

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: P219611

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219611
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-1H-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: 449.7 lumens
Efficiency: N/A
Efficacy: 66.1 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

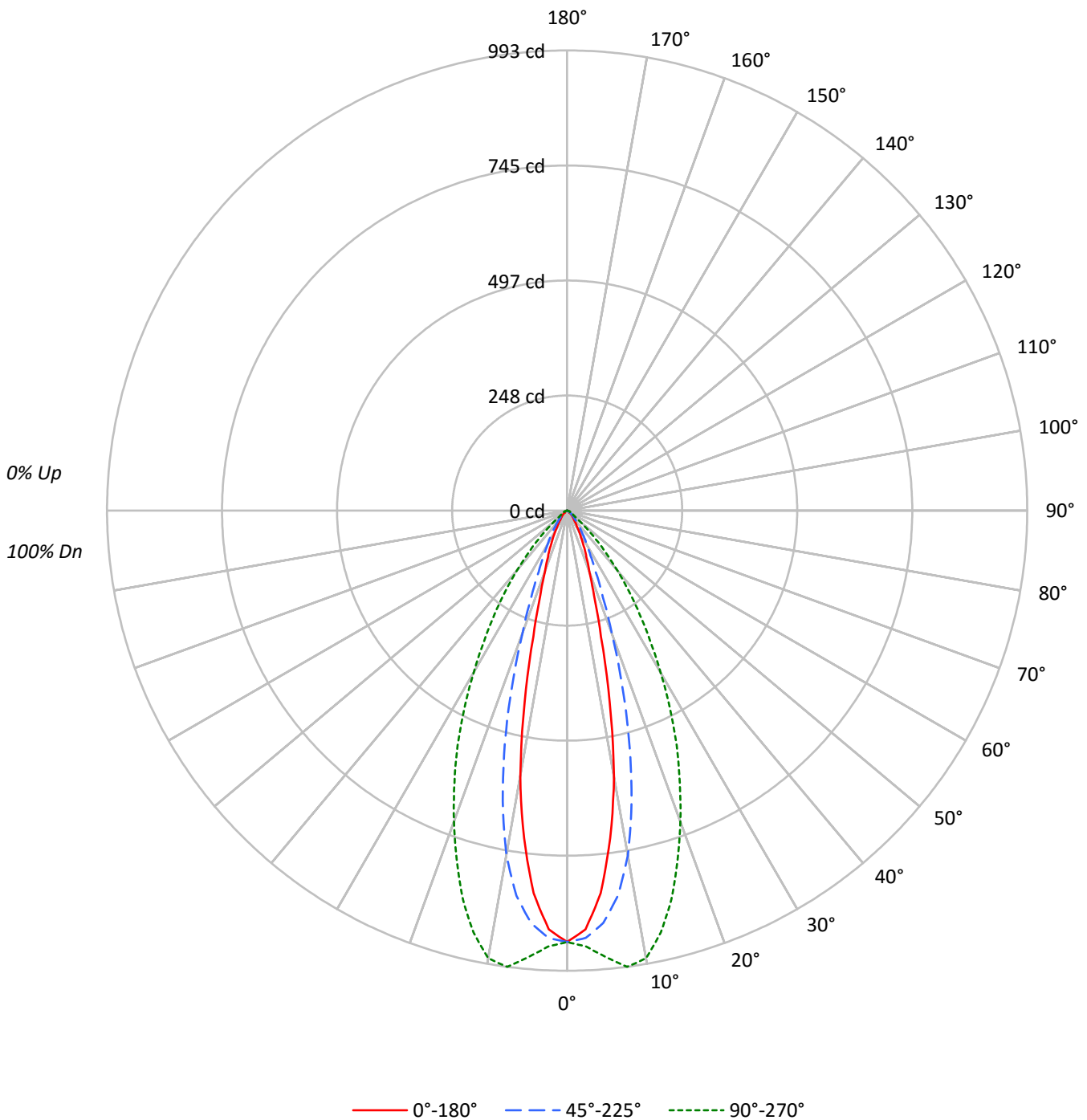
Input Watts (W): 6.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	459238	459238	459238
5°	410326	442419	479218
10°	291577	378148	491422
15°	144092	264790	443922
20°	73716	147432	375249
25°	46327	79208	304365
30°	27859	48482	229819
35°	18009	31380	164188
40°	12688	20481	108460
45°	9768	14164	60704
50°	5833	9748	25867
55°	4387	6537	13677
60°	3750	4342	8782
65°	3736	3736	7472
70°	3606	2741	10098
75°	3622	2478	7244
80°	1705	1705	3694
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.5	18.1
10°-20°	152.0	33.8
20°-30°	114.1	25.4
30°-40°	62.7	14.0
40°-50°	25.4	5.7
50°-60°	8.1	1.8
60°-70°	3.8	0.9
70°-80°	1.9	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°	347.6	77.3
0°-40°	410.4	91.2
0°-60°	443.9	98.7
0°-90°	449.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	449.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	931	931	931	931	931	
5°	828	848	893	946	968	71
15°	282	332	518	771	869	83
25°	85	95	146	424	559	40
35°	30	36	52	158	273	19
45°	14	13	20	39	87	10
55°	5	6	8	10	16	5
65°	3	4	3	4	6	3
75°	2	1	1	1	4	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P219611

CATALOG NUMBER: MRZ-1-REC-X-1H-L40-97-NFL-UNV-X-STD-LSL

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8
2.5°	904.7	904.7	904.1	906.0	909.8	909.8	911.7	913.6	915.5	919.3	923.1
5°	828.5	829.7	829.1	836.1	841.2	847.5	849.4	860.2	868.5	881.2	893.3
7.5°	712.8	713.5	719.2	727.5	740.2	747.1	756.7	771.9	790.4	814.5	838.0
10°	582.0	582.0	590.9	602.9	613.1	627.1	634.1	658.8	685.5	719.2	754.8
12.5°	423.8	423.8	439.0	447.9	466.3	478.4	488.6	517.2	552.1	595.3	642.3
15°	282.1	287.2	292.9	305.0	321.5	331.6	338.6	367.9	409.2	457.4	518.4
17.5°	191.9	195.0	198.9	208.4	216.6	221.7	228.1	252.9	282.7	329.7	393.9
20°	140.4	143.6	146.8	151.2	156.3	158.8	163.3	176.0	197.6	230.6	280.8
22.5°	108.6	111.2	113.7	116.3	120.1	122.0	124.5	132.8	144.2	165.2	201.4
25°	85.1	85.1	88.3	90.2	93.4	95.3	98.5	104.2	113.1	125.2	145.5
27.5°	64.8	65.4	67.3	69.9	72.4	74.3	77.5	82.6	88.3	96.6	109.3
30°	48.9	50.2	51.5	53.4	56.5	58.5	60.4	64.8	69.9	76.2	85.1
32.5°	37.5	38.8	39.4	41.3	43.8	45.1	47.0	50.8	55.3	61.6	67.3
35°	29.9	29.9	31.1	31.8	34.3	35.6	36.8	39.4	43.8	47.6	52.1
37.5°	23.5	24.1	24.8	25.4	27.3	28.0	28.6	30.5	33.0	36.8	40.7
40°	19.7	20.3	20.3	20.3	21.0	21.0	21.6	22.9	25.4	28.0	31.8
42.5°	16.5	16.5	16.5	16.5	16.5	16.5	17.2	17.8	19.7	22.2	25.4
45°	14.0	13.3	13.3	13.3	13.3	13.3	13.3	14.6	15.9	17.8	20.3
47.5°	10.2	10.8	10.8	10.8	10.8	10.8	11.4	11.4	12.7	14.6	15.9
50°	7.6	8.3	8.3	8.9	8.9	8.9	8.9	9.5	10.8	12.1	12.7
52.5°	6.4	6.4	6.4	7.0	7.0	7.0	7.0	7.6	8.9	9.5	10.2
55°	5.1	5.1	5.1	5.1	5.7	5.7	6.4	7.0	7.6	7.6	7.6
57.5°	4.4	4.4	4.4	4.4	4.4	5.1	5.1	5.7	6.4	5.7	5.7
60°	3.8	3.8	3.8	3.8	3.8	4.4	4.4	5.1	4.4	4.4	4.4
62.5°	3.8	3.8	3.2	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.2
65°	3.2	3.2	3.2	3.2	3.2	3.8	3.8	3.2	3.2	2.5	3.2
67.5°	3.2	3.2	2.5	3.2	3.2	3.2	3.2	2.5	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
72.5°	1.9	1.9	1.9	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9
75°	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
82.5°	0.0	0.6	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°	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8	930.8
2.5°	926.3	928.9	932.0	935.2	936.5	937.7	939.7	940.9	941.6	941.6
5°	906.0	918.7	930.8	940.9	946.0	950.5	958.1	963.2	967.6	967.6
7.5°	862.8	889.5	914.2	935.8	945.4	955.5	971.4	983.5	989.8	993.0
10°	792.3	832.3	869.8	902.8	918.1	930.8	953.6	969.5	977.1	980.9
12.5°	696.3	749.1	796.7	838.0	856.4	871.7	895.2	916.1	926.9	932.7
15°	584.5	646.8	703.3	750.3	771.3	790.4	821.5	846.9	862.1	869.1
17.5°	466.3	543.2	607.4	661.4	680.4	701.4	737.6	766.8	787.2	792.3
20°	357.1	440.3	513.3	569.3	591.5	612.5	653.1	684.3	706.5	714.7
22.5°	259.8	340.5	421.2	480.9	506.4	529.2	569.9	603.6	627.1	635.3
25°	185.5	251.0	331.0	399.0	424.4	447.3	487.9	522.2	546.4	559.1
27.5°	135.3	179.8	250.3	320.2	347.5	371.7	409.2	444.7	467.6	479.7
30°	99.1	128.3	181.1	249.0	278.9	302.4	342.4	372.3	397.1	403.4
32.5°	75.6	92.1	128.3	183.6	214.1	238.9	277.6	306.2	325.9	332.9
35°	57.8	68.0	89.6	131.5	157.6	183.0	219.8	249.0	266.2	272.6
37.5°	45.1	52.1	64.8	92.8	113.1	135.3	171.5	195.7	209.7	217.9
40°	36.2	41.3	49.6	66.1	80.1	96.6	127.1	149.9	163.9	168.4
42.5°	29.2	33.0	37.5	47.0	56.5	68.6	93.4	109.3	120.7	123.3
45°	22.9	25.4	30.5	34.9	38.8	45.1	62.3	76.9	83.9	87.0
47.5°	18.4	21.6	21.6	24.1	26.7	31.1	41.9	50.2	55.3	56.5
50°	14.0	14.6	15.9	17.2	18.4	19.7	25.4	30.5	33.7	33.7
52.5°	10.2	10.8	10.8	11.4	12.1	13.3	16.5	19.1	21.0	21.6
55°	7.6	7.6	8.3	8.9	9.5	10.2	12.1	14.6	15.2	15.9
57.5°	5.7	5.7	6.4	7.0	7.6	7.6	9.5	10.8	12.1	13.3
60°	4.4	4.4	5.1	5.1	5.7	6.4	8.3	8.9	8.9	8.9
62.5°	3.8	3.8	3.8	4.4	4.4	4.4	5.7	7.6	8.3	8.3
65°	3.2	3.2	3.2	3.2	3.8	3.8	4.4	5.1	6.4	6.4
67.5°	2.5	2.5	2.5	2.5	3.2	3.2	4.4	5.1	6.4	7.0
70°	1.9	1.9	1.9	2.5	2.5	3.2	3.8	5.1	6.4	7.0
72.5°	1.3	1.3	1.9	1.9	1.9	2.5	3.2	3.8	4.4	4.4
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.9	3.2	3.2	3.8
77.5°	1.3	1.3	0.6	1.3	1.3	1.3	1.3	1.9	2.5	2.5
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.3
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)