

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: P130159

Luminaire Tested: **HL612ICAT - HLM6935 - HL6FL - 455SC**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130159
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33449)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6935 - HL6FL - 455SC
Description: HALO ALLSLOPE 6" 21W, Specular Clear Reflector, White Metal Trim Ring using 40 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1692.5 lumens
Efficiency: N/A
Efficacy: 88.6 lumens/watt
Spacing Criteria (0/90/45): 1.45 / 0.65 / 1
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

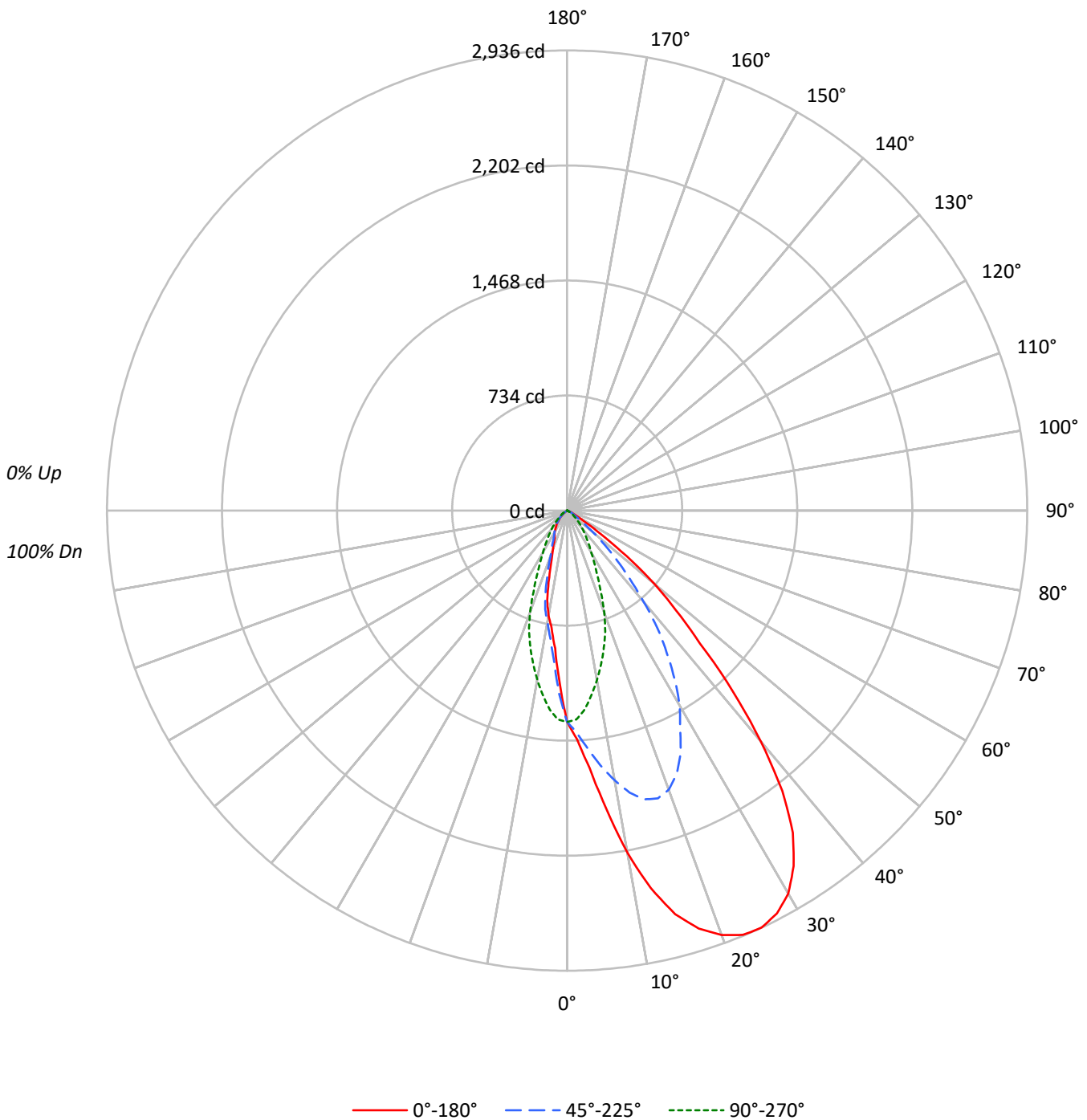
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	110	107	104	110	108	105	103	103	101	100		100	98	97		96	95	94	92
2	106	101	96	92	104	99	95	91	96	92	89		93	90	87		90	88	86	84
3	100	93	87	83	98	91	86	82	89	84	81		86	82	79		84	81	78	76
4	94	85	79	74	92	84	78	74	82	77	73		80	76	72		78	74	71	70
5	88	79	72	67	87	78	72	67	76	71	66		74	69	66		73	68	65	64
6	83	73	66	61	81	72	66	61	71	65	61		69	64	60		68	63	60	58
7	78	68	61	56	77	67	61	56	66	60	56		64	59	55		63	59	55	53
8	74	63	56	52	72	62	56	52	61	55	51		60	55	51		59	54	51	49
9	70	59	52	48	68	58	52	48	57	51	47		56	51	47		55	51	47	46
10	66	55	49	44	65	55	48	44	54	48	44		53	48	44		52	47	44	42

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	80451	80451	80451
5°	96520	74655	51659
10°	128500	63440	39377
15°	153787	52208	25499
20°	166873	40150	15418
25°	172074	26622	10917
30°	168647	18322	9501
35°	154227	13277	7502
40°	122377	9799	5543
45°	79872	6856	3868
50°	51246	4337	2045
55°	19690	2920	264
60°	6033	1799	0
65°	3401	792	0
70°	1594	182	0
75°	208	208	0
80°	0	247	0
85°	0	305	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.6	7.1
10°-20°	343.7	20.3
20°-30°	461.4	27.3
30°-40°	431.7	25.5
40°-50°	248.9	14.7
50°-60°	70.2	4.1
60°-70°	13.4	0.8
70°-80°	1.7	0.1
80°-90°	0.8	0.0
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°	925.8	54.7
0°-40°	1357.5	80.2
0°-60°	1676.6	99.1
0°-90°	1692.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1692.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1348	1348	1348	1348	1348	
5°	1648	1527	1275	960	882	176
15°	2666	1908	905	528	442	752
25°	2936	1713	454	209	186	1343
35°	2510	1109	216	133	122	1532
45°	1198	453	103	65	58	961
55°	261	73	39	19	4	278
65°	38	24	9	1	0	39
75°	2	1	2	1	0	4
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°	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8
2.5°	1460.3	1462.9	1470.0	1455.0	1441.0	1436.6	1441.0	1417.2	1424.3	1417.2	1400.5
5°	1648.3	1659.7	1660.6	1639.5	1618.5	1608.8	1600.9	1553.4	1552.6	1527.1	1489.3
7.5°	1918.9	1923.3	1905.8	1875.9	1835.5	1803.0	1774.0	1707.2	1687.9	1641.3	1585.9
10°	2219.4	2230.9	2208.9	2165.8	2099.1	2050.7	1976.9	1878.5	1823.2	1747.6	1668.5
12.5°	2466.3	2475.1	2462.8	2404.0	2338.1	2283.6	2181.7	2053.4	1959.4	1843.4	1724.8
15°	2665.8	2670.2	2658.8	2594.6	2520.8	2447.0	2340.7	2190.4	2071.0	1907.5	1752.0
17.5°	2796.7	2801.1	2797.6	2722.9	2645.6	2568.3	2443.5	2276.6	2119.3	1925.1	1741.5
20°	2881.1	2895.1	2878.4	2809.9	2718.5	2635.9	2492.7	2302.9	2121.0	1895.2	1689.6
22.5°	2930.3	2942.6	2922.4	2849.4	2750.1	2658.8	2495.3	2280.9	2070.1	1822.3	1609.7
25°	2936.4	2949.6	2925.9	2844.2	2739.6	2629.8	2441.7	2203.6	1962.0	1713.3	1509.5
27.5°	2897.8	2910.9	2881.9	2798.5	2686.0	2555.1	2332.8	2071.8	1820.5	1558.7	1379.5
30°	2822.2	2823.1	2794.1	2708.0	2576.2	2423.3	2167.6	1886.4	1665.9	1436.6	1236.2
32.5°	2689.5	2700.9	2658.8	2559.5	2353.0	2222.1	1953.2	1694.0	1492.8	1276.7	1107.1
35°	2510.3	2514.7	2461.1	2347.7	2150.9	1962.0	1711.6	1495.4	1313.6	1108.8	934.0
37.5°	2254.6	2258.1	2188.7	2066.6	1858.3	1694.9	1479.6	1292.5	1122.9	945.4	782.9
40°	1920.7	1920.7	1842.5	1730.0	1561.3	1432.2	1252.9	1080.7	926.1	760.0	624.7
42.5°	1567.5	1552.6	1502.5	1400.5	1267.9	1136.1	978.8	840.0	719.6	590.4	479.7
45°	1197.6	1191.4	1159.8	1083.4	987.6	897.1	770.6	666.9	564.1	453.4	357.6
47.5°	939.3	939.3	915.5	854.0	780.2	705.5	608.9	513.1	426.1	327.7	259.2
50°	726.6	731.0	695.0	644.0	579.0	523.7	431.4	349.7	276.8	215.3	172.2
52.5°	478.0	484.1	453.4	415.6	362.0	318.1	240.7	188.9	150.2	123.9	102.8
55°	261.0	257.4	239.0	211.8	171.3	144.1	114.2	95.8	83.5	72.9	65.9
57.5°	124.8	123.0	110.7	97.5	87.0	78.2	69.4	63.3	58.9	55.4	51.8
60°	73.8	72.0	70.3	65.0	61.5	57.1	52.7	49.2	46.6	43.1	40.4
62.5°	51.8	51.8	51.0	49.2	45.7	43.1	39.5	36.9	35.1	32.5	30.8
65°	37.8	36.9	36.9	35.1	33.4	31.6	29.0	27.2	26.4	23.7	22.0
67.5°	25.5	25.5	25.5	24.6	22.8	21.1	19.3	18.5	16.7	14.9	14.1
70°	15.8	15.8	14.9	14.1	13.2	12.3	10.5	10.5	9.7	7.9	7.0
72.5°	7.0	7.0	7.0	6.2	6.2	5.3	4.4	4.4	3.5	2.6	2.6
75°	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
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°	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8
2.5°	1425.2	1397.9	1390.9	1400.5	1386.5	1358.4	1352.2	1334.7	1312.7	1302.1	1289.8
5°	1497.2	1459.4	1437.5	1432.2	1399.7	1350.5	1319.7	1274.9	1231.9	1198.5	1159.8
7.5°	1575.4	1513.9	1470.0	1437.5	1376.8	1301.3	1245.9	1187.0	1125.5	1079.8	1034.2
10°	1634.3	1542.9	1468.2	1407.6	1325.9	1228.3	1165.1	1095.7	1025.4	970.0	922.6
12.5°	1660.6	1539.4	1441.8	1361.9	1262.6	1159.8	1078.1	1000.8	926.1	874.2	824.2
15°	1658.9	1513.0	1395.3	1301.3	1188.8	1074.6	984.1	905.0	832.9	784.6	738.1
17.5°	1622.0	1457.7	1322.4	1216.9	1095.7	976.2	890.9	808.3	737.2	678.3	618.6
20°	1558.7	1382.1	1232.7	1111.5	989.3	869.9	778.5	693.2	608.0	548.3	486.8
22.5°	1469.1	1283.7	1124.7	996.4	870.7	752.1	651.1	560.6	482.4	429.7	388.4
25°	1354.9	1166.0	1004.3	872.5	746.8	630.0	528.9	454.3	386.6	346.2	314.6
27.5°	1220.4	1031.5	881.3	753.9	627.3	517.5	430.5	369.9	319.8	288.2	263.6
30°	1079.0	901.5	753.9	638.8	517.5	416.5	350.6	306.6	270.6	242.5	224.9
32.5°	928.7	768.8	642.3	525.4	419.1	341.8	294.3	261.0	226.7	209.1	194.2
35°	788.1	640.5	520.2	418.2	340.9	286.4	246.9	216.1	195.9	179.2	167.8
37.5°	655.5	516.6	403.3	329.5	275.0	232.0	203.8	182.8	166.1	153.8	145.9
40°	508.7	394.5	315.4	266.2	224.9	189.8	169.6	153.8	141.5	132.7	125.6
42.5°	384.8	301.4	251.3	213.5	182.8	157.3	144.1	128.3	118.6	111.6	104.6
45°	290.0	234.6	197.7	171.3	146.7	126.5	115.1	102.8	94.0	89.6	84.3
47.5°	216.1	176.6	147.6	129.2	109.0	94.9	87.0	79.1	73.8	70.3	67.7
50°	145.9	118.6	101.0	87.9	78.2	71.2	66.8	61.5	58.9	57.1	53.6
52.5°	89.6	76.4	68.5	64.1	59.7	56.2	53.6	50.1	45.7	43.9	41.3
55°	61.5	57.1	54.5	51.0	47.4	43.9	41.3	38.7	36.9	35.1	32.5
57.5°	50.1	45.7	42.2	39.5	36.9	34.3	32.5	30.8	28.1	26.4	24.6
60°	37.8	35.1	32.5	30.8	28.1	26.4	24.6	22.0	20.2	18.5	16.7
62.5°	29.0	26.4	24.6	22.8	21.1	18.5	16.7	14.9	13.2	11.4	9.7
65°	20.2	18.5	16.7	14.9	13.2	11.4	10.5	8.8	7.0	5.3	3.5
67.5°	13.2	11.4	9.7	7.9	7.0	5.3	4.4	3.5	1.8	1.8	0.9
70°	6.2	5.3	3.5	3.5	2.6	1.8	1.8	1.8	0.9	0.9	0.9
72.5°	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9	1.8	1.8	0.9	1.8	1.8	0.9	0.9
77.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	0.9	0.9	1.8
80°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
82.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
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°	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8	1347.8
2.5°	1255.6	1252.9	1228.3	1207.2	1192.3	1167.7	1156.3	1144.0	1115.0	1115.9	1128.2
5°	1111.5	1088.6	1054.4	1019.2	994.6	959.5	942.8	925.2	912.0	898.0	897.1
7.5°	977.0	946.3	910.3	876.0	854.9	820.6	805.7	788.1	775.8	767.1	767.9
10°	862.8	833.8	799.6	782.9	753.0	724.9	714.3	702.0	694.1	688.0	693.2
12.5°	775.8	746.8	717.8	688.9	670.4	645.8	632.6	621.2	610.7	605.4	603.6
15°	683.6	651.1	616.8	581.7	564.1	528.1	514.0	496.4	482.4	470.1	456.9
17.5°	562.3	528.1	493.8	456.0	429.7	406.8	390.1	371.7	356.7	346.2	340.9
20°	442.0	408.6	382.2	348.8	330.4	311.0	300.5	286.4	278.5	274.1	272.4
22.5°	348.8	320.7	300.5	278.5	265.3	252.2	245.1	235.5	228.4	223.2	223.2
25°	283.8	264.5	247.8	232.8	224.1	209.1	203.8	197.7	193.3	189.8	191.5
27.5°	237.2	230.2	212.6	197.7	190.7	181.0	178.4	174.0	172.2	170.5	171.3
30°	204.7	192.4	184.5	174.0	168.7	161.7	161.7	159.0	158.2	158.2	159.9
32.5°	178.4	168.7	161.7	154.6	152.9	147.6	148.5	145.9	144.1	143.2	143.2
35°	155.5	148.5	144.1	139.7	137.9	132.7	131.8	129.2	126.5	123.9	124.8
37.5°	136.2	131.8	127.4	123.0	120.4	115.1	114.2	112.5	110.7	109.8	109.8
40°	117.7	113.3	109.8	104.6	102.8	97.5	98.4	96.7	93.1	91.4	90.5
42.5°	97.5	94.0	90.5	87.9	86.1	80.8	79.1	74.7	73.8	72.9	73.8
45°	80.0	76.4	73.8	69.4	67.7	65.0	64.1	62.4	60.6	58.9	59.7
47.5°	64.1	61.5	58.0	56.2	54.5	51.8	51.0	49.2	48.3	46.6	46.6
50°	50.1	48.3	46.6	43.9	43.1	40.4	39.5	37.8	36.0	34.3	33.4
52.5°	39.5	38.7	36.9	34.3	32.5	30.8	29.0	25.5	22.8	20.2	20.2
55°	30.8	29.0	27.2	24.6	22.8	19.3	16.7	14.1	11.4	7.9	7.0
57.5°	22.8	20.2	18.5	14.9	12.3	8.8	7.0	3.5	2.6	0.9	0.0
60°	14.1	12.3	8.8	6.2	4.4	1.8	0.9	0.9	0.0	0.0	0.0
62.5°	7.0	5.3	2.6	1.8	0.9	0.9	0.0	0.0	0.0	0.0	0.0
65°	2.6	1.8	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
82.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	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°	1347.8	1347.8	1347.8	1347.8
2.5°	1080.7	1093.9	1071.1	1096.5
5°	867.2	869.0	862.8	882.2
7.5°	743.3	750.4	741.6	755.6
10°	672.2	674.8	670.4	680.1
12.5°	589.6	581.7	578.1	587.8
15°	450.7	448.1	436.7	442.0
17.5°	333.0	329.5	328.6	327.7
20°	264.5	261.0	260.1	266.2
22.5°	216.1	214.4	211.8	217.9
25°	186.3	186.3	184.5	186.3
27.5°	167.8	168.7	167.8	170.5
30°	156.4	157.3	156.4	159.0
32.5°	138.8	139.7	137.9	138.8
35°	121.3	121.3	120.4	122.1
37.5°	107.2	108.1	107.2	109.0
40°	87.9	87.0	86.1	87.0
42.5°	72.0	71.2	71.2	72.9
45°	57.1	57.1	57.1	58.0
47.5°	44.8	43.9	43.9	43.9
50°	31.6	29.9	29.9	29.0
52.5°	16.7	15.8	15.8	14.9
55°	5.3	4.4	4.4	3.5
57.5°	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0
70°	0.0	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)