

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: LUMARK

Report Number: P145126

Luminaire Tested: **LDRL-SL3-F01-E-7050**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P145126
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P33702)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: LDRL-SL3-F01-E-7050
Description: RL LED ROADWAY LARGE CUTOFF COBRAHEAD LUMINAIRE
(1) LIGHTBARS WITH AccuLED OPTICS - TYPE 3 W/ SPILL LIGHT CONTROL
Light Source: (7) 5000K CCT, 70 CRI LEDs
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2514.7 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Luminous Opening: Rectangular (W 0.17' x L: 1' x H: 0')
IES Classification: Type III - Short - Semi-Cutoff
BUG Rating: B1 - U0 - G1

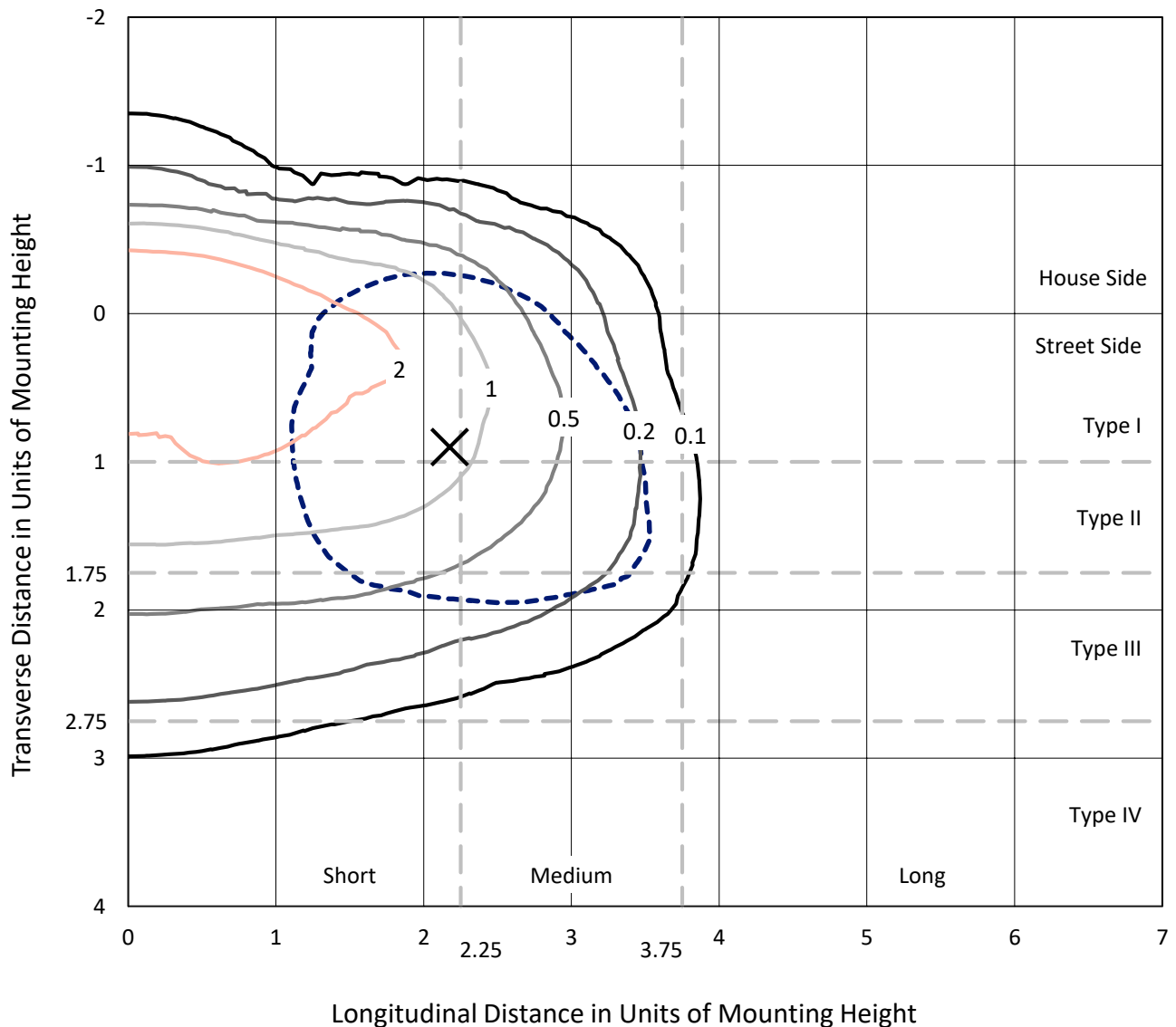
Input Watts (W): 25.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

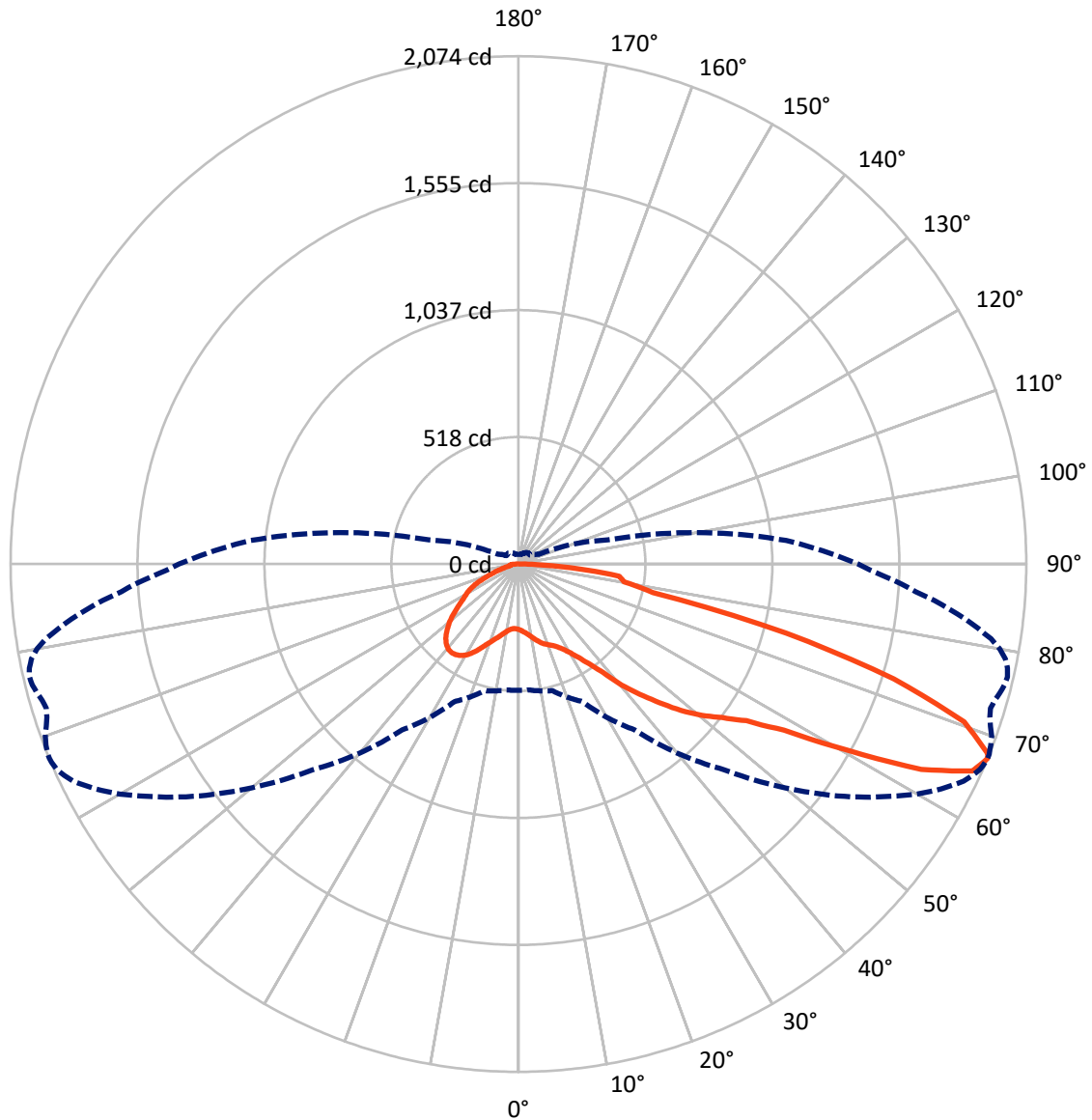
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 3.4 fc
 Type III - Short - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 67.5-Deg Lateral - - - Horizontal Cone Through 67-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	595.5	0.0	595.5
	% Fixture	23.7	0.0	23.7
Street Side	Lumens	1919.2	0.0	1919.2
	% Fixture	76.3	0.0	76.3
Total	Lumens	2514.7	0.0	2514.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.7	1.1
10°-20°	91.4	3.6
20°-30°	162.8	6.5
30°-40°	237.1	9.4
40°-50°	365.3	14.5
50°-60°	535.0	21.3
60°-70°	710.4	28.3
70°-80°	334.9	13.3
80°-90°	51.2	2.0
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°-90°	2514.7	100.0
0°-180°	2514.7	100.0



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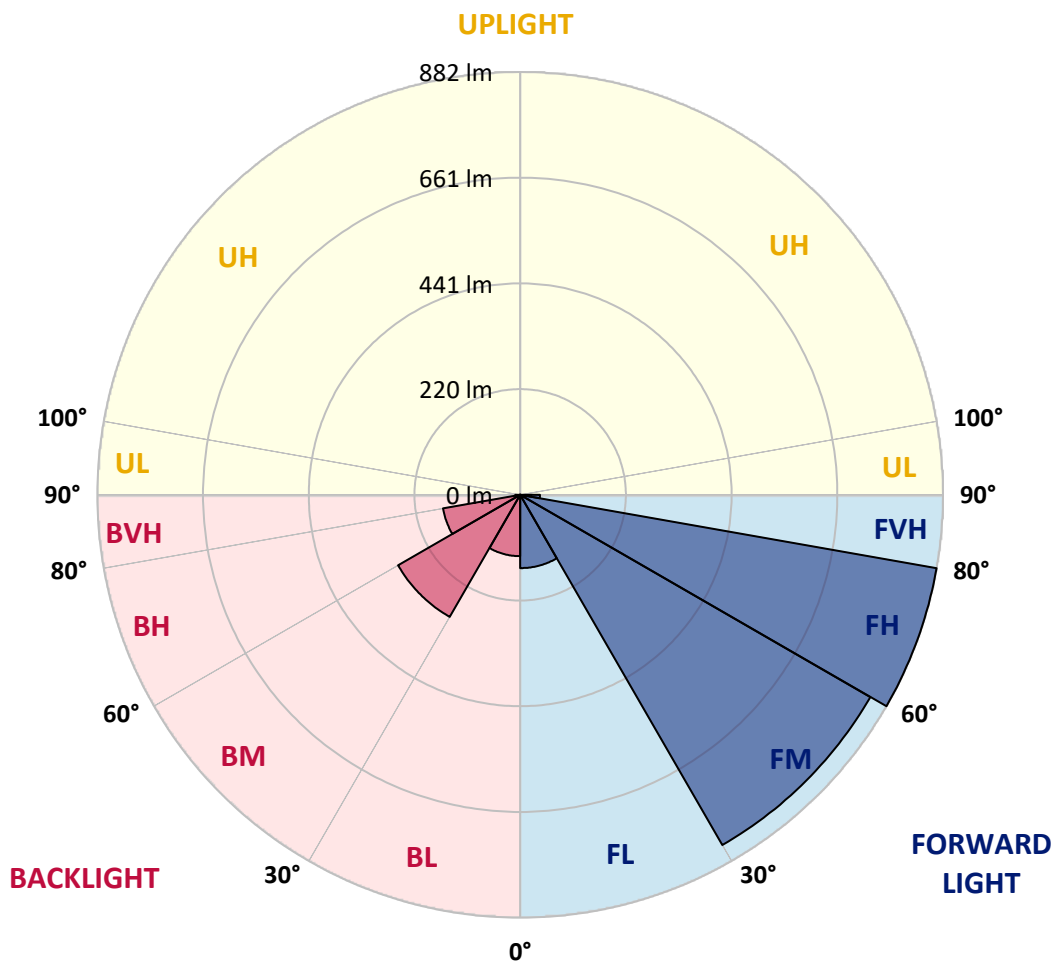
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	152.9	6.1			
FM	(30°-60°)	843.3	33.5			
FH	(60°-80°)	881.8	35.1			G1/1800
FVH	(80°-90°)	41.3	1.6			G1/100
BL	(0°-30°)	128.0	5.1	B1/500		
BM	(30°-60°)	294.0	11.7	B1/1000		
BH	(60°-80°)	163.5	6.5	B1/500		G1/500
BVH	(80°-90°)	9.9	0.4			G0/10
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G1

Type III Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	60°	61°	62°	64°
0°	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5
2.5°	280.9	279.7	279.9	280.4	278.7	277.8	276.0	274.8	274.6	274.5	273.8
5°	297.3	296.1	296.6	295.3	292.1	289.9	286.0	283.9	283.6	283.3	282.4
7.5°	314.4	312.9	311.2	309.7	306.1	302.6	297.5	294.4	294.1	293.6	293.1
10°	334.8	332.6	331.2	326.5	320.4	315.5	310.4	307.1	307.0	306.5	305.5
12.5°	357.6	355.3	352.7	346.5	337.0	329.7	323.8	321.9	320.4	320.5	319.5
15°	380.3	377.8	374.4	366.4	353.9	343.1	335.4	332.7	332.9	332.1	332.6
17.5°	399.5	397.3	392.4	382.2	367.6	352.7	343.1	341.9	342.2	342.0	342.6
20°	412.0	410.7	403.2	391.0	374.6	358.1	348.3	348.3	348.5	349.2	350.4
22.5°	419.6	417.6	407.8	390.7	374.4	360.7	353.1	354.8	355.8	356.3	358.1
25°	423.9	421.3	408.0	385.2	368.6	362.5	360.2	364.4	366.1	367.0	370.0
27.5°	423.9	420.8	405.7	378.5	362.0	368.1	373.7	381.0	382.2	384.7	388.3
30°	419.1	416.8	402.4	373.4	360.3	378.6	395.6	403.9	406.8	409.6	414.2
32.5°	414.1	412.0	400.7	376.1	369.8	400.7	429.0	440.3	442.0	444.4	449.1
35°	413.7	413.0	408.1	393.4	398.5	441.0	479.3	487.1	491.8	493.0	495.0
37.5°	417.3	418.6	422.9	421.3	439.6	501.0	545.2	560.8	564.5	562.5	564.3
40°	425.6	429.0	444.7	464.2	502.5	573.5	635.0	652.9	657.0	655.8	655.3
42.5°	451.8	456.4	479.6	521.3	567.9	648.5	718.3	737.6	739.0	739.7	735.3
45°	493.0	495.5	526.4	579.6	638.7	729.3	801.5	823.0	822.2	818.8	815.6
47.5°	539.8	545.0	581.9	646.3	711.9	804.0	885.7	906.7	908.6	905.5	899.6
50°	582.3	586.3	628.0	704.4	776.4	866.2	956.7	977.9	977.5	979.2	980.9
52.5°	615.8	619.6	659.2	743.2	823.9	918.4	1010.2	1036.3	1040.4	1043.1	1046.5
55°	633.1	637.0	673.6	759.3	852.7	969.4	1072.1	1109.5	1116.4	1122.5	1128.1
57.5°	633.4	638.5	672.1	758.1	867.6	1015.0	1153.9	1221.1	1231.0	1246.6	1265.7
60°	623.1	630.2	660.4	747.1	884.7	1072.7	1288.7	1417.5	1436.8	1464.1	1488.7
62.5°	596.2	603.3	630.2	719.2	904.7	1146.8	1483.6	1672.3	1713.5	1743.6	1792.2
65°	553.6	560.4	583.1	672.9	888.8	1205.2	1628.8	1855.1	1897.1	1934.9	1992.0
67°	515.7	516.4	535.5	619.9	826.7	1187.1	1657.9	1879.5	1918.3	1956.6	2022.8
67.5°	502.3	506.0	521.0	602.3	803.2	1173.7	1646.4	1866.3	1903.9	1944.7	2012.3
70°	406.1	407.1	421.5	480.5	637.3	973.1	1478.8	1697.7	1723.5	1783.3	1849.7
72.5°	247.7	246.0	250.6	294.3	419.5	673.9	1184.0	1397.7	1432.9	1483.9	1528.8
75°	136.4	144.5	150.1	180.4	235.7	396.3	806.2	1011.2	1062.9	1093.2	1102.2
77.5°	83.4	82.7	85.2	116.4	193.3	271.1	445.4	593.3	622.1	630.7	597.4
80°	39.6	41.2	40.7	47.9	93.7	228.7	311.4	381.0	395.6	403.9	414.7
82.5°	21.7	22.5	25.6	28.6	36.9	98.4	268.7	351.4	361.2	375.4	391.3
85°	13.6	14.2	19.7	20.7	22.7	30.3	112.0	205.3	213.6	241.9	250.9
87.5°	5.6	6.1	10.7	9.7	11.5	10.7	33.9	52.2	55.4	59.0	65.4
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):

	65°	66°	67°	67.5°	68°	69°	70°	71°	72°	73°	74°
0°	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5
2.5°	273.9	273.8	273.1	272.9	273.3	273.3	272.9	272.4	272.3	272.1	271.7
5°	282.1	281.7	281.2	280.9	280.7	280.7	280.2	279.7	279.2	278.5	278.3
7.5°	291.7	291.7	291.6	291.1	290.5	289.9	289.4	288.9	288.3	288.0	287.5
10°	304.4	305.1	303.9	303.6	303.4	302.4	302.2	301.7	301.4	300.5	300.5
12.5°	319.5	318.8	318.7	318.0	318.0	317.5	317.3	317.1	316.8	316.1	316.0
15°	332.1	332.1	331.9	331.5	331.9	331.5	331.0	331.4	330.9	331.0	330.5
17.5°	342.2	342.9	342.7	342.9	342.7	342.7	343.1	343.1	343.4	342.7	342.9
20°	350.7	351.7	352.2	351.9	352.2	352.4	353.2	353.6	354.1	354.4	354.4
22.5°	359.5	360.9	361.9	361.9	362.5	363.2	364.8	365.1	366.3	366.1	367.0
25°	371.9	374.1	374.7	375.8	376.6	377.8	379.7	380.5	381.0	382.2	383.6
27.5°	390.8	393.6	394.1	395.2	397.4	398.1	400.2	401.0	402.9	405.4	405.9
30°	416.8	420.1	420.3	421.7	424.2	425.1	426.8	429.0	430.5	433.0	433.2
32.5°	452.0	455.4	454.9	457.4	457.3	459.8	459.3	462.7	464.0	465.4	469.1
35°	498.9	498.6	501.1	502.0	501.5	503.5	503.2	504.7	506.0	506.0	510.1
37.5°	566.5	566.0	565.7	562.1	561.3	561.4	560.8	562.1	559.9	559.9	564.3
40°	657.2	654.1	651.7	649.4	647.0	643.8	641.1	640.4	636.7	636.5	634.8
42.5°	735.9	733.1	731.4	726.8	724.4	723.9	717.3	715.4	714.4	715.1	713.4
45°	818.6	815.6	809.1	807.1	806.4	802.9	801.8	797.3	795.9	798.3	797.4
47.5°	903.8	899.4	895.9	893.5	892.6	889.6	885.2	888.9	887.1	885.7	883.2
50°	980.4	975.5	975.5	971.3	971.9	969.9	965.3	966.3	961.1	963.1	961.8
52.5°	1044.6	1045.0	1046.6	1041.9	1042.8	1042.8	1041.2	1036.3	1037.7	1037.0	1040.2
55°	1126.3	1131.9	1128.8	1129.7	1130.7	1135.4	1138.8	1135.9	1131.2	1134.9	1145.2
57.5°	1269.1	1274.2	1277.2	1279.6	1283.5	1285.7	1304.0	1306.5	1301.1	1312.3	1335.3
60°	1517.5	1523.6	1532.7	1544.7	1547.3	1562.7	1572.2	1583.4	1587.4	1597.1	1621.8
62.5°	1816.1	1829.9	1831.5	1846.8	1858.7	1844.3	1848.0	1861.7	1846.1	1867.5	1868.5
65°	2011.6	2031.6	2032.3	2037.9	2042.3	2028.7	2022.6	2016.5	2001.8	2001.0	2015.7
67°	2045.2	2063.5	2071.1	2073.8	2073.1	2066.2	2056.2	2038.6	2024.3	2016.2	2022.3
67.5°	2035.7	2053.7	2064.3	2066.9	2067.0	2060.3	2051.1	2032.0	2018.6	2009.4	2015.9
70°	1879.8	1921.8	1940.1	1930.7	1936.1	1936.1	1935.7	1918.1	1911.5	1902.7	1899.3
72.5°	1563.0	1592.2	1615.4	1603.0	1604.5	1616.1	1613.3	1615.2	1596.2	1594.2	1562.9
75°	1119.7	1129.0	1121.2	1130.0	1082.6	1065.6	1036.8	994.8	983.8	966.3	914.2
77.5°	594.8	584.3	563.5	561.8	542.3	527.2	508.6	496.4	465.6	448.4	409.3
80°	420.1	425.2	433.2	437.9	442.3	445.7	438.8	419.3	393.6	364.8	337.5
82.5°	401.3	408.3	413.0	415.4	413.7	408.3	392.4	373.7	339.3	314.4	285.0
85°	253.1	258.7	249.0	247.0	251.2	217.0	198.2	183.0	148.2	137.9	121.8
87.5°	67.9	71.7	71.8	69.6	68.3	60.1	53.2	47.1	39.0	36.6	29.6
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):

	75°	76°	77°	78°	79°	80°	81°	82°	83°	84°	85°
0°	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5
2.5°	271.7	271.6	271.6	271.1	270.7	270.6	270.4	269.9	269.5	269.5	269.4
5°	278.2	277.8	277.3	277.2	276.5	276.1	275.5	275.1	274.6	274.3	274.1
7.5°	287.3	286.5	285.5	285.6	284.6	284.1	283.8	283.1	282.6	282.1	281.9
10°	299.5	299.4	298.3	298.7	296.8	297.7	296.0	296.1	295.1	294.1	293.9
12.5°	315.1	314.9	313.9	312.7	312.4	312.6	311.6	311.7	310.5	310.2	309.9
15°	330.0	329.7	329.2	328.3	327.8	327.6	327.3	327.0	326.0	326.0	324.8
17.5°	342.9	343.1	342.4	341.7	341.4	340.9	340.7	340.7	339.8	339.0	339.2
20°	354.2	354.6	354.6	354.1	354.2	353.9	353.7	354.1	353.2	352.9	352.4
22.5°	367.0	367.0	367.1	367.5	368.0	368.1	368.1	367.8	367.3	367.1	366.1
25°	384.6	383.9	384.7	385.1	385.1	385.9	385.6	385.8	385.9	385.4	384.9
27.5°	406.8	406.1	407.8	409.0	408.8	409.3	410.3	409.1	409.8	410.3	409.1
30°	434.0	435.7	436.9	437.8	437.4	439.0	439.5	439.3	438.8	439.6	439.6
32.5°	468.8	467.9	471.0	472.8	473.0	472.7	473.5	474.5	473.7	475.0	474.4
35°	510.1	510.6	511.3	513.3	514.2	512.8	514.2	515.4	515.0	515.2	515.9
37.5°	563.5	564.3	563.6	563.8	563.5	569.9	570.9	571.9	570.8	569.7	572.8
40°	637.5	637.5	637.3	639.5	635.8	639.9	638.7	641.6	644.6	642.9	647.5
42.5°	710.4	714.4	714.8	711.5	714.3	718.7	718.7	720.5	723.2	720.5	724.9
45°	793.9	799.0	798.1	803.5	799.5	804.6	805.4	803.0	809.0	809.6	807.9
47.5°	885.0	886.0	886.2	888.1	888.9	893.0	892.8	897.2	895.9	889.1	891.5
50°	963.1	965.7	967.0	968.2	972.4	975.3	979.2	979.9	978.9	976.8	975.0
52.5°	1041.2	1047.3	1051.2	1061.7	1068.3	1073.6	1080.0	1082.4	1081.2	1080.7	1073.2
55°	1145.8	1160.3	1182.9	1197.4	1213.4	1222.7	1230.1	1233.9	1231.1	1232.5	1217.1
57.5°	1342.6	1376.8	1396.5	1421.4	1449.5	1461.2	1464.4	1477.6	1463.1	1448.5	1436.8
60°	1635.2	1666.7	1702.5	1728.0	1737.5	1769.9	1754.6	1737.5	1721.9	1691.8	1657.7
62.5°	1899.3	1940.0	1958.3	1982.2	1975.7	1973.0	1962.8	1935.6	1902.2	1857.3	1811.9
65°	2029.6	2052.5	2063.8	2071.6	2064.3	2045.5	2012.0	1971.7	1923.9	1865.8	1806.1
67°	2034.8	2045.3	2049.1	2041.6	2025.4	1996.0	1953.7	1896.6	1837.8	1771.2	1704.1
67.5°	2026.2	2033.2	2035.0	2023.3	2004.0	1972.3	1927.1	1866.1	1803.6	1734.5	1667.0
70°	1908.3	1903.2	1886.8	1870.7	1810.4	1767.8	1689.1	1624.0	1537.3	1473.7	1401.7
72.5°	1550.3	1527.1	1511.2	1440.0	1367.2	1325.0	1240.3	1162.5	1083.4	1022.9	978.7
75°	870.3	853.3	809.1	771.5	711.4	656.3	616.8	567.4	519.9	491.8	471.1
77.5°	393.2	344.8	311.4	269.2	217.5	174.8	129.8	119.9	102.3	97.9	88.3
80°	306.8	272.1	228.4	180.1	127.1	85.4	62.7	53.2	50.0	47.9	46.9
82.5°	256.0	210.9	177.5	126.0	80.6	54.2	40.8	36.9	34.6	32.9	31.3
85°	109.4	86.6	71.3	51.0	36.3	28.6	25.1	22.9	20.7	18.8	17.6
87.5°	25.6	19.7	18.0	15.2	14.4	14.2	14.1	13.4	12.5	11.5	10.3
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):

	86°	87°	88°	89°	90°	95°	105°	115°	125°	135°	145°
0°	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5	267.5
2.5°	269.2	269.0	268.7	268.2	268.2	267.5	265.3	263.8	262.1	261.1	260.1
5°	273.8	273.6	272.8	272.3	271.9	270.6	266.8	263.9	260.9	258.7	257.0
7.5°	281.4	280.9	280.2	279.9	278.9	277.2	271.7	267.7	263.3	259.7	256.8
10°	293.8	292.9	291.9	290.9	291.2	288.5	282.2	276.3	269.9	264.3	260.4
12.5°	308.8	308.8	308.3	307.7	306.5	303.4	295.0	288.0	280.2	273.3	270.4
15°	324.8	323.9	323.1	322.1	321.9	317.8	310.2	302.2	294.1	288.2	284.8
17.5°	337.8	338.2	337.0	336.6	336.3	332.2	324.1	317.0	311.0	304.8	299.4
20°	351.7	351.0	350.7	350.2	350.0	346.6	340.2	335.8	330.5	321.0	306.8
22.5°	366.6	365.8	366.1	365.1	364.9	362.5	357.8	356.4	348.7	328.7	303.9
25°	385.9	384.4	384.9	384.9	385.1	382.9	382.4	380.0	360.3	326.8	292.4
27.5°	409.0	409.6	409.6	409.5	408.3	409.0	411.3	403.2	364.4	317.0	275.1
30°	439.0	439.3	439.6	440.8	438.3	442.7	445.6	419.6	361.4	303.4	253.4
32.5°	475.4	474.0	474.7	475.4	476.2	480.8	479.1	427.9	352.4	285.0	226.5
35°	515.5	518.1	518.7	520.3	522.0	528.9	509.4	429.6	338.7	260.2	192.1
37.5°	575.3	579.4	579.4	584.8	581.6	590.1	536.5	425.6	317.8	225.8	153.3
40°	650.7	652.6	654.5	655.1	653.4	652.4	554.3	415.6	288.5	182.6	112.2
42.5°	727.6	727.0	727.1	728.3	723.7	704.6	565.3	398.1	252.1	136.4	80.5
45°	810.5	807.6	806.8	804.4	800.3	760.0	571.6	373.6	204.1	95.9	63.2
47.5°	891.1	887.6	882.1	875.5	867.7	804.6	570.9	341.7	156.5	68.6	55.7
50°	973.8	967.5	955.8	949.4	936.2	848.8	567.0	306.3	112.7	56.8	52.2
52.5°	1068.3	1057.2	1046.3	1033.4	1011.6	903.2	561.1	266.5	82.2	52.0	49.8
55°	1209.3	1191.0	1173.2	1146.4	1125.3	976.0	551.1	223.6	64.9	50.1	48.5
57.5°	1403.6	1372.4	1349.9	1313.8	1279.9	1076.8	540.4	184.7	57.9	49.6	47.8
60°	1622.3	1575.4	1533.4	1489.0	1450.4	1202.7	534.8	154.2	56.4	50.1	47.9
62.5°	1759.5	1704.1	1651.6	1597.4	1541.8	1262.8	510.6	133.2	57.1	52.3	49.3
65°	1742.3	1681.1	1624.0	1557.9	1505.6	1206.1	449.0	112.7	58.3	56.2	53.0
67°	1625.7	1566.4	1501.4	1436.6	1385.8	1098.1	379.0	94.9	59.6	60.7	57.1
67.5°	1594.5	1527.8	1462.2	1402.8	1347.7	1064.8	360.7	90.5	60.0	61.8	58.4
70°	1329.7	1276.9	1200.1	1156.1	1116.3	863.2	269.0	70.3	61.0	67.1	64.9
72.5°	930.4	879.3	839.1	815.1	791.8	627.2	189.2	56.1	59.5	70.0	67.8
75°	470.0	458.3	444.2	436.4	436.8	364.6	114.0	47.8	55.9	67.1	61.5
77.5°	92.8	90.5	91.5	100.1	98.6	112.3	56.6	40.5	47.6	51.7	44.2
80°	44.9	43.4	42.0	41.7	40.8	39.1	35.6	33.7	38.6	34.1	29.3
82.5°	29.1	27.4	26.8	25.4	25.6	27.8	31.0	32.4	31.3	23.5	19.8
85°	16.4	16.3	15.9	16.3	16.9	22.2	33.2	30.3	25.2	16.6	14.9
87.5°	9.8	9.3	9.5	9.7	10.0	16.4	26.3	21.9	16.1	8.6	8.8
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):

	155°	165°	175°	180°
0°	267.5	267.5	267.5	267.5
2.5°	259.9	259.2	259.2	259.0
5°	255.6	254.6	254.5	254.5
7.5°	255.0	253.6	253.4	252.9
10°	258.0	257.5	257.7	257.2
12.5°	267.7	268.4	269.0	269.0
15°	282.4	281.9	282.8	281.9
17.5°	293.3	288.9	287.8	287.3
20°	293.6	284.4	281.4	280.9
22.5°	283.1	269.5	264.5	263.6
25°	265.3	248.2	241.8	241.1
27.5°	242.9	223.8	214.3	214.0
30°	216.0	193.3	181.3	179.4
32.5°	183.1	156.2	143.5	139.4
35°	145.2	117.6	105.7	105.4
37.5°	108.4	86.9	79.3	78.9
40°	79.5	68.3	65.4	64.9
42.5°	64.9	60.3	59.1	58.6
45°	58.1	56.2	55.6	55.1
47.5°	54.0	52.9	52.3	52.3
50°	50.8	50.5	50.1	50.1
52.5°	48.6	48.5	48.1	47.9
55°	46.8	46.1	46.3	46.1
57.5°	45.6	44.6	44.6	44.6
60°	44.9	43.0	43.0	43.2
62.5°	45.1	42.2	42.0	42.0
65°	46.4	41.7	40.7	40.8
67°	48.1	41.2	39.1	39.0
67.5°	48.6	40.8	38.6	38.5
70°	50.7	39.8	36.1	35.7
72.5°	51.0	38.3	33.5	33.2
75°	47.4	36.3	31.5	30.7
77.5°	36.9	31.2	28.5	28.5
80°	25.9	23.9	20.3	20.2
82.5°	19.0	18.0	14.9	14.6
85°	13.9	13.0	11.0	11.0
87.5°	8.6	8.3	7.1	6.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)