

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: P130157

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130157
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 - HLM6927 - 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1475.0 lumens
Efficiency: N/A
Efficacy: 77.2 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

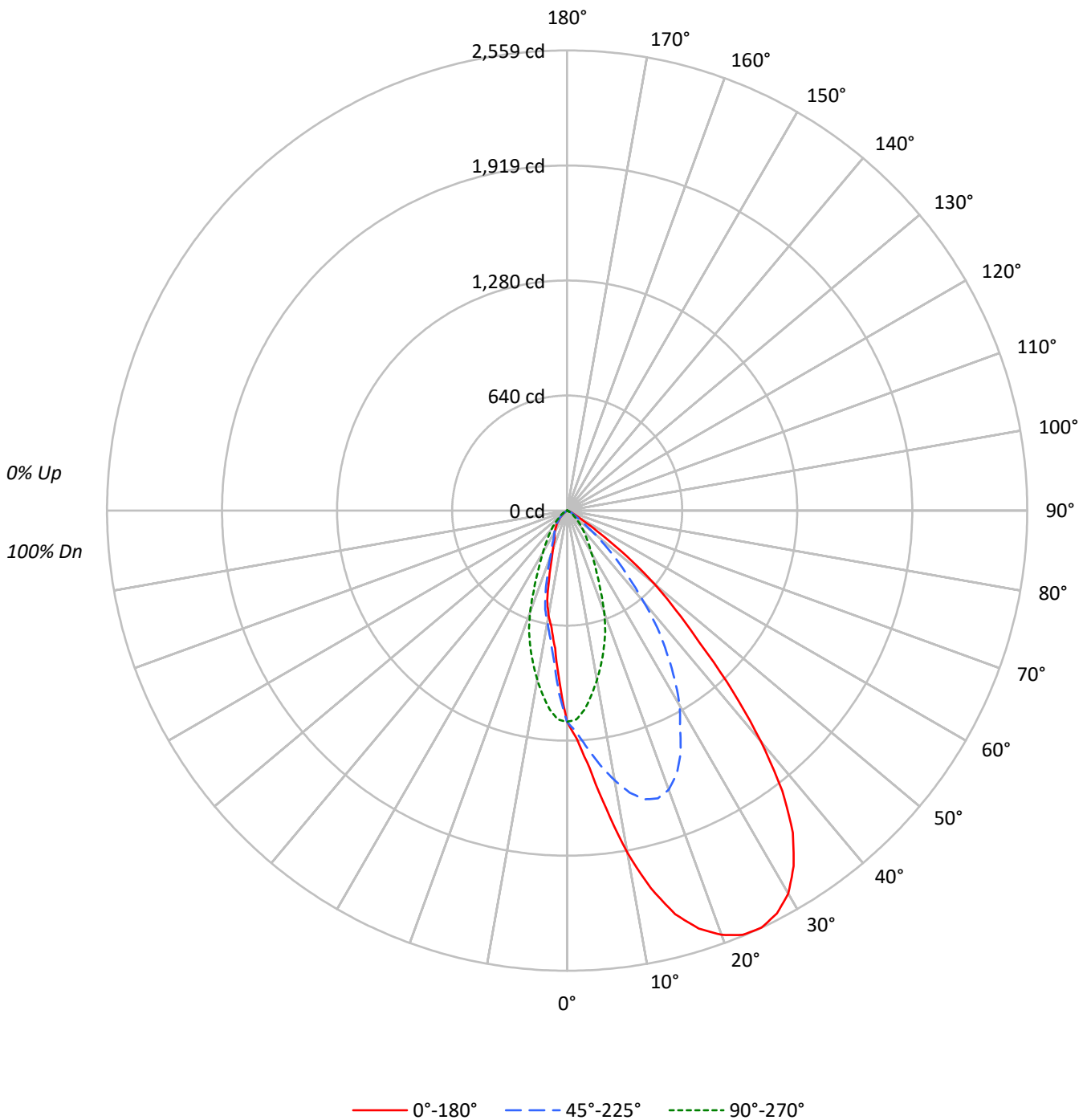
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	70119	70119	70119
5°	84124	65063	45019
10°	111994	55288	34317
15°	134029	45499	22222
20°	145431	34995	13437
25°	149964	23200	9511
30°	146979	15967	8282
35°	134414	11575	6537
40°	106652	8538	4830
45°	69608	5976	3368
50°	44665	3780	1784
55°	17155	2542	234
60°	5257	1562	0
65°	2960	693	0
70°	1392	151	0
75°	174	174	0
80°	0	206	0
85°	0	254	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.1	7.1
10°-20°	299.6	20.3
20°-30°	402.2	27.3
30°-40°	376.3	25.5
40°-50°	216.9	14.7
50°-60°	61.2	4.1
60°-70°	11.7	0.8
70°-80°	1.5	0.1
80°-90°	0.7	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°	806.8	54.7
0°-40°	1183.1	80.2
0°-60°	1461.2	99.1
0°-90°	1475.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1475.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1175	1175	1175	1175	1175	
5°	1437	1331	1111	836	769	153
15°	2323	1662	789	460	385	656
25°	2559	1493	396	182	162	1171
35°	2188	966	188	116	106	1335
45°	1044	395	90	57	50	837
55°	227	64	34	17	3	242
65°	33	21	8	1	0	34
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°	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7
2.5°	1272.7	1275.0	1281.1	1268.1	1255.8	1252.0	1255.8	1235.2	1241.3	1235.2	1220.6
5°	1436.6	1446.5	1447.3	1428.9	1410.5	1402.1	1395.2	1353.9	1353.1	1330.9	1298.0
7.5°	1672.4	1676.2	1660.9	1634.9	1599.7	1571.3	1546.1	1487.9	1471.0	1430.4	1382.2
10°	1934.3	1944.2	1925.1	1887.6	1829.4	1787.3	1722.9	1637.2	1588.9	1523.1	1454.2
12.5°	2149.5	2157.1	2146.4	2095.1	2037.7	1990.2	1901.4	1789.6	1707.6	1606.5	1503.2
15°	2323.3	2327.1	2317.2	2261.3	2196.9	2132.6	2040.0	1909.0	1804.9	1662.4	1526.9
17.5°	2437.4	2441.2	2438.2	2373.1	2305.7	2238.3	2129.6	1984.1	1847.0	1677.8	1517.7
20°	2510.9	2523.2	2508.6	2448.9	2369.2	2297.3	2172.4	2007.0	1848.5	1651.7	1472.5
22.5°	2553.8	2564.5	2546.9	2483.3	2396.8	2317.2	2174.7	1987.9	1804.1	1588.2	1402.9
25°	2559.1	2570.6	2550.0	2478.7	2387.6	2291.9	2128.0	1920.5	1709.9	1493.2	1315.6
27.5°	2525.5	2536.9	2511.7	2438.9	2340.9	2226.8	2033.1	1805.6	1586.6	1358.4	1202.2
30°	2459.6	2460.4	2435.1	2360.0	2245.2	2111.9	1889.1	1644.1	1451.9	1252.0	1077.4
32.5°	2344.0	2353.9	2317.2	2230.6	2050.7	1936.6	1702.3	1476.4	1301.0	1112.6	964.8
35°	2187.8	2191.6	2144.9	2046.1	1874.6	1709.9	1491.7	1303.3	1144.8	966.4	814.0
37.5°	1964.9	1968.0	1907.5	1801.0	1619.6	1477.1	1289.5	1126.4	978.6	823.9	682.3
40°	1673.9	1673.9	1605.8	1507.8	1360.7	1248.2	1092.0	941.9	807.1	662.4	544.4
42.5°	1366.1	1353.1	1309.4	1220.6	1105.0	990.1	853.0	732.1	627.2	514.6	418.1
45°	1043.7	1038.4	1010.8	944.2	860.7	781.8	671.6	581.2	491.6	395.1	311.7
47.5°	818.6	818.6	797.9	744.3	680.0	614.9	530.7	447.2	371.4	285.6	225.9
50°	633.3	637.1	605.7	561.3	504.6	456.4	376.0	304.8	241.2	187.6	150.1
52.5°	416.6	421.9	395.1	362.2	315.5	277.2	209.8	164.6	130.9	108.0	89.6
55°	227.4	224.4	208.3	184.5	149.3	125.6	99.5	83.5	72.7	63.6	57.4
57.5°	108.7	107.2	96.5	85.0	75.8	68.2	60.5	55.1	51.3	48.2	45.2
60°	64.3	62.8	61.3	56.7	53.6	49.8	45.9	42.9	40.6	37.5	35.2
62.5°	45.2	45.2	44.4	42.9	39.8	37.5	34.5	32.2	30.6	28.3	26.8
65°	32.9	32.2	32.2	30.6	29.1	27.6	25.3	23.7	23.0	20.7	19.1
67.5°	22.2	22.2	22.2	21.4	19.9	18.4	16.8	16.1	14.5	13.0	12.3
70°	13.8	13.8	13.0	12.3	11.5	10.7	9.2	9.2	8.4	6.9	6.1
72.5°	6.1	6.1	6.1	5.4	5.4	4.6	3.8	3.8	3.1	2.3	2.3
75°	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	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°	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7
2.5°	1242.1	1218.3	1212.2	1220.6	1208.4	1183.9	1178.5	1163.2	1144.0	1134.8	1124.1
5°	1304.8	1271.9	1252.8	1248.2	1219.8	1177.0	1150.2	1111.1	1073.6	1044.5	1010.8
7.5°	1373.0	1319.4	1281.1	1252.8	1199.9	1134.1	1085.8	1034.5	980.9	941.1	901.3
10°	1424.3	1344.7	1279.6	1226.7	1155.5	1070.5	1015.4	954.9	893.6	845.4	804.0
12.5°	1447.3	1341.6	1256.6	1186.9	1100.4	1010.8	939.6	872.2	807.1	761.9	718.3
15°	1445.7	1318.6	1216.0	1134.1	1036.1	936.5	857.6	788.7	725.9	683.8	643.2
17.5°	1413.6	1270.4	1152.5	1060.6	954.9	850.8	776.5	704.5	642.5	591.2	539.1
20°	1358.4	1204.5	1074.4	968.7	862.2	758.1	678.5	604.2	529.9	477.8	424.2
22.5°	1280.3	1118.8	980.2	868.4	758.9	655.5	567.4	488.5	420.4	374.5	338.5
25°	1180.8	1016.2	875.3	760.4	650.9	549.0	461.0	395.9	336.9	301.7	274.1
27.5°	1063.6	899.0	768.0	657.0	546.7	451.0	375.2	322.4	278.7	251.2	229.7
30°	940.3	785.7	657.0	556.7	451.0	363.0	305.5	267.2	235.9	211.3	196.0
32.5°	809.4	670.0	559.8	457.9	365.3	297.9	256.5	227.4	197.6	182.2	169.2
35°	686.9	558.2	453.3	364.5	297.1	249.6	215.2	188.4	170.8	156.2	146.3
37.5°	571.3	450.3	351.5	287.2	239.7	202.2	177.7	159.3	144.7	134.0	127.1
40°	443.4	343.8	274.9	232.0	196.0	165.4	147.8	134.0	123.3	115.6	109.5
42.5°	335.4	262.7	219.0	186.1	159.3	137.1	125.6	111.8	103.4	97.3	91.1
45°	252.7	204.5	172.3	149.3	127.9	110.3	100.3	89.6	81.9	78.1	73.5
47.5°	188.4	153.9	128.6	112.6	95.0	82.7	75.8	68.9	64.3	61.3	59.0
50°	127.1	103.4	88.1	76.6	68.2	62.0	58.2	53.6	51.3	49.8	46.7
52.5°	78.1	66.6	59.7	55.9	52.1	49.0	46.7	43.6	39.8	38.3	36.0
55°	53.6	49.8	47.5	44.4	41.4	38.3	36.0	33.7	32.2	30.6	28.3
57.5°	43.6	39.8	36.8	34.5	32.2	29.9	28.3	26.8	24.5	23.0	21.4
60°	32.9	30.6	28.3	26.8	24.5	23.0	21.4	19.1	17.6	16.1	14.5
62.5°	25.3	23.0	21.4	19.9	18.4	16.1	14.5	13.0	11.5	10.0	8.4
65°	17.6	16.1	14.5	13.0	11.5	10.0	9.2	7.7	6.1	4.6	3.1
67.5°	11.5	10.0	8.4	6.9	6.1	4.6	3.8	3.1	1.5	1.5	0.8
70°	5.4	4.6	3.1	3.1	2.3	1.5	1.5	1.5	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°	0.8	0.8	0.8	0.8	1.5	1.5	0.8	1.5	1.5	0.8	0.8
77.5°	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	0.8	0.8	1.5
80°	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.8
82.5°	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7	1174.7
2.5°	1094.3	1092.0	1070.5	1052.1	1039.1	1017.7	1007.7	997.0	971.7	972.5	983.2
5°	968.7	948.8	918.9	888.3	866.8	836.2	821.7	806.3	794.9	782.6	781.8
7.5°	851.5	824.7	793.3	763.5	745.1	715.2	702.2	686.9	676.2	668.5	669.3
10°	752.0	726.7	696.8	682.3	656.2	631.7	622.6	611.8	604.9	599.6	604.2
12.5°	676.2	650.9	625.6	600.3	584.3	562.8	551.3	541.4	532.2	527.6	526.1
15°	595.8	567.4	537.6	506.9	491.6	460.2	448.0	432.7	420.4	409.7	398.2
17.5°	490.1	460.2	430.4	397.4	374.5	354.5	340.0	323.9	310.9	301.7	297.1
20°	385.2	356.1	333.1	304.0	287.9	271.1	261.9	249.6	242.7	238.9	237.4
22.5°	304.0	279.5	261.9	242.7	231.3	219.8	213.6	205.2	199.1	194.5	194.5
25°	247.3	230.5	215.9	202.9	195.3	182.2	177.7	172.3	168.5	165.4	166.9
27.5°	206.8	200.6	185.3	172.3	166.2	157.7	155.4	151.6	150.1	148.6	149.3
30°	178.4	167.7	160.8	151.6	147.0	140.9	140.9	138.6	137.8	137.8	139.4
32.5°	155.4	147.0	140.9	134.8	133.2	128.6	129.4	127.1	125.6	124.8	124.8
35°	135.5	129.4	125.6	121.8	120.2	115.6	114.9	112.6	110.3	108.0	108.7
37.5°	118.7	114.9	111.0	107.2	104.9	100.3	99.5	98.0	96.5	95.7	95.7
40°	102.6	98.8	95.7	91.1	89.6	85.0	85.8	84.2	81.2	79.6	78.9
42.5°	85.0	81.9	78.9	76.6	75.0	70.4	68.9	65.1	64.3	63.6	64.3
45°	69.7	66.6	64.3	60.5	59.0	56.7	55.9	54.4	52.8	51.3	52.1
47.5°	55.9	53.6	50.5	49.0	47.5	45.2	44.4	42.9	42.1	40.6	40.6
50°	43.6	42.1	40.6	38.3	37.5	35.2	34.5	32.9	31.4	29.9	29.1
52.5°	34.5	33.7	32.2	29.9	28.3	26.8	25.3	22.2	19.9	17.6	17.6
55°	26.8	25.3	23.7	21.4	19.9	16.8	14.5	12.3	10.0	6.9	6.1
57.5°	19.9	17.6	16.1	13.0	10.7	7.7	6.1	3.1	2.3	0.8	0.0
60°	12.3	10.7	7.7	5.4	3.8	1.5	0.8	0.8	0.0	0.0	0.0
62.5°	6.1	4.6	2.3	1.5	0.8	0.8	0.0	0.0	0.0	0.0	0.0
65°	2.3	1.5	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0
67.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
82.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
85°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	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°	1174.7	1174.7	1174.7	1174.7
2.5°	941.9	953.4	933.5	955.7
5°	755.8	757.3	752.0	768.8
7.5°	647.8	654.0	646.3	658.5
10°	585.8	588.1	584.3	592.7
12.5°	513.8	506.9	503.9	512.3
15°	392.8	390.5	380.6	385.2
17.5°	290.2	287.2	286.4	285.6
20°	230.5	227.4	226.7	232.0
22.5°	188.4	186.8	184.5	189.9
25°	162.3	162.3	160.8	162.3
27.5°	146.3	147.0	146.3	148.6
30°	136.3	137.1	136.3	138.6
32.5°	121.0	121.8	120.2	121.0
35°	105.7	105.7	104.9	106.4
37.5°	93.4	94.2	93.4	95.0
40°	76.6	75.8	75.0	75.8
42.5°	62.8	62.0	62.0	63.6
45°	49.8	49.8	49.8	50.5
47.5°	39.1	38.3	38.3	38.3
50°	27.6	26.0	26.0	25.3
52.5°	14.5	13.8	13.8	13.0
55°	4.6	3.8	3.8	3.1
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)