

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: P130184

Luminaire Tested: **HL612ICAT - HLM6940 - HL6FL - 70PS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130184
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33455)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6940 - HL6FL - 70PS
Description: HALO ALLSLOPE 6" 21W, Albalite 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 900.3 lumens
Efficiency: N/A
Efficacy: 47.1 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.05 / 1.21
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

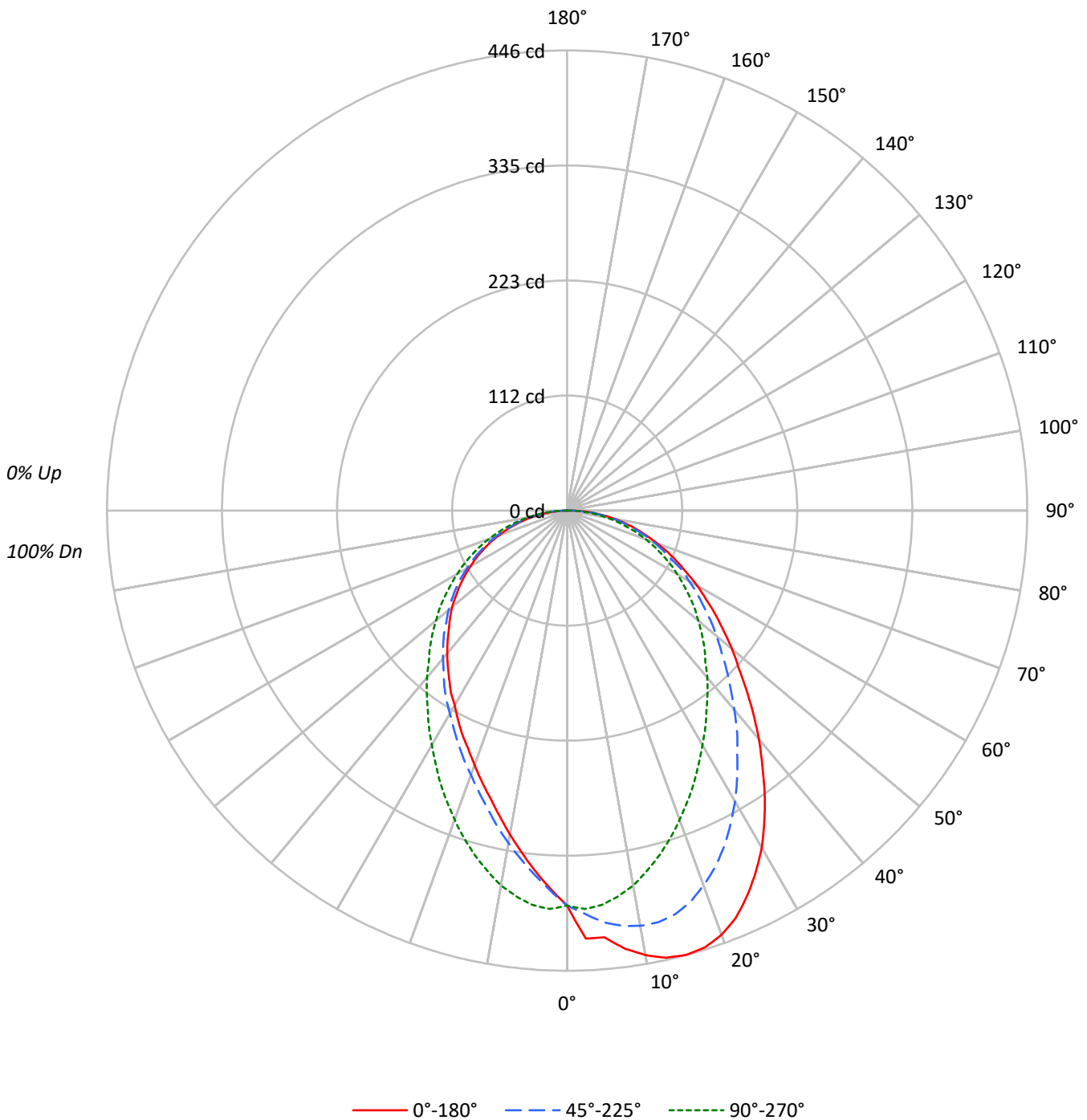
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	94	91	88	90	88	86	84
2	99	91	84	78	96	89	83	78	85	80	76	82	78	74	79	76	72	70
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	60
4	83	71	63	56	81	70	62	56	68	61	55	65	59	54	63	58	53	51
5	77	64	55	49	75	63	55	48	61	54	48	59	52	47	57	51	47	45
6	71	58	49	43	69	57	49	43	55	48	42	54	47	42	52	46	42	40
7	66	53	44	38	64	52	44	38	50	43	38	49	42	37	48	42	37	35
8	62	48	40	34	60	48	40	34	46	39	34	45	39	34	44	38	34	32
9	58	45	36	31	56	44	36	31	43	36	31	42	35	31	41	35	30	29
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	22850	22850	22850
5°	24313	22468	20571
10°	25331	21359	18458
15°	25718	19943	16626
20°	25340	18465	15192
25°	24167	17053	14064
30°	22540	15674	13015
35°	20502	14462	12245
40°	18426	13463	11513
45°	16380	12545	10818
50°	14705	11701	10262
55°	13217	10909	9581
60°	11895	10080	8862
65°	10590	9168	8088
70°	9351	8131	7102
75°	8048	6867	5906
80°	6486	5334	4443
85°	4411	3308	2358



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.0	4.0
10°-20°	99.6	11.1
20°-30°	140.8	15.6
30°-40°	155.9	17.3
40°-50°	150.4	16.7
50°-60°	131.4	14.6
60°-70°	101.4	11.3
70°-80°	63.2	7.0
80°-90°	21.8	2.4
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°	276.4	30.7
0°-40°	432.2	48.0
0°-60°	714.0	79.3
0°-90°	900.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	900.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	383	383	383	383	383	
5°	415	400	384	355	351	40
15°	446	405	346	298	288	126
25°	412	360	291	249	240	189
35°	334	287	235	208	199	208
45°	246	219	188	169	162	190
55°	175	161	145	132	127	157
65°	118	111	102	93	90	117
75°	70	67	59	54	51	73
85°	26	24	20	16	14	28
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°	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8
2.5°	415.2	395.7	402.2	394.8	393.9	389.3	393.9	396.7	389.3	391.1	392.0
5°	415.2	411.5	416.1	408.7	407.8	411.5	406.9	407.8	398.5	400.4	399.5
7.5°	428.2	423.6	429.1	420.8	419.8	421.7	416.1	417.1	405.9	405.9	405.0
10°	437.5	433.7	438.4	429.1	427.3	429.1	422.6	422.6	409.7	408.7	405.9
12.5°	443.9	440.2	443.9	434.7	432.8	433.7	425.4	423.6	410.6	408.7	404.1
15°	445.8	442.1	446.7	435.6	433.7	432.8	424.5	422.6	407.8	405.0	399.5
17.5°	443.9	440.2	443.9	432.8	430.0	428.2	419.8	417.1	402.2	397.6	391.1
20°	437.5	431.9	437.5	426.3	422.6	420.8	410.6	407.8	392.0	386.5	380.0
22.5°	427.3	423.6	427.3	415.2	412.4	409.7	399.5	395.7	380.0	374.4	366.1
25°	412.4	410.6	407.8	401.3	397.6	395.7	385.6	380.9	365.2	359.6	351.3
27.5°	395.7	393.9	395.7	383.7	380.9	377.2	368.9	364.2	348.5	342.9	333.7
30°	377.2	373.5	376.3	365.2	363.3	357.7	349.4	345.7	329.9	325.3	316.0
32.5°	355.9	354.0	355.9	344.8	342.0	338.3	329.9	326.2	311.4	306.8	299.4
35°	333.7	329.9	332.7	322.5	320.7	316.0	308.6	304.9	291.9	287.3	280.8
37.5°	310.5	307.7	310.5	301.2	299.4	294.7	289.2	284.5	272.5	270.6	263.2
40°	289.2	286.4	288.2	280.8	278.0	275.3	269.7	265.1	254.9	252.1	241.0
42.5°	266.9	265.1	266.9	258.6	256.7	253.9	249.3	246.5	237.3	234.5	228.9
45°	245.6	244.7	246.5	240.0	237.3	235.4	230.8	228.9	219.7	218.7	214.1
47.5°	225.2	229.8	226.1	220.6	218.7	215.9	213.2	212.2	203.9	203.0	198.3
50°	208.5	206.7	206.7	202.0	202.0	199.3	197.4	195.6	189.1	189.1	184.4
52.5°	190.9	190.0	190.0	186.3	185.4	184.4	181.7	180.7	174.2	175.2	171.5
55°	175.2	177.9	174.2	170.5	170.5	168.7	167.8	166.8	161.3	161.3	157.6
57.5°	159.4	158.5	159.4	155.7	155.7	153.9	152.9	152.9	147.4	149.2	145.5
60°	145.5	143.7	144.6	141.8	140.9	140.9	141.8	139.9	135.3	136.2	133.5
62.5°	130.7	129.8	131.6	127.9	127.9	127.9	127.0	127.0	122.3	126.0	121.4
65°	117.7	116.8	118.6	115.9	115.9	114.9	114.0	114.0	111.2	111.2	110.3
67.5°	105.7	104.7	106.6	103.8	103.8	102.9	102.9	101.9	99.2	100.1	98.2
70°	92.7	92.7	93.6	91.8	91.8	90.8	90.8	89.9	88.0	89.0	87.1
72.5°	80.6	80.6	81.6	79.7	79.7	78.8	78.8	78.8	76.9	77.9	76.0
75°	69.5	69.5	69.5	68.6	68.6	67.7	67.7	67.7	65.8	66.7	65.8
77.5°	58.4	58.4	58.4	57.5	57.5	56.5	56.5	56.5	54.7	55.6	54.7
80°	47.3	47.3	47.3	46.3	46.3	45.4	45.4	45.4	44.5	45.4	44.5
82.5°	36.1	36.1	37.1	36.1	36.1	35.2	35.2	35.2	34.3	34.3	34.3
85°	26.0	26.0	26.9	26.0	25.0	25.0	25.0	24.1	24.1	24.1	24.1
87.5°	16.7	16.7	16.7	16.7	15.8	15.8	14.8	14.8	14.8	14.8	14.8
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°	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8
2.5°	393.0	388.3	389.3	385.6	386.5	384.6	383.7	386.5	378.1	384.6	380.0
5°	399.5	393.0	393.0	387.4	387.4	383.7	380.9	383.7	372.6	378.1	372.6
7.5°	402.2	394.8	393.0	386.5	385.6	380.0	376.3	377.2	366.1	369.8	362.4
10°	403.2	393.9	391.1	382.8	380.0	374.4	367.9	368.9	355.9	359.6	351.3
12.5°	399.5	389.3	385.6	376.3	371.7	365.2	357.7	357.7	343.8	347.6	339.2
15°	393.9	382.8	377.2	367.0	362.4	355.0	346.6	345.7	332.7	333.7	325.3
17.5°	384.6	372.6	365.2	355.0	350.3	342.0	333.7	332.7	319.7	320.7	312.3
20°	372.6	359.6	353.1	342.9	342.0	329.0	320.7	318.8	304.9	306.8	298.4
22.5°	359.6	346.6	339.2	328.1	322.5	314.2	305.8	304.9	291.9	291.9	284.5
25°	342.9	330.9	324.4	313.3	307.7	300.3	291.0	291.0	278.0	278.0	271.6
27.5°	327.2	315.1	307.7	297.5	292.9	291.0	277.1	276.2	264.1	265.1	258.6
30°	309.6	301.2	291.9	281.8	277.1	270.6	263.2	262.3	251.2	247.5	245.6
32.5°	292.9	281.8	276.2	266.9	262.3	255.8	249.3	249.3	238.2	240.0	233.6
35°	275.3	270.6	259.5	251.2	247.5	242.8	235.4	235.4	226.1	227.1	222.4
37.5°	257.7	248.4	248.4	237.3	229.8	228.9	223.4	223.4	214.1	215.9	211.3
40°	241.9	233.6	228.9	223.4	219.7	215.9	211.3	211.3	203.0	204.8	200.2
42.5°	226.1	217.8	215.0	209.5	206.7	203.0	198.3	198.3	191.8	192.8	189.1
45°	211.3	203.9	202.0	199.3	193.7	191.8	187.2	188.1	180.7	181.7	178.9
47.5°	196.5	190.0	188.1	183.5	181.7	178.9	175.2	177.0	169.6	170.5	168.7
50°	183.5	177.0	176.1	171.5	170.5	168.7	165.0	165.9	160.3	161.3	159.4
52.5°	170.5	165.0	164.0	160.3	159.4	156.6	153.9	155.7	150.1	151.1	148.3
55°	157.6	152.9	152.0	148.3	148.3	146.4	142.7	144.6	139.0	140.9	138.1
57.5°	144.6	141.8	139.9	137.2	137.2	135.3	132.5	133.5	129.8	129.8	128.8
60°	133.5	128.8	129.8	126.0	126.0	125.1	121.4	123.3	118.6	119.6	118.6
62.5°	121.4	117.7	117.7	115.9	114.9	114.0	111.2	113.1	108.4	109.4	107.5
65°	110.3	107.5	106.6	104.7	103.8	102.9	101.0	101.9	98.2	99.2	98.2
67.5°	98.2	96.4	95.5	93.6	93.6	92.7	89.9	91.8	88.0	89.0	88.0
70°	87.1	85.3	85.3	82.5	82.5	81.6	79.7	80.6	77.9	77.9	77.9
72.5°	76.9	74.1	73.2	72.3	72.3	71.4	69.5	70.4	67.7	67.7	66.7
75°	65.8	63.9	63.9	62.1	61.2	61.2	59.3	59.3	57.5	57.5	56.5
77.5°	54.7	52.8	52.8	51.0	51.0	51.0	49.1	49.1	47.3	47.3	47.3
80°	44.5	42.6	42.6	40.8	40.8	40.8	38.9	38.9	37.1	37.1	37.1
82.5°	34.3	32.4	32.4	31.5	30.6	30.6	29.7	28.7	27.8	27.8	27.8
85°	24.1	23.2	23.2	22.2	21.3	21.3	19.5	19.5	18.5	18.5	18.5
87.5°	13.9	13.9	13.0	13.0	13.0	12.0	11.1	10.2	9.3	9.3	10.2
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°	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8	382.8
2.5°	376.3	375.4	376.3	379.1	376.3	368.9	376.3	371.7	367.9	369.8	366.1
5°	367.0	366.1	365.2	367.0	362.4	355.0	362.4	357.7	352.2	352.2	350.3
7.5°	356.8	355.0	353.1	354.0	349.4	341.1	346.6	342.9	338.3	339.2	334.6
10°	345.7	342.0	340.1	340.1	334.6	327.2	331.8	328.1	322.5	323.5	318.8
12.5°	332.7	329.0	327.2	326.2	320.7	313.3	317.9	313.3	308.6	308.6	304.0
15°	316.0	315.1	313.3	312.3	306.8	298.4	304.0	298.4	293.8	294.7	290.1
17.5°	305.8	301.2	298.4	297.5	292.9	285.5	290.1	285.5	280.8	280.8	276.2
20°	292.9	288.2	284.5	284.5	279.0	272.5	277.1	273.4	266.9	268.8	264.1
22.5°	279.0	274.3	272.5	271.6	266.0	261.4	265.1	261.4	255.8	255.8	252.1
25°	266.0	262.3	260.4	259.5	253.9	249.3	253.0	250.2	244.7	245.6	241.0
27.5°	253.9	249.3	247.5	247.5	242.8	238.2	241.9	238.2	233.6	234.5	229.8
30°	241.0	237.3	236.3	236.3	230.8	227.1	229.8	227.1	222.4	223.4	219.7
32.5°	229.8	227.1	225.2	225.2	220.6	217.8	220.6	217.8	214.1	214.1	210.4
35°	218.7	215.0	214.1	217.8	210.4	207.6	209.5	207.6	203.9	203.9	200.2
37.5°	207.6	204.8	203.9	204.8	199.3	196.5	200.2	198.3	194.6	194.6	189.1
40°	196.5	194.6	193.7	193.7	190.0	187.2	190.9	188.1	185.4	185.4	181.7
42.5°	186.3	183.5	183.5	184.4	179.8	177.9	180.7	178.9	175.2	175.2	172.4
45°	177.0	174.2	173.3	174.2	175.2	168.7	171.5	170.5	163.1	166.8	164.0
47.5°	166.8	164.0	164.0	164.0	161.3	158.5	161.3	160.3	156.6	157.6	154.8
50°	157.6	154.8	153.9	154.8	151.1	150.1	152.9	151.1	145.5	148.3	146.4
52.5°	146.4	144.6	144.6	145.5	142.7	140.9	143.7	141.8	139.0	139.0	137.2
55°	137.2	135.3	135.3	136.2	133.5	131.6	133.5	132.5	129.8	129.8	127.9
57.5°	127.0	125.1	126.0	126.0	123.3	122.3	124.2	122.3	120.5	120.5	118.6
60°	116.8	114.9	115.9	115.9	114.0	112.1	114.0	113.1	110.3	110.3	109.4
62.5°	106.6	105.7	105.7	105.7	103.8	102.9	103.8	102.9	101.0	101.0	99.2
65°	97.3	95.5	95.5	95.5	93.6	92.7	93.6	92.7	91.8	90.8	89.9
67.5°	87.1	86.2	85.3	85.3	83.4	83.4	83.4	82.5	81.6	80.6	79.7
70°	76.9	75.1	75.1	75.1	74.1	73.2	73.2	72.3	72.3	71.4	70.4
72.5°	66.7	64.9	65.8	64.9	63.9	63.0	63.0	63.0	62.1	61.2	61.2
75°	56.5	55.6	55.6	55.6	53.8	53.8	53.8	52.8	51.9	51.9	51.0
77.5°	46.3	45.4	47.3	45.4	44.5	43.6	43.6	43.6	41.7	41.7	41.7
80°	37.1	35.2	36.1	36.1	34.3	34.3	33.4	33.4	32.4	32.4	32.4
82.5°	26.9	26.9	26.9	26.0	25.0	25.0	25.0	24.1	23.2	23.2	23.2
85°	17.6	17.6	16.7	16.7	16.7	15.8	15.8	14.8	13.9	13.9	13.9
87.5°	8.3	8.3	8.3	8.3	7.4	7.4	7.4	6.5	6.5	5.6	6.5
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):

	165°	170°	175°	180°
0°	382.8	382.8	382.8	382.8
2.5°	365.2	367.9	368.9	367.0
5°	349.4	352.2	352.2	351.3
7.5°	332.7	337.4	336.4	334.6
10°	317.0	321.6	320.7	318.8
12.5°	302.1	305.8	304.9	303.1
15°	287.3	291.9	291.0	288.2
17.5°	274.3	278.0	278.0	275.3
20°	262.3	266.0	265.1	262.3
22.5°	251.2	253.9	253.0	250.2
25°	240.0	248.4	241.9	240.0
27.5°	228.9	232.6	231.7	228.9
30°	218.7	221.5	220.6	217.8
32.5°	209.5	213.2	211.3	209.5
35°	199.3	203.0	201.1	199.3
37.5°	190.9	193.7	191.8	190.0
40°	180.7	184.4	183.5	180.7
42.5°	172.4	175.2	174.2	171.5
45°	164.0	166.8	165.9	162.2
47.5°	154.8	157.6	155.7	153.9
50°	145.5	148.3	147.4	145.5
52.5°	137.2	139.9	138.1	136.2
55°	127.9	130.7	128.8	127.0
57.5°	118.6	121.4	119.6	117.7
60°	108.4	111.2	109.4	108.4
62.5°	99.2	101.9	100.1	99.2
65°	89.9	91.8	90.8	89.9
67.5°	80.6	82.5	80.6	80.6
70°	70.4	72.3	71.4	70.4
72.5°	60.2	62.1	62.1	61.2
75°	51.0	51.9	51.9	51.0
77.5°	41.7	42.6	41.7	41.7
80°	32.4	32.4	32.4	32.4
82.5°	23.2	24.1	23.2	23.2
85°	13.9	14.8	13.9	13.9
87.5°	5.6	6.5	5.6	6.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)