

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: P226109

Luminaire Tested: **MRZ-1-REC-X-1-L27-97-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P226109
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-L27-97-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) 2700K CCT, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 338.1 lumens
Efficiency: N/A
Efficacy: 62.6 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

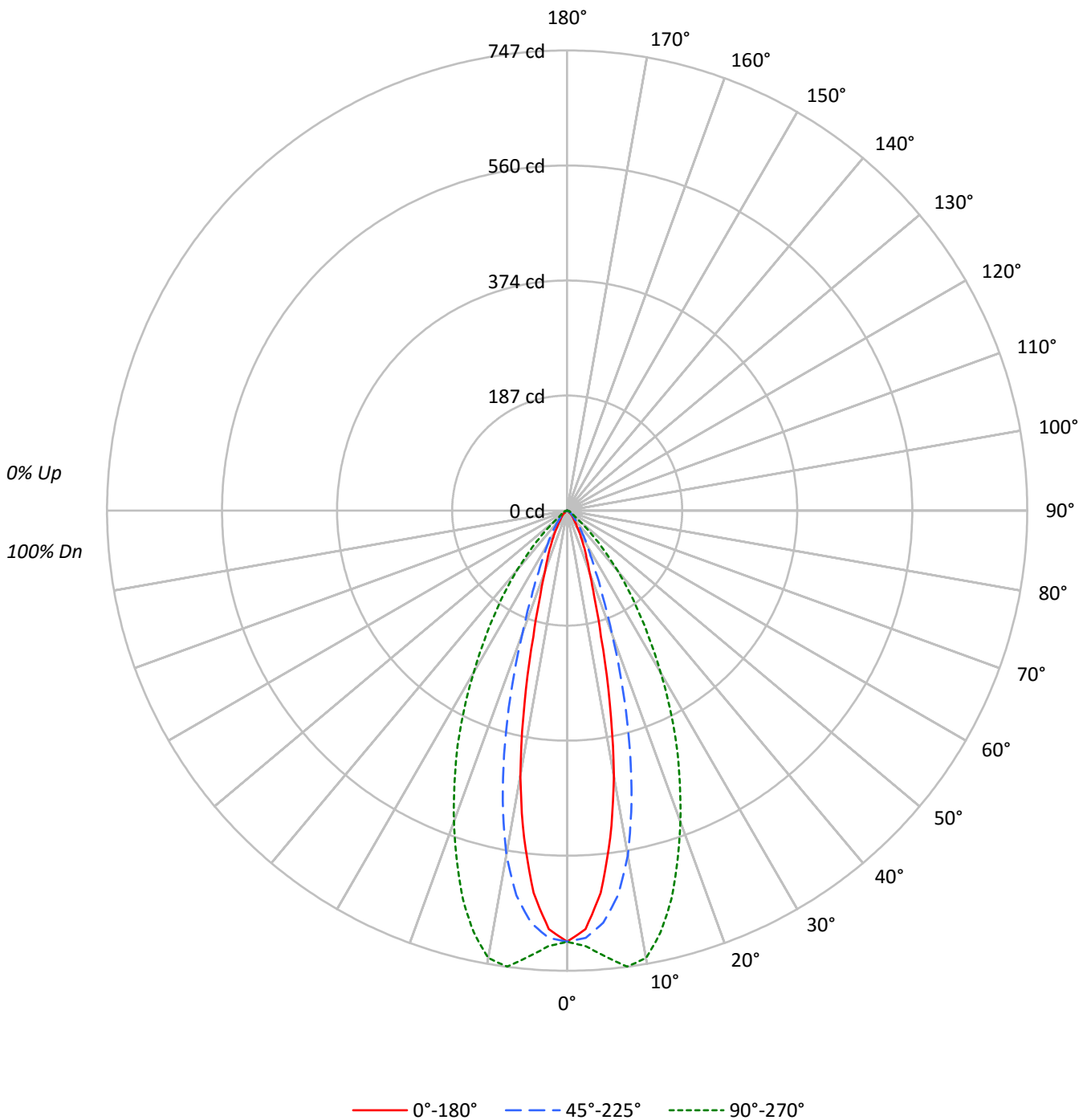
Input Watts (W): 5.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	345267	345267	345267
5°	308500	332619	360255
10°	219183	284312	369481
15°	108337	199053	333746
20°	55445	110837	282158
25°	34841	59556	228859
30°	20965	36461	172792
35°	13492	23610	123473
40°	9532	15393	81538
45°	7326	10675	45632
50°	4375	7369	19496
55°	3269	4903	10322
60°	2862	3256	6611
65°	2802	2802	5604
70°	2741	2020	7645
75°	2669	1906	5528
80°	1137	1137	2841
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.3	18.1
10°-20°	114.3	33.8
20°-30°	85.8	25.4
30°-40°	47.2	14.0
40°-50°	19.1	5.7
50°-60°	6.1	1.8
60°-70°	2.9	0.9
70°-80°	1.4	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°	261.4	77.3
0°-40°	308.5	91.3
0°-60°	333.8	98.7
0°-90°	338.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	338.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	700	700	700	700	700	
5°	623	637	672	711	727	53
15°	212	249	390	580	653	62
25°	64	72	109	319	420	30
35°	22	27	39	118	205	15
45°	10	10	15	29	65	8
55°	4	4	6	7	12	4
65°	2	3	2	3	5	3
75°	1	1	1	1	3	1
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°	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8
2.5°	680.2	680.2	679.7	681.1	684.0	684.0	685.5	686.9	688.4	691.2	694.1
5°	622.9	623.8	623.4	628.6	632.5	637.2	638.6	646.8	653.0	662.6	671.6
7.5°	536.0	536.4	540.7	546.9	556.5	561.8	568.9	580.3	594.3	612.4	630.1
10°	437.5	437.5	444.2	453.3	461.0	471.4	476.7	495.4	515.4	540.7	567.5
12.5°	318.6	318.6	330.0	336.7	350.6	359.7	367.3	388.9	415.1	447.6	482.9
15°	212.1	215.9	220.2	229.2	241.7	249.3	254.6	276.6	307.6	344.0	389.7
17.5°	144.3	146.7	149.5	156.7	162.9	166.7	171.5	190.1	212.5	247.9	296.2
20°	105.6	107.9	110.3	113.7	117.5	119.4	122.7	132.3	148.5	173.4	211.1
22.5°	81.7	83.6	85.5	87.4	90.3	91.7	93.6	99.8	108.5	124.2	151.4
25°	64.0	64.0	66.4	67.8	70.3	71.7	74.0	78.4	85.0	94.1	109.4
27.5°	48.7	49.2	50.6	52.6	54.5	55.9	58.3	62.1	66.4	72.6	82.1
30°	36.8	37.8	38.7	40.1	42.5	43.9	45.3	48.7	52.6	57.3	64.0
32.5°	28.2	29.1	29.6	31.1	32.9	33.9	35.4	38.2	41.6	46.3	50.6
35°	22.4	22.4	23.4	23.9	25.8	26.8	27.7	29.6	32.9	35.8	39.2
37.5°	17.7	18.1	18.7	19.1	20.5	21.0	21.5	22.9	24.8	27.7	30.5
40°	14.8	15.3	15.3	15.3	15.8	15.8	16.2	17.2	19.1	21.0	23.9
42.5°	12.4	12.4	12.4	12.4	12.4	12.4	12.9	13.4	14.8	16.7	19.1
45°	10.5	10.0	10.0	10.0	10.0	10.0	10.0	11.0	12.0	13.4	15.3
47.5°	7.7	8.1	8.1	8.1	8.1	8.1	8.6	8.6	9.6	11.0	12.0
50°	5.7	6.2	6.2	6.7	6.7	6.7	6.7	7.1	8.1	9.1	9.6
52.5°	4.8	4.8	4.8	5.3	5.3	5.3	5.3	5.7	6.7	7.1	7.7
55°	3.8	3.8	3.8	3.8	4.3	4.3	4.8	5.3	5.7	5.7	5.7
57.5°	3.3	3.3	3.3	3.3	3.3	3.8	3.8	4.3	4.8	4.3	4.3
60°	2.9	2.9	2.9	2.9	2.9	3.3	3.3	3.8	3.3	3.3	3.3
62.5°	2.9	2.9	2.4	2.4	2.9	2.9	2.9	2.9	2.9	2.9	2.4
65°	2.4	2.4	2.4	2.4	2.4	2.9	2.9	2.4	2.4	1.9	2.4
67.5°	2.4	2.4	1.9	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4
72.5°	1.4	1.4	1.4	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4
75°	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
82.5°	0.0	0.4	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°	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8	699.8
2.5°	696.5	698.3	700.8	703.2	704.1	705.0	706.5	707.5	707.9	707.9
5°	681.1	690.7	699.8	707.5	711.2	714.6	720.3	724.1	727.4	727.4
7.5°	648.7	668.7	687.4	703.6	710.8	718.4	730.4	739.4	744.2	746.6
10°	595.7	625.8	653.9	678.8	690.2	699.8	717.0	728.9	734.7	737.5
12.5°	523.6	563.2	599.0	630.1	643.9	655.3	673.0	688.8	696.9	701.2
15°	439.5	486.2	528.7	564.1	579.9	594.3	617.6	636.8	648.2	653.4
17.5°	350.6	408.4	456.6	497.2	511.6	527.3	554.5	576.6	591.9	595.7
20°	268.4	331.0	386.0	428.0	444.7	460.4	491.1	514.5	531.1	537.4
22.5°	195.4	256.0	316.7	361.6	380.7	397.9	428.5	453.8	471.4	477.7
25°	139.4	188.7	248.9	299.9	319.0	336.3	366.8	392.6	410.8	420.4
27.5°	101.8	135.2	188.2	240.8	261.3	279.4	307.6	334.4	351.5	360.6
30°	74.5	96.5	136.1	187.3	209.7	227.4	257.5	279.9	298.5	303.3
32.5°	56.9	69.3	96.5	138.0	161.0	179.6	208.7	230.2	245.0	250.3
35°	43.5	51.2	67.3	98.9	118.5	137.6	165.2	187.3	200.1	205.0
37.5°	33.9	39.2	48.7	69.7	85.0	101.8	129.0	147.1	157.6	163.8
40°	27.2	31.1	37.2	49.6	60.2	72.6	95.5	112.7	123.3	126.6
42.5°	22.0	24.8	28.2	35.4	42.5	51.6	70.3	82.1	90.8	92.7
45°	17.2	19.1	22.9	26.2	29.1	33.9	46.8	57.8	63.0	65.4
47.5°	13.8	16.2	16.2	18.1	20.1	23.4	31.5	37.8	41.6	42.5
50°	10.5	11.0	12.0	12.9	13.8	14.8	19.1	22.9	25.4	25.4
52.5°	7.7	8.1	8.1	8.6	9.1	10.0	12.4	14.4	15.8	16.2
55°	5.7	5.7	6.2	6.7	7.1	7.7	9.1	11.0	11.4	12.0
57.5°	4.3	4.3	4.8	5.3	5.7	5.7	7.1	8.1	9.1	10.0
60°	3.3	3.3	3.8	3.8	4.3	4.8	6.2	6.7	6.7	6.7
62.5°	2.9	2.9	2.9	3.3	3.3	3.3	4.3	5.7	6.2	6.2
65°	2.4	2.4	2.4	2.4	2.9	2.9	3.3	3.8	4.8	4.8
67.5°	1.9	1.9	1.9	1.9	2.4	2.4	3.3	3.8	4.8	5.3
70°	1.4	1.4	1.4	1.9	1.9	2.4	2.9	3.8	4.8	5.3
72.5°	1.0	1.0	1.4	1.4	1.4	1.9	2.4	2.9	3.3	3.3
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.4	2.4	2.4	2.9
77.5°	1.0	1.0	0.4	1.0	1.0	1.0	1.0	1.4	1.9	1.9
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.0
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)