

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: P219785

Luminaire Tested: **MRZ-1-REC-X-4-L40-80-FL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219785
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P14877)
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-4-L40-80-FL-UNV-X-STD-LSL
Description: MRZ INTEGRAL LED DOWNLIGHT
40 DEGREE FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 4
Light Source: (1) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1316.4 lumens
Efficiency: N/A
Efficacy: 83.3 lumens/watt
Spacing Criteria (0/90/45): 0.61 / 0.69 / 0.7
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

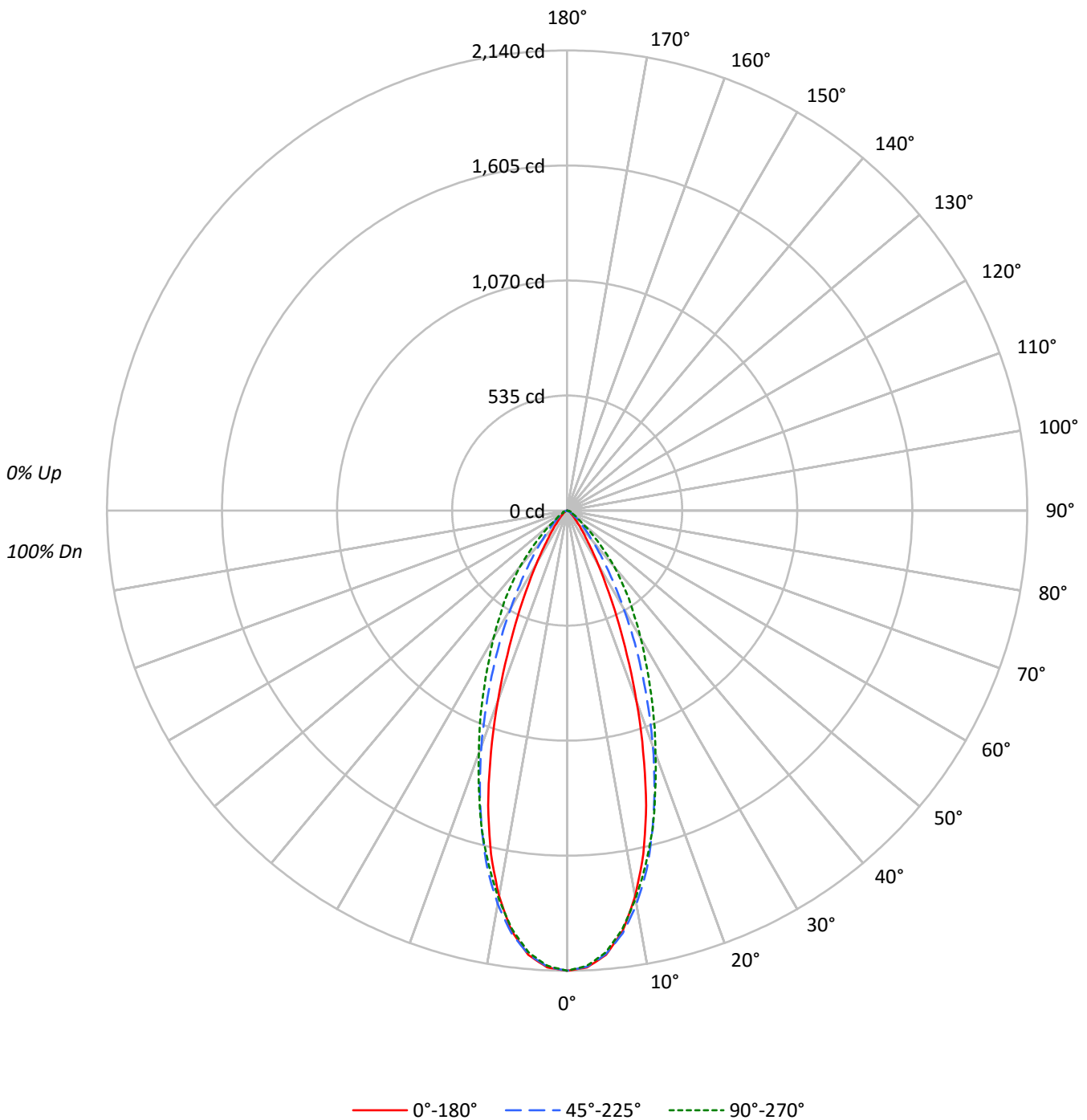
Input Watts (W): 15.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	108	106	111	109	106	104	105	103	101	101	99	98	97	96	95	93					93			
2	108	103	99	96	106	101	98	95	98	95	93	95	93	91	92	90	89	87					87			
3	103	96	91	87	101	95	90	87	92	88	85	90	87	84	88	85	83	81					81			
4	98	90	85	81	96	89	84	80	87	83	79	85	81	78	83	80	77	76					76			
5	93	85	79	75	91	84	78	74	82	77	74	80	76	73	79	75	72	71					71			
6	88	80	74	70	87	79	74	70	78	73	69	76	72	69	75	71	68	67					67			
7	84	75	70	65	83	75	69	65	73	68	65	72	68	65	71	67	64	63					63			
8	81	71	66	62	79	71	65	61	70	65	61	69	64	61	68	64	61	59					59			
9	77	68	62	58	76	67	62	58	66	61	58	65	61	58	65	61	57	56					56			
10	74	64	59	55	73	64	59	55	63	58	55	62	58	55	62	58	55	53					53			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1055783	1055783	1055783
5°	1027029	1025147	1021284
10°	912104	930640	917965
15°	725058	783747	783747
20°	494801	612411	630787
25°	295764	443074	498220
30°	163050	297272	389394
35°	85588	191172	301394
40°	48884	116639	220720
45°	31259	74728	137246
50°	22413	49354	71767
55°	18408	28472	45246
60°	15393	17268	28813
65°	13659	13659	22765
70°	11252	11252	30870
75°	11056	7434	18491
80°	5398	5398	11081
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	190.2	14.4
10°-20°	413.3	31.4
20°-30°	357.5	27.2
30°-40°	206.6	15.7
40°-50°	93.6	7.1
50°-60°	33.1	2.5
60°-70°	14.6	1.1
70°-80°	6.9	0.5
80°-90°	0.6	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°	961.0	73.0
0°-40°	1167.6	88.7
0°-60°	1294.3	98.3
0°-90°	1316.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1316.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2140	2140	2140	2140	2140	
5°	2074	2072	2070	2062	2062	190
15°	1420	1462	1534	1548	1534	385
25°	543	625	814	933	915	255
35°	142	185	317	473	500	96
45°	45	54	107	187	197	37
55°	21	21	33	43	53	19
65°	12	14	12	18	20	12
75°	6	6	4	8	10	5
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°	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9
2.5°	2126.3	2122.4	2122.4	2122.4	2124.4	2124.4	2122.4	2122.4	2122.4	2122.4	2122.4
5°	2073.7	2069.9	2069.9	2071.8	2069.9	2071.8	2069.9	2073.7	2071.8	2069.9	2069.9
7.5°	1972.5	1972.5	1972.5	1974.4	1976.4	1976.4	1976.4	1980.3	1980.3	1984.2	1982.2
10°	1820.6	1824.5	1824.5	1830.3	1836.2	1832.3	1834.2	1845.9	1849.8	1853.7	1857.6
12.5°	1635.6	1641.5	1645.4	1649.3	1655.1	1660.9	1662.9	1682.4	1688.2	1696.0	1709.6
15°	1419.5	1417.5	1429.2	1435.1	1452.6	1462.3	1468.2	1487.6	1507.1	1518.8	1534.4
17.5°	1176.1	1181.9	1187.8	1203.4	1224.8	1238.4	1246.2	1269.6	1300.7	1326.0	1349.4
20°	942.4	954.1	960.0	977.5	998.9	1006.7	1028.1	1059.3	1100.2	1135.2	1166.4
22.5°	726.3	732.1	747.7	767.2	790.6	808.1	829.5	860.7	903.5	938.5	981.4
25°	543.3	545.2	564.7	582.2	607.5	625.0	636.7	677.6	722.4	767.2	813.9
27.5°	395.3	399.2	410.9	428.4	455.6	467.3	486.8	521.8	564.7	613.4	662.0
30°	286.2	286.2	294.0	313.5	333.0	348.5	362.2	395.3	436.2	477.1	521.8
32.5°	200.6	202.5	210.3	223.9	243.4	255.1	264.8	296.0	329.1	370.0	408.9
35°	142.1	144.1	151.9	159.7	175.2	185.0	192.8	216.1	245.3	280.4	317.4
37.5°	103.2	105.1	109.0	114.9	126.6	132.4	140.2	159.7	183.0	210.3	243.4
40°	75.9	77.9	79.8	85.7	93.5	97.4	103.2	116.8	134.4	157.7	181.1
42.5°	58.4	58.4	60.4	64.3	68.2	72.0	75.9	85.7	99.3	116.8	138.2
45°	44.8	44.8	46.7	50.6	52.6	54.5	58.4	64.3	74.0	87.6	107.1
47.5°	37.0	37.0	37.0	38.9	40.9	42.8	44.8	50.6	56.5	70.1	81.8
50°	29.2	29.2	31.2	31.2	33.1	33.1	35.0	38.9	46.7	56.5	64.3
52.5°	25.3	25.3	25.3	25.3	25.3	27.3	27.3	31.2	38.9	42.8	46.7
55°	21.4	21.4	21.4	21.4	21.4	21.4	23.4	27.3	31.2	35.0	33.1
57.5°	17.5	17.5	17.5	17.5	17.5	19.5	19.5	23.4	25.3	23.4	23.4
60°	15.6	15.6	13.6	13.6	15.6	15.6	17.5	19.5	19.5	17.5	17.5
62.5°	13.6	11.7	11.7	11.7	13.6	15.6	15.6	15.6	13.6	13.6	13.6
65°	11.7	9.7	9.7	11.7	11.7	13.6	13.6	11.7	11.7	11.7	11.7
67.5°	9.7	9.7	9.7	9.7	11.7	11.7	11.7	9.7	9.7	9.7	9.7
70°	7.8	7.8	7.8	7.8	9.7	9.7	7.8	7.8	7.8	7.8	7.8
72.5°	5.8	5.8	5.8	7.8	7.8	7.8	5.8	5.8	5.8	7.8	5.8
75°	5.8	5.8	5.8	5.8	5.8	5.8	3.9	3.9	5.8	5.8	3.9
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
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°	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9	2139.9
2.5°	2120.5	2120.5	2118.5	2120.5	2120.5	2120.5	2120.5	2118.5	2120.5	2118.5
5°	2067.9	2067.9	2067.9	2064.0	2062.1	2064.0	2062.1	2060.1	2060.1	2062.1
7.5°	1978.3	1978.3	1976.4	1972.5	1972.5	1970.5	1966.7	1964.7	1962.8	1962.8
10°	1861.5	1859.6	1853.7	1851.8	1851.8	1845.9	1838.1	1838.1	1830.3	1832.3
12.5°	1715.5	1711.6	1709.6	1709.6	1701.8	1701.8	1696.0	1694.0	1690.2	1686.3
15°	1540.2	1546.1	1550.0	1548.0	1548.0	1542.2	1540.2	1536.3	1530.5	1534.4
17.5°	1366.9	1380.5	1384.4	1390.3	1392.2	1388.3	1382.5	1372.8	1366.9	1363.0
20°	1195.6	1215.0	1228.7	1232.6	1232.6	1230.6	1228.7	1213.1	1211.1	1201.4
22.5°	1018.4	1045.6	1069.0	1076.8	1078.7	1080.7	1072.9	1061.2	1057.3	1055.4
25°	852.9	889.9	913.2	928.8	932.7	938.5	934.6	928.8	917.1	915.2
27.5°	702.9	741.9	773.0	792.5	802.2	806.1	810.0	800.3	796.4	788.6
30°	568.6	613.4	646.5	673.7	679.6	687.4	689.3	691.2	683.5	683.5
32.5°	453.7	490.7	531.6	558.8	570.5	576.4	586.1	584.2	584.2	582.2
35°	356.3	393.3	430.3	459.5	473.2	481.0	492.6	498.5	500.4	500.4
37.5°	274.6	311.5	344.7	379.7	393.3	403.1	410.9	412.8	414.7	412.8
40°	210.3	245.3	278.4	301.8	311.5	319.3	329.1	336.9	340.8	342.7
42.5°	165.5	190.8	212.2	235.6	251.2	262.9	264.8	262.9	262.9	260.9
45°	124.6	144.1	177.2	183.0	186.9	188.9	194.7	196.7	196.7	196.7
47.5°	99.3	120.7	120.7	128.5	132.4	138.2	140.2	140.2	140.2	140.2
50°	74.0	77.9	83.7	89.6	91.5	91.5	93.5	93.5	93.5	93.5
52.5°	48.7	54.5	56.5	58.4	60.4	62.3	66.2	68.2	66.2	66.2
55°	35.0	37.0	38.9	42.8	42.8	44.8	52.6	52.6	52.6	52.6
57.5°	23.4	25.3	29.2	35.0	35.0	37.0	38.9	38.9	40.9	40.9
60°	19.5	21.4	23.4	25.3	27.3	31.2	35.0	29.2	29.2	29.2
62.5°	15.6	17.5	19.5	21.4	19.5	21.4	23.4	23.4	23.4	23.4
65°	13.6	15.6	13.6	15.6	17.5	17.5	15.6	17.5	17.5	19.5
67.5°	11.7	11.7	11.7	11.7	11.7	13.6	17.5	19.5	21.4	21.4
70°	7.8	7.8	7.8	11.7	11.7	13.6	15.6	19.5	19.5	21.4
72.5°	5.8	5.8	7.8	9.7	11.7	11.7	13.6	13.6	15.6	15.6
75°	5.8	5.8	7.8	7.8	7.8	7.8	9.7	9.7	9.7	9.7
77.5°	3.9	3.9	3.9	3.9	5.8	5.8	5.8	7.8	7.8	7.8
80°	1.9	1.9	1.9	1.9	3.9	3.9	3.9	3.9	3.9	3.9
82.5°	1.9	1.9	1.9	1.9	1.9	0.0	0.0	1.9	1.9	1.9
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)