

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: P130214

Luminaire Tested: **HL612ICAT - HLM6927 - HL6NFL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130214
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33472)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6NFL - 456P
Description: HALO ALLSLOPE 6" 21W, Black Coilex Baffle, 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: 1312.9 lumens
Efficiency: N/A
Efficacy: 68.7 lumens/watt
Spacing Criteria (0/90/45): 1.94 / 0.71 / 1.18
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

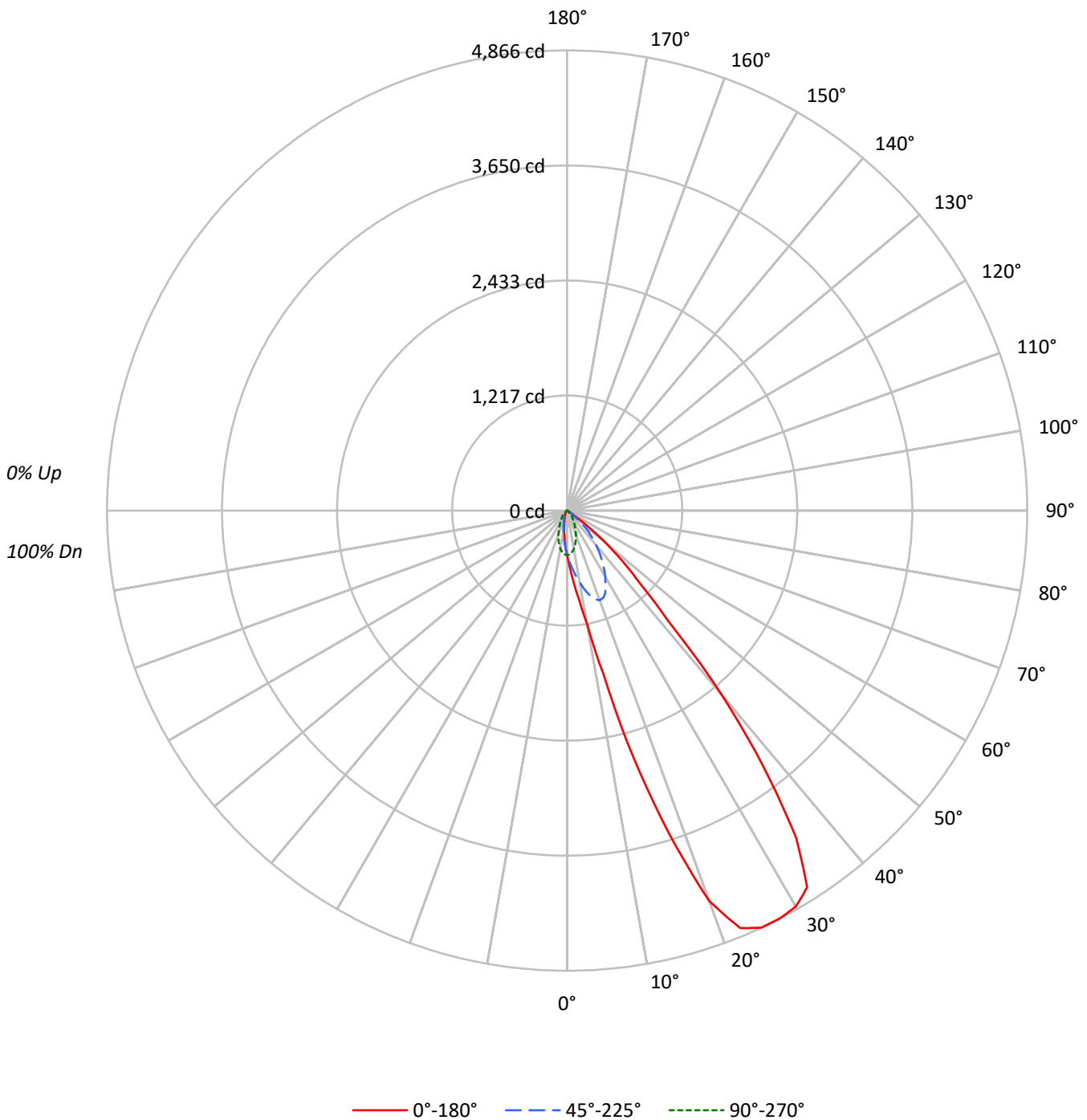
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	94	92					92			
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	89	87	85	83					83			
3	99	92	86	82	97	90	85	81	88	83	80	85	81	78	83	80	77	75					75			
4	93	84	78	73	91	83	77	73	81	76	72	79	74	71	77	73	70	68					68			
5	87	77	71	66	85	76	70	65	75	69	65	73	68	64	71	67	64	62					62			
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56					56			
7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	51					51			
8	72	61	54	49	71	60	54	49	59	53	49	58	52	48	57	52	48	47					47			
9	68	56	49	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43					43			
10	64	52	46	41	62	52	45	41	51	45	41	50	45	41	49	44	41	39					39			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	27846	27846	27846
5°	43537	26632	17415
10°	71111	23675	10422
15°	155327	19805	6392
20°	254401	15662	4303
25°	285155	11744	3159
30°	288956	8623	2480
35°	259065	6316	1880
40°	162032	4600	1344
45°	72142	2868	727
50°	37838	1798	310
55°	7370	1154	53
60°	2682	711	57
65°	1574	324	135
70°	807	151	151
75°	174	174	81
80°	0	206	0
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.7	3.6
10°-20°	199.2	15.2
20°-30°	427.4	32.6
30°-40°	411.3	31.3
40°-50°	182.4	13.9
50°-60°	36.2	2.8
60°-70°	7.2	0.5
70°-80°	1.7	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°	673.3	51.3
0°-40°	1084.6	82.6
0°-60°	1303.2	99.3
0°-90°	1312.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1312.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	466	466	466	466	466	
5°	744	612	455	335	297	86
15°	2692	929	343	146	111	817
25°	4866	956	200	71	54	2217
35°	4217	641	103	42	31	2488
45°	1082	323	43	17	11	947
55°	98	35	15	4	1	153
65°	18	12	4	2	2	18
75°	2	2	2	2	1	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°	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5
2.5°	596.2	570.7	554.7	565.6	556.9	558.3	546.7	548.9	548.1	534.3	529.2
5°	743.5	684.4	688.8	696.8	676.4	675.0	656.7	647.3	637.1	612.3	598.4
7.5°	941.7	890.7	866.7	859.4	826.6	812.0	785.0	756.6	728.2	692.4	664.8
10°	1228.2	1171.3	1124.7	1102.1	1038.7	1002.2	945.4	889.3	834.6	774.1	726.7
12.5°	1764.7	1619.6	1529.9	1460.7	1336.1	1243.5	1137.8	1037.2	954.9	857.9	782.1
15°	2692.5	2487.0	2280.0	2102.1	1817.1	1581.0	1378.3	1196.8	1065.6	929.3	824.4
17.5°	3581.1	3384.3	3175.1	2950.6	2537.3	2075.2	1656.0	1371.0	1161.1	983.3	849.2
20°	4392.3	4137.9	3886.5	3622.6	3128.4	2608.0	1976.8	1515.4	1227.5	1009.5	850.6
22.5°	4778.6	4605.9	4387.2	4115.3	3537.3	2924.3	2191.1	1594.8	1247.9	998.6	826.6
25°	4866.1	4745.1	4579.6	4353.0	3735.6	3054.1	2240.6	1573.7	1212.9	955.6	780.6
27.5°	4863.9	4746.6	4603.0	4378.5	3721.0	2987.7	2107.2	1466.5	1129.1	871.8	723.8
30°	4835.5	4721.0	4530.8	4229.8	3512.5	2731.2	1852.8	1316.4	1021.2	808.3	662.6
32.5°	4724.0	4583.3	4285.2	3858.8	3109.5	2297.5	1555.5	1148.0	908.9	721.6	597.7
35°	4216.7	4142.3	3721.7	3269.1	2505.9	1765.4	1270.5	978.9	789.4	641.4	527.7
37.5°	3403.2	3352.2	2983.4	2519.1	1831.0	1371.8	1038.7	841.9	684.4	560.5	457.0
40°	2543.1	2459.3	2114.5	1738.4	1329.5	1067.8	849.9	703.4	586.0	474.5	387.8
42.5°	1570.8	1575.9	1368.9	1223.1	999.3	836.8	692.4	582.4	489.8	395.1	318.5
45°	1081.7	1076.6	993.5	906.0	771.2	683.0	564.2	478.9	405.3	322.9	258.0
47.5°	796.7	793.8	750.0	688.8	605.7	531.4	449.0	377.6	307.6	242.0	186.6
50°	536.5	534.3	505.1	474.5	413.3	361.5	298.1	236.2	188.8	142.9	107.1
52.5°	271.1	270.4	253.7	244.9	214.3	183.0	144.3	113.0	91.8	67.8	49.6
55°	97.7	100.6	97.7	92.6	80.9	69.2	55.4	47.4	40.8	35.0	31.3
57.5°	45.9	44.5	43.0	41.5	38.6	35.7	32.8	31.3	29.9	27.7	26.2
60°	32.8	32.1	31.3	31.3	29.2	28.4	26.2	25.5	24.1	21.9	20.4
62.5°	24.8	24.1	24.1	23.3	22.6	21.9	20.4	19.7	19.0	17.5	16.0
65°	17.5	17.5	17.5	18.2	16.8	16.0	15.3	14.6	13.8	12.4	11.7
67.5°	12.4	11.7	11.7	12.4	11.7	11.7	10.2	10.2	9.5	8.7	8.0
70°	8.0	8.0	7.3	7.3	7.3	6.6	6.6	5.8	5.8	5.1	4.4
72.5°	4.4	4.4	3.6	3.6	3.6	3.6	2.9	2.9	2.9	2.9	2.2
75°	1.5	0.7	0.7	0.7	0.7	1.5	0.7	1.5	1.5	1.5	1.5
77.5°	0.0	0.0	0.0	0.0	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	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°	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5
2.5°	516.1	508.0	498.6	494.9	484.0	477.4	469.4	466.5	459.2	445.4	440.3
5°	578.0	554.0	535.0	526.3	500.0	484.0	467.2	454.8	438.8	417.7	404.5
7.5°	628.3	593.3	562.7	544.5	507.3	481.1	455.6	435.1	412.6	384.9	366.6
10°	675.7	623.2	580.9	553.2	504.4	465.0	435.9	408.9	381.9	347.7	326.5
12.5°	710.7	642.2	588.9	549.6	492.0	450.5	411.1	377.6	347.7	311.2	287.9
15°	731.1	649.4	583.8	535.0	471.6	424.2	379.8	343.3	309.1	273.3	248.6
17.5°	734.7	640.7	566.4	511.0	443.9	391.4	337.5	307.6	271.9	237.6	212.1
20°	722.3	621.7	540.8	481.1	409.6	355.0	309.8	270.4	235.4	201.9	179.3
22.5°	694.6	590.4	506.6	443.9	371.0	317.8	271.9	233.2	200.4	170.6	150.2
25°	655.3	550.3	466.5	402.3	331.6	279.2	235.4	200.4	171.3	144.3	126.8
27.5°	602.8	503.7	419.1	359.3	291.6	243.5	201.2	169.8	145.0	121.7	107.1
30°	552.5	454.1	373.2	314.2	252.9	209.2	172.0	144.3	122.5	104.2	91.8
32.5°	493.5	403.8	326.5	273.3	216.5	177.1	145.0	122.5	104.2	88.9	78.7
35°	430.8	349.1	279.2	231.8	183.0	148.0	121.7	102.8	88.2	75.8	67.8
37.5°	370.3	296.7	235.4	193.2	150.9	123.9	101.3	87.5	74.3	64.9	57.6
40°	309.1	245.6	192.4	157.4	123.9	102.0	83.8	72.2	62.0	53.9	48.1
42.5°	253.7	199.0	156.7	126.8	99.1	81.6	67.1	57.6	48.8	42.3	37.9
45°	201.2	156.7	120.3	95.5	72.9	59.8	49.6	43.0	37.2	32.8	29.9
47.5°	143.6	107.1	79.4	62.0	49.6	40.1	34.3	32.1	29.2	26.2	24.1
50°	78.7	59.8	46.6	39.4	33.5	30.6	27.7	25.5	23.3	20.4	17.5
52.5°	42.3	35.7	31.3	29.9	27.0	24.8	21.9	19.7	17.5	15.3	13.8
55°	29.9	27.7	25.5	24.1	21.1	19.0	16.8	15.3	13.8	12.4	10.9
57.5°	24.1	21.9	20.4	19.0	16.8	14.6	13.1	11.7	10.9	9.5	8.0
60°	19.0	17.5	16.0	14.6	13.1	11.7	10.2	8.7	8.0	6.6	5.8
62.5°	14.6	13.1	11.7	10.9	9.5	8.7	7.3	6.6	5.1	4.4	3.6
65°	10.2	9.5	8.7	7.3	6.6	5.8	4.4	3.6	3.6	2.9	2.2
67.5°	7.3	5.8	5.8	5.1	4.4	3.6	2.9	2.2	2.2	2.2	1.5
70°	4.4	3.6	2.9	2.9	2.2	2.2	1.5	1.5	1.5	1.5	1.5
72.5°	2.2	1.5	1.5	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°	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5
2.5°	431.5	422.0	414.0	416.9	411.1	400.2	401.6	387.8	390.0	388.5	383.4
5°	389.2	375.4	361.5	357.9	341.1	334.6	331.6	312.7	315.6	305.4	303.9
7.5°	346.2	327.3	312.0	302.5	293.0	276.3	270.4	255.8	252.2	247.1	238.3
10°	303.2	281.4	270.4	251.5	238.3	223.8	213.6	202.6	198.3	192.4	185.1
12.5°	261.7	239.8	221.6	207.7	196.1	180.8	172.7	162.5	158.2	152.3	146.5
15°	222.3	201.2	184.4	170.6	158.9	146.5	137.8	128.3	124.6	120.3	115.9
17.5°	188.1	168.4	151.6	140.7	129.7	120.3	113.7	105.0	100.6	97.7	94.0
20°	157.4	139.2	125.4	116.6	107.9	99.1	94.0	86.7	83.8	80.9	77.3
22.5°	131.2	116.6	105.0	99.1	90.4	83.1	78.7	73.6	70.0	67.8	64.9
25°	110.8	99.1	89.7	83.8	76.5	70.7	66.3	62.0	59.8	57.6	56.1
27.5°	94.0	84.6	76.5	71.4	65.6	61.2	57.6	53.9	52.5	50.3	48.8
30°	81.6	72.9	66.3	62.0	57.6	53.9	51.0	48.1	46.6	44.5	43.0
32.5°	70.7	63.4	58.3	55.4	51.0	48.1	45.2	42.3	40.8	38.6	37.2
35°	60.5	54.7	51.0	48.8	44.5	41.5	39.4	36.4	35.0	32.8	32.1
37.5°	52.5	47.4	43.7	40.8	37.2	35.0	32.1	29.9	29.2	27.7	27.0
40°	43.7	38.6	35.7	32.8	29.9	28.4	27.0	24.8	24.1	23.3	21.9
42.5°	33.5	30.6	28.4	27.0	24.8	22.6	21.1	19.0	18.2	17.5	16.0
45°	27.0	25.5	22.6	20.4	18.2	16.8	15.3	13.8	13.1	12.4	11.7
47.5°	21.1	19.0	16.8	15.3	13.8	13.1	11.7	10.9	10.2	9.5	8.7
50°	16.0	14.6	13.1	12.4	10.9	9.5	8.7	7.3	6.6	6.6	5.8
52.5°	12.4	11.7	10.2	8.7	8.0	7.3	5.8	5.1	4.4	3.6	2.9
55°	9.5	8.7	7.3	6.6	5.1	4.4	3.6	2.9	2.2	1.5	0.7
57.5°	7.3	5.8	5.1	4.4	3.6	2.2	2.2	1.5	0.7	0.7	0.7
60°	4.4	3.6	2.9	2.2	2.2	1.5	1.5	1.5	1.5	0.7	0.7
62.5°	2.9	2.2	2.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
65°	2.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
67.5°	1.5	1.5	1.5	2.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
72.5°	1.5	1.5	1.5	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	0.7	0.7	0.7
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7
80°	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7
82.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.7
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°	466.5	466.5	466.5	466.5
2.5°	381.9	382.7	379.0	384.9
5°	303.2	301.0	301.0	297.4
7.5°	236.9	234.0	231.8	231.8
10°	183.7	183.0	178.6	180.0
12.5°	143.6	142.9	139.2	140.7
15°	113.7	113.0	110.1	110.8
17.5°	91.8	90.4	89.7	89.7
20°	75.8	74.3	73.6	74.3
22.5°	64.1	63.4	62.7	62.7
25°	54.7	54.7	53.9	53.9
27.5°	48.1	47.4	46.6	46.6
30°	42.3	41.5	41.5	41.5
32.5°	36.4	35.7	35.7	35.7
35°	30.6	30.6	30.6	30.6
37.5°	26.2	26.2	26.2	26.2
40°	21.9	21.1	21.1	21.1
42.5°	15.3	15.3	14.6	14.6
45°	11.7	10.9	10.9	10.9
47.5°	8.0	7.3	7.3	7.3
50°	5.1	4.4	4.4	4.4
52.5°	2.2	2.2	2.2	2.2
55°	0.7	0.7	0.7	0.7
57.5°	0.7	0.7	0.7	0.7
60°	0.7	0.7	0.7	0.7
62.5°	1.5	1.5	1.5	1.5
65°	1.5	1.5	1.5	1.5
67.5°	1.5	1.5	1.5	1.5
70°	1.5	1.5	1.5	1.5
72.5°	0.7	0.7	0.7	0.7
75°	0.7	0.7	0.7	0.7
77.5°	0.7	0.7	0.7	0.7
80°	0.7	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)