

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: P219630

Luminaire Tested: **MRZ-1-REC-X-4-L40-80-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219630
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-L40-80-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) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1378.4 lumens
Efficiency: N/A
Efficacy: 87.2 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

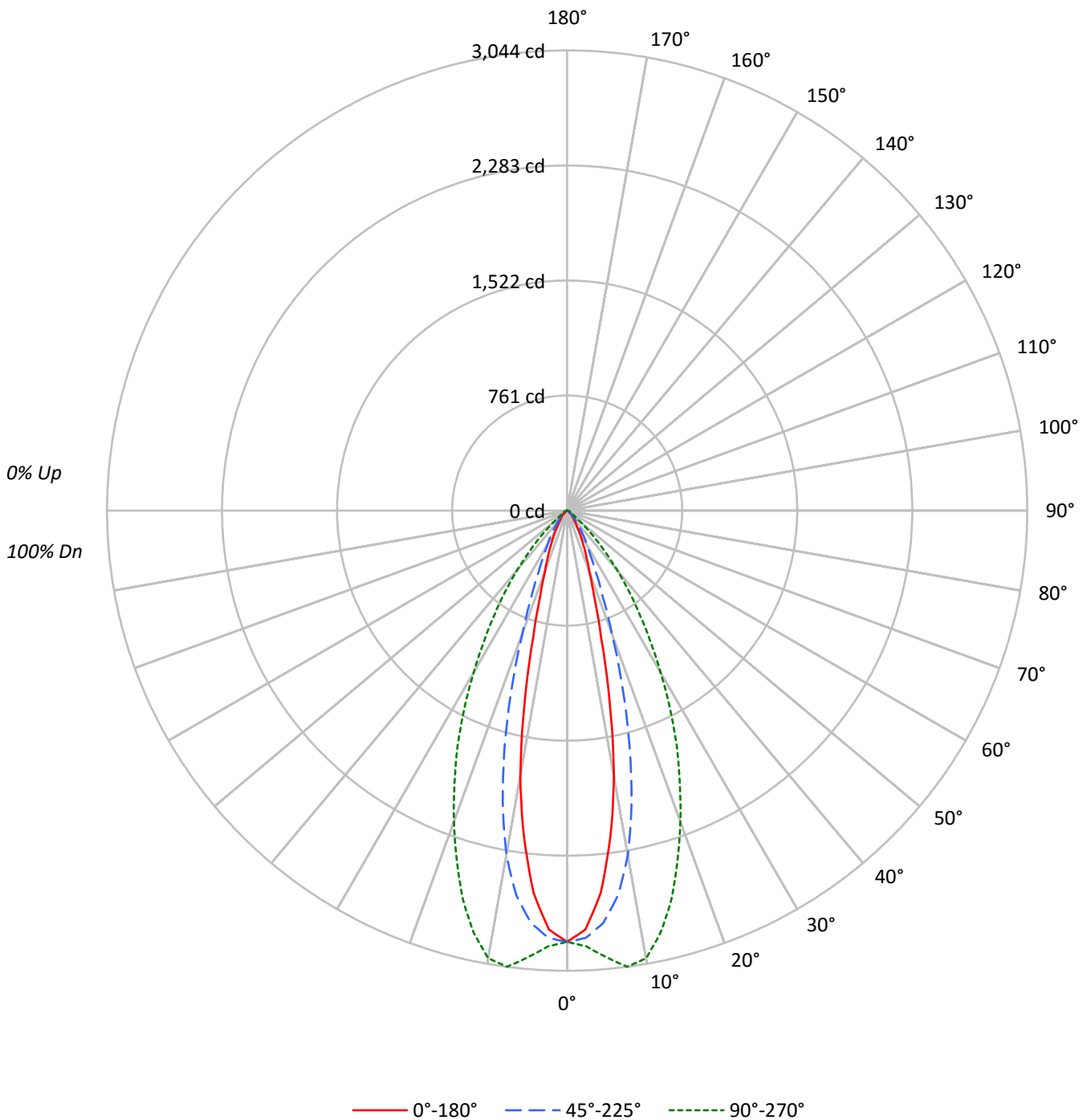
Input Watts (W): 15.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	1407415	1407415	1407415
5°	1257525	1355934	1468755
10°	893567	1158942	1506229
15°	441624	811585	1360627
20°	225926	451905	1150160
25°	142030	242741	932802
30°	85399	148636	704441
35°	55111	96188	503106
40°	38901	62732	332336
45°	29863	43469	186158
50°	17961	29858	79212
55°	13419	20128	41891
60°	11545	13420	26939
65°	11324	11324	22765
70°	11252	8367	30870
75°	11056	7434	22303
80°	5398	5398	11081
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	249.9	18.1
10°-20°	465.8	33.8
20°-30°	349.8	25.4
30°-40°	192.3	14.0
40°-50°	78.0	5.7
50°-60°	24.8	1.8
60°-70°	11.8	0.9
70°-80°	5.7	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°	1065.5	77.3
0°-40°	1257.8	91.2
0°-60°	1360.6	98.7
0°-90°	1378.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1378.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2853	2853	2853	2853	2853	
5°	2539	2598	2738	2899	2966	218
15°	865	1016	1589	2364	2664	253
25°	261	292	446	1301	1714	122
35°	92	109	160	483	835	59
45°	43	41	62	119	267	32
55°	16	18	23	29	49	15
65°	10	12	10	12	20	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°	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6
2.5°	2772.8	2772.8	2770.9	2776.7	2788.4	2788.4	2794.2	2800.1	2805.9	2817.6	2829.3
5°	2539.1	2543.0	2541.1	2562.5	2578.1	2597.6	2603.4	2636.5	2661.8	2700.8	2737.8
7.5°	2184.7	2186.7	2204.2	2229.5	2268.5	2289.9	2319.1	2365.8	2422.3	2496.3	2568.3
10°	1783.6	1783.6	1810.9	1847.9	1879.0	1921.9	1943.3	2019.2	2101.0	2204.2	2313.3
12.5°	1298.8	1298.8	1345.5	1372.8	1429.2	1466.2	1497.4	1585.0	1692.1	1824.5	1968.6
15°	864.6	880.1	897.7	934.7	985.3	1016.4	1037.9	1127.4	1254.0	1402.0	1588.9
17.5°	588.1	597.8	609.5	638.7	664.0	679.6	699.0	775.0	866.5	1010.6	1207.3
20°	430.3	440.1	449.8	463.4	479.0	486.8	500.4	539.4	605.6	706.8	860.7
22.5°	333.0	340.8	348.5	356.3	368.0	373.9	381.6	407.0	442.0	506.3	617.3
25°	260.9	260.9	270.7	276.5	286.2	292.1	301.8	319.3	346.6	383.6	445.9
27.5°	198.6	200.6	206.4	214.2	222.0	227.8	237.6	253.1	270.7	296.0	334.9
30°	149.9	153.8	157.7	163.6	173.3	179.1	185.0	198.6	214.2	233.7	260.9
32.5°	114.9	118.8	120.7	126.6	134.4	138.3	144.1	155.8	169.4	188.9	206.4
35°	91.5	91.5	95.4	97.4	105.1	109.0	112.9	120.7	134.4	146.0	159.7
37.5°	72.0	74.0	75.9	77.9	83.7	85.7	87.6	93.5	101.3	112.9	124.6
40°	60.4	62.3	62.3	62.3	64.3	64.3	66.2	70.1	77.9	85.7	97.4
42.5°	50.6	50.6	50.6	50.6	50.6	50.6	52.6	54.5	60.4	68.2	77.9
45°	42.8	40.9	40.9	40.9	40.9	40.9	40.9	44.8	48.7	54.5	62.3
47.5°	31.2	33.1	33.1	33.1	33.1	33.1	35.0	35.0	38.9	44.8	48.7
50°	23.4	25.3	25.3	27.3	27.3	27.3	27.3	29.2	33.1	37.0	38.9
52.5°	19.5	19.5	19.5	21.4	21.4	21.4	21.4	23.4	27.3	29.2	31.2
55°	15.6	15.6	15.6	15.6	17.5	17.5	19.5	21.4	23.4	23.4	23.4
57.5°	13.6	13.6	13.6	13.6	13.6	15.6	15.6	17.5	19.5	17.5	17.5
60°	11.7	11.7	11.7	11.7	11.7	13.6	13.6	15.6	13.6	13.6	13.6
62.5°	11.7	11.7	9.7	9.7	11.7	11.7	11.7	11.7	11.7	11.7	9.7
65°	9.7	9.7	9.7	9.7	9.7	11.7	11.7	9.7	9.7	7.8	9.7
67.5°	9.7	9.7	7.8	9.7	9.7	9.7	9.7	7.8	7.8	7.8	7.8
70°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	5.8	5.8	5.8	5.8
72.5°	5.8	5.8	5.8	7.8	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	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	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°	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6	2852.6
2.5°	2839.0	2846.8	2856.5	2866.3	2870.2	2874.1	2879.9	2883.8	2885.7	2885.7
5°	2776.7	2815.6	2852.6	2883.8	2899.4	2913.0	2936.4	2951.9	2965.6	2965.6
7.5°	2644.3	2726.1	2802.0	2868.2	2897.4	2928.6	2977.3	3014.3	3033.7	3043.5
10°	2428.1	2550.8	2665.7	2767.0	2813.7	2852.6	2922.7	2971.4	2994.8	3006.5
12.5°	2134.1	2295.7	2441.8	2568.3	2624.8	2671.5	2743.6	2807.9	2841.0	2858.5
15°	1791.4	1982.2	2155.5	2299.6	2363.9	2422.3	2517.7	2595.6	2642.3	2663.8
17.5°	1429.2	1664.8	1861.5	2027.0	2085.4	2149.7	2260.7	2350.3	2412.6	2428.1
20°	1094.3	1349.4	1573.3	1744.7	1812.8	1877.1	2001.7	2097.1	2165.3	2190.6
22.5°	796.4	1043.7	1291.0	1474.0	1551.9	1622.0	1746.6	1849.8	1921.9	1947.2
25°	568.6	769.1	1014.5	1222.8	1300.7	1370.8	1495.4	1600.6	1674.6	1713.5
27.5°	414.8	551.1	767.2	981.4	1065.1	1139.1	1254.0	1363.0	1433.1	1470.1
30°	303.8	393.3	554.9	763.3	854.8	926.9	1049.5	1141.1	1217.0	1236.5
32.5°	231.7	282.3	393.3	562.7	656.2	732.1	850.9	938.5	998.9	1020.3
35°	177.2	208.3	274.6	403.1	482.9	560.8	673.7	763.3	815.9	835.3
37.5°	138.3	159.7	198.6	284.3	346.6	414.8	525.7	599.7	642.6	667.9
40°	111.0	126.6	151.9	202.5	245.3	296.0	389.4	459.5	502.4	516.0
42.5°	89.6	101.3	114.9	144.1	173.3	210.3	286.2	334.9	370.0	377.8
45°	70.1	77.9	93.5	107.1	118.8	138.3	190.8	235.6	257.0	266.8
47.5°	56.5	66.2	66.2	74.0	81.8	95.4	128.5	153.8	169.4	173.3
50°	42.8	44.8	48.7	52.6	56.5	60.4	77.9	93.5	103.2	103.2
52.5°	31.2	33.1	33.1	35.0	37.0	40.9	50.6	58.4	64.3	66.2
55°	23.4	23.4	25.3	27.3	29.2	31.2	37.0	44.8	46.7	48.7
57.5°	17.5	17.5	19.5	21.4	23.4	23.4	29.2	33.1	37.0	40.9
60°	13.6	13.6	15.6	15.6	17.5	19.5	25.3	27.3	27.3	27.3
62.5°	11.7	11.7	11.7	13.6	13.6	13.6	17.5	23.4	25.3	25.3
65°	9.7	9.7	9.7	9.7	11.7	11.7	13.6	15.6	19.5	19.5
67.5°	7.8	7.8	7.8	7.8	9.7	9.7	13.6	15.6	19.5	21.4
70°	5.8	5.8	5.8	7.8	7.8	9.7	11.7	15.6	19.5	21.4
72.5°	3.9	3.9	5.8	5.8	5.8	7.8	9.7	11.7	13.6	13.6
75°	3.9	3.9	3.9	3.9	3.9	3.9	5.8	9.7	9.7	11.7
77.5°	3.9	3.9	1.9	3.9	3.9	3.9	3.9	5.8	7.8	7.8
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.9
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)