

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: P219633

Luminaire Tested: **MRZ-1-REC-X-4-L35-97-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P219633  
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-4-L35-97-NFL-UNV-X-STD-LSL  
Description: MRZ INTEGRAL LED DOWNLIGHT  
25 DEGREE NARROW FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 4  
Light Source: (1) 3500K CCT, 97 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1034.6 lumens  
Efficiency: N/A  
Efficacy: 65.5 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

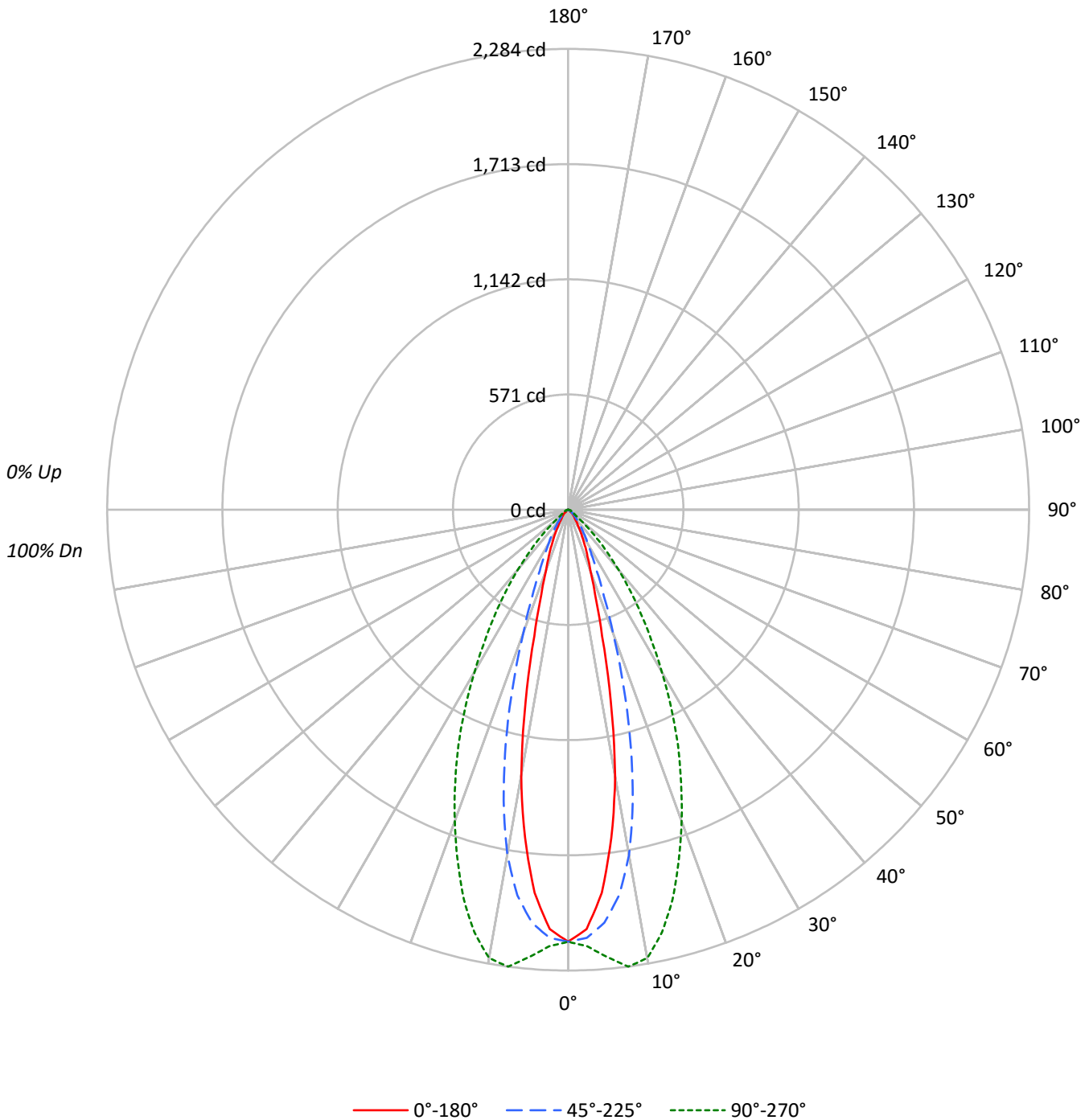
Input Watts (W): 15.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	1056326	1056326	1056326
5°	943825	1017669	1102359
10°	670676	869820	1130435
15°	331448	609110	1021160
20°	169589	339178	863224
25°	106590	182205	700132
30°	64092	111548	528687
35°	41378	72156	377645
40°	29176	47081	249445
45°	22467	32654	139688
50°	13432	22413	59486
55°	10064	15053	31397
60°	8683	10065	20229
65°	8522	8522	17045
70°	8367	6347	23225
75°	8388	5528	16775
80°	4262	4262	8240
85°	0	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	187.5	18.1
10°-20°	349.6	33.8
20°-30°	262.5	25.4
30°-40°	144.3	14.0
40°-50°	58.5	5.7
50°-60°	18.6	1.8
60°-70°	8.8	0.9
70°-80°	4.3	0.4
80°-90°	0.2	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°	799.7	77.3
0°-40°	944.0	91.2
0°-60°	1021.2	98.7
0°-90°	1034.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1034.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2141	2141	2141	2141	2141	
5°	1906	1950	2055	2176	2226	163
15°	649	763	1192	1774	1999	190
25°	196	219	335	976	1286	91
35°	69	82	120	362	627	44
45°	32	31	47	89	200	24
55°	12	13	18	22	36	11
65°	7	9	7	9	15	8
75°	4	3	3	3	9	4
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°	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0
2.5°	2081.1	2081.1	2079.6	2084.0	2092.8	2092.8	2097.1	2101.5	2105.9	2114.7	2123.5
5°	1905.7	1908.6	1907.2	1923.2	1934.9	1949.5	1953.9	1978.8	1997.8	2027.0	2054.8
7.5°	1639.7	1641.2	1654.3	1673.3	1702.6	1718.6	1740.6	1775.6	1818.0	1873.5	1927.6
10°	1338.7	1338.7	1359.1	1386.9	1410.3	1442.4	1458.5	1515.5	1576.9	1654.3	1736.2
12.5°	974.8	974.8	1009.8	1030.3	1072.7	1100.5	1123.8	1189.6	1270.0	1369.4	1477.5
15°	648.9	660.6	673.7	701.5	739.5	762.9	778.9	846.2	941.2	1052.2	1192.5
17.5°	441.4	448.7	457.4	479.3	498.3	510.0	524.7	581.6	650.3	758.5	906.1
20°	323.0	330.3	337.6	347.8	359.5	365.4	375.6	404.8	454.5	530.5	646.0
22.5°	249.9	255.7	261.6	267.4	276.2	280.6	286.4	305.4	331.7	380.0	463.3
25°	195.8	195.8	203.1	207.5	214.8	219.2	226.5	239.7	260.1	287.9	334.7
27.5°	149.1	150.5	154.9	160.8	166.6	171.0	178.3	190.0	203.1	222.1	251.4
30°	112.5	115.5	118.4	122.8	130.1	134.5	138.8	149.1	160.8	175.4	195.8
32.5°	86.2	89.1	90.6	95.0	100.8	103.8	108.1	116.9	127.1	141.8	154.9
35°	68.7	68.7	71.6	73.1	78.9	81.8	84.8	90.6	100.8	109.6	119.8
37.5°	54.1	55.5	57.0	58.5	62.8	64.3	65.8	70.1	76.0	84.8	93.5
40°	45.3	46.8	46.8	46.8	48.2	48.2	49.7	52.6	58.5	64.3	73.1
42.5°	38.0	38.0	38.0	38.0	38.0	38.0	39.5	40.9	45.3	51.1	58.5
45°	32.2	30.7	30.7	30.7	30.7	30.7	30.7	33.6	36.5	40.9	46.8
47.5°	23.4	24.8	24.8	24.8	24.8	24.8	26.3	26.3	29.2	33.6	36.5
50°	17.5	19.0	19.0	20.5	20.5	20.5	20.5	21.9	24.8	27.8	29.2
52.5°	14.6	14.6	14.6	16.1	16.1	16.1	16.1	17.5	20.5	21.9	23.4
55°	11.7	11.7	11.7	11.7	13.2	13.2	14.6	16.1	17.5	17.5	17.5
57.5°	10.2	10.2	10.2	10.2	10.2	11.7	11.7	13.2	14.6	13.2	13.2
60°	8.8	8.8	8.8	8.8	8.8	10.2	10.2	11.7	10.2	10.2	10.2
62.5°	8.8	8.8	7.3	7.3	8.8	8.8	8.8	8.8	8.8	8.8	7.3
65°	7.3	7.3	7.3	7.3	7.3	8.8	8.8	7.3	7.3	5.8	7.3
67.5°	7.3	7.3	5.8	7.3	7.3	7.3	7.3	5.8	5.8	5.8	5.8
70°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	4.4	4.4	4.4	4.4
72.5°	4.4	4.4	4.4	5.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4
75°	4.4	4.4	4.4	4.4	4.4	2.9	2.9	2.9	2.9	2.9	2.9
77.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	1.5	1.5
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	0.0	1.5	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°	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0	2141.0
2.5°	2130.8	2136.6	2143.9	2151.2	2154.1	2157.1	2161.4	2164.4	2165.8	2165.8
5°	2084.0	2113.2	2141.0	2164.4	2176.1	2186.3	2203.8	2215.5	2225.8	2225.8
7.5°	1984.6	2046.0	2103.0	2152.7	2174.6	2198.0	2234.5	2262.3	2276.9	2284.2
10°	1822.4	1914.5	2000.7	2076.7	2111.8	2141.0	2193.6	2230.1	2247.7	2256.4
12.5°	1601.7	1723.0	1832.6	1927.6	1970.0	2005.1	2059.1	2107.4	2132.2	2145.4
15°	1344.5	1487.7	1617.8	1725.9	1774.2	1818.0	1889.6	1948.1	1983.2	1999.2
17.5°	1072.7	1249.5	1397.1	1521.3	1565.2	1613.4	1696.7	1763.9	1810.7	1822.4
20°	821.3	1012.8	1180.8	1309.4	1360.6	1408.8	1502.3	1574.0	1625.1	1644.1
22.5°	597.7	783.3	968.9	1106.3	1164.8	1217.4	1310.9	1388.4	1442.4	1461.4
25°	426.7	577.3	761.4	917.8	976.2	1028.8	1122.4	1201.3	1256.8	1286.1
27.5°	311.3	413.6	575.8	736.6	799.4	854.9	941.2	1023.0	1075.6	1103.4
30°	228.0	295.2	416.5	572.9	641.6	695.6	787.7	856.4	913.4	928.0
32.5°	173.9	211.9	295.2	422.4	492.5	549.5	638.6	704.4	749.7	765.8
35°	133.0	156.4	206.1	302.5	362.4	420.9	505.7	572.9	612.3	627.0
37.5°	103.8	119.8	149.1	213.4	260.1	311.3	394.6	450.1	482.3	501.3
40°	83.3	95.0	114.0	152.0	184.1	222.1	292.3	344.9	377.0	387.3
42.5°	67.2	76.0	86.2	108.1	130.1	157.8	214.8	251.4	277.7	283.5
45°	52.6	58.5	70.1	80.4	89.1	103.8	143.2	176.8	192.9	200.2
47.5°	42.4	49.7	49.7	55.5	61.4	71.6	96.5	115.5	127.1	130.1
50°	32.2	33.6	36.5	39.5	42.4	45.3	58.5	70.1	77.5	77.5
52.5°	23.4	24.8	24.8	26.3	27.8	30.7	38.0	43.8	48.2	49.7
55°	17.5	17.5	19.0	20.5	21.9	23.4	27.8	33.6	35.1	36.5
57.5°	13.2	13.2	14.6	16.1	17.5	17.5	21.9	24.8	27.8	30.7
60°	10.2	10.2	11.7	11.7	13.2	14.6	19.0	20.5	20.5	20.5
62.5°	8.8	8.8	8.8	10.2	10.2	10.2	13.2	17.5	19.0	19.0
65°	7.3	7.3	7.3	7.3	8.8	8.8	10.2	11.7	14.6	14.6
67.5°	5.8	5.8	5.8	5.8	7.3	7.3	10.2	11.7	14.6	16.1
70°	4.4	4.4	4.4	5.8	5.8	7.3	8.8	11.7	14.6	16.1
72.5°	2.9	2.9	4.4	4.4	4.4	5.8	7.3	8.8	10.2	10.2
75°	2.9	2.9	2.9	2.9	2.9	2.9	4.4	7.3	7.3	8.8
77.5°	2.9	2.9	1.5	2.9	2.9	2.9	2.9	4.4	5.8	5.8
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.9
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)