

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: P226148

Luminaire Tested: **MRZ-1-REC-X-1-L35-80-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P226148  
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-1-L35-80-NFL-UNV-X-STD-LSL  
Description: MRZ INTEGRAL LED DOWNLIGHT  
25 DEGREE NARROW FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 1  
Light Source: (1) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 507.6 lumens  
Efficiency: N/A  
Efficacy: 94.0 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

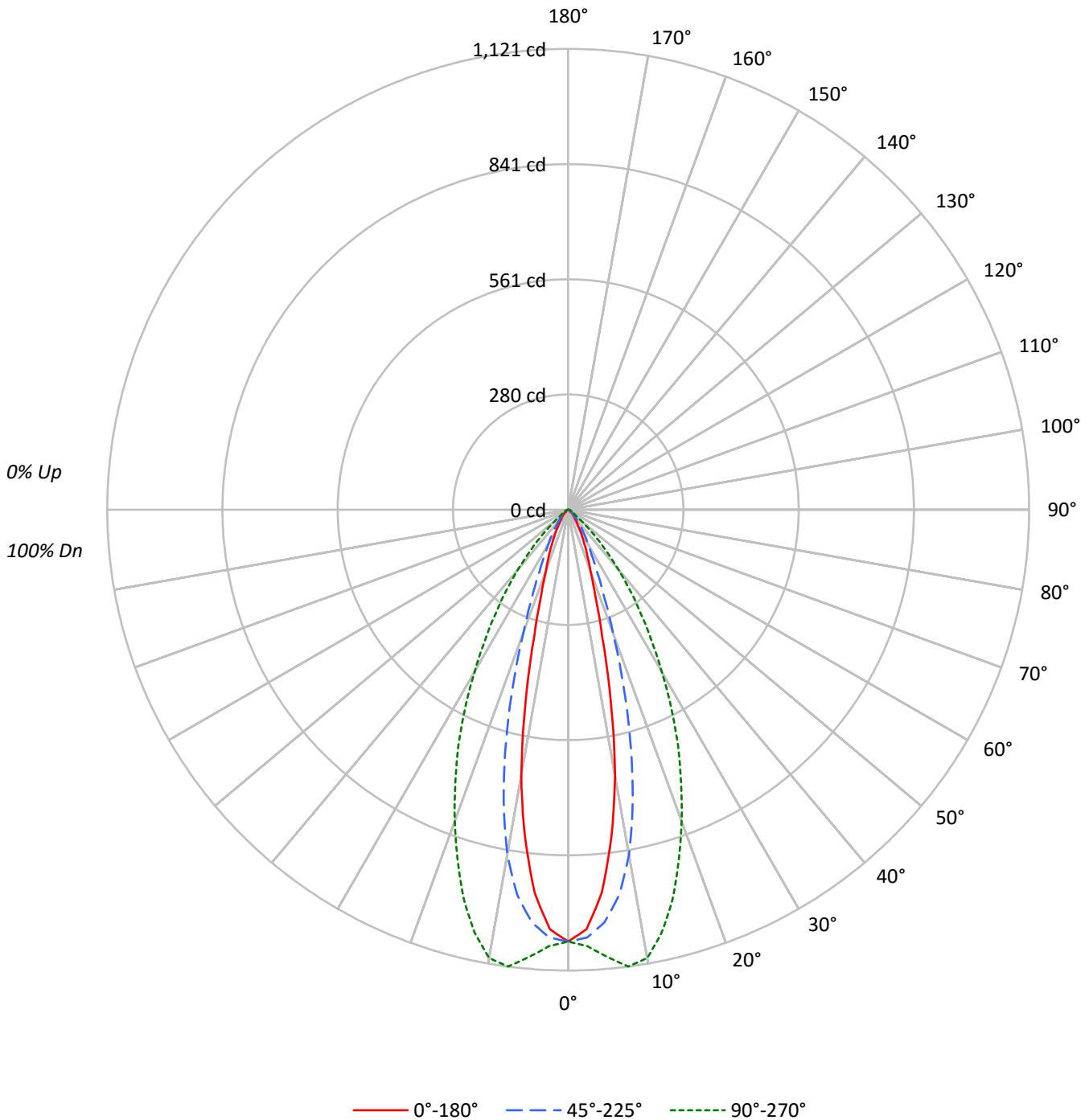
Input Watts (W): 5.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	518246	518246	518246
5°	463072	499276	540828
10°	329051	426744	554647
15°	162583	298860	501028
20°	83219	166386	423500
25°	52315	89388	343506
30°	31448	54749	259444
35°	20298	35416	185269
40°	14298	23122	122436
45°	11024	15978	68518
50°	6601	11053	29167
55°	4903	7398	15397
60°	4243	4934	9868
65°	4203	4203	8289
70°	4183	3029	11396
75°	4003	2669	8197
80°	1989	1989	3978
85°	0	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	92.0	18.1
10°-20°	171.5	33.8
20°-30°	128.8	25.4
30°-40°	70.8	14.0
40°-50°	28.7	5.7
50°-60°	9.1	1.8
60°-70°	4.3	0.9
70°-80°	2.1	0.4
80°-90°	0.1	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°	392.4	77.3
0°-40°	463.2	91.3
0°-60°	501.0	98.7
0°-90°	507.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	507.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1050	1050	1050	1050	1050	
5°	935	956	1008	1068	1092	80
15°	318	374	585	870	981	93
25°	96	108	164	479	631	45
35°	34	40	59	178	308	22
45°	16	15	23	44	98	12
55°	6	6	9	11	18	5
65°	4	4	4	4	7	4
75°	2	1	1	1	4	2
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°	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4
2.5°	1021.1	1021.1	1020.3	1022.5	1026.8	1026.8	1028.9	1031.1	1033.3	1037.6	1041.9
5°	935.0	936.4	935.7	943.7	949.4	956.5	958.7	970.9	980.2	994.5	1008.1
7.5°	804.5	805.2	811.7	821.0	835.4	843.2	853.9	871.2	892.0	919.2	945.8
10°	656.8	656.8	666.8	680.5	691.9	707.7	715.6	743.6	773.7	811.7	851.8
12.5°	478.3	478.3	495.4	505.5	526.3	539.9	551.4	583.6	623.1	671.8	725.0
15°	318.3	324.1	330.6	344.2	362.8	374.3	382.2	415.2	461.8	516.2	585.1
17.5°	216.6	220.1	224.4	235.2	244.5	250.2	257.5	285.4	319.0	372.2	444.6
20°	158.5	162.0	165.6	170.7	176.4	179.3	184.3	198.6	223.0	260.3	316.9
22.5°	122.7	125.5	128.4	131.2	135.5	137.7	140.5	149.9	162.7	186.4	227.3
25°	96.1	96.1	99.6	101.9	105.4	107.6	111.1	117.6	127.7	141.2	164.2
27.5°	73.1	73.8	76.0	78.9	81.8	83.9	87.5	93.2	99.6	109.0	123.4
30°	55.2	56.7	58.1	60.3	63.8	66.0	68.1	73.1	78.9	86.1	96.1
32.5°	42.3	43.7	44.5	46.6	49.5	50.9	53.0	57.4	62.4	69.5	76.0
35°	33.7	33.7	35.2	35.9	38.7	40.2	41.6	44.5	49.5	53.7	58.8
37.5°	26.5	27.2	27.9	28.7	30.8	31.5	32.2	34.5	37.3	41.6	45.9
40°	22.2	22.9	22.9	22.9	23.7	23.7	24.4	25.8	28.7	31.5	35.9
42.5°	18.7	18.7	18.7	18.7	18.7	18.7	19.4	20.1	22.2	25.1	28.7
45°	15.8	15.1	15.1	15.1	15.1	15.1	15.1	16.5	17.9	20.1	22.9
47.5°	11.5	12.2	12.2	12.2	12.2	12.2	12.9	12.9	14.4	16.5	17.9
50°	8.6	9.3	9.3	10.0	10.0	10.0	10.0	10.7	12.2	13.7	14.4
52.5°	7.1	7.1	7.1	7.9	7.9	7.9	7.9	8.6	10.0	10.7	11.5
55°	5.7	5.7	5.7	5.7	6.4	6.4	7.1	7.9	8.6	8.6	8.6
57.5°	5.0	5.0	5.0	5.0	5.0	5.7	5.7	6.4	7.1	6.4	6.4
60°	4.3	4.3	4.3	4.3	4.3	5.0	5.0	5.7	5.0	5.0	5.0
62.5°	4.3	4.3	3.6	3.6	4.3	4.3	4.3	4.3	4.3	4.3	3.6
65°	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	3.6	2.9	3.6
67.5°	3.6	3.6	2.9	3.6	3.6	3.6	3.6	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.1	2.1	2.1	2.1
72.5°	2.1	2.1	2.1	2.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	2.1	2.1	2.1	2.1	2.1	1.4	1.4	1.4	1.4	1.4	1.4
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.7	0.7
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
82.5°	0.0	0.7	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°	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4	1050.4
2.5°	1045.4	1048.3	1051.9	1055.5	1056.9	1058.4	1060.5	1061.9	1062.7	1062.7
5°	1022.5	1036.9	1050.4	1061.9	1067.7	1072.7	1081.3	1087.0	1092.0	1092.0
7.5°	973.7	1003.8	1031.8	1056.2	1066.9	1078.5	1096.3	1110.0	1117.1	1120.8
10°	894.1	939.3	981.6	1018.9	1036.1	1050.4	1076.2	1094.2	1102.8	1107.1
12.5°	785.8	845.4	899.2	945.8	966.6	983.7	1010.3	1034.0	1046.1	1052.6
15°	659.7	729.9	793.8	846.8	870.5	892.0	927.1	955.8	973.0	980.9
17.5°	526.3	613.1	685.5	746.5	768.0	791.6	832.5	865.5	888.4	894.1
20°	403.0	496.9	579.4	642.5	667.6	691.2	737.1	772.3	797.3	806.6
22.5°	293.2	384.3	475.4	542.8	571.5	597.3	643.2	681.2	707.7	717.0
25°	209.3	283.2	373.6	450.3	479.0	504.8	550.7	589.4	616.7	631.0
27.5°	152.7	202.9	282.5	361.4	392.2	419.5	461.8	502.0	527.8	541.3
30°	111.9	144.9	204.3	281.1	314.8	341.3	386.4	420.2	448.1	455.4
32.5°	85.3	104.0	144.9	207.2	241.7	269.6	313.3	345.6	367.9	375.7
35°	65.3	76.7	101.1	148.5	177.8	206.5	248.1	281.1	300.5	307.6
37.5°	50.9	58.8	73.1	104.7	127.7	152.7	193.6	220.9	236.7	245.9
40°	40.9	46.6	56.0	74.5	90.3	109.0	143.4	169.3	185.0	190.1
42.5°	32.9	37.3	42.3	53.0	63.8	77.4	105.4	123.4	136.2	139.1
45°	25.8	28.7	34.5	39.5	43.7	50.9	70.3	86.8	94.6	98.2
47.5°	20.8	24.4	24.4	27.2	30.1	35.2	47.3	56.7	62.4	63.8
50°	15.8	16.5	17.9	19.4	20.8	22.2	28.7	34.5	38.0	38.0
52.5°	11.5	12.2	12.2	12.9	13.7	15.1	18.7	21.5	23.7	24.4
55°	8.6	8.6	9.3	10.0	10.7	11.5	13.7	16.5	17.2	17.9
57.5°	6.4	6.4	7.1	7.9	8.6	8.6	10.7	12.2	13.7	15.1
60°	5.0	5.0	5.7	5.7	6.4	7.1	9.3	10.0	10.0	10.0
62.5°	4.3	4.3	4.3	5.0	5.0	5.0	6.4	8.6	9.3	9.3
65°	3.6	3.6	3.6	3.6	4.3	4.3	5.0	5.7	7.1	7.1
67.5°	2.9	2.9	2.9	2.9	3.6	3.6	5.0	5.7	7.1	7.9
70°	2.1	2.1	2.1	2.9	2.9	3.6	4.3	5.7	7.1	7.9
72.5°	1.4	1.4	2.1	2.1	2.1	2.9	3.6	4.3	5.0	5.0
75°	1.4	1.4	1.4	1.4	1.4	1.4	2.1	3.6	3.6	4.3
77.5°	1.4	1.4	0.7	1.4	1.4	1.4	1.4	2.1	2.9	2.9
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4
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)