

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: P219629

Luminaire Tested: **MRZ-1-REC-X-4-L35-80-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219629
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-L35-80-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) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1359.0 lumens
Efficiency: N/A
Efficacy: 86.0 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

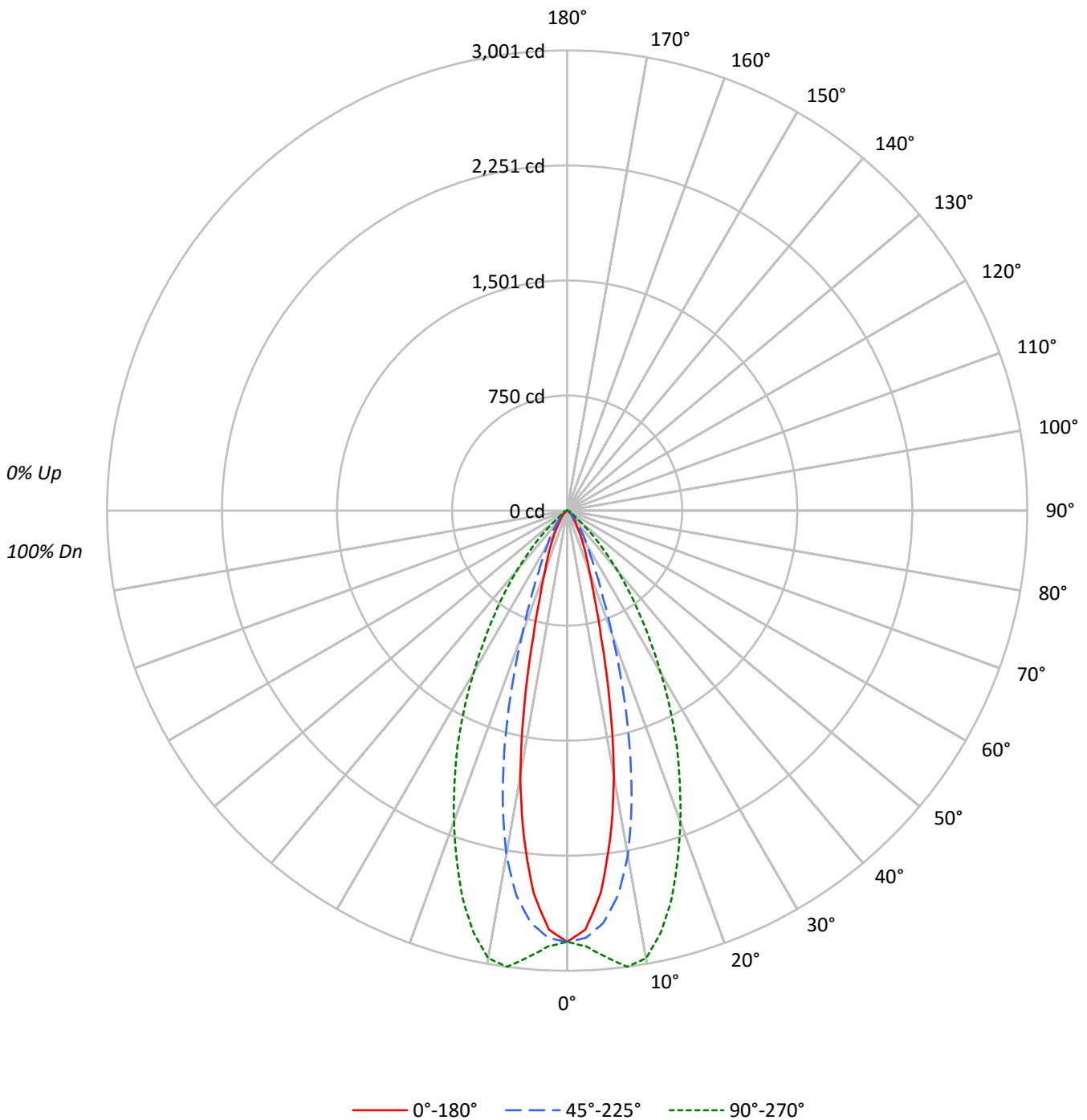
Input Watts (W): 15.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1387581	1387581	1387581
5°	1239844	1336817	1448053
10°	880992	1142610	1484987
15°	435392	800143	1341421
20°	222776	445499	1133937
25°	140016	239311	919682
30°	84202	146528	694471
35°	54328	94803	496059
40°	38322	61830	327634
45°	29445	42841	183507
50°	17654	29474	78061
55°	13247	19784	41289
60°	11348	13223	26544
65°	11207	11207	22415
70°	11108	8367	30438
75°	11056	7244	21922
80°	5398	5398	10797
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	246.3	18.1
10°-20°	459.3	33.8
20°-30°	344.9	25.4
30°-40°	189.6	14.0
40°-50°	76.9	5.7
50°-60°	24.5	1.8
60°-70°	11.6	0.9
70°-80°	5.6	0.4
80°-90°	0.3	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°	1050.5	77.3
0°-40°	1240.1	91.2
0°-60°	1341.5	98.7
0°-90°	1359.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1359.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2812	2812	2812	2812	2812	
5°	2503	2561	2699	2858	2924	215
15°	852	1002	1566	2331	2626	250
25°	257	288	440	1282	1689	120
35°	90	108	157	476	824	58
45°	42	40	61	117	263	31
55°	15	17	23	29	48	15
65°	10	12	10	12	19	10
75°	6	4	4	4	12	5
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°	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4
2.5°	2733.7	2733.7	2731.8	2737.6	2749.1	2749.1	2754.9	2760.6	2766.4	2777.9	2789.4
5°	2503.4	2507.2	2505.3	2526.4	2541.8	2561.0	2566.7	2599.3	2624.3	2662.7	2699.2
7.5°	2154.0	2155.9	2173.2	2198.1	2236.5	2257.6	2286.4	2332.5	2388.2	2461.1	2532.2
10°	1758.5	1758.5	1785.4	1821.8	1852.6	1894.8	1915.9	1990.8	2071.4	2173.2	2280.7
12.5°	1280.5	1280.5	1326.6	1353.4	1409.1	1445.6	1476.3	1562.7	1668.3	1798.8	1940.9
15°	852.4	867.7	885.0	921.5	971.4	1002.1	1023.2	1111.5	1236.3	1382.2	1566.5
17.5°	579.8	589.4	600.9	629.7	654.6	670.0	689.2	764.1	854.3	996.4	1190.2
20°	424.3	433.9	443.5	456.9	472.3	479.9	493.4	531.8	597.0	696.9	848.5
22.5°	328.3	336.0	343.6	351.3	362.8	368.6	376.3	401.2	435.8	499.1	608.6
25°	257.2	257.2	266.8	272.6	282.2	288.0	297.6	314.8	341.7	378.2	439.6
27.5°	195.8	197.7	203.5	211.2	218.9	224.6	234.2	249.6	266.8	291.8	330.2
30°	147.8	151.7	155.5	161.3	170.9	176.6	182.4	195.8	211.2	230.4	257.2
32.5°	113.3	117.1	119.0	124.8	132.5	136.3	142.1	153.6	167.0	186.2	203.5
35°	90.2	90.2	94.1	96.0	103.7	107.5	111.3	119.0	132.5	144.0	157.4
37.5°	71.0	73.0	74.9	76.8	82.5	84.5	86.4	92.1	99.8	111.3	122.9
40°	59.5	61.4	61.4	61.4	63.4	63.4	65.3	69.1	76.8	84.5	96.0
42.5°	49.9	49.9	49.9	49.9	49.9	49.9	51.8	53.8	59.5	67.2	76.8
45°	42.2	40.3	40.3	40.3	40.3	40.3	40.3	44.2	48.0	53.8	61.4
47.5°	30.7	32.6	32.6	32.6	32.6	32.6	34.6	34.6	38.4	44.2	48.0
50°	23.0	25.0	25.0	26.9	26.9	26.9	26.9	28.8	32.6	36.5	38.4
52.5°	19.2	19.2	19.2	21.1	21.1	21.1	21.1	23.0	26.9	28.8	30.7
55°	15.4	15.4	15.4	15.4	17.3	17.3	19.2	21.1	23.0	23.0	23.0
57.5°	13.4	13.4	13.4	13.4	13.4	15.4	15.4	17.3	19.2	17.3	17.3
60°	11.5	11.5	11.5	11.5	11.5	13.4	13.4	15.4	13.4	13.4	13.4
62.5°	11.5	11.5	9.6	9.6	11.5	11.5	11.5	11.5	11.5	11.5	9.6
65°	9.6	9.6	9.6	9.6	9.6	11.5	11.5	9.6	9.6	7.7	9.6
67.5°	9.6	9.6	7.7	9.6	9.6	9.6	9.6	7.7	7.7	7.7	7.7
70°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	5.8	5.8	5.8	5.8
72.5°	5.8	5.8	5.8	7.7	5.8	5.8	5.8	5.8	5.8	5.8	5.8
75°	5.8	5.8	5.8	5.8	5.8	3.8	3.8	3.8	3.8	3.8	3.8
77.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	0.0	1.9	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°	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4	2812.4
2.5°	2799.0	2806.7	2816.3	2825.9	2829.7	2833.6	2839.3	2843.2	2845.1	2845.1
5°	2737.6	2776.0	2812.4	2843.2	2858.5	2872.0	2895.0	2910.4	2923.8	2923.8
7.5°	2607.0	2687.7	2762.5	2827.8	2856.6	2887.3	2935.3	2971.8	2991.0	3000.6
10°	2393.9	2514.9	2628.1	2728.0	2774.0	2812.4	2881.6	2929.5	2952.6	2964.1
12.5°	2104.1	2263.4	2407.4	2532.2	2587.8	2633.9	2704.9	2768.3	2800.9	2818.2
15°	1766.2	1954.3	2125.2	2267.2	2330.6	2388.2	2482.2	2559.0	2605.1	2626.2
17.5°	1409.1	1641.4	1835.3	1998.5	2056.1	2119.4	2228.8	2317.1	2378.6	2393.9
20°	1078.9	1330.4	1551.2	1720.1	1787.3	1850.6	1973.5	2067.6	2134.8	2159.7
22.5°	785.2	1029.0	1272.8	1453.3	1530.0	1599.2	1722.0	1823.8	1894.8	1919.8
25°	560.6	758.3	1000.2	1205.6	1282.4	1351.5	1474.4	1578.0	1651.0	1689.4
27.5°	408.9	543.3	756.4	967.6	1050.1	1123.1	1236.3	1343.8	1412.9	1449.4
30°	299.5	387.8	547.1	752.5	842.8	913.8	1034.7	1125.0	1199.8	1219.0
32.5°	228.5	278.4	387.8	554.8	647.0	721.8	838.9	925.3	984.8	1006.0
35°	174.7	205.4	270.7	397.4	476.1	552.9	664.2	752.5	804.4	823.6
37.5°	136.3	157.4	195.8	280.3	341.7	408.9	518.3	591.3	633.5	658.5
40°	109.4	124.8	149.7	199.7	241.9	291.8	384.0	453.1	495.3	508.7
42.5°	88.3	99.8	113.3	142.1	170.9	207.3	282.2	330.2	364.8	372.4
45°	69.1	76.8	92.1	105.6	117.1	136.3	188.1	232.3	253.4	263.0
47.5°	55.7	65.3	65.3	73.0	80.6	94.1	126.7	151.7	167.0	170.9
50°	42.2	44.2	48.0	51.8	55.7	59.5	76.8	92.1	101.7	101.7
52.5°	30.7	32.6	32.6	34.6	36.5	40.3	49.9	57.6	63.4	65.3
55°	23.0	23.0	25.0	26.9	28.8	30.7	36.5	44.2	46.1	48.0
57.5°	17.3	17.3	19.2	21.1	23.0	23.0	28.8	32.6	36.5	40.3
60°	13.4	13.4	15.4	15.4	17.3	19.2	25.0	26.9	26.9	26.9
62.5°	11.5	11.5	11.5	13.4	13.4	13.4	17.3	23.0	25.0	25.0
65°	9.6	9.6	9.6	9.6	11.5	11.5	13.4	15.4	19.2	19.2
67.5°	7.7	7.7	7.7	7.7	9.6	9.6	13.4	15.4	19.2	21.1
70°	5.8	5.8	5.8	7.7	7.7	9.6	11.5	15.4	19.2	21.1
72.5°	3.8	3.8	5.8	5.8	5.8	7.7	9.6	11.5	13.4	13.4
75°	3.8	3.8	3.8	3.8	3.8	3.8	5.8	9.6	9.6	11.5
77.5°	3.8	3.8	1.9	3.8	3.8	3.8	3.8	5.8	7.7	7.7
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.8
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)