

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: P219634

Luminaire Tested: **MRZ-1-REC-X-4-L40-97-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P219634  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P14872)  
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-4-L40-97-NFL-UNV-X-STD-LSL  
Description: MRZ INTEGRAL LED DOWNLIGHT  
25 DEGREE NARROW FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 4  
Light Source: (1) 4000K CCT, 97 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1074.9 lumens  
Efficiency: N/A  
Efficacy: 68.0 lumens/watt  
Spacing Criteria (0/90/45): 0.4 / 0.87 / 0.54  
Luminous Opening: Circular (Dia: 0.17' x H: 0')  
CIE Type: Direct

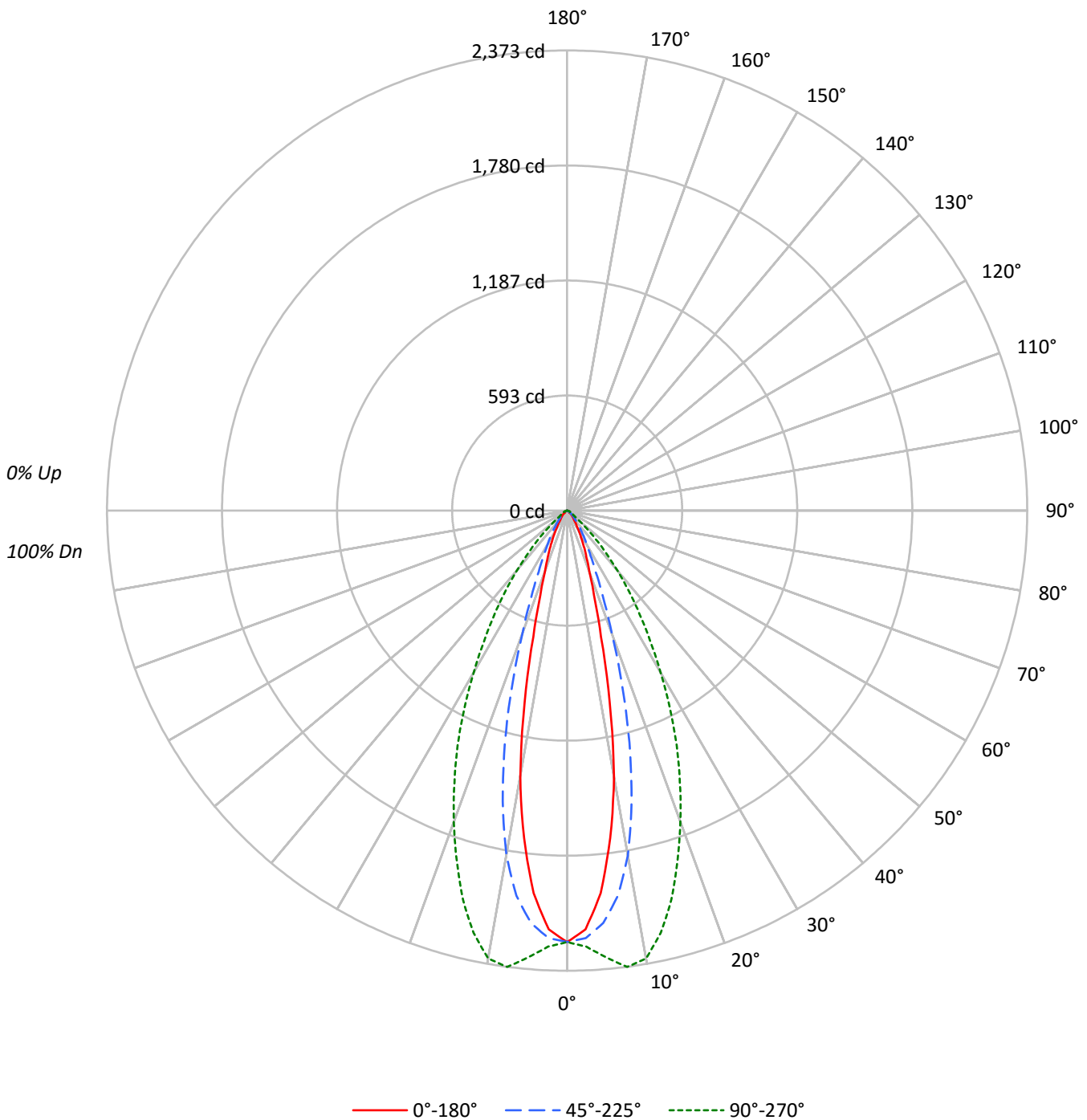
Input Watts (W): 15.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	100	97	106	102	99	96	99	96	94	96	94	92	93	92	90	88
3	104	98	93	89	102	96	92	89	94	90	87	91	88	86	89	87	84	83
4	99	92	87	83	97	91	86	82	89	85	81	87	83	80	85	82	80	78
5	95	87	81	77	93	86	81	77	84	80	76	83	79	76	81	78	75	74
6	90	82	77	73	89	81	76	72	80	75	72	79	75	72	77	74	71	70
7	87	78	73	69	85	77	72	68	76	71	68	75	71	68	74	70	67	66
8	83	74	69	65	82	74	68	65	73	68	65	72	67	64	71	67	64	63
9	80	71	65	62	79	70	65	62	69	65	61	69	64	61	68	64	61	60
10	77	68	62	59	76	67	62	59	66	62	59	66	61	58	65	61	58	57

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

	0°	45°	90°
0°	1097572	1097572	1097572
5°	980673	1057389	1145348
10°	696828	903737	1174573
15°	344371	632913	1061052
20°	176205	352409	896932
25°	110782	189282	727406
30°	66599	115935	549310
35°	43005	74987	392342
40°	30335	48884	259170
45°	23305	33910	145131
50°	13970	23334	61789
55°	10408	15655	32687
60°	8980	10460	21018
65°	8873	8873	17745
70°	8800	6636	24091
75°	8769	5719	17347
80°	4262	4262	8524
85°	0	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	194.8	18.1
10°-20°	363.3	33.8
20°-30°	272.8	25.4
30°-40°	150.0	14.0
40°-50°	60.8	5.7
50°-60°	19.4	1.8
60°-70°	9.2	0.9
70°-80°	4.5	0.4
80°-90°	0.2	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°	830.9	77.3
0°-40°	980.9	91.2
0°-60°	1061.1	98.7
0°-90°	1074.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1074.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2225	2225	2225	2225	2225	
5°	1980	2026	2135	2261	2313	170
15°	674	793	1239	1843	2077	198
25°	204	228	348	1014	1336	95
35°	71	85	124	377	651	46
45°	33	32	49	93	208	25
55°	12	14	18	23	38	11
65°	8	9	8	9	15	8
75°	5	3	3	3	9	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6
2.5°	2162.3	2162.3	2160.8	2165.3	2174.4	2174.4	2179.0	2183.6	2188.1	2197.2	2206.3
5°	1980.1	1983.1	1981.6	1998.3	2010.4	2025.6	2030.2	2056.0	2075.7	2106.1	2135.0
7.5°	1703.7	1705.2	1718.9	1738.6	1769.0	1785.7	1808.5	1844.9	1889.0	1946.7	2002.9
10°	1390.9	1390.9	1412.2	1441.0	1465.3	1498.7	1515.4	1574.6	1638.4	1718.9	1803.9
12.5°	1012.8	1012.8	1049.3	1070.5	1114.6	1143.4	1167.7	1236.0	1319.5	1422.8	1535.2
15°	674.2	686.3	700.0	728.9	768.3	792.6	809.3	879.2	977.9	1093.3	1239.1
17.5°	458.6	466.2	475.3	498.1	517.8	529.9	545.1	604.3	675.7	788.1	941.4
20°	335.6	343.2	350.8	361.4	373.5	379.6	390.2	420.6	472.2	551.2	671.2
22.5°	259.7	265.7	271.8	277.9	287.0	291.5	297.6	317.4	344.7	394.8	481.4
25°	203.5	203.5	211.1	215.6	223.2	227.8	235.4	249.0	270.3	299.1	347.7
27.5°	154.9	156.4	161.0	167.0	173.1	177.7	185.3	197.4	211.1	230.8	261.2
30°	116.9	120.0	123.0	127.6	135.1	139.7	144.3	154.9	167.0	182.2	203.5
32.5°	89.6	92.6	94.1	98.7	104.8	107.8	112.4	121.5	132.1	147.3	161.0
35°	71.4	71.4	74.4	75.9	82.0	85.0	88.1	94.1	104.8	113.9	124.5
37.5°	56.2	57.7	59.2	60.7	65.3	66.8	68.3	72.9	79.0	88.1	97.2
40°	47.1	48.6	48.6	48.6	50.1	50.1	51.6	54.7	60.7	66.8	75.9
42.5°	39.5	39.5	39.5	39.5	39.5	39.5	41.0	42.5	47.1	53.1	60.7
45°	33.4	31.9	31.9	31.9	31.9	31.9	31.9	34.9	38.0	42.5	48.6
47.5°	24.3	25.8	25.8	25.8	25.8	25.8	27.3	27.3	30.4	34.9	38.0
50°	18.2	19.7	19.7	21.3	21.3	21.3	21.3	22.8	25.8	28.9	30.4
52.5°	15.2	15.2	15.2	16.7	16.7	16.7	16.7	18.2	21.3	22.8	24.3
55°	12.1	12.1	12.1	12.1	13.7	13.7	15.2	16.7	18.2	18.2	18.2
57.5°	10.6	10.6	10.6	10.6	10.6	12.1	12.1	13.7	15.2	13.7	13.7
60°	9.1	9.1	9.1	9.1	9.1	10.6	10.6	12.1	10.6	10.6	10.6
62.5°	9.1	9.1	7.6	7.6	9.1	9.1	9.1	9.1	9.1	9.1	7.6
65°	7.6	7.6	7.6	7.6	7.6	9.1	9.1	7.6	7.6	6.1	7.6
67.5°	7.6	7.6	6.1	7.6	7.6	7.6	7.6	6.1	6.1	6.1	6.1
70°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	4.6	4.6	4.6	4.6
72.5°	4.6	4.6	4.6	6.1	4.6	4.6	4.6	4.6	4.6	4.6	4.6
75°	4.6	4.6	4.6	4.6	4.6	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.5	1.5
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	0.0	1.5	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	0.0	0.0
87.5°	0.0	0.0	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	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6	2224.6
2.5°	2213.9	2220.0	2227.6	2235.2	2238.2	2241.3	2245.8	2248.8	2250.4	2250.4
5°	2165.3	2195.7	2224.6	2248.8	2261.0	2271.6	2289.8	2302.0	2312.6	2312.6
7.5°	2062.1	2125.9	2185.1	2236.7	2259.5	2283.8	2321.7	2350.6	2365.8	2373.4
10°	1893.5	1989.2	2078.8	2157.7	2194.2	2224.6	2279.2	2317.2	2335.4	2344.5
12.5°	1664.2	1790.3	1904.2	2002.9	2046.9	2083.3	2139.5	2189.6	2215.4	2229.1
15°	1397.0	1545.8	1680.9	1793.3	1843.4	1889.0	1963.4	2024.1	2060.6	2077.3
17.5°	1114.6	1298.3	1451.7	1580.7	1626.3	1676.4	1762.9	1832.8	1881.4	1893.5
20°	853.4	1052.3	1226.9	1360.5	1413.7	1463.8	1561.0	1635.4	1688.5	1708.3
22.5°	621.1	813.9	1006.7	1149.5	1210.2	1264.9	1362.1	1442.5	1498.7	1518.5
25°	443.4	599.8	791.1	953.6	1014.3	1069.0	1166.2	1248.2	1305.9	1336.2
27.5°	323.4	429.7	598.3	765.3	830.6	888.3	977.9	1062.9	1117.6	1146.4
30°	236.9	306.7	432.8	595.2	666.6	722.8	818.5	889.8	949.0	964.2
32.5°	180.7	220.2	306.7	438.8	511.7	570.9	663.6	731.9	779.0	795.7
35°	138.2	162.5	214.1	314.3	376.6	437.3	525.4	595.2	636.2	651.4
37.5°	107.8	124.5	154.9	221.7	270.3	323.4	410.0	467.7	501.1	520.8
40°	86.6	98.7	118.4	157.9	191.3	230.8	303.7	358.4	391.8	402.4
42.5°	69.8	79.0	89.6	112.4	135.1	164.0	223.2	261.2	288.5	294.6
45°	54.7	60.7	72.9	83.5	92.6	107.8	148.8	183.7	200.4	208.0
47.5°	44.0	51.6	51.6	57.7	63.8	74.4	100.2	120.0	132.1	135.1
50°	33.4	34.9	38.0	41.0	44.0	47.1	60.7	72.9	80.5	80.5
52.5°	24.3	25.8	25.8	27.3	28.9	31.9	39.5	45.6	50.1	51.6
55°	18.2	18.2	19.7	21.3	22.8	24.3	28.9	34.9	36.4	38.0
57.5°	13.7	13.7	15.2	16.7	18.2	18.2	22.8	25.8	28.9	31.9
60°	10.6	10.6	12.1	12.1	13.7	15.2	19.7	21.3	21.3	21.3
62.5°	9.1	9.1	9.1	10.6	10.6	10.6	13.7	18.2	19.7	19.7
65°	7.6	7.6	7.6	7.6	9.1	9.1	10.6	12.1	15.2	15.2
67.5°	6.1	6.1	6.1	6.1	7.6	7.6	10.6	12.1	15.2	16.7
70°	4.6	4.6	4.6	6.1	6.1	7.6	9.1	12.1	15.2	16.7
72.5°	3.0	3.0	4.6	4.6	4.6	6.1	7.6	9.1	10.6	10.6
75°	3.0	3.0	3.0	3.0	3.0	3.0	4.6	7.6	7.6	9.1
77.5°	3.0	3.0	1.5	3.0	3.0	3.0	3.0	4.6	6.1	6.1
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3.0
82.5°	0.0	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	0.0
87.5°	0.0	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	0.0

(END OF REPORT)