

Scaled data based on original data using
LM-66-11 Electrical and Photometric Measurements of Single-Ended Compact
Fluorescent Lamps

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: SHAPER

Report Number: 18646

Luminaire Tested: **638-14-CF2/13-RB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-66-11
Report Number: 18646
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: SHAPER
Catalog Number: 638-14-CF2/13-RB
Description: FLUORESCENT WALL MOUNT LUMINAIRE WITH WHITE INTERIOR AND NO LENS

Light Source: TWO SYLVANIA 13 WATT CPFL LAMPS

CF13DS/E/830. LUMEN RATING = 1600 LMS.

Ballast/Driver: -

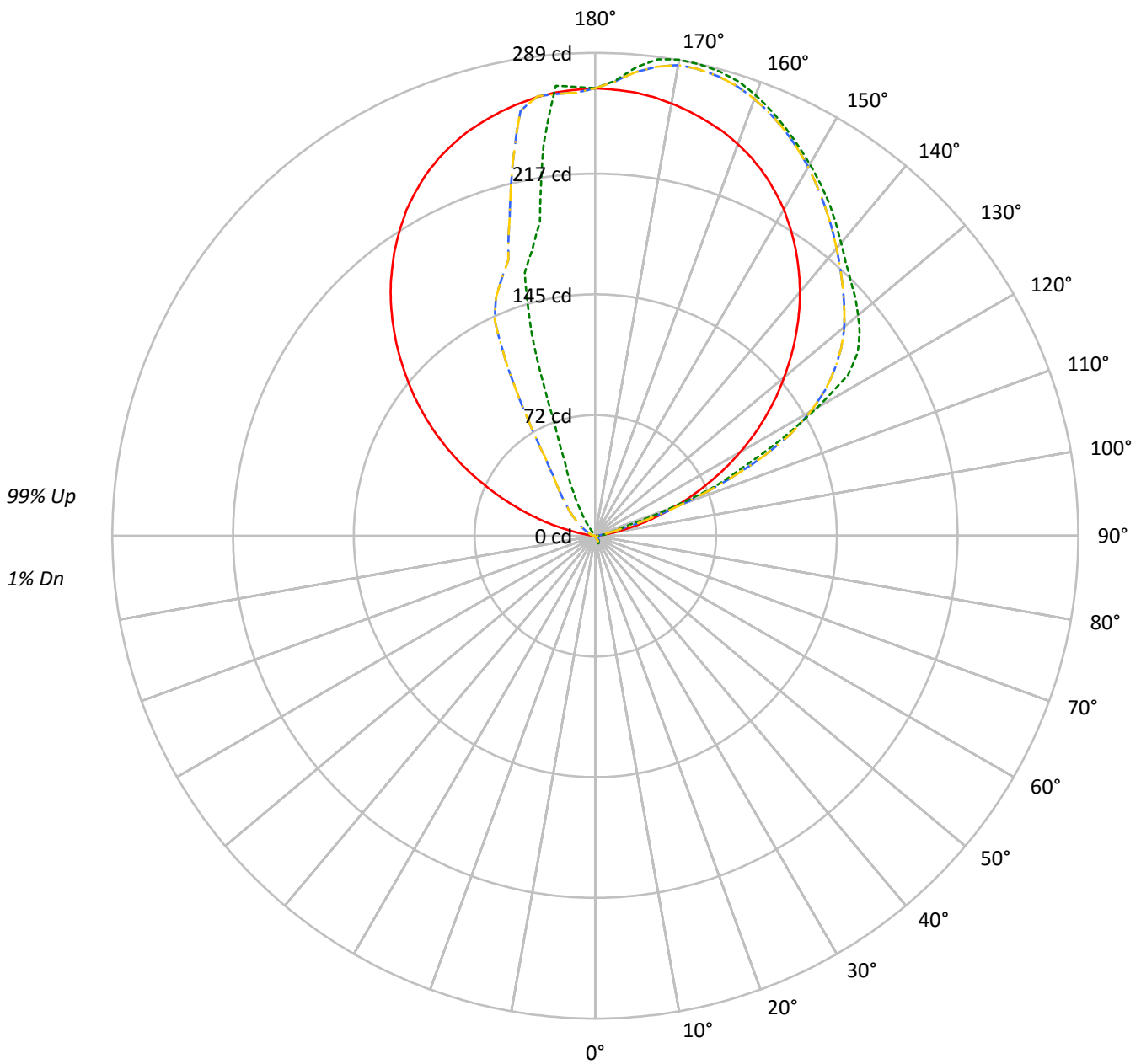
Summary

Lumens per Lamp: 1600 (1 lamp)
Luminaire Lumens: 562.8 lumens
Efficiency: 35.2%
Efficacy: 21.6 lumens/watt
Spacing Criteria (0/90/45): 1.53 / 1.99 / 2.34
Luminous Opening: Point Source (0' x 0' x 0')
CIE Type: Indirect

Input Watts (W): 26
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

TEST NUMBER: 18646
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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270° - - - 135°-315°



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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 | 34 | 34 | 34 | 34 | 29 | 29 | 29 | 29 | 20 | 20 | 20 | 12 | 12 | 12 | 4 | 4 | 4 | 0 |
| 1 | 31 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 17 | 17 | 16 | 10 | 10 | 9 | 3 | 3 | 3 | 0 |
| 2 | 28 | 25 | 23 | 22 | 24 | 22 | 20 | 19 | 15 | 14 | 13 | 9 | 8 | 8 | 3 | 3 | 3 | 0 |
| 3 | 25 | 22 | 20 | 18 | 22 | 19 | 17 | 16 | 13 | 12 | 11 | 8 | 7 | 7 | 3 | 2 | 2 | 0 |
| 4 | 23 | 20 | 17 | 15 | 20 | 17 | 15 | 13 | 12 | 10 | 9 | 7 | 6 | 6 | 2 | 2 | 2 | 0 |
| 5 | 21 | 17 | 15 | 13 | 18 | 15 | 13 | 11 | 10 | 9 | 8 | 6 | 5 | 5 | 2 | 2 | 2 | 0 |
| 6 | 19 | 15 | 13 | 11 | 16 | 13 | 11 | 10 | 9 | 8 | 7 | 5 | 5 | 4 | 2 | 2 | 1 | 0 |
| 7 | 18 | 14 | 11 | 9 | 15 | 12 | 10 | 8 | 8 | 7 | 6 | 5 | 4 | 4 | 2 | 1 | 1 | 0 |
| 8 | 16 | 12 | 10 | 8 | 14 | 11 | 9 | 7 | 7 | 6 | 5 | 4 | 4 | 3 | 2 | 1 | 1 | 0 |
| 9 | 15 | 11 | 9 | 7 | 13 | 10 | 8 | 6 | 7 | 5 | 4 | 4 | 3 | 3 | 1 | 1 | 1 | 0 |
| 10 | 14 | 10 | 8 | 6 | 12 | 9 | 7 | 6 | 6 | 5 | 4 | 4 | 3 | 2 | 1 | 1 | 1 | 0 |

AVERAGE LUMINANCE (cd/sqm):

| | | | | |
|-----|--|-----|------|------|
| | 0° | 90° | 180° | 270° |
| 0° | Luminaire represents a point source (luminous area is zero). | | | |
| 5° | No luminance values can be calculated. | | | |
| 10° | | | | |
| 15° | | | | |
| 20° | | | | |
| 25° | | | | |
| 30° | | | | |
| 35° | | | | |
| 40° | | | | |
| 45° | | | | |
| 50° | | | | |
| 55° | | | | |
| 60° | | | | |
| 65° | | | | |
| 70° | | | | |
| 75° | | | | |
| 80° | | | | |
| 85° | | | | |



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CATALOG NUMBER: 638-14-CF2/13-RB

ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 0.0 | 0.0 | 0.0 |
| 10°-20° | 0.2 | 0.0 | 0.0 |
| 20°-30° | 0.7 | 0.1 | 0.0 |
| 30°-40° | 0.9 | 0.2 | 0.1 |
| 40°-50° | 0.8 | 0.1 | 0.1 |
| 50°-60° | 0.8 | 0.1 | 0.0 |
| 60°-70° | 0.8 | 0.1 | 0.1 |
| 70°-80° | 0.8 | 0.2 | 0.1 |
| 80°-90° | 1.0 | 0.2 | 0.1 |
| 90°-100° | 3.1 | 0.6 | 0.2 |
| 100°-110° | 16.9 | 3.0 | 1.1 |
| 110°-120° | 59.7 | 10.6 | 3.7 |
| 120°-130° | 92.0 | 16.3 | 5.7 |
| 130°-140° | 100.4 | 17.8 | 6.3 |
| 140°-150° | 99.0 | 17.6 | 6.2 |
| 150°-160° | 91.6 | 16.3 | 5.7 |
| 160°-170° | 68.5 | 12.2 | 4.3 |
| 170°-180° | 25.6 | 4.6 | 1.6 |
| 0°-30° | 1.0 | 0.2 | 0.1 |
| 0°-40° | 1.8 | 0.3 | 0.1 |
| 0°-60° | 3.5 | 0.6 | 0.2 |
| 0°-90° | 6.2 | 1.1 | 0.4 |
| 90°-120° | 79.7 | 14.2 | 5.0 |
| 90°-150° | 371.0 | 65.9 | 23.2 |
| 90°-180° | 557.0 | 99.0 | 34.8 |
| 0°-180° | 562.8 | 100.0 | 35.2 |

CANDELA DISTRIBUTION:

| | 0° | 90° | 180° | 270° | 360° | Flux |
|------|-----|-----|------|------|------|------|
| 0° | 0 | 0 | 0 | 0 | 0 | |
| 5° | 0 | 0 | 0 | 0 | 0 | 0 |
| 15° | 0 | 1 | 0 | 0 | 0 | 0 |
| 25° | 0 | 5 | 0 | 0 | 0 | 0 |
| 35° | 0 | 2 | 0 | 0 | 0 | 0 |
| 45° | 0 | 1 | 0 | 0 | 0 | 0 |
| 55° | 0 | 1 | 0 | 0 | 0 | 0 |
| 65° | 0 | 1 | 0 | 0 | 0 | 0 |
| 75° | 0 | 1 | 0 | 0 | 0 | 1 |
| 85° | 0 | 2 | 0 | 0 | 0 | 0 |
| 90° | 1 | 3 | 1 | 0 | 1 | 0 |
| 95° | 3 | 4 | 3 | 0 | 3 | 4 |
| 105° | 29 | 13 | 29 | 0 | 29 | 31 |
| 115° | 75 | 99 | 75 | 0 | 75 | 74 |
| 125° | 124 | 192 | 124 | 0 | 124 | 111 |
| 135° | 170 | 216 | 170 | 0 | 170 | 131 |
| 145° | 209 | 244 | 209 | 8 | 209 | 131 |
| 155° | 239 | 269 | 239 | 36 | 239 | 110 |
| 165° | 257 | 288 | 257 | 163 | 257 | 73 |
| 175° | 266 | 282 | 266 | 270 | 266 | 25 |
| 180° | 268 | 268 | 268 | 268 | 268 | |



TEST NUMBER: 18646

CATALOG NUMBER: 638-14-CF2/13-RB

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|--------|------|-------|------|-------|------|--------|------|--------|------|--------|------|
| 0° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 2.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 7.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 10° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 12.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 15° | 0.5 | 0.5 | 0.5 | 0.9 | 0.7 | 0.9 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 17.5° | 0.5 | 0.5 | 0.9 | 1.5 | 1.5 | 1.5 | 0.9 | 0.5 | 0.5 | 0.5 | 0.5 |
| 20° | 0.5 | 0.7 | 1.3 | 2.5 | 3.4 | 2.5 | 1.3 | 0.7 | 0.5 | 0.5 | 0.5 |
| 22.5° | 0.5 | 0.7 | 2.1 | 4.2 | 5.0 | 4.2 | 2.1 | 0.7 | 0.5 | 0.5 | 0.5 |
| 25° | 0.5 | 0.9 | 3.1 | 4.6 | 4.6 | 4.6 | 3.1 | 0.9 | 0.5 | 0.5 | 0.5 |
| 27.5° | 0.5 | 1.1 | 4.0 | 4.2 | 4.2 | 4.2 | 4.0 | 1.1 | 0.5 | 0.5 | 0.5 |
| 30° | 0.5 | 1.3 | 4.0 | 3.8 | 3.5 | 3.8 | 4.0 | 1.3 | 0.5 | 0.5 | 0.5 |
| 32.5° | 0.5 | 1.3 | 4.0 | 3.1 | 2.8 | 3.1 | 4.0 | 1.3 | 0.5 | 0.5 | 0.5 |
| 35° | 0.5 | 1.7 | 3.8 | 2.5 | 2.1 | 2.5 | 3.8 | 1.7 | 0.5 | 0.5 | 0.5 |
| 37.5° | 0.5 | 1.9 | 3.4 | 1.9 | 1.5 | 1.9 | 3.4 | 1.9 | 0.5 | 0.5 | 0.5 |
| 40° | 0.5 | 2.4 | 2.9 | 1.5 | 1.1 | 1.5 | 2.9 | 2.4 | 0.5 | 0.5 | 0.5 |
| 42.5° | 0.5 | 2.5 | 2.5 | 1.3 | 0.9 | 1.3 | 2.5 | 2.5 | 0.5 | 0.5 | 0.5 |
| 45° | 0.5 | 2.8 | 2.1 | 1.1 | 0.9 | 1.1 | 2.1 | 2.8 | 0.5 | 0.5 | 0.5 |
| 47.5° | 0.5 | 2.8 | 1.7 | 0.9 | 0.7 | 0.9 | 1.7 | 2.8 | 0.5 | 0.5 | 0.5 |
| 50° | 0.5 | 2.8 | 1.5 | 0.7 | 0.5 | 0.7 | 1.5 | 2.8 | 0.5 | 0.5 | 0.5 |
| 52.5° | 0.5 | 2.8 | 1.5 | 0.7 | 0.5 | 0.7 | 1.5 | 2.8 | 0.5 | 0.5 | 0.5 |
| 55° | 0.5 | 2.5 | 1.3 | 0.5 | 0.7 | 0.5 | 1.3 | 2.5 | 0.5 | 0.5 | 0.5 |
| 57.5° | 0.5 | 2.5 | 1.3 | 0.5 | 0.7 | 0.5 | 1.3 | 2.5 | 0.5 | 0.5 | 0.5 |
| 60° | 0.5 | 2.4 | 1.3 | 0.5 | 0.7 | 0.5 | 1.3 | 2.4 | 0.5 | 0.5 | 0.5 |
| 62.5° | 0.5 | 2.1 | 1.1 | 0.7 | 0.9 | 0.7 | 1.1 | 2.1 | 0.5 | 0.5 | 0.5 |
| 65° | 0.5 | 1.9 | 1.1 | 0.7 | 0.9 | 0.7 | 1.1 | 1.9 | 0.5 | 0.5 | 0.5 |
| 67.5° | 0.5 | 1.7 | 1.1 | 0.7 | 1.1 | 0.7 | 1.1 | 1.7 | 0.5 | 0.5 | 0.5 |
| 70° | 0.5 | 1.7 | 1.1 | 0.9 | 1.1 | 0.9 | 1.1 | 1.7 | 0.5 | 0.5 | 0.5 |
| 72.5° | 0.5 | 1.5 | 0.9 | 1.1 | 1.3 | 1.1 | 0.9 | 1.5 | 0.5 | 0.5 | 0.5 |
| 75° | 0.5 | 1.3 | 0.9 | 1.1 | 1.3 | 1.1 | 0.9 | 1.3 | 0.5 | 0.5 | 0.5 |
| 77.5° | 0.5 | 1.1 | 0.9 | 1.3 | 1.5 | 1.3 | 0.9 | 1.1 | 0.5 | 0.5 | 0.5 |
| 80° | 0.5 | 1.1 | 1.1 | 1.5 | 1.7 | 1.5 | 1.1 | 1.1 | 0.5 | 0.5 | 0.5 |
| 82.5° | 0.5 | 1.1 | 1.1 | 1.5 | 1.9 | 1.5 | 1.1 | 1.1 | 0.5 | 0.5 | 0.5 |
| 85° | 0.5 | 1.1 | 1.1 | 1.7 | 2.1 | 1.7 | 1.1 | 1.1 | 0.5 | 0.5 | 0.5 |
| 87.5° | 0.5 | 1.1 | 1.3 | 1.9 | 2.4 | 1.9 | 1.3 | 1.1 | 0.5 | 0.5 | 0.5 |
| 90° | 0.7 | 1.1 | 1.7 | 2.4 | 2.8 | 2.4 | 1.7 | 1.1 | 0.7 | 2.5 | 0.5 |
| 92.5° | 1.7 | 1.5 | 1.9 | 2.8 | 3.4 | 2.8 | 1.9 | 1.5 | 1.7 | 4.4 | 0.5 |
| 95° | 3.2 | 2.1 | 2.5 | 3.5 | 4.4 | 3.5 | 2.5 | 2.1 | 3.2 | 6.1 | 0.9 |
| 97.5° | 5.3 | 3.1 | 3.4 | 4.6 | 5.6 | 4.6 | 3.4 | 3.1 | 5.3 | 7.7 | 1.1 |
| 100° | 10.6 | 6.2 | 4.8 | 6.1 | 7.1 | 6.1 | 4.8 | 6.2 | 10.6 | 9.9 | 1.5 |
| 102.5° | 19.3 | 12.6 | 7.7 | 8.5 | 9.8 | 8.5 | 7.7 | 12.6 | 19.3 | 13.1 | 1.9 |
| 105° | 29.0 | 26.8 | 15.9 | 12.0 | 13.2 | 12.0 | 15.9 | 26.8 | 29.0 | 16.9 | 2.4 |
| 107.5° | 39.3 | 45.8 | 33.2 | 23.5 | 19.0 | 23.5 | 33.2 | 45.8 | 39.3 | 21.2 | 2.8 |
| 110° | 50.7 | 66.4 | 55.6 | 49.5 | 45.5 | 49.5 | 55.6 | 66.4 | 50.7 | 27.1 | 3.5 |



TEST NUMBER: 18646

CATALOG NUMBER: 638-14-CF2/13-RB

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|--------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 112.5° | 62.4 | 85.7 | 82.0 | 75.4 | 78.1 | 75.4 | 82.0 | 85.7 | 62.4 | 33.4 | 4.4 |
| 115° | 74.7 | 103.0 | 108.3 | 102.4 | 98.6 | 102.4 | 108.3 | 103.0 | 74.7 | 40.6 | 5.2 |
| 117.5° | 87.6 | 119.2 | 131.4 | 130.6 | 125.9 | 130.6 | 131.4 | 119.2 | 87.6 | 48.8 | 6.5 |
| 120° | 100.2 | 132.9 | 148.7 | 156.3 | 153.0 | 156.3 | 148.7 | 132.9 | 100.2 | 57.5 | 7.9 |
| 122.5° | 112.6 | 145.4 | 163.5 | 174.9 | 179.3 | 174.9 | 163.5 | 145.4 | 112.6 | 67.2 | 9.5 |
| 125° | 124.4 | 156.3 | 175.2 | 188.0 | 191.7 | 188.0 | 175.2 | 156.3 | 124.4 | 76.8 | 11.4 |
| 127.5° | 136.3 | 166.4 | 185.6 | 198.1 | 199.3 | 198.1 | 185.6 | 166.4 | 136.3 | 86.9 | 13.7 |
| 130° | 147.4 | 175.6 | 194.4 | 205.5 | 205.3 | 205.5 | 194.4 | 175.6 | 147.4 | 96.4 | 16.4 |
| 132.5° | 158.8 | 185.2 | 202.0 | 211.9 | 211.0 | 211.9 | 202.0 | 185.2 | 158.8 | 105.5 | 19.6 |
| 135° | 169.7 | 194.8 | 209.4 | 218.0 | 216.0 | 218.0 | 209.4 | 194.8 | 169.7 | 113.5 | 22.9 |
| 137.5° | 180.3 | 204.5 | 216.9 | 224.5 | 221.8 | 224.5 | 216.9 | 204.5 | 180.3 | 121.1 | 26.8 |
| 140° | 190.6 | 214.6 | 224.5 | 231.3 | 228.8 | 231.3 | 224.5 | 214.6 | 190.6 | 128.9 | 31.5 |
| 142.5° | 200.0 | 223.9 | 232.3 | 237.6 | 236.2 | 237.6 | 232.3 | 223.9 | 200.0 | 137.2 | 36.9 |
| 145° | 209.1 | 232.9 | 239.9 | 244.4 | 243.6 | 244.4 | 239.9 | 232.9 | 209.1 | 147.0 | 44.1 |
| 147.5° | 217.5 | 241.1 | 247.3 | 251.0 | 250.2 | 251.0 | 247.3 | 241.1 | 217.5 | 159.0 | 56.7 |
| 150° | 225.6 | 249.2 | 254.9 | 257.8 | 256.7 | 257.8 | 254.9 | 249.2 | 225.6 | 176.1 | 80.8 |
| 152.5° | 232.5 | 256.2 | 261.5 | 264.6 | 263.0 | 264.6 | 261.5 | 256.2 | 232.5 | 193.2 | 112.9 |
| 155° | 239.0 | 262.6 | 267.9 | 271.2 | 269.3 | 271.2 | 267.9 | 262.6 | 239.0 | 209.2 | 142.5 |
| 157.5° | 244.6 | 267.7 | 273.4 | 277.0 | 275.3 | 277.0 | 273.4 | 267.7 | 244.6 | 226.3 | 154.9 |
| 160° | 249.4 | 271.6 | 278.2 | 281.9 | 280.6 | 281.9 | 278.2 | 271.6 | 249.4 | 243.2 | 163.7 |
| 162.5° | 253.7 | 274.5 | 282.1 | 285.8 | 285.0 | 285.8 | 282.1 | 274.5 | 253.7 | 252.0 | 173.0 |
| 165° | 257.0 | 276.1 | 284.6 | 288.3 | 287.6 | 288.3 | 284.6 | 276.1 | 257.0 | 255.1 | 197.9 |
| 167.5° | 260.2 | 276.3 | 286.0 | 289.7 | 288.9 | 289.7 | 286.0 | 276.3 | 260.2 | 258.0 | 228.2 |
| 170° | 262.7 | 275.9 | 286.0 | 289.7 | 289.3 | 289.7 | 286.0 | 275.9 | 262.7 | 260.3 | 258.2 |
| 172.5° | 264.9 | 274.5 | 283.1 | 288.0 | 287.6 | 288.0 | 283.1 | 274.5 | 264.9 | 261.9 | 265.2 |
| 175° | 266.4 | 272.0 | 278.6 | 282.3 | 281.5 | 282.3 | 278.6 | 272.0 | 266.4 | 263.6 | 265.4 |
| 177.5° | 267.2 | 269.3 | 272.2 | 274.3 | 272.6 | 274.3 | 272.2 | 269.3 | 267.2 | 265.2 | 265.4 |
| 180° | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 |



TEST NUMBER: 18646

CATALOG NUMBER: 638-14-CF2/13-RB

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|--------|--------|------|--------|------|--------|------|
| 0° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 2.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 7.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 10° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 12.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 15° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 17.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 20° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 22.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 25° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 27.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 30° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 32.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 35° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 37.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 40° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 42.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 45° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 47.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 50° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 52.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 55° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 57.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 60° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 62.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 65° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 67.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 70° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 72.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 75° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 77.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 80° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 82.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 85° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 87.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 90° | 0.5 | 0.5 | 0.5 | 0.5 | 2.5 | 0.7 |
| 92.5° | 0.5 | 0.5 | 0.5 | 0.5 | 4.4 | 1.7 |
| 95° | 0.5 | 0.5 | 0.5 | 0.9 | 6.1 | 3.2 |
| 97.5° | 0.5 | 0.5 | 0.5 | 1.1 | 7.7 | 5.3 |
| 100° | 0.5 | 0.5 | 0.5 | 1.5 | 9.9 | 10.6 |
| 102.5° | 0.5 | 0.5 | 0.5 | 1.9 | 13.1 | 19.3 |
| 105° | 0.5 | 0.5 | 0.5 | 2.4 | 16.9 | 29.0 |
| 107.5° | 0.5 | 0.5 | 0.5 | 2.8 | 21.2 | 39.3 |
| 110° | 0.5 | 0.5 | 0.5 | 3.5 | 27.1 | 50.7 |



TEST NUMBER: 18646

CATALOG NUMBER: 638-14-CF2/13-RB

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|--------|--------|-------|--------|-------|--------|-------|
| 112.5° | 0.5 | 0.5 | 0.5 | 4.4 | 33.4 | 62.4 |
| 115° | 0.5 | 0.5 | 0.5 | 5.2 | 40.6 | 74.7 |
| 117.5° | 0.5 | 0.5 | 0.5 | 6.5 | 48.8 | 87.6 |
| 120° | 0.5 | 0.5 | 0.5 | 7.9 | 57.5 | 100.2 |
| 122.5° | 0.5 | 0.5 | 0.5 | 9.5 | 67.2 | 112.6 |
| 125° | 0.5 | 0.5 | 0.5 | 11.4 | 76.8 | 124.4 |
| 127.5° | 0.5 | 0.5 | 0.5 | 13.7 | 86.9 | 136.3 |
| 130° | 0.5 | 0.5 | 0.5 | 16.4 | 96.4 | 147.4 |
| 132.5° | 0.5 | 0.5 | 0.5 | 19.6 | 105.5 | 158.8 |
| 135° | 1.9 | 0.5 | 1.9 | 22.9 | 113.5 | 169.7 |
| 137.5° | 4.2 | 0.5 | 4.2 | 26.8 | 121.1 | 180.3 |
| 140° | 7.5 | 0.5 | 7.5 | 31.5 | 128.9 | 190.6 |
| 142.5° | 11.2 | 2.5 | 11.2 | 36.9 | 137.2 | 200.0 |
| 145° | 16.1 | 7.7 | 16.1 | 44.1 | 147.0 | 209.1 |
| 147.5° | 22.3 | 12.6 | 22.3 | 56.7 | 159.0 | 217.5 |
| 150° | 29.9 | 18.6 | 29.9 | 80.8 | 176.1 | 225.6 |
| 152.5° | 37.9 | 26.4 | 37.9 | 112.9 | 193.2 | 232.5 |
| 155° | 48.1 | 36.3 | 48.1 | 142.5 | 209.2 | 239.0 |
| 157.5° | 73.4 | 46.8 | 73.4 | 154.9 | 226.3 | 244.6 |
| 160° | 121.5 | 70.7 | 121.5 | 163.7 | 243.2 | 249.4 |
| 162.5° | 158.2 | 126.6 | 158.2 | 173.0 | 252.0 | 253.7 |
| 165° | 169.3 | 163.1 | 169.3 | 197.9 | 255.1 | 257.0 |
| 167.5° | 181.2 | 174.9 | 181.2 | 228.2 | 258.0 | 260.2 |
| 170° | 220.7 | 190.7 | 220.7 | 258.2 | 260.3 | 262.7 |
| 172.5° | 258.2 | 236.6 | 258.2 | 265.2 | 261.9 | 264.9 |
| 175° | 268.5 | 270.3 | 268.5 | 265.4 | 263.6 | 266.4 |
| 177.5° | 267.5 | 268.9 | 267.5 | 265.4 | 265.2 | 267.2 |
| 180° | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 | 267.8 |

(END OF REPORT)