

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: P219632

Luminaire Tested: **MRZ-1-REC-X-4-L30-97-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219632
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-L30-97-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) 3000K CCT, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 989.8 lumens
Efficiency: N/A
Efficacy: 62.6 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

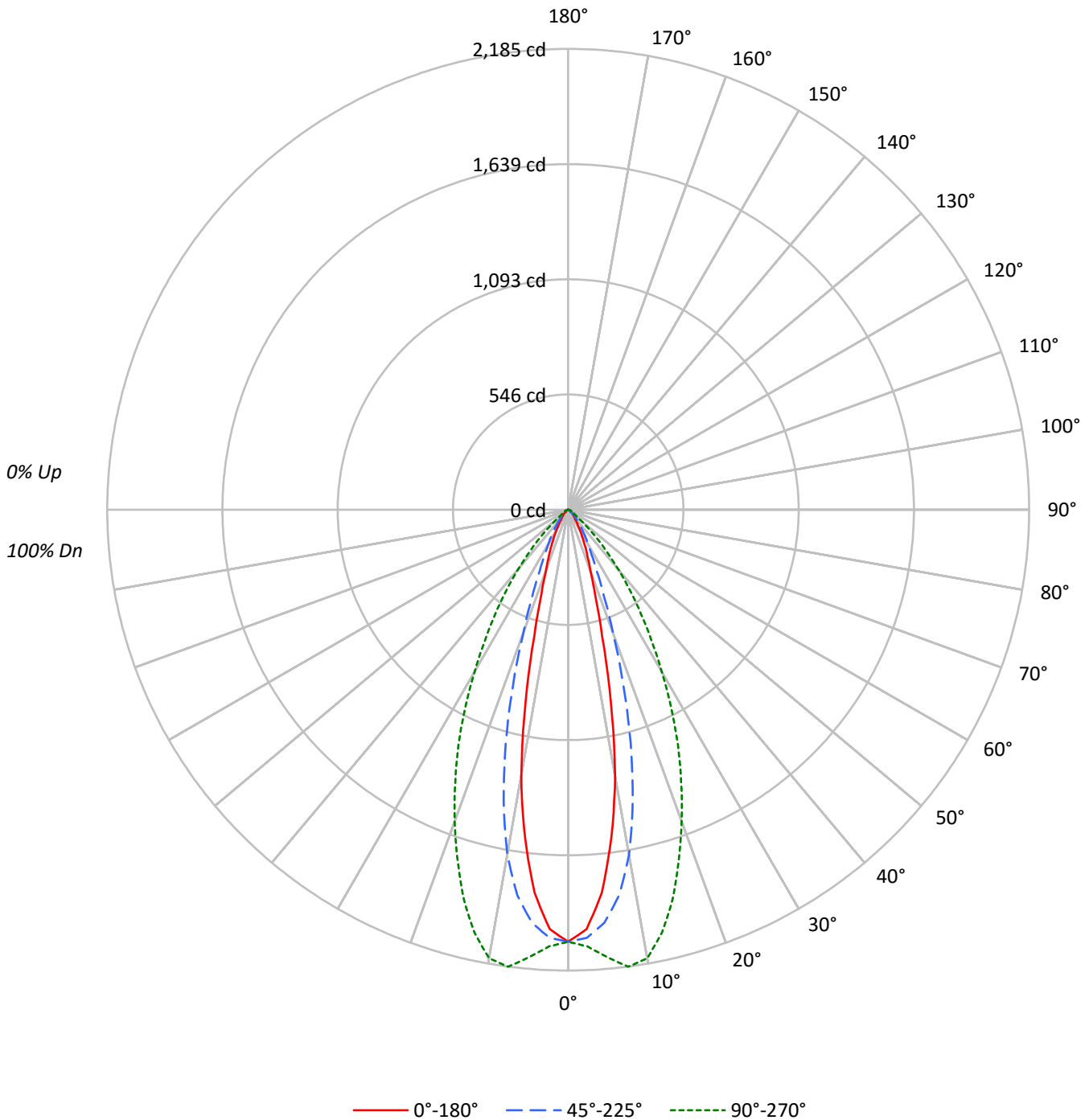
Input Watts (W): 15.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	88	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	82	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	72	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°	1010589	1010589	1010589
5°	902966	973590	1054616
10°	641619	832146	1081539
15°	317095	582754	976977
20°	162238	324477	825841
25°	102018	174312	669810
30°	61357	106763	505785
35°	39571	69084	361263
40°	27888	45020	238625
45°	21491	31189	133688
50°	12895	21492	56876
55°	9634	14451	30106
60°	8289	9670	19340
65°	8172	8172	16344
70°	8078	6059	22215
75°	8006	5338	16013
80°	3978	3978	7956
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.4	18.1
10°-20°	334.5	33.8
20°-30°	251.2	25.4
30°-40°	138.1	13.9
40°-50°	56.0	5.7
50°-60°	17.9	1.8
60°-70°	8.5	0.9
70°-80°	4.1	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°	765.1	77.3
0°-40°	903.1	91.2
0°-60°	977.0	98.7
0°-90°	989.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	989.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2048	2048	2048	2048	2048	
5°	1823	1865	1966	2082	2129	156
15°	621	730	1141	1697	1913	182
25°	187	210	320	934	1230	87
35°	66	78	115	347	600	42
45°	31	29	45	85	192	23
55°	11	13	17	21	35	11
65°	7	8	7	8	14	7
75°	4	3	3	3	8	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°	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3
2.5°	1991.0	1991.0	1989.6	1993.8	2002.2	2002.2	2006.4	2010.6	2014.8	2023.2	2031.6
5°	1823.2	1826.0	1824.6	1840.0	1851.2	1865.2	1869.4	1893.1	1911.3	1939.3	1965.8
7.5°	1568.8	1570.2	1582.7	1600.9	1628.9	1644.3	1665.2	1698.8	1739.3	1792.5	1844.2
10°	1280.7	1280.7	1300.3	1326.9	1349.2	1380.0	1395.4	1449.9	1508.6	1582.7	1661.0
12.5°	932.6	932.6	966.1	985.7	1026.3	1052.8	1075.2	1138.1	1215.0	1310.1	1413.6
15°	620.8	632.0	644.6	671.1	707.5	729.8	745.2	809.5	900.4	1006.7	1140.9
17.5°	422.2	429.2	437.6	458.6	476.8	488.0	501.9	556.5	622.2	725.7	866.9
20°	309.0	316.0	323.0	332.8	344.0	349.5	359.3	387.3	434.8	507.5	618.0
22.5°	239.1	244.7	250.3	255.9	264.3	268.4	274.0	292.2	317.4	363.5	443.2
25°	187.4	187.4	194.3	198.5	205.5	209.7	216.7	229.3	248.9	275.4	320.2
27.5°	142.6	144.0	148.2	153.8	159.4	163.6	170.6	181.8	194.3	212.5	240.5
30°	107.7	110.5	113.3	117.4	124.4	128.6	132.8	142.6	153.8	167.8	187.4
32.5°	82.5	85.3	86.7	90.9	96.5	99.3	103.5	111.9	121.6	135.6	148.2
35°	65.7	65.7	68.5	69.9	75.5	78.3	81.1	86.7	96.5	104.9	114.7
37.5°	51.7	53.1	54.5	55.9	60.1	61.5	62.9	67.1	72.7	81.1	89.5
40°	43.3	44.7	44.7	44.7	46.1	46.1	47.5	50.3	55.9	61.5	69.9
42.5°	36.4	36.4	36.4	36.4	36.4	36.4	37.8	39.1	43.3	48.9	55.9
45°	30.8	29.4	29.4	29.4	29.4	29.4	29.4	32.2	35.0	39.1	44.7
47.5°	22.4	23.8	23.8	23.8	23.8	23.8	25.2	25.2	28.0	32.2	35.0
50°	16.8	18.2	18.2	19.6	19.6	19.6	19.6	21.0	23.8	26.6	28.0
52.5°	14.0	14.0	14.0	15.4	15.4	15.4	15.4	16.8	19.6	21.0	22.4
55°	11.2	11.2	11.2	11.2	12.6	12.6	14.0	15.4	16.8	16.8	16.8
57.5°	9.8	9.8	9.8	9.8	9.8	11.2	11.2	12.6	14.0	12.6	12.6
60°	8.4	8.4	8.4	8.4	8.4	9.8	9.8	11.2	9.8	9.8	9.8
62.5°	8.4	8.4	7.0	7.0	8.4	8.4	8.4	8.4	8.4	8.4	7.0
65°	7.0	7.0	7.0	7.0	7.0	8.4	8.4	7.0	7.0	5.6	7.0
67.5°	7.0	7.0	5.6	7.0	7.0	7.0	7.0	5.6	5.6	5.6	5.6
70°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	4.2	4.2	4.2	4.2
72.5°	4.2	4.2	4.2	5.6	4.2	4.2	4.2	4.2	4.2	4.2	4.2
75°	4.2	4.2	4.2	4.2	4.2	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	1.4	1.4
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	0.0	1.4	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°	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3	2048.3
2.5°	2038.5	2044.1	2051.1	2058.1	2060.9	2063.7	2067.9	2070.7	2072.1	2072.1
5°	1993.8	2021.8	2048.3	2070.7	2081.9	2091.7	2108.5	2119.6	2129.4	2129.4
7.5°	1898.7	1957.4	2012.0	2059.5	2080.5	2102.9	2137.8	2164.4	2178.4	2185.4
10°	1743.5	1831.6	1914.1	1986.8	2020.4	2048.3	2098.7	2133.6	2150.4	2158.8
12.5°	1532.4	1648.5	1753.3	1844.2	1884.7	1918.3	1970.0	2016.2	2039.9	2052.5
15°	1286.3	1423.3	1547.8	1651.2	1697.4	1739.3	1807.8	1863.8	1897.3	1912.7
17.5°	1026.3	1195.4	1336.7	1455.5	1497.4	1543.6	1623.3	1687.6	1732.3	1743.5
20°	785.8	968.9	1129.7	1252.8	1301.7	1347.8	1437.3	1505.8	1554.8	1572.9
22.5°	571.9	749.4	927.0	1058.4	1114.3	1164.7	1254.2	1328.3	1380.0	1398.2
25°	408.3	552.3	728.5	878.1	934.0	984.3	1073.8	1149.3	1202.4	1230.4
27.5°	297.8	395.7	550.9	704.7	764.8	817.9	900.4	978.7	1029.1	1055.6
30°	218.1	282.4	398.5	548.1	613.8	665.5	753.6	819.3	873.9	887.8
32.5°	166.4	202.7	282.4	404.1	471.2	525.7	611.0	673.9	717.3	732.6
35°	127.2	149.6	197.1	289.4	346.7	402.7	483.8	548.1	585.8	599.8
37.5°	99.3	114.7	142.6	204.1	248.9	297.8	377.5	430.6	461.4	479.6
40°	79.7	90.9	109.1	145.4	176.2	212.5	279.6	330.0	360.7	370.5
42.5°	64.3	72.7	82.5	103.5	124.4	151.0	205.5	240.5	265.7	271.2
45°	50.3	55.9	67.1	76.9	85.3	99.3	137.0	169.2	184.6	191.6
47.5°	40.5	47.5	47.5	53.1	58.7	68.5	92.3	110.5	121.6	124.4
50°	30.8	32.2	35.0	37.8	40.5	43.3	55.9	67.1	74.1	74.1
52.5°	22.4	23.8	23.8	25.2	26.6	29.4	36.4	41.9	46.1	47.5
55°	16.8	16.8	18.2	19.6	21.0	22.4	26.6	32.2	33.6	35.0
57.5°	12.6	12.6	14.0	15.4	16.8	16.8	21.0	23.8	26.6	29.4
60°	9.8	9.8	11.2	11.2	12.6	14.0	18.2	19.6	19.6	19.6
62.5°	8.4	8.4	8.4	9.8	9.8	9.8	12.6	16.8	18.2	18.2
65°	7.0	7.0	7.0	7.0	8.4	8.4	9.8	11.2	14.0	14.0
67.5°	5.6	5.6	5.6	5.6	7.0	7.0	9.8	11.2	14.0	15.4
70°	4.2	4.2	4.2	5.6	5.6	7.0	8.4	11.2	14.0	15.4
72.5°	2.8	2.8	4.2	4.2	4.2	5.6	7.0	8.4	9.8	9.8
75°	2.8	2.8	2.8	2.8	2.8	2.8	4.2	7.0	7.0	8.4
77.5°	2.8	2.8	1.4	2.8	2.8	2.8	2.8	4.2	5.6	5.6
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8
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)