

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: P226187

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P226187
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-L40-97-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) 4000K CCT, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 401.5 lumens
Efficiency: N/A
Efficacy: 74.3 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

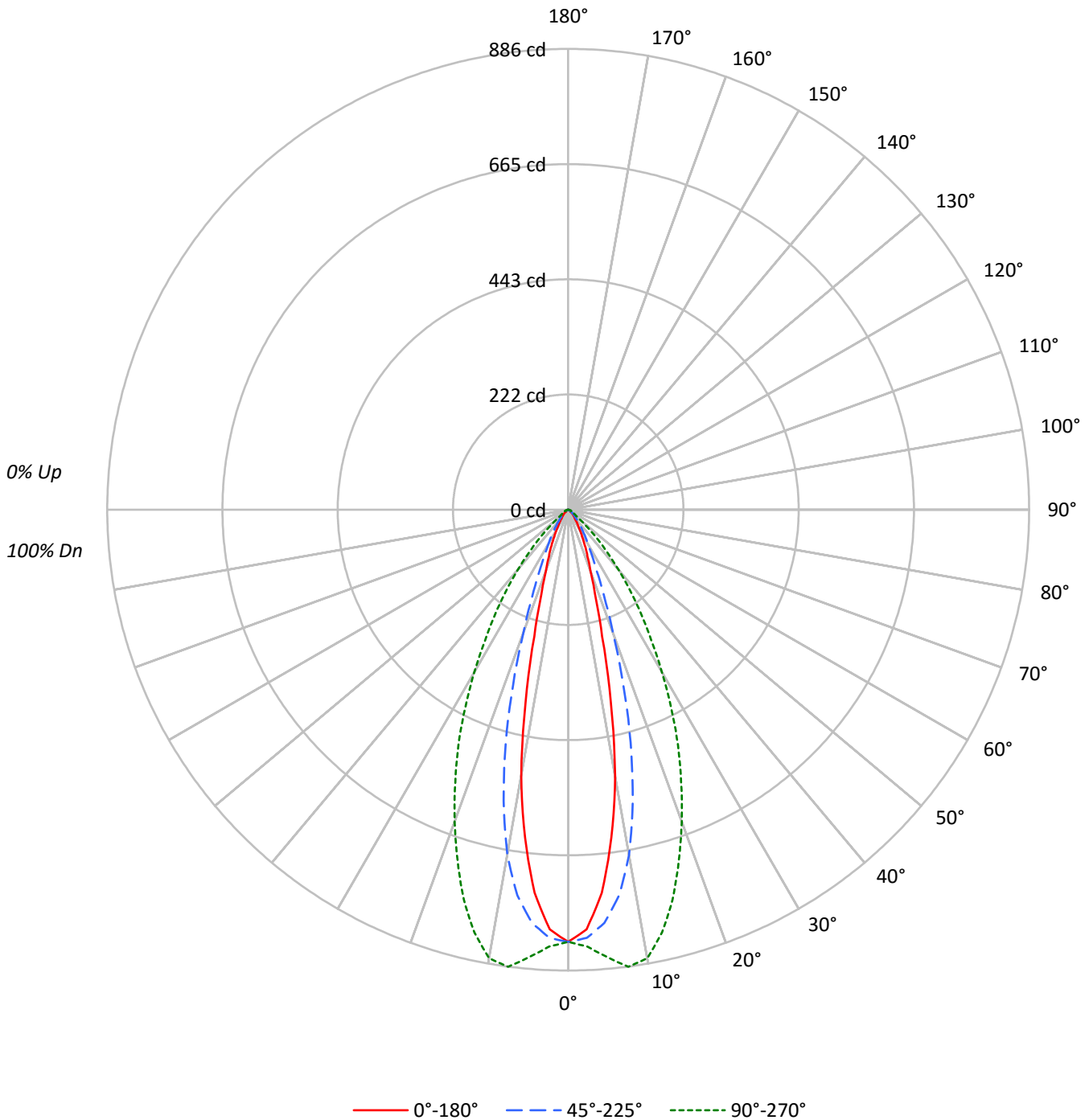
Input Watts (W): 5.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	409949	409949	409949
5°	366297	394924	427809
10°	260265	337568	438667
15°	128615	236391	396266
20°	65788	131628	334978
25°	41373	70715	271702
30°	24896	43298	205151
35°	16082	28007	146541
40°	11335	18291	96802
45°	8722	12629	54215
50°	5219	8673	23104
55°	3957	5849	12215
60°	3355	3848	7795
65°	3386	3386	6654
70°	3174	2452	8944
75°	3241	2288	6481
80°	1421	1421	3410
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.8	18.1
10°-20°	135.7	33.8
20°-30°	101.9	25.4
30°-40°	56.0	14.0
40°-50°	22.7	5.7
50°-60°	7.2	1.8
60°-70°	3.4	0.9
70°-80°	1.7	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°	310.3	77.3
0°-40°	366.4	91.2
0°-60°	396.3	98.7
0°-90°	401.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	401.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	831	831	831	831	831	
5°	740	757	797	844	864	63
15°	252	296	463	688	776	74
25°	76	85	130	379	499	35
35°	27	32	46	141	243	17
45°	12	12	18	35	78	9
55°	5	5	7	8	14	4
65°	3	3	3	3	6	3
75°	2	1	1	1	3	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°	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9
2.5°	807.6	807.6	807.1	808.8	812.2	812.2	813.9	815.6	817.3	820.6	824.0
5°	739.6	740.7	740.1	746.4	750.9	756.6	758.2	767.9	775.3	786.6	797.4
7.5°	636.3	636.9	642.0	649.4	660.8	666.9	675.5	689.1	705.6	727.1	748.1
10°	519.5	519.5	527.5	538.2	547.3	559.8	566.1	588.1	611.9	642.0	673.8
12.5°	378.3	378.3	391.9	399.8	416.3	427.1	436.2	461.7	492.9	531.4	573.4
15°	251.8	256.4	261.5	272.3	287.0	296.0	302.3	328.4	365.3	408.3	462.8
17.5°	171.3	174.1	177.6	186.0	193.4	197.9	203.6	225.8	252.4	294.3	351.6
20°	125.3	128.2	131.0	135.0	139.5	141.8	145.8	157.1	176.4	205.9	250.7
22.5°	96.9	99.3	101.5	103.8	107.2	108.9	111.1	118.5	128.7	147.5	179.8
25°	76.0	76.0	78.8	80.5	83.4	85.1	87.9	93.0	101.0	111.8	129.9
27.5°	57.8	58.4	60.1	62.4	64.6	66.3	69.2	73.7	78.8	86.2	97.6
30°	43.7	44.8	46.0	47.7	50.4	52.2	53.9	57.8	62.4	68.0	76.0
32.5°	33.5	34.6	35.2	36.9	39.1	40.3	42.0	45.3	49.4	55.0	60.1
35°	26.7	26.7	27.8	28.4	30.6	31.8	32.9	35.2	39.1	42.5	46.5
37.5°	21.0	21.5	22.1	22.7	24.4	25.0	25.5	27.2	29.5	32.9	36.3
40°	17.6	18.1	18.1	18.1	18.7	18.7	19.3	20.4	22.7	25.0	28.4
42.5°	14.7	14.7	14.7	14.7	14.7	14.7	15.4	15.9	17.6	19.8	22.7
45°	12.5	11.9	11.9	11.9	11.9	11.9	11.9	13.0	14.2	15.9	18.1
47.5°	9.1	9.6	9.6	9.6	9.6	9.6	10.2	10.2	11.3	13.0	14.2
50°	6.8	7.4	7.4	7.9	7.9	7.9	7.9	8.5	9.6	10.8	11.3
52.5°	5.7	5.7	5.7	6.2	6.2	6.2	6.2	6.8	7.9	8.5	9.1
55°	4.6	4.6	4.6	4.6	5.1	5.1	5.7	6.2	6.8	6.8	6.8
57.5°	3.9	3.9	3.9	3.9	3.9	4.6	4.6	5.1	5.7	5.1	5.1
60°	3.4	3.4	3.4	3.4	3.4	3.9	3.9	4.6	3.9	3.9	3.9
62.5°	3.4	3.4	2.9	2.9	3.4	3.4	3.4	3.4	3.4	3.4	2.9
65°	2.9	2.9	2.9	2.9	2.9	3.4	3.4	2.9	2.9	2.2	2.9
67.5°	2.9	2.9	2.2	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2
70°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.7	1.7
72.5°	1.7	1.7	1.7	2.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7
75°	1.7	1.7	1.7	1.7	1.7	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
82.5°	0.0	0.5	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°	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9	830.9
2.5°	826.9	829.2	832.0	834.8	836.0	837.1	838.9	839.9	840.6	840.6
5°	808.8	820.1	830.9	839.9	844.5	848.5	855.3	859.8	863.8	863.8
7.5°	770.2	794.0	816.1	835.4	843.9	853.0	867.2	878.0	883.6	886.4
10°	707.3	743.0	776.5	805.9	819.6	830.9	851.3	865.5	872.2	875.6
12.5°	621.6	668.7	711.2	748.1	764.5	778.2	799.1	817.8	827.4	832.6
15°	521.8	577.4	627.8	669.8	688.5	705.6	733.3	756.0	769.6	775.8
17.5°	416.3	484.9	542.2	590.4	607.4	626.1	658.4	684.5	702.7	707.3
20°	318.8	393.0	458.2	508.2	528.0	546.8	583.0	610.9	630.7	638.0
22.5°	231.9	304.0	376.0	429.3	452.1	472.4	508.7	538.8	559.8	567.1
25°	165.6	224.1	295.5	356.2	378.9	399.3	435.5	466.2	487.8	499.1
27.5°	120.8	160.5	223.4	285.8	310.2	331.8	365.3	397.0	417.4	428.2
30°	88.5	114.5	161.7	222.3	249.0	269.9	305.7	332.3	354.5	360.1
32.5°	67.5	82.2	114.5	163.9	191.1	213.3	247.8	273.3	290.9	297.2
35°	51.6	60.7	80.0	117.4	140.7	163.4	196.2	222.3	237.6	243.3
37.5°	40.3	46.5	57.8	82.8	101.0	120.8	153.1	174.7	187.2	194.5
40°	32.3	36.9	44.3	59.0	71.5	86.2	113.5	133.8	146.3	150.3
42.5°	26.1	29.5	33.5	42.0	50.4	61.2	83.4	97.6	107.7	110.1
45°	20.4	22.7	27.2	31.2	34.6	40.3	55.6	68.6	74.9	77.7
47.5°	16.4	19.3	19.3	21.5	23.8	27.8	37.4	44.8	49.4	50.4
50°	12.5	13.0	14.2	15.4	16.4	17.6	22.7	27.2	30.1	30.1
52.5°	9.1	9.6	9.6	10.2	10.8	11.9	14.7	17.1	18.7	19.3
55°	6.8	6.8	7.4	7.9	8.5	9.1	10.8	13.0	13.6	14.2
57.5°	5.1	5.1	5.7	6.2	6.8	6.8	8.5	9.6	10.8	11.9
60°	3.9	3.9	4.6	4.6	5.1	5.7	7.4	7.9	7.9	7.9
62.5°	3.4	3.4	3.4	3.9	3.9	3.9	5.1	6.8	7.4	7.4
65°	2.9	2.9	2.9	2.9	3.4	3.4	3.9	4.6	5.7	5.7
67.5°	2.2	2.2	2.2	2.2	2.9	2.9	3.9	4.6	5.7	6.2
70°	1.7	1.7	1.7	2.2	2.2	2.9	3.4	4.6	5.7	6.2
72.5°	1.2	1.2	1.7	1.7	1.7	2.2	2.9	3.4	3.9	3.9
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.7	2.9	2.9	3.4
77.5°	1.2	1.2	0.5	1.2	1.2	1.2	1.2	1.7	2.2	2.2
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.2
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)