

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: P130161

Luminaire Tested: **HL612ICAT - HLM6927 - HL6FL - 455H**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130161
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33448)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6FL - 455H
Description: HALO ALLSLOPE 6" 21W, Semi-Specular Haze Reflector, White Metal Trim Ring using 40 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): 1.6 / 0.65 / 1.06
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

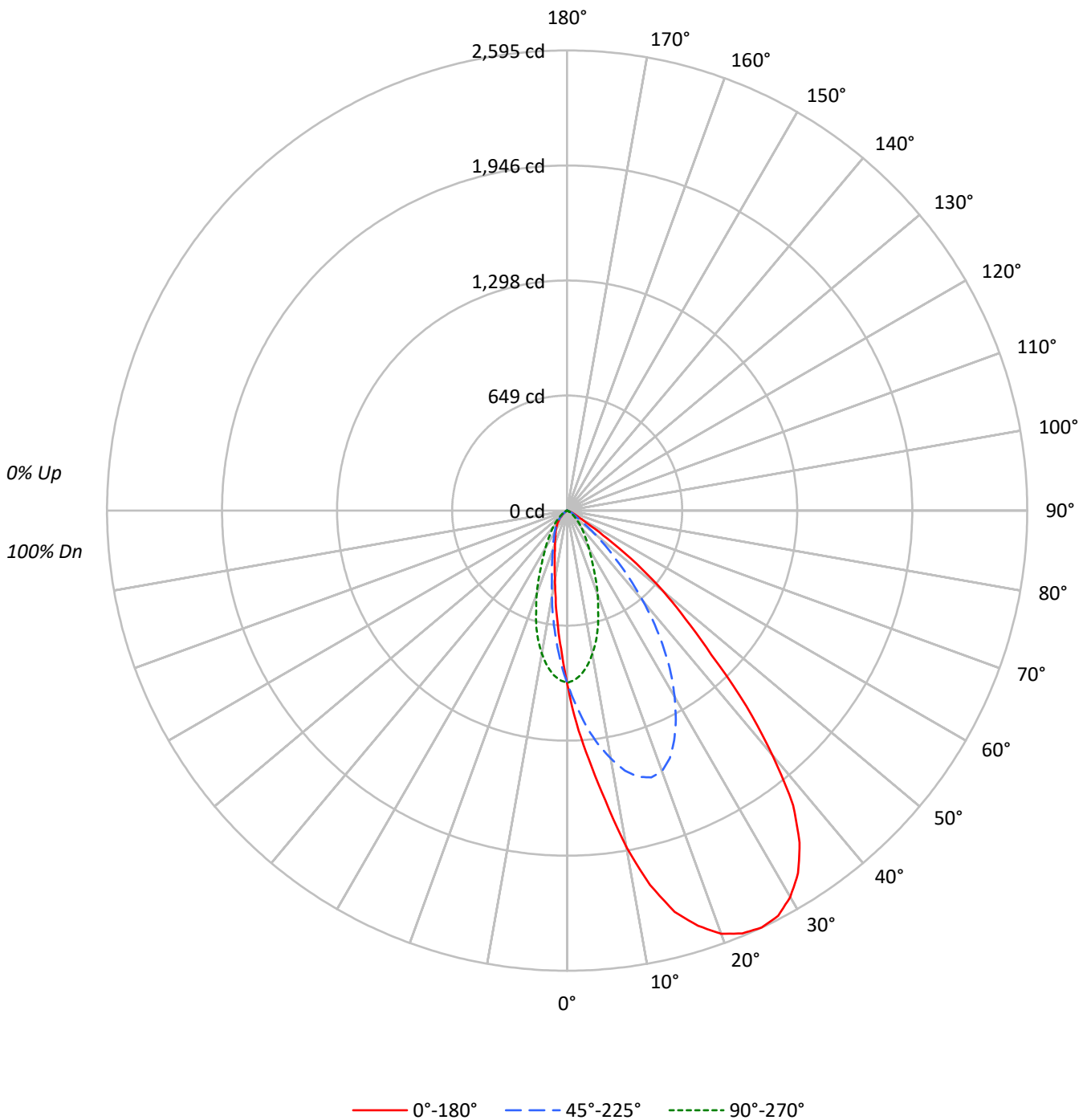
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	107	104	110	107	105	103	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	91	85	81	88	83	80	85	82	78	83	80	77	75					75			
4	93	85	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70	69					69			
5	88	78	71	66	86	77	71	66	75	69	65	73	68	65	72	67	64	62					62			
6	82	72	65	60	81	71	65	60	69	64	59	68	63	59	67	62	59	57					57			
7	77	67	60	55	76	66	59	55	65	59	54	63	58	54	62	57	54	52					52			
8	73	62	55	50	71	61	55	50	60	54	50	59	54	50	58	53	49	48					48			
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	53	47	43	52	47	43	52	46	42	51	46	42	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	58043	58043	58043
5°	82414	54294	36903
10°	111640	47442	22737
15°	135154	38836	15524
20°	147047	29122	11613
25°	152045	20276	9142
30°	150361	14641	7613
35°	140373	10696	6162
40°	114839	7971	4709
45°	76771	5682	3115
50°	49659	3830	1806
55°	20867	2618	800
60°	5919	1668	368
65°	3392	810	135
70°	1745	303	0
75°	440	174	0
80°	110	206	0
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.9	6.5
10°-20°	272.3	18.9
20°-30°	387.2	26.9
30°-40°	374.8	26.0
40°-50°	225.0	15.6
50°-60°	69.3	4.8
60°-70°	14.4	1.0
70°-80°	2.3	0.2
80°-90°	0.8	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°	752.4	52.3
0°-40°	1127.2	78.3
0°-60°	1421.5	98.8
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°	972	972	972	972	972	
5°	1407	1217	927	724	630	150
15°	2343	1554	673	330	269	660
25°	2595	1428	346	179	156	1189
35°	2285	952	174	112	100	1399
45°	1151	391	85	57	47	919
55°	277	68	35	19	11	283
65°	38	23	9	3	2	40
75°	4	2	2	1	0	6
85°	0	1	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°	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4
2.5°	1200.1	1176.7	1165.4	1150.3	1160.1	1144.3	1143.5	1141.3	1117.9	1092.3	1097.5
5°	1407.4	1385.5	1368.2	1344.0	1341.0	1315.4	1275.4	1301.1	1258.9	1217.4	1206.8
7.5°	1647.1	1616.2	1598.1	1551.3	1540.8	1468.4	1469.2	1443.5	1388.5	1326.7	1295.0
10°	1928.2	1889.0	1871.7	1803.1	1773.7	1696.8	1653.9	1598.1	1512.1	1420.2	1363.6
12.5°	2161.9	2126.5	2103.9	2025.5	1990.8	1898.1	1828.0	1748.1	1624.5	1501.6	1420.2
15°	2342.8	2305.1	2248.6	2192.8	2155.9	2051.1	2005.1	1861.9	1735.3	1554.4	1445.1
17.5°	2454.4	2425.0	2390.3	2307.4	2267.5	2167.2	2062.4	1936.5	1763.2	1577.7	1439.8
20°	2538.8	2504.9	2464.2	2379.0	2333.8	2217.7	2111.4	1971.2	1771.5	1563.4	1406.6
22.5°	2581.0	2547.9	2507.2	2413.7	2361.7	2235.0	2117.5	1956.1	1733.0	1511.4	1346.3
25°	2594.6	2559.2	2515.5	2415.2	2353.4	2217.0	2083.5	1898.8	1656.1	1428.5	1262.6
27.5°	2576.5	2537.3	2489.8	2385.8	2313.4	2161.9	2006.6	1794.1	1549.8	1327.5	1163.1
30°	2516.2	2479.3	2428.8	2321.0	2235.0	2056.4	1879.2	1647.8	1414.9	1212.1	1047.8
32.5°	2424.3	2384.3	2335.3	2213.9	2109.9	1911.7	1705.1	1485.0	1280.7	1089.3	928.7
35°	2284.8	2244.1	2191.3	2048.1	1929.0	1711.9	1507.6	1323.7	1152.6	952.1	798.3
37.5°	2094.1	2045.8	1965.9	1834.8	1689.3	1483.5	1313.1	1157.9	977.7	811.9	670.9
40°	1802.4	1767.7	1684.8	1558.9	1427.7	1266.4	1133.0	983.0	814.9	663.4	545.8
42.5°	1496.3	1456.4	1390.0	1281.5	1181.2	1040.3	915.1	776.4	645.3	519.4	422.1
45°	1151.1	1124.7	1081.7	1000.3	913.6	811.1	715.4	609.8	511.8	391.2	316.6
47.5°	905.3	885.7	855.6	783.2	734.2	637.0	563.8	474.1	385.2	289.5	228.4
50°	704.1	692.0	664.1	603.0	557.1	485.5	418.4	341.5	260.8	194.5	154.5
52.5°	491.5	501.3	459.1	420.6	376.9	319.6	254.8	198.3	150.0	115.3	96.5
55°	276.6	274.4	260.1	226.9	190.7	151.5	119.9	101.0	82.2	67.8	61.1
57.5°	132.7	128.1	119.9	102.5	87.4	76.1	67.1	61.8	55.8	50.5	47.5
60°	72.4	71.6	67.8	62.6	59.6	55.0	51.3	48.2	43.7	40.0	36.9
62.5°	52.0	51.3	49.8	46.7	45.2	42.2	39.2	36.9	34.7	31.7	29.4
65°	37.7	37.7	36.9	34.7	33.9	31.7	30.2	27.9	25.6	23.4	21.9
67.5°	27.9	27.1	26.4	25.6	24.1	22.6	21.1	19.6	18.1	15.8	14.3
70°	17.3	16.6	16.6	15.8	15.1	13.6	12.1	11.3	10.6	9.0	8.3
72.5°	9.0	9.0	8.3	8.3	7.5	6.8	6.0	6.0	5.3	4.5	3.8
75°	3.8	3.0	3.0	3.0	3.0	3.0	2.3	2.3	2.3	1.5	1.5
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4
2.5°	1077.9	1060.6	1059.9	1034.2	1007.8	1000.3	967.9	955.8	943.8	912.9	910.6
5°	1168.4	1137.5	1117.1	1072.7	1028.2	1001.8	953.6	927.2	900.0	873.7	842.0
7.5°	1240.8	1191.0	1151.8	1084.7	1025.2	982.2	937.0	878.9	839.0	806.6	761.3
10°	1295.8	1221.9	1163.9	1080.2	1004.1	943.8	874.4	819.4	770.4	728.9	681.4
12.5°	1326.0	1229.5	1155.6	1063.6	964.1	894.0	809.6	750.8	680.7	644.5	588.7
15°	1330.5	1216.6	1125.4	1010.9	909.1	829.2	741.7	673.2	612.1	558.6	503.5
17.5°	1308.6	1180.5	1074.9	947.5	845.0	751.5	663.4	580.4	527.7	470.4	417.6
20°	1237.0	1123.9	1002.6	871.4	762.9	670.9	575.9	502.8	441.7	385.2	345.2
22.5°	1191.8	1046.3	917.4	784.7	674.7	582.7	489.2	421.4	361.8	322.6	291.0
25°	1102.8	950.6	823.2	693.5	584.2	492.2	405.5	346.0	303.0	267.6	246.5
27.5°	1000.3	849.5	724.4	600.8	496.0	409.3	335.4	289.5	254.8	231.4	209.6
30°	875.9	746.3	623.4	511.1	407.1	333.9	278.9	245.0	217.1	196.0	180.9
32.5°	777.9	641.5	529.2	416.9	333.9	279.7	235.2	206.5	184.7	170.4	156.0
35°	662.6	539.0	430.4	334.7	272.9	230.7	196.7	174.1	157.5	145.5	134.9
37.5°	547.3	428.9	339.2	270.6	222.4	190.7	163.6	147.7	133.4	125.1	116.8
40°	431.9	331.7	265.3	217.1	180.9	156.0	137.9	125.1	113.8	107.8	101.0
42.5°	326.4	254.0	210.3	174.1	147.7	129.7	114.6	105.5	96.5	88.9	85.2
45°	247.2	199.0	166.6	140.2	119.9	106.3	92.0	85.2	78.4	73.9	70.9
47.5°	188.5	153.8	126.6	104.8	92.0	80.7	72.4	66.3	63.3	62.6	58.8
50°	127.4	103.3	88.2	74.6	67.1	61.1	57.3	54.3	52.0	49.8	46.7
52.5°	79.9	68.6	61.8	55.8	52.8	49.8	46.7	44.5	41.5	40.0	36.2
55°	55.8	52.0	49.0	45.2	43.0	40.0	36.9	34.7	33.2	31.7	29.4
57.5°	44.5	41.5	39.2	36.2	33.9	31.7	29.4	27.9	25.6	24.9	21.9
60°	35.4	33.2	30.9	28.6	26.4	24.1	22.6	20.4	18.8	17.3	15.1
62.5°	27.9	25.6	23.4	21.9	19.6	18.1	15.8	14.3	12.8	11.3	9.8
65°	20.4	18.1	16.6	15.1	13.6	12.1	10.6	9.0	7.5	6.8	6.0
67.5°	13.6	11.3	10.6	9.8	8.3	6.8	6.0	4.5	4.5	3.8	3.8
70°	7.5	6.8	6.0	5.3	4.5	3.8	3.0	3.0	2.3	2.3	2.3
72.5°	3.8	3.0	3.0	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
75°	2.3	1.5	1.5	2.3	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°	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	0.8	0.8	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°	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4
2.5°	915.9	891.0	882.0	856.3	842.8	851.8	833.7	823.2	817.1	817.9	802.8
5°	834.5	800.5	780.2	784.0	713.9	723.7	704.8	686.7	680.7	670.1	661.1
7.5°	742.5	707.1	679.2	640.7	617.4	606.1	591.0	560.1	552.5	537.5	526.9
10°	650.5	609.1	578.2	531.4	506.6	492.2	468.1	445.5	437.2	427.4	411.6
12.5°	557.1	512.6	475.7	434.9	410.8	398.8	378.4	363.3	355.0	346.0	339.2
15°	461.3	414.6	388.2	357.3	337.7	330.2	314.3	303.8	295.5	289.5	284.2
17.5°	382.2	346.8	324.1	300.0	284.2	278.2	266.1	255.5	249.5	245.0	242.0
20°	319.6	291.0	274.4	254.8	244.2	235.9	225.4	220.1	216.3	213.3	210.3
22.5°	271.4	246.5	232.9	217.1	208.1	204.3	197.5	190.7	188.5	186.2	183.2
25°	231.4	211.8	200.5	189.2	181.7	178.7	172.6	168.1	166.6	164.3	162.8
27.5°	197.5	183.2	174.9	165.1	159.8	157.5	152.3	149.3	149.3	147.0	147.7
30°	171.1	159.8	153.0	145.5	141.7	140.2	136.4	134.2	133.4	131.9	131.2
32.5°	149.3	139.5	135.7	128.9	126.6	125.1	122.1	119.9	120.6	119.1	118.3
35°	129.7	122.9	119.9	114.6	113.1	111.6	109.3	107.0	107.0	105.5	104.0
37.5°	113.1	108.5	105.5	101.0	99.5	98.0	95.7	92.7	92.7	91.2	91.2
40°	99.5	93.5	92.0	86.7	84.4	82.9	81.4	79.9	78.4	76.9	76.9
42.5°	83.7	78.4	76.9	73.1	71.6	70.1	68.6	64.8	64.8	63.3	63.3
45°	68.6	65.6	64.1	61.1	58.8	57.3	55.0	52.8	52.0	50.5	49.8
47.5°	56.5	53.5	52.0	49.0	47.5	46.0	44.5	42.2	41.5	40.0	38.4
50°	46.0	43.0	41.5	39.2	37.7	36.2	34.7	32.4	31.7	29.4	28.6
52.5°	36.2	34.7	32.4	30.2	28.6	26.4	25.6	23.4	21.9	20.4	19.6
55°	27.9	26.4	24.1	21.9	20.4	18.8	17.3	15.8	14.3	13.6	12.1
57.5°	21.1	18.8	16.6	15.1	13.6	12.1	11.3	9.8	9.0	8.3	7.5
60°	14.3	12.1	11.3	9.8	8.3	7.5	6.8	6.0	6.0	5.3	5.3
62.5°	9.0	7.5	6.8	6.0	5.3	5.3	4.5	3.8	3.8	3.0	3.0
65°	5.3	4.5	4.5	3.8	3.8	3.0	3.0	2.3	2.3	2.3	1.5
67.5°	3.0	3.0	3.0	2.3	2.3	1.5	1.5	1.5	1.5	0.8	0.8
70°	2.3	2.3	2.3	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8
72.5°	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8
75°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
80°	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
82.5°	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
85°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
87.5°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	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°	972.4	972.4	972.4	972.4
2.5°	796.0	792.3	801.3	779.4
5°	657.3	645.3	656.6	630.2
7.5°	523.1	513.3	518.6	496.8
10°	410.8	398.0	404.8	392.7
12.5°	334.7	328.7	329.4	321.9
15°	280.4	274.4	276.6	269.1
17.5°	237.5	232.9	237.5	229.2
20°	206.5	202.0	205.8	200.5
22.5°	181.7	178.7	183.2	177.1
25°	157.5	159.1	160.6	156.0
27.5°	144.7	142.5	144.7	141.0
30°	130.4	128.1	130.4	127.4
32.5°	117.6	115.3	116.8	113.8
35°	103.3	101.8	103.3	100.3
37.5°	89.7	87.4	88.9	88.2
40°	75.4	74.6	75.4	73.9
42.5°	61.1	60.3	61.1	60.3
45°	48.2	47.5	49.0	46.7
47.5°	37.7	36.2	36.9	36.2
50°	27.1	26.4	26.4	25.6
52.5°	18.8	17.3	18.1	17.3
55°	12.1	11.3	11.3	10.6
57.5°	7.5	6.8	6.8	6.8
60°	4.5	4.5	4.5	4.5
62.5°	3.0	2.3	2.3	2.3
65°	1.5	1.5	1.5	1.5
67.5°	0.8	0.8	0.8	0.8
70°	0.8	0.0	0.0	0.0
72.5°	0.0	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)