

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: P219619

Luminaire Tested: **MRZ-1-REC-X-2-L40-97-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219619
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-2-L40-97-NFL-UNV-X-STD-LSL
Description: MRZ INTEGRAL LED DOWNLIGHT
25 DEGREE NARROW FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL2
Light Source: (1) 4000K CCT, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 615.0 lumens
Efficiency: N/A
Efficacy: 69.9 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

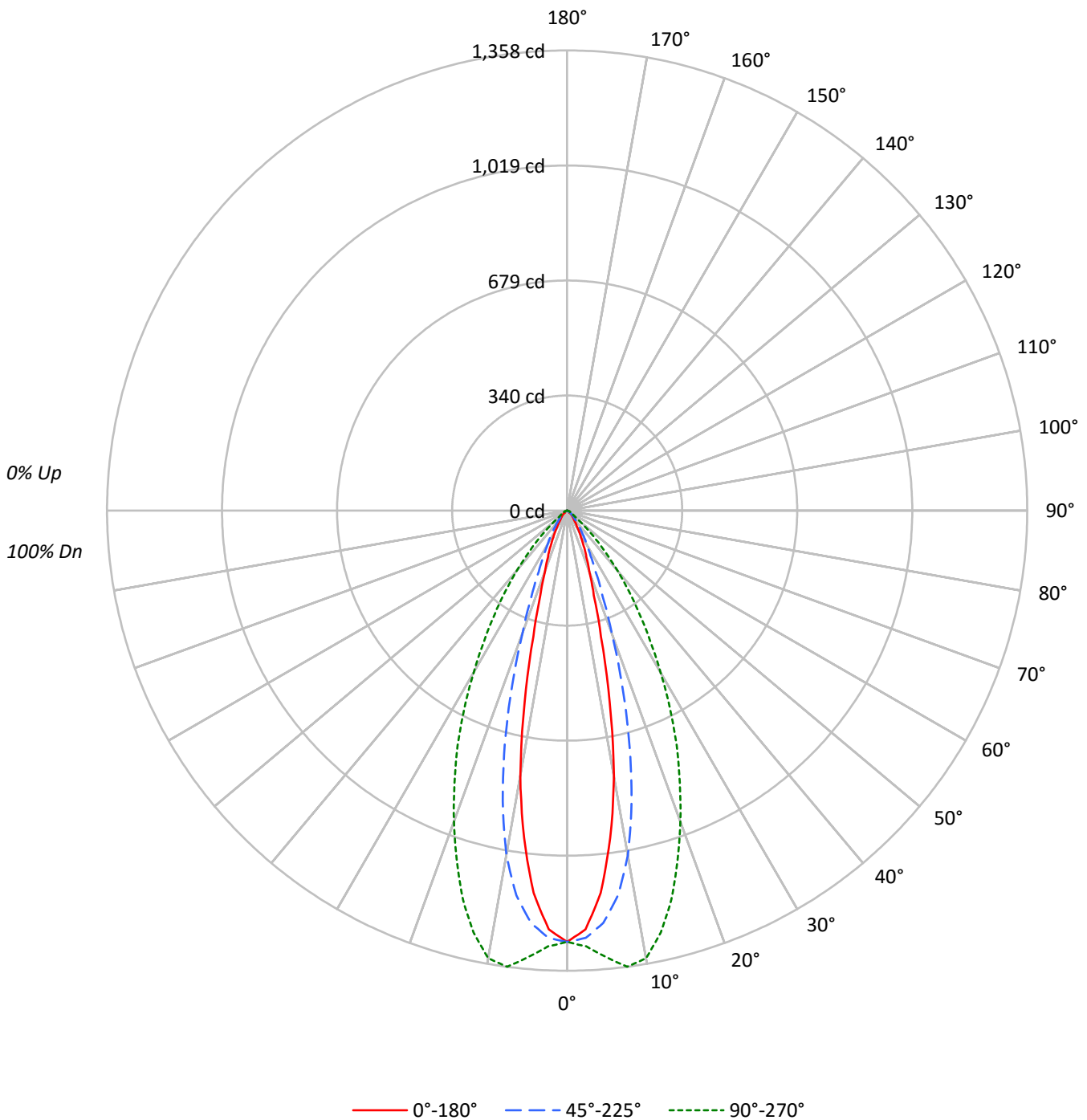
Input Watts (W): 8.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	627924	627924	627924
5°	561035	604916	655235
10°	398638	517022	671979
15°	197009	362095	607016
20°	100808	201617	513125
25°	63366	108278	416182
30°	38113	66314	314250
35°	24574	42884	224479
40°	17325	27952	148263
45°	13327	19397	83032
50°	7983	13356	35308
55°	5935	8946	18666
60°	5131	6019	12038
65°	5020	5020	10157
70°	5049	3751	13848
75°	4956	3241	9913
80°	2557	2557	4830
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.5	18.1
10°-20°	207.8	33.8
20°-30°	156.1	25.4
30°-40°	85.8	14.0
40°-50°	34.8	5.7
50°-60°	11.1	1.8
60°-70°	5.3	0.9
70°-80°	2.5	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°	475.3	77.3
0°-40°	561.1	91.2
0°-60°	607.0	98.7
0°-90°	615.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	615.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1273	1273	1273	1273	1273	
5°	1133	1159	1221	1294	1323	97
15°	386	454	709	1055	1188	113
25°	116	130	199	580	764	54
35°	41	49	71	215	373	26
45°	19	18	28	53	119	14
55°	7	8	10	13	22	7
65°	4	5	4	5	9	4
75°	3	2	2	2	5	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°	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7
2.5°	1237.0	1237.0	1236.2	1238.8	1244.0	1244.0	1246.6	1249.2	1251.8	1257.0	1262.2
5°	1132.8	1134.5	1133.7	1143.2	1150.2	1158.9	1161.5	1176.2	1187.5	1204.9	1221.4
7.5°	974.7	975.6	983.4	994.7	1012.0	1021.6	1034.6	1055.5	1080.7	1113.7	1145.8
10°	795.7	795.7	807.9	824.4	838.3	857.4	867.0	900.8	937.3	983.4	1032.0
12.5°	579.4	579.4	600.3	612.4	637.6	654.1	668.0	707.1	754.9	814.0	878.3
15°	385.7	392.7	400.5	417.0	439.6	453.5	463.0	503.0	559.4	625.5	708.9
17.5°	262.3	266.7	271.9	284.9	296.2	303.2	311.9	345.7	386.6	450.9	538.6
20°	192.0	196.3	200.7	206.8	213.7	217.2	223.3	240.6	270.2	315.3	384.0
22.5°	148.5	152.0	155.5	159.0	164.2	166.8	170.3	181.6	197.2	225.9	275.4
25°	116.4	116.4	120.8	123.4	127.7	130.3	134.6	142.5	154.6	171.1	198.9
27.5°	88.6	89.5	92.1	95.6	99.0	101.6	106.0	112.9	120.8	132.0	149.4
30°	66.9	68.6	70.4	73.0	77.3	79.9	82.5	88.6	95.6	104.2	116.4
32.5°	51.3	53.0	53.9	56.5	59.9	61.7	64.3	69.5	75.6	84.3	92.1
35°	40.8	40.8	42.6	43.4	46.9	48.6	50.4	53.9	59.9	65.2	71.2
37.5°	32.1	33.0	33.9	34.7	37.4	38.2	39.1	41.7	45.2	50.4	55.6
40°	26.9	27.8	27.8	27.8	28.7	28.7	29.5	31.3	34.7	38.2	43.4
42.5°	22.6	22.6	22.6	22.6	22.6	22.6	23.5	24.3	26.9	30.4	34.7
45°	19.1	18.2	18.2	18.2	18.2	18.2	18.2	20.0	21.7	24.3	27.8
47.5°	13.9	14.8	14.8	14.8	14.8	14.8	15.6	15.6	17.4	20.0	21.7
50°	10.4	11.3	11.3	12.2	12.2	12.2	12.2	13.0	14.8	16.5	17.4
52.5°	8.7	8.7	8.7	9.6	9.6	9.6	9.6	10.4	12.2	13.0	13.9
55°	6.9	6.9	6.9	6.9	7.8	7.8	8.7	9.6	10.4	10.4	10.4
57.5°	6.1	6.1	6.1	6.1	6.1	6.9	6.9	7.8	8.7	7.8	7.8
60°	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.9	6.1	6.1	6.1
62.5°	5.2	5.2	4.3	4.3	5.2	5.2	5.2	5.2	5.2	5.2	4.3
65°	4.3	4.3	4.3	4.3	4.3	5.2	5.2	4.3	4.3	3.5	4.3
67.5°	4.3	4.3	3.5	4.3	4.3	4.3	4.3	3.5	3.5	3.5	3.5
70°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6
72.5°	2.6	2.6	2.6	3.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6
75°	2.6	2.6	2.6	2.6	2.6	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	0.9	0.9
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.9	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°	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7	1272.7
2.5°	1266.6	1270.0	1274.4	1278.7	1280.5	1282.2	1284.8	1286.6	1287.4	1287.4
5°	1238.8	1256.1	1272.7	1286.6	1293.5	1299.6	1310.0	1317.0	1323.0	1323.0
7.5°	1179.7	1216.2	1250.1	1279.6	1292.6	1306.5	1328.3	1344.8	1353.4	1357.8
10°	1083.3	1138.0	1189.3	1234.4	1255.3	1272.7	1303.9	1325.6	1336.1	1341.3
12.5°	952.1	1024.2	1089.4	1145.8	1171.0	1191.9	1224.0	1252.7	1267.4	1275.3
15°	799.2	884.3	961.7	1025.9	1054.6	1080.7	1123.2	1158.0	1178.8	1188.4
17.5°	637.6	742.7	830.5	904.3	930.4	959.1	1008.6	1048.5	1076.3	1083.3
20°	488.2	602.0	701.9	778.4	808.8	837.4	893.0	935.6	966.0	977.3
22.5°	355.3	465.6	576.0	657.6	692.4	723.6	779.2	825.3	857.4	868.7
25°	253.7	343.1	452.6	545.5	580.3	611.6	667.2	714.1	747.1	764.5
27.5°	185.0	245.8	342.3	437.8	475.2	508.2	559.4	608.1	639.4	655.9
30°	135.5	175.5	247.6	340.5	381.4	413.5	468.2	509.1	542.9	551.6
32.5°	103.4	126.0	175.5	251.1	292.8	326.6	379.6	418.7	445.6	455.2
35°	79.1	93.0	122.5	179.8	215.4	250.2	300.6	340.5	364.0	372.7
37.5°	61.7	71.2	88.6	126.8	154.6	185.0	234.6	267.6	286.7	298.0
40°	49.5	56.5	67.8	90.3	109.5	132.0	173.7	205.0	224.1	230.2
42.5°	40.0	45.2	51.3	64.3	77.3	93.8	127.7	149.4	165.1	168.5
45°	31.3	34.7	41.7	47.8	53.0	61.7	85.1	105.1	114.7	119.0
47.5°	25.2	29.5	29.5	33.0	36.5	42.6	57.3	68.6	75.6	77.3
50°	19.1	20.0	21.7	23.5	25.2	26.9	34.7	41.7	46.0	46.0
52.5°	13.9	14.8	14.8	15.6	16.5	18.2	22.6	26.1	28.7	29.5
55°	10.4	10.4	11.3	12.2	13.0	13.9	16.5	20.0	20.8	21.7
57.5°	7.8	7.8	8.7	9.6	10.4	10.4	13.0	14.8	16.5	18.2
60°	6.1	6.1	6.9	6.9	7.8	8.7	11.3	12.2	12.2	12.2
62.5°	5.2	5.2	5.2	6.1	6.1	6.1	7.8	10.4	11.3	11.3
65°	4.3	4.3	4.3	4.3	5.2	5.2	6.1	6.9	8.7	8.7
67.5°	3.5	3.5	3.5	3.5	4.3	4.3	6.1	6.9	8.7	9.6
70°	2.6	2.6	2.6	3.5	3.5	4.3	5.2	6.9	8.7	9.6
72.5°	1.7	1.7	2.6	2.6	2.6	3.5	4.3	5.2	6.1	6.1
75°	1.7	1.7	1.7	1.7	1.7	1.7	2.6	4.3	4.3	5.2
77.5°	1.7	1.7	0.9	1.7	1.7	1.7	1.7	2.6	3.5	3.5
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7
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)