

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: P226174

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P226174
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-L40-80-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) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 514.8 lumens
Efficiency: N/A
Efficacy: 95.3 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

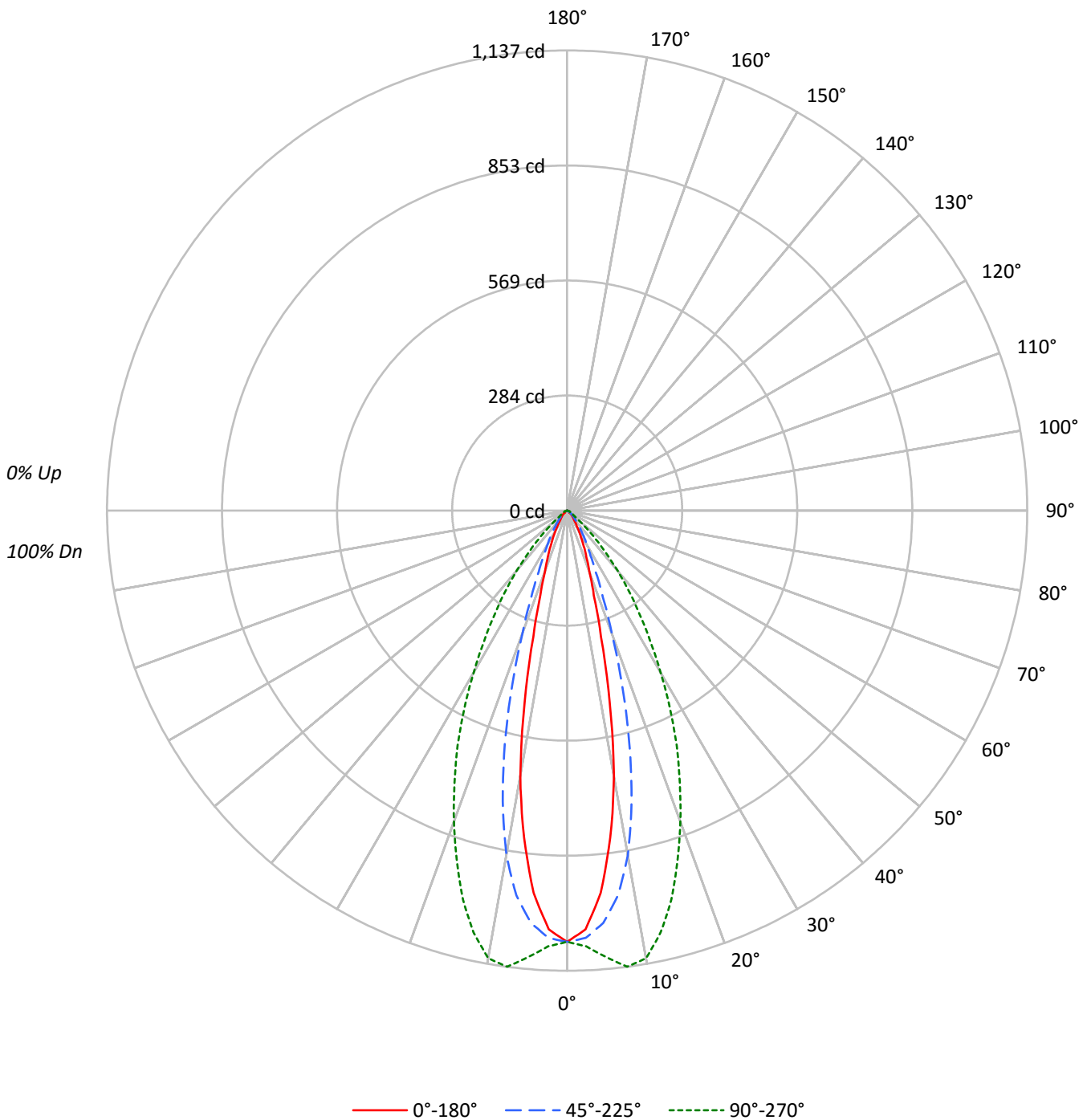
Input Watts (W): 5.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	525696	525696	525696
5°	469709	506457	548555
10°	333760	432856	562562
15°	164932	303150	508179
20°	84427	168802	429538
25°	53077	90694	348406
30°	31904	55546	263090
35°	20599	35897	187919
40°	14556	23379	124111
45°	11164	16257	69495
50°	6678	11206	29628
55°	4989	7484	15655
60°	4342	5032	10065
65°	4320	4320	8406
70°	4183	3029	11540
75°	4003	2669	8388
80°	1989	1989	3978
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.3	18.1
10°-20°	174.0	33.8
20°-30°	130.7	25.4
30°-40°	71.8	14.0
40°-50°	29.1	5.7
50°-60°	9.3	1.8
60°-70°	4.4	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°	398.0	77.3
0°-40°	469.8	91.3
0°-60°	508.2	98.7
0°-90°	514.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	514.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1066	1066	1066	1066	1066	
5°	948	970	1023	1083	1108	81
15°	323	380	594	883	995	95
25°	98	109	167	486	640	45
35°	34	41	60	180	312	22
45°	16	15	23	44	100	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°	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5
2.5°	1035.6	1035.6	1034.9	1037.1	1041.5	1041.5	1043.6	1045.9	1048.0	1052.4	1056.8
5°	948.4	949.8	949.1	957.1	962.9	970.2	972.4	984.7	994.2	1008.7	1022.6
7.5°	816.0	816.7	823.3	832.7	847.2	855.3	866.2	883.7	904.7	932.4	959.3
10°	666.2	666.2	676.4	690.2	701.8	717.8	725.8	754.2	784.8	823.3	864.0
12.5°	485.1	485.1	502.6	512.8	533.8	547.7	559.3	592.0	632.0	681.5	735.3
15°	322.9	328.7	335.3	349.1	368.0	379.7	387.6	421.1	468.4	523.6	593.5
17.5°	219.6	223.3	227.6	238.5	248.0	253.8	261.1	289.5	323.6	377.4	450.9
20°	160.8	164.3	168.0	173.1	178.9	181.8	186.9	201.5	226.2	264.0	321.5
22.5°	124.4	127.3	130.2	133.1	137.5	139.6	142.6	152.0	165.1	189.1	230.6
25°	97.5	97.5	101.1	103.3	106.9	109.1	112.7	119.3	129.4	143.3	166.6
27.5°	74.2	74.9	77.1	80.0	82.9	85.1	88.7	94.5	101.1	110.5	125.1
30°	56.0	57.5	58.9	61.1	64.7	67.0	69.1	74.2	80.0	87.3	97.5
32.5°	42.9	44.4	45.1	47.3	50.2	51.6	53.8	58.2	63.3	70.5	77.1
35°	34.2	34.2	35.6	36.3	39.3	40.7	42.2	45.1	50.2	54.5	59.6
37.5°	26.9	27.7	28.4	29.1	31.2	32.0	32.8	34.9	37.8	42.2	46.5
40°	22.6	23.3	23.3	23.3	24.0	24.0	24.7	26.2	29.1	32.0	36.3
42.5°	18.9	18.9	18.9	18.9	18.9	18.9	19.6	20.4	22.6	25.4	29.1
45°	16.0	15.3	15.3	15.3	15.3	15.3	15.3	16.7	18.2	20.4	23.3
47.5°	11.6	12.4	12.4	12.4	12.4	12.4	13.1	13.1	14.6	16.7	18.2
50°	8.7	9.5	9.5	10.2	10.2	10.2	10.2	10.9	12.4	13.8	14.6
52.5°	7.2	7.2	7.2	8.0	8.0	8.0	8.0	8.7	10.2	10.9	11.6
55°	5.8	5.8	5.8	5.8	6.5	6.5	7.2	8.0	8.7	8.7	8.7
57.5°	5.1	5.1	5.1	5.1	5.1	5.8	5.8	6.5	7.2	6.5	6.5
60°	4.4	4.4	4.4	4.4	4.4	5.1	5.1	5.8	5.1	5.1	5.1
62.5°	4.4	4.4	3.7	3.7	4.4	4.4	4.4	4.4	4.4	4.4	3.7
65°	3.7	3.7	3.7	3.7	3.7	4.4	4.4	3.7	3.7	2.9	3.7
67.5°	3.7	3.7	2.9	3.7	3.7	3.7	3.7	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°	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5	1065.5
2.5°	1060.3	1063.3	1066.9	1070.6	1072.0	1073.5	1075.7	1077.1	1077.8	1077.8
5°	1037.1	1051.7	1065.5	1077.1	1082.9	1088.0	1096.8	1102.6	1107.6	1107.6
7.5°	987.7	1018.2	1046.6	1071.3	1082.2	1093.8	1112.0	1125.9	1133.1	1136.7
10°	906.9	952.8	995.6	1033.5	1051.0	1065.5	1091.7	1109.8	1118.5	1122.9
12.5°	797.1	857.4	912.0	959.3	980.3	997.8	1024.7	1048.7	1061.1	1067.7
15°	669.1	740.4	805.1	858.9	883.0	904.7	940.4	969.5	987.0	994.9
17.5°	533.8	621.8	695.3	757.1	779.0	802.9	844.4	877.9	901.1	906.9
20°	408.8	504.0	587.7	651.7	677.1	701.1	747.6	783.2	808.8	818.1
22.5°	297.4	389.8	482.2	550.5	579.6	605.9	652.4	690.9	717.8	727.3
25°	212.4	287.3	378.9	456.7	485.8	512.0	558.6	597.8	625.5	640.0
27.5°	154.9	205.9	286.6	366.5	397.8	425.5	468.4	509.1	535.3	549.1
30°	113.5	146.9	207.3	285.1	319.3	346.2	392.0	426.2	454.6	461.8
32.5°	86.6	105.4	146.9	210.2	245.1	273.4	317.8	350.6	373.1	381.1
35°	66.1	77.8	102.6	150.5	180.3	209.4	251.6	285.1	304.8	312.0
37.5°	51.6	59.6	74.2	106.1	129.4	154.9	196.4	224.0	240.0	249.4
40°	41.4	47.3	56.7	75.6	91.7	110.5	145.4	171.7	187.6	192.7
42.5°	33.5	37.8	42.9	53.8	64.7	78.6	106.9	125.1	138.2	141.1
45°	26.2	29.1	34.9	40.0	44.4	51.6	71.2	88.0	96.0	99.6
47.5°	21.1	24.7	24.7	27.7	30.5	35.6	48.0	57.5	63.3	64.7
50°	16.0	16.7	18.2	19.6	21.1	22.6	29.1	34.9	38.6	38.6
52.5°	11.6	12.4	12.4	13.1	13.8	15.3	18.9	21.8	24.0	24.7
55°	8.7	8.7	9.5	10.2	10.9	11.6	13.8	16.7	17.5	18.2
57.5°	6.5	6.5	7.2	8.0	8.7	8.7	10.9	12.4	13.8	15.3
60°	5.1	5.1	5.8	5.8	6.5	7.2	9.5	10.2	10.2	10.2
62.5°	4.4	4.4	4.4	5.1	5.1	5.1	6.5	8.7	9.5	9.5
65°	3.7	3.7	3.7	3.7	4.4	4.4	5.1	5.8	7.2	7.2
67.5°	2.9	2.9	2.9	2.9	3.7	3.7	5.1	5.8	7.2	8.0
70°	2.1	2.1	2.1	2.9	2.9	3.7	4.4	5.8	7.2	8.0
72.5°	1.4	1.4	2.1	2.1	2.1	2.9	3.7	4.4	5.1	5.1
75°	1.4	1.4	1.4	1.4	1.4	1.4	2.1	3.7	3.7	4.4
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)