

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: P130192

Luminaire Tested: **HL612ICAT - HLM6940 - HL6FL - 73PS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130192  
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 - HLM6940 - 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 / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

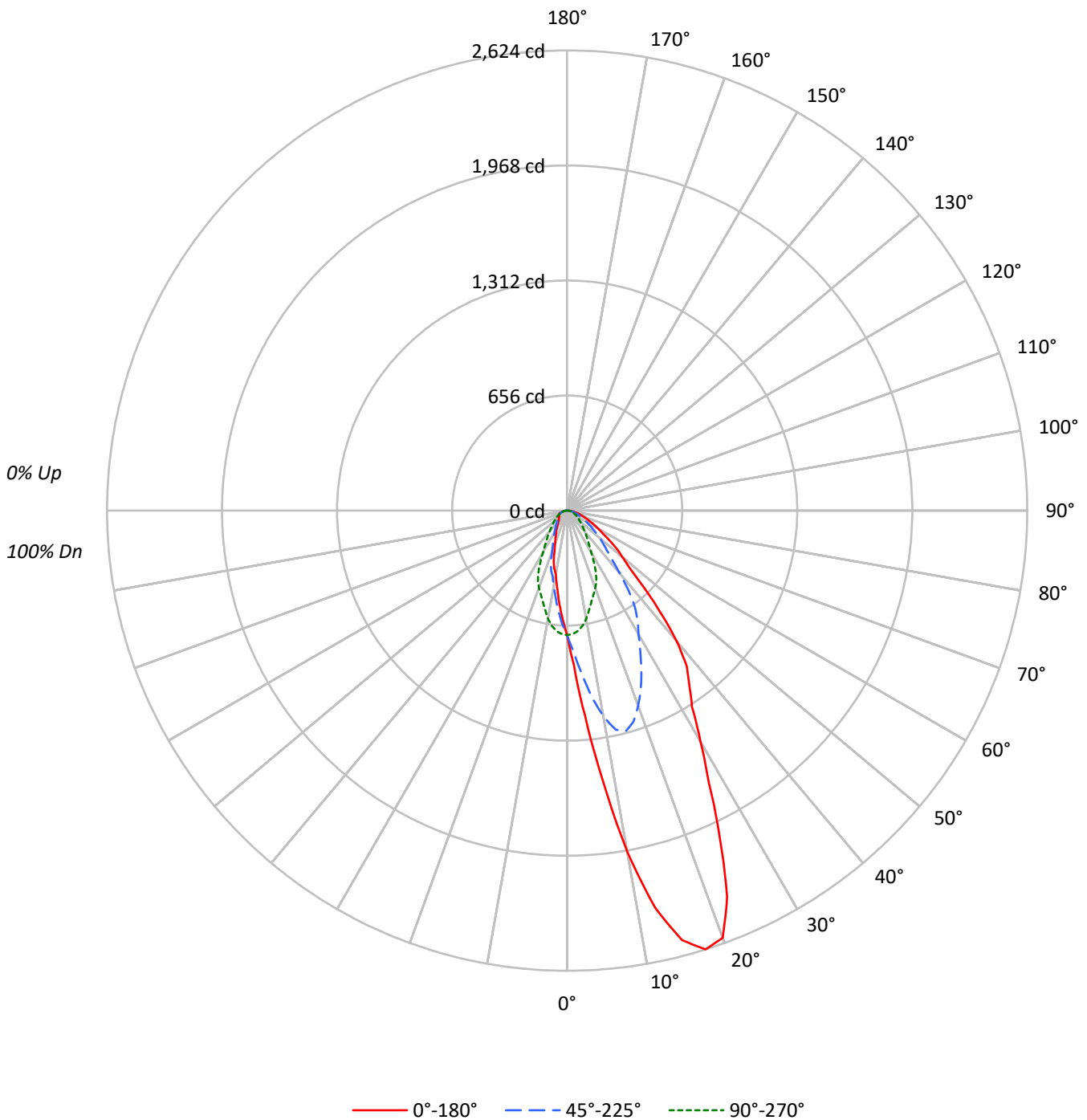
Lumens per Lamp: N/A  
Luminaire Lumens: 1293.5 lumens  
Efficiency: N/A  
Efficacy: 67.7 lumens/watt  
Spacing Criteria (0/90/45): 1.41 / 0.8 / 1.07  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct  
  
Input Watts (W): 19.1  
Input Voltage (V): NR  
Input Current (Ain): 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	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°	42404	42404	42404
5°	68969	40405	30626
10°	114477	36245	21423
15°	146270	30921	17064
20°	150186	27182	11549
25°	120863	22714	8913
30°	90831	16403	7039
35°	74579	12533	5640
40°	61982	9984	4785
45°	40943	8163	4455
50°	28775	6799	4189
55°	21825	5809	4481
60°	16531	5159	4325
65°	12596	4508	4427
70°	9725	3743	4207
75°	7735	3219	3648
80°	5334	2674	2797
85°	3783	1730	1883



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	75.5	5.8
10°-20°	251.0	19.4
20°-30°	306.4	23.7
30°-40°	254.9	19.7
40°-50°	171.0	13.2
50°-60°	110.2	8.5
60°-70°	70.5	5.5
70°-80°	39.9	3.1
80°-90°	14.1	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°	632.9	48.9
0°-40°	887.8	68.6
0°-60°	1168.9	90.4
0°-90°	1293.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1293.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	710	710	710	710	710	
5°	1178	928	690	573	523	137
15°	2536	1300	536	352	296	701
25°	2062	1002	388	186	152	939
35°	1214	673	204	113	92	764
45°	614	319	122	77	67	491
55°	289	173	77	59	59	265
65°	140	90	50	49	49	142
75°	67	44	28	31	32	70
85°	22	16	10	11	11	24
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°	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4
2.5°	882.9	865.2	867.1	869.0	846.7	845.8	837.4	835.6	814.2	800.3	799.4
5°	1177.8	1137.0	1138.8	1121.2	1092.5	1066.5	1036.8	1010.8	966.3	928.3	903.3
7.5°	1547.8	1485.7	1500.5	1464.3	1394.8	1347.5	1280.7	1218.6	1137.9	1068.3	1003.4
10°	1977.2	1907.6	1908.5	1857.5	1747.2	1650.7	1546.9	1448.6	1303.0	1190.8	1088.7
12.5°	2322.2	2273.0	2253.5	2190.5	2046.7	1951.2	1801.9	1633.1	1448.6	1280.7	1144.4
15°	2535.5	2478.0	2465.0	2394.5	2248.0	2121.8	1937.3	1730.5	1507.9	1300.2	1141.6
17.5°	2623.6	2566.1	2552.1	2466.8	2298.0	2149.7	1932.7	1703.6	1468.0	1260.3	1099.9
20°	2593.0	2495.6	2495.6	2384.3	2182.1	2014.3	1807.5	1582.1	1370.7	1183.3	1046.1
22.5°	2383.4	2324.0	2286.9	2168.2	1973.5	1827.9	1621.1	1437.4	1259.4	1098.0	976.5
25°	2062.5	2001.3	1972.5	1874.2	1699.0	1590.5	1430.0	1271.4	1136.0	1001.6	895.8
27.5°	1750.0	1699.0	1684.1	1609.0	1480.1	1382.7	1257.5	1133.3	1016.4	902.3	815.2
30°	1520.0	1473.6	1464.3	1399.4	1291.8	1186.1	1109.1	1008.1	913.5	814.2	741.0
32.5°	1325.2	1296.5	1281.6	1222.3	1137.9	1077.6	1000.6	916.3	835.6	747.5	678.8
35°	1213.9	1180.6	1167.6	1119.3	1039.6	985.8	916.3	839.3	758.6	673.3	603.7
37.5°	1119.3	1088.7	1073.0	1028.5	952.4	891.2	821.7	741.9	659.4	575.9	511.0
40°	972.8	942.2	935.7	889.4	819.8	762.3	697.4	618.6	538.8	465.5	413.6
42.5°	786.4	766.9	760.5	730.8	662.1	614.9	552.7	489.7	436.8	378.4	336.6
45°	613.9	595.4	583.3	558.3	511.9	487.8	438.7	395.1	357.0	319.0	292.1
47.5°	479.5	473.0	472.0	451.6	419.2	400.6	366.3	335.7	306.0	276.4	253.2
50°	408.0	396.0	395.1	385.8	361.7	346.8	317.2	290.3	268.0	242.0	219.8
52.5°	356.1	346.8	342.2	328.3	303.3	293.1	268.0	247.6	228.1	205.9	189.2
55°	289.3	284.7	281.0	271.7	252.2	241.1	225.4	206.8	191.0	173.4	160.4
57.5°	239.3	233.7	232.8	226.3	211.4	204.0	191.0	174.3	162.3	147.5	136.3
60°	202.2	197.5	194.7	189.2	177.1	171.6	161.4	147.5	138.2	124.3	116.8
62.5°	168.8	165.1	162.3	157.7	149.3	143.7	136.3	126.1	116.8	106.6	99.2
65°	140.0	137.3	135.4	131.7	124.3	120.6	114.1	106.6	98.3	90.0	84.4
67.5°	115.9	115.0	114.1	109.4	103.9	102.0	95.5	89.0	83.5	76.0	70.5
70°	96.4	95.5	94.6	91.8	87.2	84.4	79.8	74.2	69.6	63.1	59.4
72.5°	77.9	77.9	77.0	75.1	70.5	68.6	64.0	60.3	56.6	51.9	49.2
75°	66.8	65.8	64.9	62.1	59.4	57.5	54.7	51.0	47.3	43.6	40.8
77.5°	51.9	51.0	51.0	50.1	47.3	46.4	43.6	40.8	38.9	37.1	35.2
80°	38.9	38.0	38.0	37.1	35.2	34.3	33.4	30.6	29.7	26.9	26.0
82.5°	33.4	32.5	31.5	30.6	28.7	28.7	26.0	24.1	22.3	20.4	19.5
85°	22.3	21.3	21.3	21.3	20.4	20.4	18.5	17.6	17.6	15.8	14.8
87.5°	13.9	13.0	13.0	13.0	12.1	12.1	12.1	10.2	10.2	9.3	9.3
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°	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4
2.5°	788.3	777.1	766.9	755.8	739.1	738.2	717.8	703.9	690.0	696.5	677.0
5°	875.4	845.8	818.9	792.9	763.2	747.5	715.0	690.0	667.7	665.9	640.8
7.5°	942.2	890.3	847.6	808.7	765.1	741.0	699.2	664.0	634.3	623.2	591.7
10°	994.2	917.2	855.0	803.1	749.3	715.0	662.1	626.0	588.9	573.1	538.8
12.5°	1017.3	918.1	844.8	788.3	719.6	678.8	626.0	578.7	540.7	524.0	493.4
15°	1008.1	900.5	824.4	757.7	688.1	637.1	579.6	536.0	509.1	483.2	450.7
17.5°	974.7	868.0	790.1	718.7	648.2	599.1	544.4	500.8	465.5	446.1	414.5
20°	924.6	829.1	749.3	679.8	609.3	563.8	507.3	469.3	434.0	411.8	374.7
22.5°	867.1	773.4	699.2	634.3	567.6	524.9	476.7	435.9	395.1	373.7	332.9
25°	791.1	713.2	644.5	585.2	524.9	484.1	429.4	387.6	342.2	317.2	279.1
27.5°	727.1	653.8	593.5	538.8	475.7	430.3	373.7	329.2	288.4	264.3	234.6
30°	666.8	599.1	531.4	477.6	412.7	363.5	315.3	274.5	241.1	225.4	205.0
32.5°	610.2	532.3	470.2	409.9	348.7	301.4	263.4	234.6	210.5	198.5	180.8
35°	527.7	451.6	396.9	337.6	286.6	256.9	226.3	204.0	184.5	173.4	158.6
37.5°	434.9	372.8	317.2	278.2	243.9	223.5	197.5	178.1	161.4	153.0	141.0
40°	349.6	303.3	267.1	241.1	214.2	194.7	171.6	156.7	143.7	135.4	125.2
42.5°	296.8	264.3	232.8	210.5	186.4	170.6	152.1	137.3	126.1	119.6	110.4
45°	259.7	233.7	206.8	186.4	165.1	151.2	134.5	122.4	113.1	106.6	99.2
47.5°	226.3	203.1	183.6	164.1	145.6	134.5	119.6	108.5	99.2	95.5	88.1
50°	198.5	177.1	158.6	142.8	128.0	117.8	105.7	96.4	90.0	87.2	81.6
52.5°	170.6	153.0	137.3	125.2	112.2	103.9	93.7	86.2	81.6	78.8	75.1
55°	143.7	130.8	117.8	107.6	97.4	91.8	83.5	77.0	73.3	72.3	67.7
57.5°	123.3	111.3	102.9	93.7	86.2	80.7	74.2	70.5	66.8	65.8	63.1
60°	105.7	95.5	88.1	81.6	75.1	71.4	66.8	63.1	59.4	59.4	57.5
62.5°	90.0	81.6	76.0	70.5	64.9	62.1	58.4	55.6	53.8	53.8	52.9
65°	77.9	69.6	64.9	61.2	57.5	55.6	51.9	50.1	48.2	48.2	47.3
67.5°	65.8	59.4	55.6	52.9	49.2	47.3	44.5	43.6	42.7	41.7	40.8
70°	55.6	51.0	47.3	44.5	41.7	40.8	38.0	37.1	36.2	37.1	36.2
72.5°	46.4	42.7	39.9	38.0	36.2	35.2	33.4	32.5	31.5	31.5	31.5
75°	38.0	35.2	33.4	31.5	30.6	29.7	28.7	27.8	26.9	27.8	26.9
77.5°	32.5	29.7	27.8	26.9	26.0	25.0	24.1	24.1	23.2	23.2	23.2
80°	25.0	23.2	22.3	20.4	20.4	19.5	19.5	19.5	18.5	19.5	19.5
82.5°	18.5	16.7	15.8	15.8	14.8	14.8	14.8	14.8	13.9	14.8	14.8
85°	13.9	13.0	12.1	11.1	11.1	11.1	11.1	10.2	10.2	10.2	10.2
87.5°	8.3	7.4	6.5	6.5	5.6	6.5	5.6	5.6	5.6	5.6	5.6
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°	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4	710.4
2.5°	664.9	659.4	659.4	638.0	634.3	647.3	632.5	621.3	627.8	619.5	623.2
5°	622.3	611.1	602.8	581.5	574.0	573.1	558.3	541.6	541.6	537.0	536.0
7.5°	567.6	550.9	537.9	515.6	505.4	501.7	485.0	467.4	465.5	457.2	454.4
10°	510.1	495.2	477.6	455.3	444.2	435.9	415.5	402.5	396.0	387.6	383.9
12.5°	460.0	445.1	427.5	400.6	388.6	383.9	367.2	358.0	356.1	350.5	348.7
15°	422.0	400.6	384.9	363.5	354.3	351.5	335.7	325.5	320.9	313.5	306.0
17.5°	386.7	364.5	350.5	329.2	317.2	306.0	286.6	272.6	260.6	256.9	250.4
20°	348.7	324.6	302.3	279.1	262.4	251.3	232.8	222.6	219.8	213.3	208.7
22.5°	293.1	276.4	252.2	231.8	218.9	213.3	202.2	193.8	191.0	185.5	182.7
25°	250.4	230.0	215.2	202.2	191.0	186.4	176.2	169.7	166.9	162.3	160.4
27.5°	215.2	200.3	189.2	177.1	167.9	164.1	155.8	149.3	146.5	141.9	140.0
30°	187.3	176.2	166.9	154.9	148.4	143.7	137.3	130.8	128.9	126.1	123.3
32.5°	166.0	156.7	147.5	137.3	130.8	127.1	121.5	115.9	114.1	111.3	109.4
35°	147.5	138.2	130.8	119.6	115.9	113.1	107.6	102.0	101.1	98.3	96.4
37.5°	129.8	123.3	115.9	107.6	102.9	101.1	96.4	91.8	90.9	88.1	87.2
40°	115.0	109.4	103.9	94.6	92.7	91.8	87.2	82.5	82.5	80.7	79.8
42.5°	102.0	98.3	92.7	88.1	84.4	83.5	79.8	77.0	77.0	75.1	74.2
45°	91.8	89.0	85.3	80.7	77.9	77.0	74.2	71.4	71.4	70.5	70.5
47.5°	84.4	80.7	77.9	74.2	71.4	71.4	68.6	66.8	66.8	65.8	65.8
50°	77.0	75.1	72.3	69.6	66.8	66.8	64.0	62.1	63.1	63.1	62.1
52.5°	70.5	69.6	67.7	64.9	63.1	63.1	61.2	59.4	60.3	59.4	59.4
55°	64.9	64.9	63.1	61.2	59.4	59.4	57.5	56.6	57.5	58.4	58.4
57.5°	61.2	60.3	59.4	57.5	57.5	57.5	56.6	55.6	56.6	56.6	56.6
60°	55.6	56.6	55.6	54.7	53.8	54.7	53.8	51.9	52.9	52.9	53.8
62.5°	51.0	51.9	51.9	51.9	51.9	51.9	51.9	51.0	52.9	53.8	53.8
65°	46.4	47.3	47.3	47.3	47.3	49.2	48.2	47.3	48.2	49.2	49.2
67.5°	40.8	41.7	41.7	41.7	41.7	42.7	42.7	41.7	42.7	43.6	44.5
70°	35.2	37.1	37.1	37.1	38.0	38.9	38.9	38.0	39.9	40.8	42.7
72.5°	30.6	31.5	32.5	32.5	33.4	35.2	35.2	35.2	36.2	36.2	36.2
75°	26.9	27.8	27.8	28.7	28.7	30.6	30.6	30.6	31.5	31.5	31.5
77.5°	23.2	23.2	24.1	24.1	25.0	26.0	26.0	26.0	26.9	26.9	26.9
80°	18.5	19.5	19.5	20.4	20.4	20.4	20.4	20.4	21.3	21.3	22.3
82.5°	13.9	14.8	14.8	15.8	15.8	15.8	15.8	15.8	16.7	16.7	16.7
85°	10.2	10.2	10.2	11.1	10.2	11.1	11.1	11.1	11.1	11.1	11.1
87.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	4.6	5.6	4.6
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°	710.4	710.4	710.4	710.4
2.5°	621.3	615.8	611.1	612.1
5°	533.2	521.2	527.7	523.0
7.5°	452.6	446.1	442.4	438.7
10°	380.2	369.1	371.9	370.0
12.5°	344.1	340.3	340.3	338.5
15°	304.2	298.6	296.8	295.8
17.5°	242.0	238.3	237.4	236.5
20°	206.8	202.2	200.3	199.4
22.5°	179.9	176.2	175.3	173.4
25°	158.6	153.9	153.9	152.1
27.5°	137.3	135.4	134.5	133.5
30°	122.4	119.6	118.7	117.8
32.5°	110.4	105.7	104.8	103.9
35°	94.6	93.7	91.8	91.8
37.5°	86.2	84.4	84.4	83.5
40°	78.8	77.0	76.0	75.1
42.5°	74.2	72.3	71.4	71.4
45°	69.6	68.6	67.7	66.8
47.5°	65.8	64.9	64.0	63.1
50°	62.1	61.2	61.2	59.4
52.5°	60.3	60.3	60.3	59.4
55°	59.4	59.4	60.3	59.4
57.5°	56.6	56.6	55.6	54.7
60°	54.7	54.7	54.7	52.9
62.5°	53.8	52.9	53.8	52.9
65°	49.2	49.2	50.1	49.2
67.5°	46.4	46.4	46.4	45.4
70°	42.7	42.7	41.7	41.7
72.5°	37.1	37.1	37.1	37.1
75°	31.5	31.5	31.5	31.5
77.5°	26.9	26.0	26.0	26.0
80°	21.3	20.4	20.4	20.4
82.5°	16.7	16.7	16.7	15.8
85°	11.1	11.1	11.1	11.1
87.5°	4.6	4.6	4.6	4.6
90°	0.0	0.0	0.0	0.0

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