

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: P145121

Luminaire Tested: **LDRL-SL3-E01-E-7050**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P145121
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-E01-E-7050
Description: RL LED ROADWAY LARGE CUTOFF COBRAHEAD LUMINAIRE
(1) LIGHTBARS WITH AccuLED OPTICS - TYPE 3 W/ SPILL LIGHT CONTROL
Light Source: (21) 5000K CCT, 70 CRI LEDs
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3046.2 lumens
Efficiency: N/A
Efficacy: 123.3 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

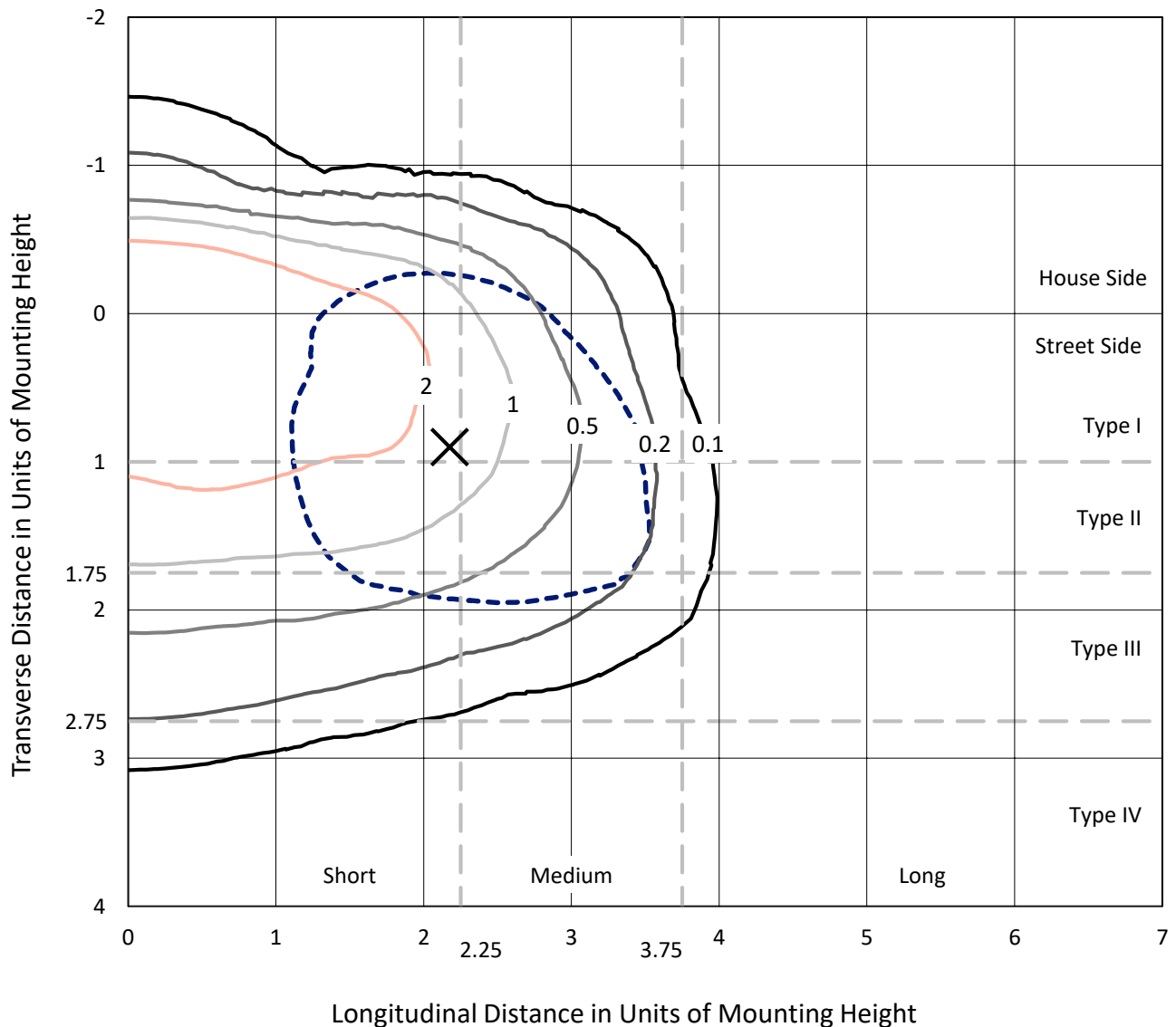
Input Watts (W): 24.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P145121
 CATALOG NUMBER: LDRL-SL3-E01-E-7050

Iso-Footcandle Lines of Horizontal Illumination

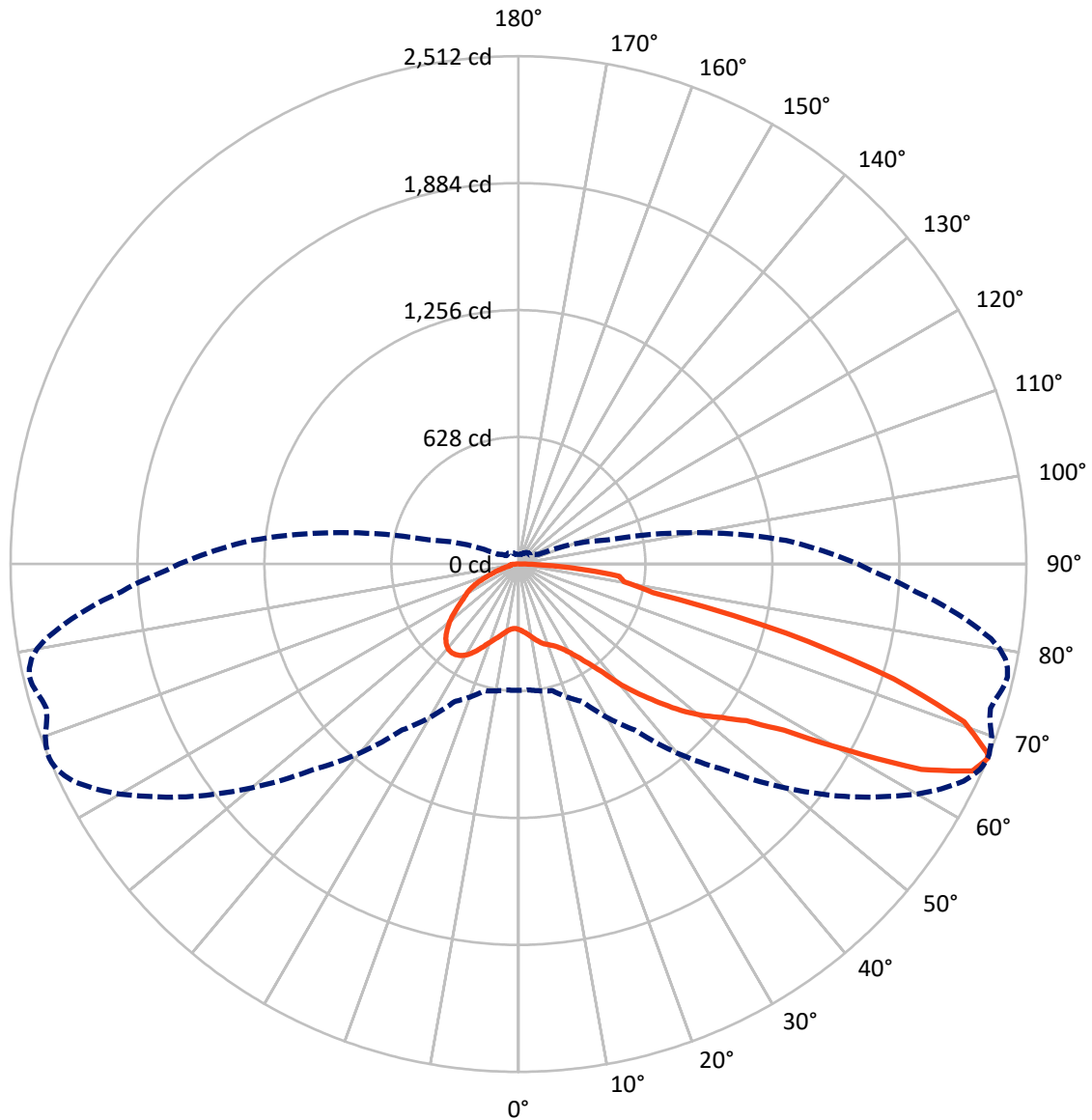
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.1 fc
 Type III - Short - Semi-Cutoff

REPORT NUMBER: P145121
CATALOG NUMBER: LDRL-SL3-E01-E-7050

Luminous Intensity Polar Plot



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

REPORT NUMBER: P145121

CATALOG NUMBER: LDRL-SL3-E01-E-7050

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	721.3	0.0	721.3
	% Fixture	23.7	0.0	23.7
Street Side	Lumens	2324.9	0.0	2324.9
	% Fixture	76.3	0.0	76.3
Total	Lumens	3046.2	0.0	3046.2
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.3	1.1
10°-20°	110.7	3.6
20°-30°	197.2	6.5
30°-40°	287.2	9.4
40°-50°	442.5	14.5
50°-60°	648.1	21.3
60°-70°	860.6	28.3
70°-80°	405.6	13.3
80°-90°	62.0	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°	3046.2	100.0
0°-180°	3046.2	100.0



REPORT NUMBER: P145121

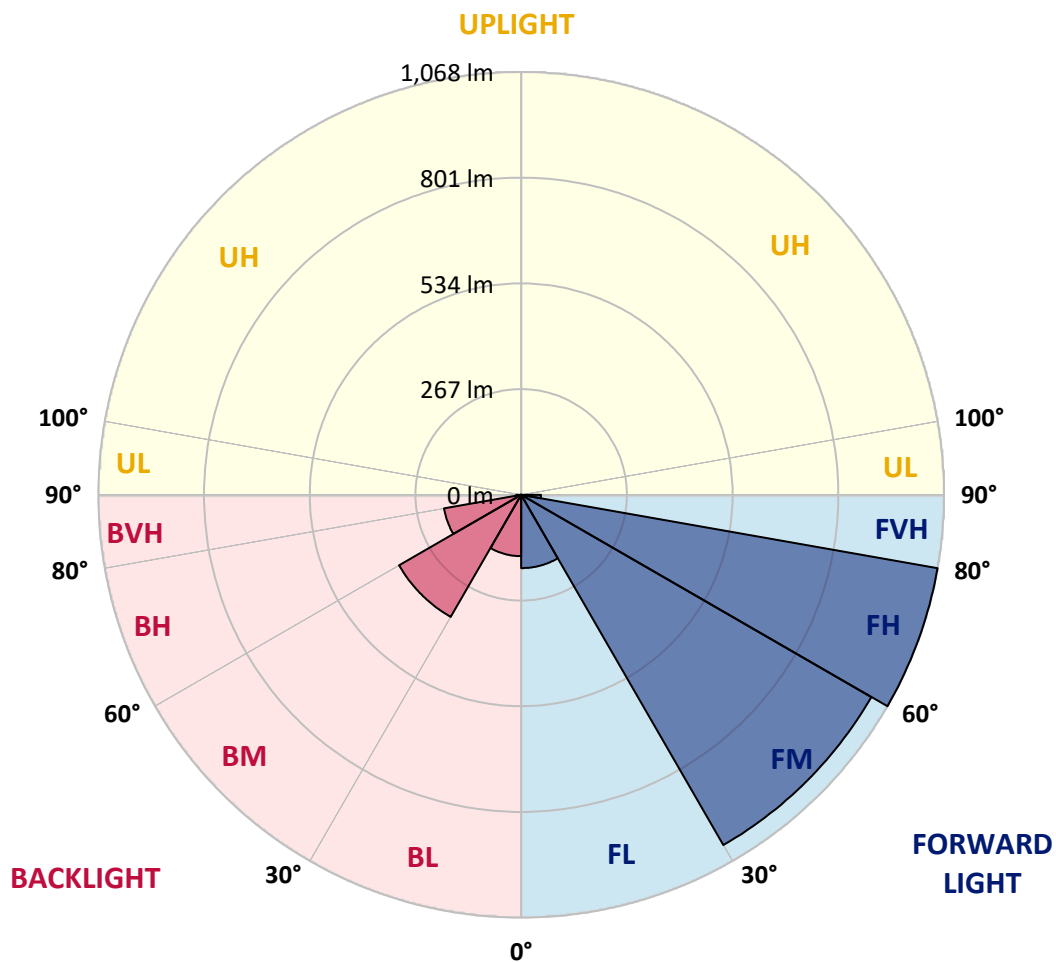
CATALOG NUMBER: LDRL-SL3-E01-E-7050

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	185.2	6.1			
FM	(30°-60°)	1021.6	33.5			
FH	(60°-80°)	1068.2	35.1			G1/1800
FVH	(80°-90°)	50.0	1.6			G1/100
BL	(0°-30°)	155.1	5.1	B1/500		
BM	(30°-60°)	356.2	11.7	B1/1000		
BH	(60°-80°)	198.0	6.5	B1/500		G1/500
BVH	(80°-90°)	12.0	0.4			G1/100
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





REPORT NUMBER: P145121

CATALOG NUMBER: LDRL-SL3-E01-E-7050

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	60°	61°	62°	64°
0°	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
2.5°	340.3	338.8	339.0	339.6	337.6	336.6	334.3	332.9	332.7	332.5	331.6
5°	360.2	358.7	359.3	357.7	353.8	351.1	346.4	344.0	343.5	343.1	342.1
7.5°	380.9	379.0	377.0	375.1	370.8	366.5	360.4	356.7	356.3	355.6	355.0
10°	405.5	402.8	401.2	395.5	388.1	382.1	376.0	372.1	371.9	371.2	370.0
12.5°	433.2	430.3	427.3	419.7	408.2	399.4	392.2	389.9	388.1	388.3	387.0
15°	460.7	457.6	453.5	443.9	428.7	415.6	406.3	403.1	403.3	402.2	402.8
17.5°	483.9	481.2	475.3	463.0	445.3	427.3	415.6	414.1	414.5	414.3	415.0
20°	499.1	497.5	488.4	473.7	453.7	433.8	421.9	421.9	422.1	423.0	424.4
22.5°	508.3	505.9	494.0	473.2	453.5	436.9	427.7	429.7	431.0	431.6	433.8
25°	513.5	510.4	494.2	466.7	446.6	439.2	436.3	441.4	443.5	444.5	448.2
27.5°	513.5	509.8	491.5	458.5	438.6	445.9	452.7	461.5	463.0	466.1	470.4
30°	507.7	504.8	487.4	452.3	436.5	458.7	479.2	489.2	492.7	496.2	501.8
32.5°	501.6	499.1	485.3	455.6	448.0	485.3	519.6	533.4	535.4	538.3	544.0
35°	501.1	500.3	494.4	476.5	482.7	534.2	580.6	590.0	595.8	597.2	599.7
37.5°	505.5	507.1	512.2	510.4	532.5	606.8	660.4	679.3	683.8	681.3	683.6
40°	515.5	519.6	538.7	562.3	608.7	694.7	769.2	790.9	795.8	794.4	793.8
42.5°	547.3	552.9	581.0	631.5	687.9	785.6	870.1	893.5	895.2	896.0	890.7
45°	597.2	600.3	637.6	702.1	773.7	883.5	970.9	997.0	995.9	991.8	987.9
47.5°	653.8	660.2	704.9	782.9	862.3	974.0	1072.9	1098.3	1100.6	1096.9	1089.7
50°	705.3	710.3	760.8	853.3	940.5	1049.3	1158.9	1184.5	1184.1	1186.2	1188.2
52.5°	746.0	750.5	798.5	900.3	998.0	1112.5	1223.7	1255.3	1260.3	1263.5	1267.7
55°	766.9	771.6	816.0	919.8	1032.9	1174.3	1298.6	1344.0	1352.4	1359.8	1366.6
57.5°	767.3	773.5	814.1	918.4	1050.9	1229.5	1397.8	1479.2	1491.1	1510.0	1533.2
60°	754.8	763.4	800.0	905.0	1071.7	1299.5	1561.1	1717.1	1740.5	1773.5	1803.3
62.5°	722.2	730.8	763.4	871.2	1095.9	1389.1	1797.1	2025.7	2075.6	2112.1	2171.0
65°	670.7	678.9	706.4	815.1	1076.6	1459.9	1973.0	2247.2	2298.1	2343.8	2413.0
67°	624.7	625.5	648.7	750.9	1001.5	1438.0	2008.3	2276.7	2323.7	2370.1	2450.3
67.5°	608.5	613.0	631.1	729.6	973.0	1421.8	1994.3	2260.7	2306.3	2355.7	2437.6
70°	491.9	493.1	510.6	582.0	772.0	1178.8	1791.4	2056.5	2087.7	2160.2	2240.6
72.5°	300.0	298.0	303.5	356.5	508.1	816.4	1434.3	1693.1	1735.8	1797.5	1851.9
75°	165.2	175.1	181.8	218.6	285.5	480.0	976.6	1225.0	1287.6	1324.3	1335.2
77.5°	101.0	100.1	103.2	141.0	234.2	328.4	539.5	718.7	753.6	764.0	723.6
80°	48.0	49.9	49.3	58.1	113.5	277.0	377.2	461.5	479.2	489.2	502.4
82.5°	26.3	27.3	31.0	34.7	44.7	119.2	325.5	425.6	437.5	454.8	474.1
85°	16.4	17.2	23.8	25.0	27.5	36.7	135.7	248.7	258.8	293.1	303.9
87.5°	6.8	7.4	12.9	11.7	14.0	12.9	41.0	63.2	67.1	71.4	79.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P145121

CATALOG NUMBER: LDRL-SL3-E01-E-7050

CANDELA DISTRIBUTION (continued):

	65°	66°	67°	67.5°	68°	69°	70°	71°	72°	73°	74°
0°	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
2.5°	331.8	331.6	330.8	330.6	331.0	331.0	330.6	330.0	329.8	329.6	329.2
5°	341.7	341.3	340.7	340.3	340.1	340.1	339.4	338.8	338.2	337.4	337.2
7.5°	353.4	353.4	353.2	352.6	352.0	351.1	350.5	349.9	349.3	348.9	348.3
10°	368.8	369.6	368.2	367.8	367.6	366.3	366.1	365.5	365.1	364.1	364.1
12.5°	387.0	386.2	386.0	385.2	385.2	384.6	384.4	384.2	383.8	382.9	382.7
15°	402.2	402.2	402.0	401.6	402.0	401.6	401.0	401.4	400.8	401.0	400.4
17.5°	414.5	415.4	415.2	415.4	415.2	415.2	415.6	415.6	416.0	415.2	415.4
20°	424.8	426.0	426.7	426.2	426.7	426.9	427.9	428.3	428.9	429.3	429.3
22.5°	435.5	437.1	438.4	438.4	439.2	440.0	441.8	442.3	443.7	443.5	444.5
25°	450.5	453.1	453.9	455.2	456.2	457.6	459.9	460.9	461.5	463.0	464.6
27.5°	473.4	476.7	477.3	478.8	481.4	482.3	484.7	485.8	488.0	491.1	491.7
30°	504.8	508.9	509.2	510.8	513.9	514.9	517.0	519.6	521.5	524.5	524.8
32.5°	547.5	551.6	551.0	554.1	553.9	557.0	556.4	560.5	562.1	563.7	568.3
35°	604.4	604.0	607.0	608.1	607.5	609.9	609.5	611.4	613.0	613.0	617.9
37.5°	686.3	685.6	685.2	680.9	679.9	680.1	679.3	680.9	678.3	678.3	683.6
40°	796.1	792.4	789.5	786.6	783.7	779.8	776.6	775.7	771.2	771.0	769.0
42.5°	891.5	888.0	885.9	880.4	877.5	876.9	868.9	866.6	865.4	866.2	864.2
45°	991.6	987.9	980.1	977.7	976.9	972.5	971.3	965.8	964.1	967.0	966.0
47.5°	1094.9	1089.5	1085.2	1082.3	1081.3	1077.6	1072.3	1076.8	1074.5	1072.9	1069.8
50°	1187.6	1181.7	1181.7	1176.5	1177.4	1174.9	1169.3	1170.6	1164.2	1166.7	1165.0
52.5°	1265.4	1265.8	1267.9	1262.1	1263.1	1263.1	1261.3	1255.3	1257.0	1256.2	1260.1
55°	1364.3	1371.1	1367.4	1368.4	1369.6	1375.4	1379.5	1376.0	1370.3	1374.8	1387.3
57.5°	1537.3	1543.5	1547.2	1550.0	1554.8	1557.4	1579.6	1582.7	1576.1	1589.6	1617.6
60°	1838.2	1845.6	1856.6	1871.2	1874.3	1893.0	1904.5	1918.0	1922.9	1934.6	1964.6
62.5°	2200.0	2216.6	2218.6	2237.1	2251.5	2234.0	2238.6	2255.2	2236.3	2262.2	2263.4
65°	2436.8	2461.0	2461.8	2468.6	2473.9	2457.5	2450.1	2442.7	2424.9	2423.9	2441.7
67°	2477.4	2499.6	2508.8	2512.1	2511.3	2502.9	2490.8	2469.4	2452.2	2442.3	2449.7
67.5°	2465.9	2487.7	2500.6	2503.7	2503.9	2495.7	2484.6	2461.4	2445.2	2434.1	2441.9
70°	2277.1	2328.0	2350.2	2338.7	2345.3	2345.3	2344.9	2323.5	2315.5	2304.8	2300.7
72.5°	1893.4	1928.7	1956.8	1941.8	1943.6	1957.6	1954.3	1956.6	1933.6	1931.1	1893.2
75°	1356.3	1367.6	1358.2	1368.8	1311.4	1290.8	1256.0	1205.1	1191.7	1170.6	1107.4
77.5°	720.5	707.8	682.6	680.5	656.9	638.6	616.1	601.3	563.9	543.2	495.8
80°	508.9	515.1	524.8	530.5	535.8	539.9	531.5	507.9	476.7	441.8	408.8
82.5°	486.2	494.6	500.3	503.2	501.1	494.6	475.3	452.7	411.1	380.9	345.2
85°	306.6	313.4	301.7	299.2	304.3	262.9	240.1	221.6	179.6	167.0	147.6
87.5°	82.3	86.8	87.0	84.3	82.7	72.9	64.4	57.1	47.2	44.3	35.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P145121
 CATALOG NUMBER: LDRL-SL3-E01-E-7050

CANDELA DISTRIBUTION (continued):

	75°	76°	77°	78°	79°	80°	81°	82°	83°	84°	85°
0°	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
2.5°	329.2	329.0	329.0	328.4	327.9	327.7	327.5	326.9	326.5	326.5	326.3
5°	337.0	336.6	335.9	335.7	334.9	334.5	333.7	333.3	332.7	332.3	332.0
7.5°	348.1	347.0	345.8	346.0	344.8	344.2	343.7	342.9	342.3	341.7	341.5
10°	362.8	362.6	361.4	361.8	359.5	360.6	358.5	358.7	357.5	356.3	356.1
12.5°	381.7	381.5	380.3	378.8	378.4	378.6	377.4	377.6	376.2	375.8	375.3
15°	399.8	399.4	398.7	397.7	397.1	396.9	396.5	396.1	394.8	394.8	393.4
17.5°	415.4	415.6	414.8	413.9	413.5	412.9	412.7	412.7	411.7	410.6	410.9
20°	429.1	429.5	429.5	428.9	429.1	428.7	428.5	428.9	427.9	427.5	426.9
22.5°	444.5	444.5	444.7	445.1	445.7	445.9	445.9	445.5	444.9	444.7	443.5
25°	465.9	465.0	466.1	466.5	466.5	467.5	467.1	467.3	467.5	466.9	466.3
27.5°	492.7	491.9	494.0	495.4	495.2	495.8	497.0	495.6	496.4	497.0	495.6
30°	525.8	527.8	529.3	530.3	529.9	531.7	532.3	532.1	531.5	532.5	532.5
32.5°	567.8	566.8	570.5	572.8	573.0	572.6	573.6	574.8	573.8	575.4	574.6
35°	617.9	618.5	619.4	621.8	622.8	621.2	622.8	624.3	623.9	624.1	624.9
37.5°	682.6	683.6	682.8	683.0	682.6	690.4	691.6	692.8	691.4	690.2	693.9
40°	772.2	772.2	772.0	774.7	770.2	775.1	773.7	777.2	780.9	778.8	784.4
42.5°	860.5	865.4	865.8	861.9	865.2	870.5	870.5	872.8	876.1	872.8	878.1
45°	961.7	967.8	966.8	973.4	968.4	974.6	975.6	972.7	979.9	980.8	978.7
47.5°	1072.1	1073.3	1073.5	1075.8	1076.8	1081.7	1081.5	1086.9	1085.2	1077.0	1079.9
50°	1166.7	1169.8	1171.4	1172.8	1178.0	1181.5	1186.2	1187.0	1185.8	1183.3	1181.0
52.5°	1261.3	1268.7	1273.4	1286.1	1294.1	1300.5	1308.3	1311.2	1309.7	1309.1	1300.1
55°	1387.9	1405.6	1432.9	1450.5	1469.8	1481.1	1490.1	1494.6	1491.3	1493.0	1474.3
57.5°	1626.4	1667.8	1691.6	1721.8	1755.9	1770.0	1773.9	1789.9	1772.3	1754.6	1740.5
60°	1980.8	2019.0	2062.3	2093.3	2104.7	2143.9	2125.5	2104.7	2085.9	2049.3	2008.1
62.5°	2300.7	2350.0	2372.2	2401.1	2393.3	2390.0	2377.7	2344.7	2304.2	2249.8	2194.8
65°	2458.5	2486.3	2500.0	2509.4	2500.6	2477.8	2437.2	2388.4	2330.5	2260.1	2187.9
67°	2464.9	2477.6	2482.1	2473.1	2453.4	2417.9	2366.6	2297.5	2226.2	2145.6	2064.3
67.5°	2454.4	2462.9	2465.1	2451.0	2427.6	2389.2	2334.4	2260.5	2184.8	2101.1	2019.4
70°	2311.6	2305.5	2285.5	2266.1	2193.0	2141.5	2046.1	1967.2	1862.2	1785.2	1698.0
72.5°	1878.0	1849.9	1830.6	1744.4	1656.1	1605.0	1502.4	1408.2	1312.4	1239.1	1185.6
75°	1054.2	1033.7	980.1	934.6	861.7	795.0	747.2	687.3	629.8	595.8	570.7
77.5°	476.3	417.6	377.2	326.1	263.5	211.8	157.2	145.3	124.0	118.6	106.9
80°	371.7	329.6	276.6	218.2	153.9	103.4	75.9	64.4	60.5	58.1	56.8
82.5°	310.1	255.5	215.1	152.7	97.7	65.7	49.5	44.7	41.9	39.8	38.0
85°	132.6	104.9	86.4	61.8	43.9	34.7	30.4	27.7	25.0	22.8	21.3
87.5°	31.0	23.8	21.8	18.5	17.4	17.2	17.0	16.2	15.2	14.0	12.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P145121

CATALOG NUMBER: LDRL-SL3-E01-E-7050

CANDELA DISTRIBUTION (continued):

	86°	87°	88°	89°	90°	95°	105°	115°	125°	135°	145°
0°	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
2.5°	326.1	325.9	325.5	324.9	324.9	324.0	321.4	319.5	317.5	316.2	315.0
5°	331.6	331.4	330.4	329.8	329.4	327.7	323.2	319.7	316.0	313.4	311.3
7.5°	340.9	340.3	339.4	339.0	337.8	335.7	329.2	324.2	318.9	314.6	311.1
10°	355.9	354.8	353.6	352.4	352.8	349.5	341.9	334.7	326.9	320.1	315.4
12.5°	374.1	374.1	373.5	372.7	371.2	367.6	357.3	348.9	339.4	331.0	327.5
15°	393.4	392.4	391.4	390.1	389.9	385.0	375.8	366.1	356.3	349.1	345.0
17.5°	409.2	409.6	408.2	407.8	407.4	402.4	392.6	384.0	376.8	369.2	362.6
20°	426.0	425.2	424.8	424.2	424.0	419.9	412.1	406.7	400.4	388.9	371.7
22.5°	444.1	443.1	443.5	442.3	442.0	439.2	433.4	431.8	422.3	398.1	368.2
25°	467.5	465.6	466.3	466.3	466.5	463.8	463.2	460.3	436.5	395.9	354.2
27.5°	495.4	496.2	496.2	496.0	494.6	495.4	498.3	488.4	441.4	384.0	333.3
30°	531.7	532.1	532.5	534.0	530.9	536.2	539.7	508.3	437.7	367.6	307.0
32.5°	575.9	574.2	575.0	575.9	576.9	582.4	580.4	518.4	426.9	345.2	274.4
35°	624.5	627.6	628.4	630.2	632.3	640.7	617.1	520.4	410.2	315.2	232.7
37.5°	696.9	701.9	701.9	708.4	704.5	714.8	649.9	515.5	385.0	273.6	185.7
40°	788.3	790.5	792.8	793.6	791.5	790.3	671.5	503.4	349.5	221.2	135.9
42.5°	881.4	880.6	880.8	882.2	876.7	853.5	684.8	482.3	305.4	165.2	97.5
45°	981.8	978.3	977.3	974.4	969.5	920.6	692.4	452.5	247.3	116.2	76.5
47.5°	1079.5	1075.2	1068.6	1060.6	1051.1	974.6	691.6	413.9	189.6	83.1	67.5
50°	1179.6	1172.0	1157.9	1150.1	1134.1	1028.2	686.9	371.0	136.5	68.7	63.2
52.5°	1294.1	1280.6	1267.4	1251.8	1225.4	1094.0	679.7	322.8	99.5	63.0	60.3
55°	1464.9	1442.7	1421.2	1388.7	1363.1	1182.3	667.6	270.9	78.6	60.7	58.7
57.5°	1700.3	1662.5	1635.2	1591.5	1550.4	1304.4	654.7	223.7	70.2	60.1	57.9
60°	1965.2	1908.4	1857.5	1803.7	1756.9	1456.9	647.9	186.8	68.3	60.7	58.1
62.5°	2131.4	2064.3	2000.7	1935.0	1867.7	1529.7	618.5	161.3	69.2	63.4	59.7
65°	2110.5	2036.4	1967.2	1887.2	1823.8	1461.0	543.8	136.5	70.6	68.1	64.2
67°	1969.3	1897.5	1818.7	1740.3	1678.7	1330.2	459.1	114.9	72.2	73.5	69.2
67.5°	1931.5	1850.7	1771.3	1699.2	1632.5	1289.8	436.9	109.6	72.6	74.9	70.8
70°	1610.8	1546.8	1453.8	1400.4	1352.2	1045.6	325.9	85.2	73.9	81.3	78.6
72.5°	1127.1	1065.1	1016.5	987.3	959.2	759.7	229.2	67.9	72.0	84.8	82.1
75°	569.3	555.1	538.1	528.6	529.1	441.6	138.1	57.9	67.7	81.3	74.5
77.5°	112.5	109.6	110.8	121.3	119.4	136.1	68.5	49.0	57.7	62.6	53.6
80°	54.4	52.5	50.9	50.5	49.5	47.4	43.1	40.8	46.8	41.2	35.5
82.5°	35.3	33.2	32.4	30.8	31.0	33.7	37.6	39.2	38.0	28.5	24.0
85°	19.9	19.7	19.3	19.7	20.5	26.9	40.2	36.7	30.6	20.1	18.1
87.5°	11.9	11.3	11.5	11.7	12.1	19.9	31.8	26.5	19.5	10.5	10.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P145121

CATALOG NUMBER: LDRL-SL3-E01-E-7050

CANDELA DISTRIBUTION (continued):

	155°	165°	175°	180°
0°	324.0	324.0	324.0	324.0
2.5°	314.8	314.0	314.0	313.8
5°	309.7	308.4	308.2	308.2
7.5°	308.9	307.2	307.0	306.4
10°	312.6	311.9	312.1	311.5
12.5°	324.2	325.1	325.9	325.9
15°	342.1	341.5	342.5	341.5
17.5°	355.2	349.9	348.7	348.1
20°	355.6	344.6	340.9	340.3
22.5°	342.9	326.5	320.4	319.3
25°	321.4	300.6	292.9	292.0
27.5°	294.3	271.1	259.6	259.2
30°	261.7	234.2	219.6	217.3
32.5°	221.8	189.2	173.8	168.9
35°	175.9	142.4	128.1	127.6
37.5°	131.3	105.3	96.0	95.6
40°	96.2	82.7	79.2	78.6
42.5°	78.6	73.1	71.6	71.0
45°	70.4	68.1	67.3	66.7
47.5°	65.5	64.0	63.4	63.4
50°	61.6	61.2	60.7	60.7
52.5°	58.9	58.7	58.3	58.1
55°	56.6	55.8	56.0	55.8
57.5°	55.2	54.0	54.0	54.0
60°	54.4	52.1	52.1	52.3
62.5°	54.6	51.1	50.9	50.9
65°	56.2	50.5	49.3	49.5
67°	58.3	49.9	47.4	47.2
67.5°	58.9	49.5	46.8	46.6
70°	61.4	48.2	43.7	43.3
72.5°	61.8	46.4	40.6	40.2
75°	57.5	43.9	38.2	37.1
77.5°	44.7	37.8	34.5	34.5
80°	31.4	28.9	24.6	24.4
82.5°	23.0	21.8	18.1	17.6
85°	16.8	15.8	13.3	13.3
87.5°	10.5	10.1	8.6	8.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)