7
70°	0.7	0.7	0.7	0.7
72.5°	0.7	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)