

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: P130190

Luminaire Tested: **HL612ICAT - HLM6930 - HL6FL - 73PS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130190
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33459)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6930 - HL6FL - 73PS
Description: HALO ALLSLOPE 6" 21W, Fresnel Glass Lens, White Polymer Trim Ring
"Dead Front", Wet Location - Showerlight using 40 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: 1155.3 lumens
Efficiency: N/A
Efficacy: 60.5 lumens/watt
Spacing Criteria (0/90/45): 1.41 / 0.8 / 1.07
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

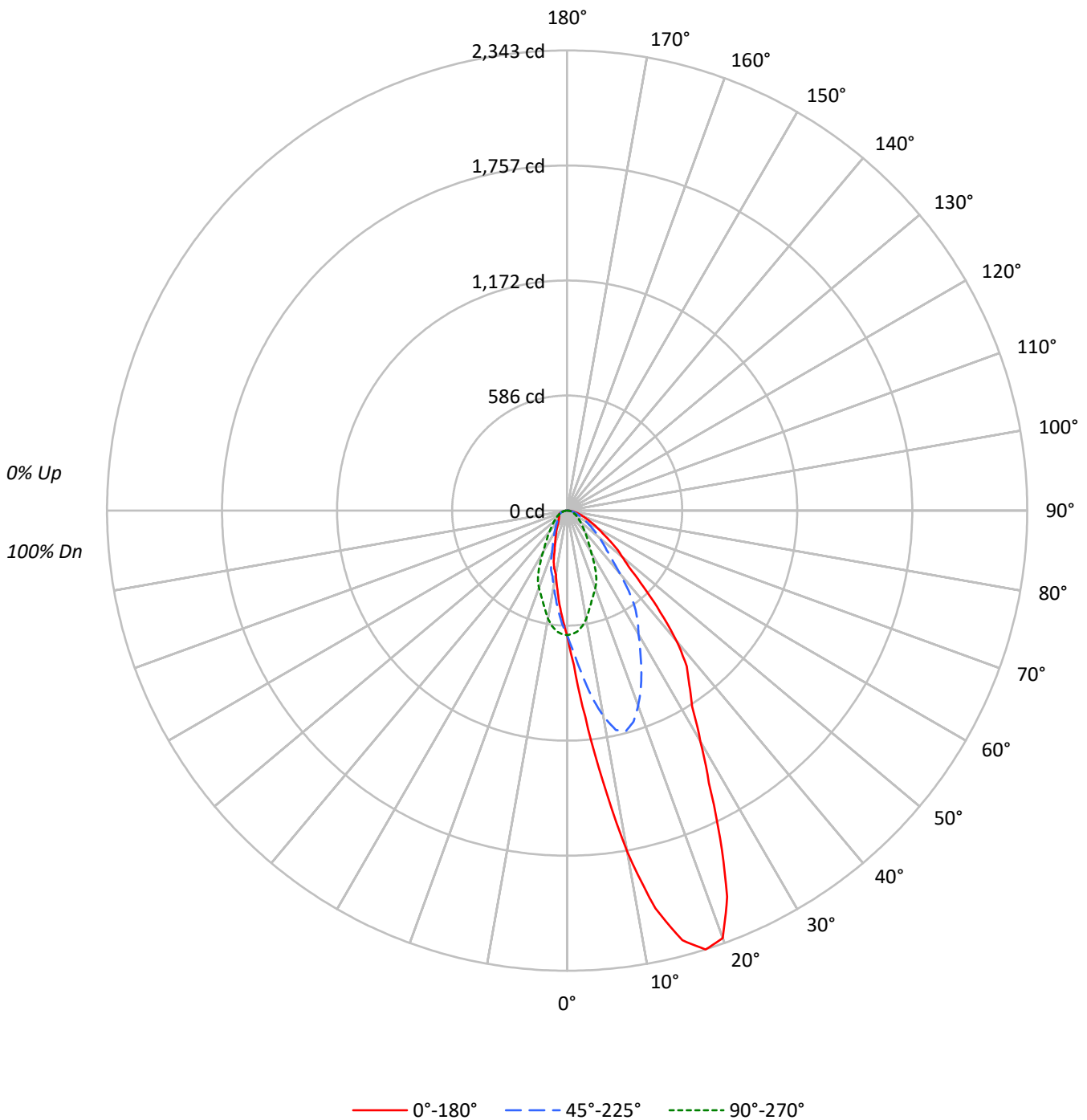
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89					89			
2	103	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	80	79					79			
3	96	88	81	76	94	86	80	76	84	79	74	81	77	73	79	75	72	70					70			
4	90	80	73	68	88	79	72	67	77	71	66	74	70	65	72	68	65	63					63			
5	84	74	66	61	82	72	66	60	71	64	60	69	63	59	67	62	59	57					57			
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	53	52					52			
7	74	63	55	50	73	62	55	50	60	54	50	59	53	49	58	53	49	47					47			
8	70	58	51	46	68	58	51	46	56	50	46	55	49	45	54	49	45	43					43			
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	45	42	40					40			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37					37			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37874	37874	37874
5°	61602	36089	27358
10°	102249	32371	19136
15°	130642	27621	15241
20°	134142	24274	10316
25°	107954	20287	7958
30°	81127	14652	6286
35°	66617	11194	5038
40°	55362	8920	4275
45°	36568	7290	3975
50°	25707	6072	3738
55°	19494	5190	3998
60°	14765	4603	3859
65°	11255	4022	3950
70°	8686	3339	3763
75°	6901	2872	3265
80°	4772	2386	2496
85°	3376	1544	1679



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.4	5.8
10°-20°	224.2	19.4
20°-30°	273.6	23.7
30°-40°	227.7	19.7
40°-50°	152.7	13.2
50°-60°	98.4	8.5
60°-70°	63.0	5.5
70°-80°	35.7	3.1
80°-90°	12.6	1.1
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°	565.3	48.9
0°-40°	793.0	68.6
0°-60°	1044.1	90.4
0°-90°	1155.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1155.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	634	634	634	634	634	
5°	1052	829	616	512	467	123
15°	2265	1161	479	314	264	626
25°	1842	895	346	166	136	839
35°	1084	601	182	101	82	683
45°	548	285	109	69	60	439
55°	258	155	69	53	53	237
65°	125	80	45	44	44	127
75°	60	39	25	27	28	62
85°	20	14	9	10	10	22
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°	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5
2.5°	788.6	772.8	774.5	776.1	756.3	755.4	748.0	746.3	727.3	714.8	714.0
5°	1052.0	1015.5	1017.2	1001.4	975.8	952.6	926.1	902.9	863.1	829.2	806.8
7.5°	1382.5	1327.0	1340.2	1307.9	1245.8	1203.6	1143.9	1088.4	1016.4	954.2	896.2
10°	1766.0	1703.9	1704.7	1659.1	1560.6	1474.4	1381.6	1293.8	1163.8	1063.6	972.5
12.5°	2074.1	2030.2	2012.8	1956.5	1828.1	1742.8	1609.4	1458.7	1293.8	1143.9	1022.2
15°	2264.6	2213.3	2201.7	2138.7	2007.9	1895.2	1730.4	1545.7	1346.9	1161.3	1019.7
17.5°	2343.3	2292.0	2279.5	2203.3	2052.6	1920.1	1726.2	1521.6	1311.2	1125.7	982.4
20°	2316.0	2229.0	2229.0	2129.6	1949.0	1799.1	1614.4	1413.1	1224.3	1056.9	934.3
22.5°	2128.8	2075.8	2042.6	1936.6	1762.7	1632.6	1447.9	1283.9	1124.9	980.7	872.2
25°	1842.2	1787.5	1761.8	1674.0	1517.5	1420.6	1277.3	1135.6	1014.7	894.6	800.2
27.5°	1563.0	1517.5	1504.2	1437.1	1322.0	1235.0	1123.2	1012.2	907.8	806.0	728.1
30°	1357.6	1316.2	1307.9	1249.9	1153.9	1059.4	990.7	900.4	815.9	727.3	661.8
32.5°	1183.7	1158.0	1144.7	1091.7	1016.4	962.5	893.8	818.4	746.3	667.6	606.3
35°	1084.3	1054.5	1042.9	999.8	928.6	880.5	818.4	749.6	677.6	601.4	539.2
37.5°	999.8	972.5	958.4	918.6	850.7	796.0	733.9	662.7	588.9	514.4	456.4
40°	868.9	841.6	835.8	794.4	732.2	680.9	622.9	552.5	481.3	415.8	369.4
42.5°	702.4	685.0	679.2	652.7	591.4	549.2	493.7	437.4	390.1	338.0	300.7
45°	548.3	531.8	521.0	498.7	457.2	435.7	391.8	352.9	318.9	284.9	260.9
47.5°	428.2	422.4	421.6	403.4	374.4	357.8	327.2	299.9	273.3	246.8	226.1
50°	364.5	353.7	352.9	344.6	323.0	309.8	283.3	259.3	239.4	216.2	196.3
52.5°	318.1	309.8	305.7	293.2	270.9	261.8	239.4	221.2	203.8	183.9	169.0
55°	258.4	254.3	251.0	242.7	225.3	215.4	201.3	184.7	170.6	154.9	143.3
57.5°	213.7	208.7	207.9	202.1	188.9	182.2	170.6	155.7	145.0	131.7	121.8
60°	180.6	176.4	173.9	169.0	158.2	153.2	144.1	131.7	123.4	111.0	104.4
62.5°	150.8	147.4	145.0	140.8	133.4	128.4	121.8	112.7	104.4	95.3	88.6
65°	125.1	122.6	120.9	117.6	111.0	107.7	101.9	95.3	87.8	80.3	75.4
67.5°	103.5	102.7	101.9	97.7	92.8	91.1	85.3	79.5	74.5	67.9	63.0
70°	86.1	85.3	84.5	82.0	77.9	75.4	71.2	66.3	62.1	56.3	53.0
72.5°	69.6	69.6	68.8	67.1	63.0	61.3	57.2	53.8	50.5	46.4	43.9
75°	59.6	58.8	58.0	55.5	53.0	51.4	48.9	45.6	42.2	38.9	36.4
77.5°	46.4	45.6	45.6	44.7	42.2	41.4	38.9	36.4	34.8	33.1	31.5
80°	34.8	34.0	34.0	33.1	31.5	30.6	29.8	27.3	26.5	24.0	23.2
82.5°	29.8	29.0	28.2	27.3	25.7	25.7	23.2	21.5	19.9	18.2	17.4
85°	19.9	19.1	19.1	19.1	18.2	18.2	16.6	15.7	15.7	14.1	13.3
87.5°	12.4	11.6	11.6	11.6	10.8	10.8	10.8	9.1	9.1	8.3	8.3
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°	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5
2.5°	704.1	694.1	685.0	675.1	660.2	659.3	641.1	628.7	616.3	622.1	604.7
5°	781.9	755.4	731.4	708.2	681.7	667.6	638.6	616.3	596.4	594.7	572.4
7.5°	841.6	795.2	757.1	722.3	683.4	661.8	624.6	593.1	566.6	556.6	528.5
10°	888.0	819.2	763.7	717.3	669.3	638.6	591.4	559.1	526.0	511.9	481.3
12.5°	908.7	820.0	754.6	704.1	642.8	606.3	559.1	516.9	482.9	468.0	440.7
15°	900.4	804.3	736.4	676.7	614.6	569.1	517.7	478.8	454.7	431.6	402.6
17.5°	870.6	775.3	705.7	642.0	579.0	535.1	486.2	447.3	415.8	398.4	370.3
20°	825.8	740.5	669.3	607.2	544.2	503.6	453.1	419.1	387.7	367.8	334.6
22.5°	774.5	690.8	624.6	566.6	506.9	468.8	425.8	389.3	352.9	333.8	297.4
25°	706.6	637.0	575.7	522.7	468.8	432.4	383.5	346.2	305.7	283.3	249.3
27.5°	649.4	584.0	530.1	481.3	424.9	384.3	333.8	294.1	257.6	236.1	209.6
30°	595.6	535.1	474.6	426.6	368.6	324.7	281.6	245.2	215.4	201.3	183.1
32.5°	545.0	475.5	420.0	366.1	311.4	269.2	235.2	209.6	188.0	177.3	161.5
35°	471.3	403.4	354.5	301.5	256.0	229.4	202.1	182.2	164.8	154.9	141.6
37.5°	388.5	333.0	283.3	248.5	217.8	199.6	176.4	159.0	144.1	136.7	125.9
40°	312.3	270.9	238.6	215.4	191.3	173.9	153.2	140.0	128.4	120.9	111.8
42.5°	265.1	236.1	207.9	188.0	166.5	152.4	135.8	122.6	112.7	106.9	98.6
45°	231.9	208.7	184.7	166.5	147.4	135.0	120.1	109.3	101.1	95.3	88.6
47.5°	202.1	181.4	164.0	146.6	130.0	120.1	106.9	96.9	88.6	85.3	78.7
50°	177.3	158.2	141.6	127.6	114.3	105.2	94.4	86.1	80.3	77.9	72.9
52.5°	152.4	136.7	122.6	111.8	100.2	92.8	83.7	77.0	72.9	70.4	67.1
55°	128.4	116.8	105.2	96.1	87.0	82.0	74.5	68.8	65.4	64.6	60.5
57.5°	110.2	99.4	91.9	83.7	77.0	72.1	66.3	63.0	59.6	58.8	56.3
60°	94.4	85.3	78.7	72.9	67.1	63.8	59.6	56.3	53.0	53.0	51.4
62.5°	80.3	72.9	67.9	63.0	58.0	55.5	52.2	49.7	48.0	48.0	47.2
65°	69.6	62.1	58.0	54.7	51.4	49.7	46.4	44.7	43.1	43.1	42.2
67.5°	58.8	53.0	49.7	47.2	43.9	42.2	39.8	38.9	38.1	37.3	36.4
70°	49.7	45.6	42.2	39.8	37.3	36.4	34.0	33.1	32.3	33.1	32.3
72.5°	41.4	38.1	35.6	34.0	32.3	31.5	29.8	29.0	28.2	28.2	28.2
75°	34.0	31.5	29.8	28.2	27.3	26.5	25.7	24.8	24.0	24.8	24.0
77.5°	29.0	26.5	24.8	24.0	23.2	22.4	21.5	21.5	20.7	20.7	20.7
80°	22.4	20.7	19.9	18.2	18.2	17.4	17.4	17.4	16.6	17.4	17.4
82.5°	16.6	14.9	14.1	14.1	13.3	13.3	13.3	13.3	12.4	13.3	13.3
85°	12.4	11.6	10.8	9.9	9.9	9.9	9.9	9.1	9.1	9.1	9.1
87.5°	7.5	6.6	5.8	5.8	5.0	5.8	5.0	5.0	5.0	5.0	5.0
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5
2.5°	593.9	588.9	588.9	569.9	566.6	578.2	564.9	555.0	560.8	553.3	556.6
5°	555.8	545.9	538.4	519.4	512.7	511.9	498.7	483.7	483.7	479.6	478.8
7.5°	506.9	492.0	480.4	460.5	451.4	448.1	433.2	417.5	415.8	408.4	405.9
10°	455.6	442.3	426.6	406.7	396.8	389.3	371.1	359.5	353.7	346.2	342.9
12.5°	410.8	397.6	381.9	357.8	347.1	342.9	328.0	319.7	318.1	313.1	311.4
15°	376.9	357.8	343.8	324.7	316.4	313.9	299.9	290.7	286.6	280.0	273.3
17.5°	345.4	325.5	313.1	294.1	283.3	273.3	256.0	243.5	232.8	229.4	223.6
20°	311.4	289.9	270.0	249.3	234.4	224.5	207.9	198.8	196.3	190.5	186.4
22.5°	261.8	246.8	225.3	207.1	195.5	190.5	180.6	173.1	170.6	165.7	163.2
25°	223.6	205.4	192.2	180.6	170.6	166.5	157.4	151.6	149.1	145.0	143.3
27.5°	192.2	178.9	169.0	158.2	149.9	146.6	139.2	133.4	130.9	126.7	125.1
30°	167.3	157.4	149.1	138.3	132.5	128.4	122.6	116.8	115.1	112.7	110.2
32.5°	148.3	140.0	131.7	122.6	116.8	113.5	108.5	103.5	101.9	99.4	97.7
35°	131.7	123.4	116.8	106.9	103.5	101.1	96.1	91.1	90.3	87.8	86.1
37.5°	116.0	110.2	103.5	96.1	91.9	90.3	86.1	82.0	81.2	78.7	77.9
40°	102.7	97.7	92.8	84.5	82.8	82.0	77.9	73.7	73.7	72.1	71.2
42.5°	91.1	87.8	82.8	78.7	75.4	74.5	71.2	68.8	68.8	67.1	66.3
45°	82.0	79.5	76.2	72.1	69.6	68.8	66.3	63.8	63.8	63.0	63.0
47.5°	75.4	72.1	69.6	66.3	63.8	63.8	61.3	59.6	59.6	58.8	58.8
50°	68.8	67.1	64.6	62.1	59.6	59.6	57.2	55.5	56.3	56.3	55.5
52.5°	63.0	62.1	60.5	58.0	56.3	56.3	54.7	53.0	53.8	53.0	53.0
55°	58.0	58.0	56.3	54.7	53.0	53.0	51.4	50.5	51.4	52.2	52.2
57.5°	54.7	53.8	53.0	51.4	51.4	51.4	50.5	49.7	50.5	50.5	50.5
60°	49.7	50.5	49.7	48.9	48.0	48.9	48.0	46.4	47.2	47.2	48.0
62.5°	45.6	46.4	46.4	46.4	46.4	46.4	46.4	45.6	47.2	48.0	48.0
65°	41.4	42.2	42.2	42.2	42.2	43.9	43.1	42.2	43.1	43.9	43.9
67.5°	36.4	37.3	37.3	37.3	37.3	38.1	38.1	37.3	38.1	38.9	39.8
70°	31.5	33.1	33.1	33.1	34.0	34.8	34.8	34.0	35.6	36.4	38.1
72.5°	27.3	28.2	29.0	29.0	29.8	31.5	31.5	31.5	32.3	32.3	32.3
75°	24.0	24.8	24.8	25.7	25.7	27.3	27.3	27.3	28.2	28.2	28.2
77.5°	20.7	20.7	21.5	21.5	22.4	23.2	23.2	23.2	24.0	24.0	24.0
80°	16.6	17.4	17.4	18.2	18.2	18.2	18.2	18.2	19.1	19.1	19.9
82.5°	12.4	13.3	13.3	14.1	14.1	14.1	14.1	14.1	14.9	14.9	14.9
85°	9.1	9.1	9.1	9.9	9.1	9.9	9.9	9.9	9.9	9.9	9.9
87.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.1	5.0	4.1
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):

	165°	170°	175°	180°
0°	634.5	634.5	634.5	634.5
2.5°	555.0	550.0	545.9	546.7
5°	476.3	465.5	471.3	467.2
7.5°	404.2	398.4	395.1	391.8
10°	339.6	329.7	332.2	330.5
12.5°	307.3	304.0	304.0	302.3
15°	271.7	266.7	265.1	264.2
17.5°	216.2	212.9	212.1	211.2
20°	184.7	180.6	178.9	178.1
22.5°	160.7	157.4	156.6	154.9
25°	141.6	137.5	137.5	135.8
27.5°	122.6	120.9	120.1	119.3
30°	109.3	106.9	106.0	105.2
32.5°	98.6	94.4	93.6	92.8
35°	84.5	83.7	82.0	82.0
37.5°	77.0	75.4	75.4	74.5
40°	70.4	68.8	67.9	67.1
42.5°	66.3	64.6	63.8	63.8
45°	62.1	61.3	60.5	59.6
47.5°	58.8	58.0	57.2	56.3
50°	55.5	54.7	54.7	53.0
52.5°	53.8	53.8	53.8	53.0
55°	53.0	53.0	53.8	53.0
57.5°	50.5	50.5	49.7	48.9
60°	48.9	48.9	48.9	47.2
62.5°	48.0	47.2	48.0	47.2
65°	43.9	43.9	44.7	43.9
67.5°	41.4	41.4	41.4	40.6
70°	38.1	38.1	37.3	37.3
72.5°	33.1	33.1	33.1	33.1
75°	28.2	28.2	28.2	28.2
77.5°	24.0	23.2	23.2	23.2
80°	19.1	18.2	18.2	18.2
82.5°	14.9	14.9	14.9	14.1
85°	9.9	9.9	9.9	9.9
87.5°	4.1	4.1	4.1	4.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)