

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: P219626

Luminaire Tested: **MRZ-1-REC-X-3-L40-97-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219626
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-3-L40-97-NFL-UNV-X-STD-LSL
Description: MRZ INTEGRAL LED DOWNLIGHT
25 DEGREE NARROW FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 3
Light Source: (1) 4000K CCT, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 840.5 lumens
Efficiency: N/A
Efficacy: 69.5 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

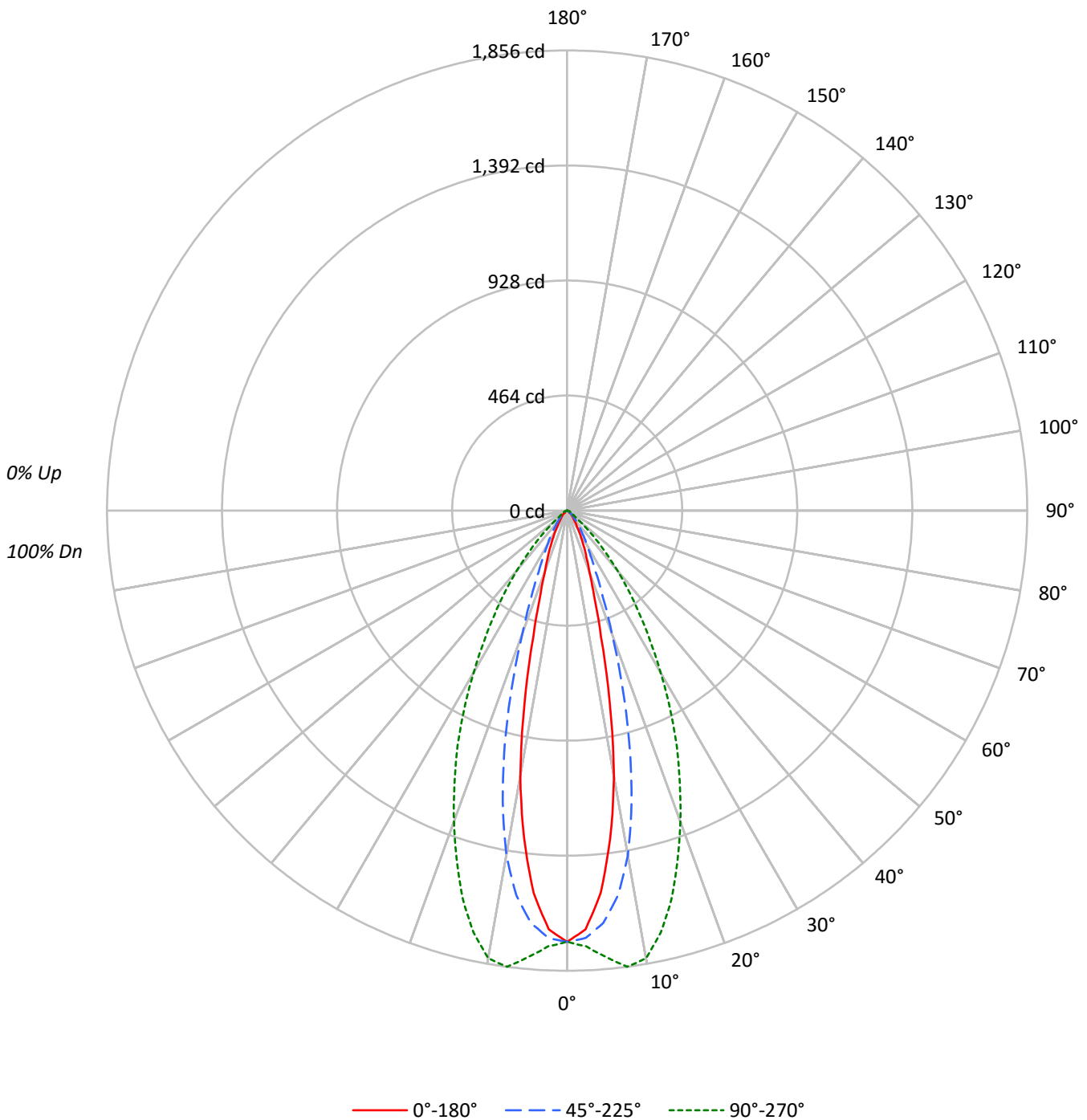
Input Watts (W): 12.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	858184	858184	858184
5°	766818	826794	895586
10°	544878	706698	918416
15°	269285	494899	829667
20°	137771	275543	701353
25°	86612	148018	568827
30°	52071	90640	429558
35°	33609	58665	306814
40°	23701	38257	202622
45°	18211	26514	113523
50°	10899	18191	48280
55°	8172	12215	25547
60°	7006	8190	16380
65°	6888	6888	13892
70°	6780	5193	18897
75°	6863	4575	13535
80°	3410	3410	6819
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	152.4	18.1
10°-20°	284.1	33.8
20°-30°	213.3	25.4
30°-40°	117.3	14.0
40°-50°	47.6	5.7
50°-60°	15.1	1.8
60°-70°	7.2	0.9
70°-80°	3.5	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°	649.7	77.3
0°-40°	767.0	91.2
0°-60°	829.7	98.7
0°-90°	840.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	840.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1739	1739	1739	1739	1739	
5°	1548	1584	1669	1768	1808	133
15°	527	620	969	1441	1624	155
25°	159	178	272	793	1045	74
35°	56	66	97	294	509	36
45°	26	25	38	72	163	19
55°	10	11	14	18	30	9
65°	6	7	6	7	12	6
75°	4	2	2	2	7	3
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°	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4
2.5°	1690.8	1690.8	1689.6	1693.1	1700.3	1700.3	1703.8	1707.4	1711.0	1718.1	1725.2
5°	1548.3	1550.7	1549.5	1562.5	1572.0	1583.9	1587.5	1607.7	1623.1	1646.8	1669.4
7.5°	1332.2	1333.4	1344.1	1359.5	1383.2	1396.3	1414.1	1442.6	1477.0	1522.2	1566.1
10°	1087.6	1087.6	1104.2	1126.8	1145.8	1171.9	1185.0	1231.3	1281.1	1344.1	1410.6
12.5°	792.0	792.0	820.4	837.1	871.5	894.1	913.1	966.5	1031.8	1112.5	1200.4
15°	527.2	536.7	547.4	569.9	600.8	619.8	632.9	687.5	764.6	854.9	968.9
17.5°	358.6	364.5	371.6	389.4	404.9	414.4	426.3	472.6	528.4	616.2	736.1
20°	262.4	268.3	274.3	282.6	292.1	296.8	305.1	328.9	369.3	431.0	524.8
22.5°	203.0	207.8	212.5	217.3	224.4	228.0	232.7	248.2	269.5	308.7	376.4
25°	159.1	159.1	165.0	168.6	174.5	178.1	184.0	194.7	211.3	233.9	271.9
27.5°	121.1	122.3	125.9	130.6	135.4	138.9	144.9	154.4	165.0	180.5	204.2
30°	91.4	93.8	96.2	99.7	105.7	109.2	112.8	121.1	130.6	142.5	159.1
32.5°	70.1	72.4	73.6	77.2	81.9	84.3	87.9	95.0	103.3	115.2	125.9
35°	55.8	55.8	58.2	59.4	64.1	66.5	68.9	73.6	81.9	89.1	97.4
37.5°	43.9	45.1	46.3	47.5	51.1	52.2	53.4	57.0	61.7	68.9	76.0
40°	36.8	38.0	38.0	38.0	39.2	39.2	40.4	42.7	47.5	52.2	59.4
42.5°	30.9	30.9	30.9	30.9	30.9	30.9	32.1	33.2	36.8	41.6	47.5
45°	26.1	24.9	24.9	24.9	24.9	24.9	24.9	27.3	29.7	33.2	38.0
47.5°	19.0	20.2	20.2	20.2	20.2	20.2	21.4	21.4	23.7	27.3	29.7
50°	14.2	15.4	15.4	16.6	16.6	16.6	16.6	17.8	20.2	22.6	23.7
52.5°	11.9	11.9	11.9	13.1	13.1	13.1	13.1	14.2	16.6	17.8	19.0
55°	9.5	9.5	9.5	9.5	10.7	10.7	11.9	13.1	14.2	14.2	14.2
57.5°	8.3	8.3	8.3	8.3	8.3	9.5	9.5	10.7	11.9	10.7	10.7
60°	7.1	7.1	7.1	7.1	7.1	8.3	8.3	9.5	8.3	8.3	8.3
62.5°	7.1	7.1	5.9	5.9	7.1	7.1	7.1	7.1	7.1	7.1	5.9
65°	5.9	5.9	5.9	5.9	5.9	7.1	7.1	5.9	5.9	4.7	5.9
67.5°	5.9	5.9	4.7	5.9	5.9	5.9	5.9	4.7	4.7	4.7	4.7
70°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	3.6	3.6	3.6	3.6
72.5°	3.6	3.6	3.6	4.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6
75°	3.6	3.6	3.6	3.6	3.6	2.4	2.4	2.4	2.4	2.4	2.4
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	0.0	1.2	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°	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4	1739.4
2.5°	1731.1	1735.9	1741.8	1747.8	1750.1	1752.5	1756.1	1758.4	1759.6	1759.6
5°	1693.1	1716.9	1739.4	1758.4	1767.9	1776.3	1790.5	1800.0	1808.3	1808.3
7.5°	1612.4	1662.3	1708.6	1748.9	1766.8	1785.8	1815.4	1838.0	1849.9	1855.8
10°	1480.6	1555.4	1625.5	1687.2	1715.7	1739.4	1782.2	1811.9	1826.1	1833.2
12.5°	1301.3	1399.9	1488.9	1566.1	1600.5	1629.0	1673.0	1712.1	1732.3	1743.0
15°	1092.3	1208.7	1314.4	1402.2	1441.4	1477.0	1535.2	1582.7	1611.2	1624.3
17.5°	871.5	1015.2	1135.1	1236.0	1271.6	1310.8	1378.5	1433.1	1471.1	1480.6
20°	667.3	822.8	959.4	1063.9	1105.4	1144.6	1220.6	1278.8	1320.3	1335.8
22.5°	485.6	636.4	787.2	898.8	946.3	989.1	1065.0	1128.0	1171.9	1187.3
25°	346.7	469.0	618.6	745.6	793.1	835.9	911.9	976.0	1021.1	1044.9
27.5°	252.9	336.0	467.8	598.4	649.5	694.6	764.6	831.1	873.9	896.4
30°	185.2	239.8	338.4	465.4	521.2	565.2	640.0	695.8	742.1	754.0
32.5°	141.3	172.2	239.8	343.1	400.1	446.4	518.9	572.3	609.1	622.2
35°	108.0	127.0	167.4	245.8	294.5	342.0	410.8	465.4	497.5	509.4
37.5°	84.3	97.4	121.1	173.4	211.3	252.9	320.6	365.7	391.8	407.3
40°	67.7	77.2	92.6	123.5	149.6	180.5	237.5	280.2	306.3	314.6
42.5°	54.6	61.7	70.1	87.9	105.7	128.2	174.5	204.2	225.6	230.3
45°	42.7	47.5	57.0	65.3	72.4	84.3	116.4	143.7	156.7	162.7
47.5°	34.4	40.4	40.4	45.1	49.9	58.2	78.4	93.8	103.3	105.7
50°	26.1	27.3	29.7	32.1	34.4	36.8	47.5	57.0	62.9	62.9
52.5°	19.0	20.2	20.2	21.4	22.6	24.9	30.9	35.6	39.2	40.4
55°	14.2	14.2	15.4	16.6	17.8	19.0	22.6	27.3	28.5	29.7
57.5°	10.7	10.7	11.9	13.1	14.2	14.2	17.8	20.2	22.6	24.9
60°	8.3	8.3	9.5	9.5	10.7	11.9	15.4	16.6	16.6	16.6
62.5°	7.1	7.1	7.1	8.3	8.3	8.3	10.7	14.2	15.4	15.4
65°	5.9	5.9	5.9	5.9	7.1	7.1	8.3	9.5	11.9	11.9
67.5°	4.7	4.7	4.7	4.7	5.9	5.9	8.3	9.5	11.9	13.1
70°	3.6	3.6	3.6	4.7	4.7	5.9	7.1	9.5	11.9	13.1
72.5°	2.4	2.4	3.6	3.6	3.6	4.7	5.9	7.1	8.3	8.3
75°	2.4	2.4	2.4	2.4	2.4	2.4	3.6	5.9	5.9	7.1
77.5°	2.4	2.4	1.2	2.4	2.4	2.4	2.4	3.6	4.7	4.7
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.4
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)