

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: RSA

Report Number: P219688

Luminaire Tested: **MRZ-1-REC-X-3-L40-97-NFL-UNV-X-STD-SNT**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P219688  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P14874)  
Test Lab: INNOVATION CENTER (G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: RSA  
Catalog Number: MRZ-1-REC-X-3-L40-97-NFL-UNV-X-STD-SNT  
Description: MRZ INTEGRAL LED DOWNLIGHT  
25 DEGREE NARROW FLOOD OPTIC WITH SNOOT, LIGHT LEVEL 3  
Light Source: (1) 4000K CCT, 97 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 973.7 lumens  
Efficiency: N/A  
Efficacy: 80.5 lumens/watt  
Spacing Criteria (0/90/45): 0.42 / 0.41 / 0.38  
Luminous Opening: Circular (Dia: 0.17' x H: 0')  
CIE Type: Direct

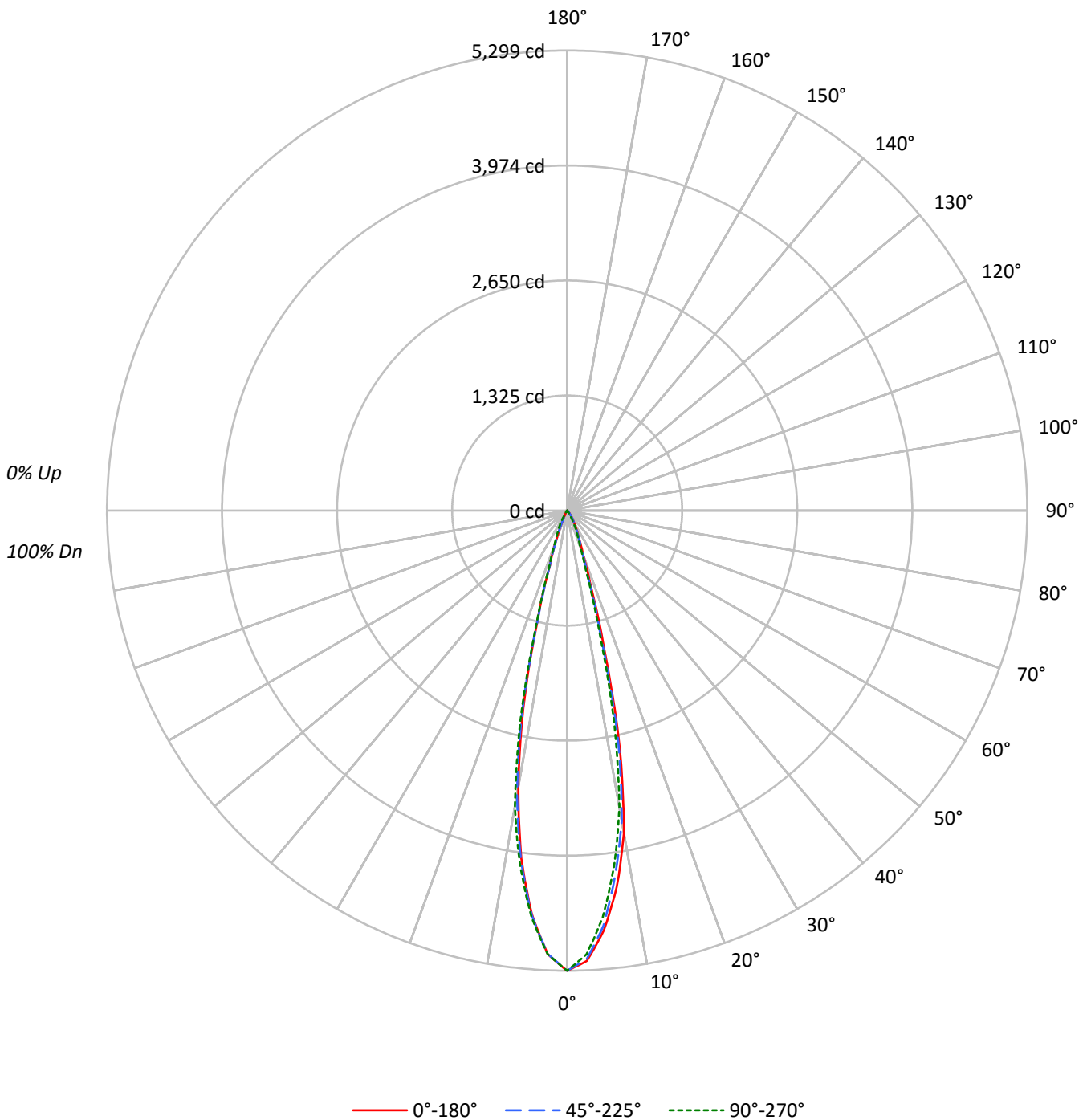
Input Watts (W): 12.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 100 | 100 |   |
| 1   | 115 | 113 | 111 | 110 | 113 | 111 | 110 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 100 | 99  | 99  | 97  | 97  | 97  | 97  |   |
| 2   | 112 | 108 | 105 | 103 | 110 | 107 | 104 | 102 | 104 | 102 | 100 | 101 | 99  | 98  | 98  | 97  | 96  | 94  | 94  | 94  | 94  |   |
| 3   | 108 | 104 | 101 | 98  | 107 | 103 | 100 | 97  | 100 | 98  | 96  | 98  | 96  | 94  | 96  | 94  | 93  | 92  | 92  | 92  | 92  |   |
| 4   | 105 | 100 | 97  | 94  | 104 | 99  | 96  | 93  | 97  | 95  | 92  | 96  | 93  | 91  | 94  | 92  | 90  | 89  | 89  | 89  | 89  |   |
| 5   | 103 | 97  | 93  | 90  | 101 | 96  | 93  | 90  | 95  | 92  | 89  | 93  | 91  | 89  | 92  | 90  | 88  | 87  | 87  | 87  | 87  |   |
| 6   | 100 | 94  | 90  | 88  | 99  | 94  | 90  | 87  | 92  | 89  | 87  | 91  | 88  | 86  | 90  | 88  | 86  | 85  | 85  | 85  | 85  |   |
| 7   | 98  | 92  | 88  | 85  | 96  | 91  | 87  | 85  | 90  | 87  | 84  | 89  | 86  | 84  | 88  | 85  | 84  | 83  | 83  | 83  | 83  |   |
| 8   | 95  | 89  | 85  | 83  | 94  | 89  | 85  | 83  | 88  | 85  | 82  | 87  | 84  | 82  | 86  | 84  | 82  | 81  | 81  | 81  | 81  |   |
| 9   | 93  | 87  | 83  | 81  | 92  | 86  | 83  | 80  | 86  | 82  | 80  | 85  | 82  | 80  | 84  | 82  | 80  | 79  | 79  | 79  | 79  |   |
| 10  | 91  | 85  | 81  | 79  | 90  | 84  | 81  | 79  | 84  | 81  | 78  | 83  | 80  | 78  | 83  | 80  | 78  | 77  | 77  | 77  | 77  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°      | 90°     | 180°    |
|-----|---------|---------|---------|
| 0°  | 2614468 | 2614468 | 2614468 |
| 5°  | 2403319 | 2328633 | 2309813 |
| 10° | 1887432 | 1735732 | 1621557 |
| 15° | 837533  | 712595  | 681080  |
| 20° | 278641  | 226924  | 204452  |
| 25° | 154496  | 129944  | 42680   |
| 30° | 89273   | 46659   | 13502   |
| 35° | 50774   | 13612   | 4999    |
| 40° | 26793   | 7664    | 3027    |
| 45° | 13257   | 4954    | 837     |
| 50° | 7292    | 2763    | 0       |
| 55° | 5075    | 2064    | 0       |
| 60° | 3552    | 1184    | 0       |
| 65° | 2802    | 1401    | 0       |
| 70° | 1731    | 0       | 0       |
| 75° | 2288    | 0       | 0       |
| 80° | 0       | 0       | 0       |
| 85° | 0       | 0       | 0       |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 411.4  | 42.3      |
| 10°-20°   | 424.9  | 43.6      |
| 20°-30°   | 97.5   | 10.0      |
| 30°-40°   | 28.1   | 2.9       |
| 40°-50°   | 7.9    | 0.8       |
| 50°-60°   | 2.4    | 0.2       |
| 60°-70°   | 0.9    | 0.1       |
| 70°-80°   | 0.4    | 0.0       |
| 80°-90°   | 0.0    | 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°    | 933.9  | 95.9      |
| 0°-40°    | 962.0  | 98.8      |
| 0°-60°    | 972.3  | 99.9      |
| 0°-90°    | 973.7  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 973.7  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0°  | 5299 | 5299 | 5299 | 5299 | 5299 |      |
| 5°  | 4853 | 4798 | 4702 | 4678 | 4664 | 429  |
| 15° | 1640 | 1495 | 1395 | 1319 | 1333 | 479  |
| 25° | 284  | 273  | 239  | 88   | 78   | 137  |
| 35° | 84   | 78   | 23   | 10   | 8    | 55   |
| 45° | 19   | 18   | 7    | 2    | 1    | 16   |
| 55° | 6    | 5    | 2    | 0    | 0    | 5    |
| 65° | 2    | 2    | 1    | 0    | 0    | 2    |
| 75° | 1    | 1    | 0    | 0    | 0    | 1    |
| 85° | 0    | 0    | 0    | 0    | 0    | 0    |
| 90° | 0    | 0    | 0    | 0    | 0    | 0    |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    | 112.5° | 135°   | 157.5° | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 5299.1 | 5299.1 | 5299.1 | 5299.1 | 5299.1 | 5299.1 | 5299.1 | 5299.1 | 5299.1 |
| 2.5°  | 5192.2 | 5191.0 | 5168.4 | 5144.7 | 5113.8 | 5116.2 | 5111.5 | 5118.6 | 5115.0 |
| 5°    | 4852.6 | 4826.5 | 4798.0 | 4745.8 | 4701.8 | 4682.8 | 4678.1 | 4662.6 | 4663.8 |
| 7.5°  | 4374.1 | 4318.3 | 4237.6 | 4168.7 | 4131.9 | 4084.4 | 4064.2 | 4021.5 | 4039.3 |
| 10°   | 3767.4 | 3695.0 | 3622.5 | 3537.1 | 3464.6 | 3386.3 | 3325.7 | 3286.5 | 3236.7 |
| 12.5° | 2797.3 | 2739.2 | 2709.5 | 2597.9 | 2511.2 | 2450.6 | 2417.4 | 2322.4 | 2323.6 |
| 15°   | 1639.7 | 1567.3 | 1494.8 | 1437.9 | 1395.1 | 1372.6 | 1319.1 | 1306.1 | 1333.4 |
| 17.5° | 876.2  | 844.2  | 796.7  | 744.5  | 714.8  | 693.4  | 675.6  | 668.5  | 657.8  |
| 20°   | 530.7  | 521.2  | 493.9  | 459.5  | 432.2  | 413.2  | 395.4  | 390.6  | 389.4  |
| 22.5° | 383.5  | 378.8  | 360.9  | 336.0  | 309.9  | 266.0  | 212.5  | 201.8  | 205.4  |
| 25°   | 283.8  | 280.2  | 273.1  | 254.1  | 238.7  | 131.8  | 87.9   | 84.3   | 78.4   |
| 27.5° | 212.5  | 210.2  | 201.8  | 188.8  | 160.3  | 58.2   | 48.7   | 45.1   | 45.1   |
| 30°   | 156.7  | 155.5  | 150.8  | 137.7  | 81.9   | 33.2   | 27.3   | 24.9   | 23.7   |
| 32.5° | 115.2  | 115.2  | 110.4  | 98.5   | 36.8   | 21.4   | 16.6   | 15.4   | 14.2   |
| 35°   | 84.3   | 84.3   | 78.4   | 67.7   | 22.6   | 14.2   | 9.5    | 9.5    | 8.3    |
| 37.5° | 60.6   | 59.4   | 55.8   | 42.7   | 16.6   | 9.5    | 7.1    | 7.1    | 5.9    |
| 40°   | 41.6   | 41.6   | 38.0   | 26.1   | 11.9   | 7.1    | 5.9    | 4.7    | 4.7    |
| 42.5° | 28.5   | 28.5   | 26.1   | 16.6   | 9.5    | 5.9    | 3.6    | 3.6    | 3.6    |
| 45°   | 19.0   | 19.0   | 17.8   | 11.9   | 7.1    | 3.6    | 2.4    | 2.4    | 1.2    |
| 47.5° | 13.1   | 13.1   | 11.9   | 8.3    | 4.7    | 2.4    | 1.2    | 1.2    | 1.2    |
| 50°   | 9.5    | 9.5    | 8.3    | 5.9    | 3.6    | 2.4    | 1.2    | 1.2    | 0.0    |
| 52.5° | 7.1    | 7.1    | 7.1    | 4.7    | 2.4    | 1.2    | 0.0    | 0.0    | 0.0    |
| 55°   | 5.9    | 5.9    | 4.7    | 3.6    | 2.4    | 1.2    | 0.0    | 0.0    | 0.0    |
| 57.5° | 4.7    | 4.7    | 3.6    | 2.4    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    |
| 60°   | 3.6    | 3.6    | 3.6    | 2.4    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    |
| 62.5° | 2.4    | 2.4    | 2.4    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    |
| 65°   | 2.4    | 2.4    | 2.4    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    |
| 67.5° | 1.2    | 1.2    | 1.2    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    |
| 70°   | 1.2    | 1.2    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 72.5° | 1.2    | 1.2    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 75°   | 1.2    | 1.2    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 77.5° | 1.2    | 1.2    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 80°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 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    |

(END OF REPORT)