

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: P219789

Luminaire Tested: **MRZ-1-REC-X-4-L40-97-FL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219789
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-L40-97-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, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1026.5 lumens
Efficiency: N/A
Efficacy: 65.0 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

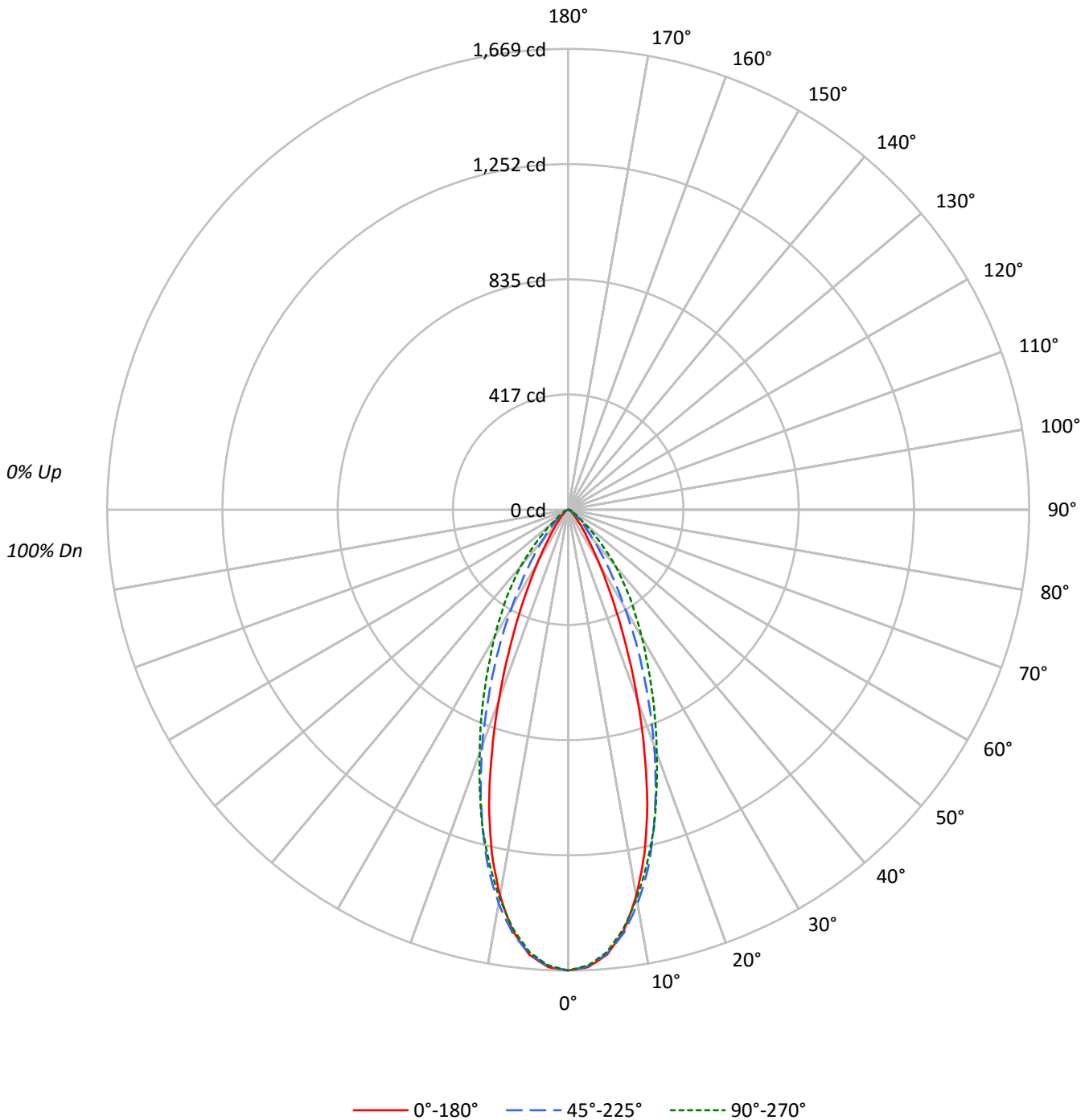
Input Watts (W): 15.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	823352	823352	823352
5°	800941	799406	796385
10°	711307	725735	715866
15°	565438	611153	611153
20°	385855	477580	491913
25°	230601	345521	388527
30°	127158	231813	303653
35°	66735	149071	235019
40°	38128	90941	172093
45°	24351	58262	107034
50°	17500	38455	55955
55°	14365	22193	35267
60°	11940	13519	22498
65°	10624	10624	17745
70°	8800	8800	24091
75°	8769	5719	14488
80°	4262	4262	8524
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	148.3	14.4
10°-20°	322.3	31.4
20°-30°	278.8	27.2
30°-40°	161.1	15.7
40°-50°	73.0	7.1
50°-60°	25.8	2.5
60°-70°	11.4	1.1
70°-80°	5.4	0.5
80°-90°	0.4	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°	749.4	73.0
0°-40°	910.6	88.7
0°-60°	1009.3	98.3
0°-90°	1026.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1026.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1669	1669	1669	1669	1669	
5°	1617	1616	1614	1608	1608	148
15°	1107	1140	1196	1207	1196	300
25°	424	487	635	727	714	199
35°	111	144	248	369	390	75
45°	35	42	84	146	153	29
55°	17	17	26	33	41	15
65°	9	11	9	14	15	9
75°	5	5	3	6	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°	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8
2.5°	1658.2	1655.1	1655.1	1655.1	1656.6	1656.6	1655.1	1655.1	1655.1	1655.1	1655.1
5°	1617.2	1614.1	1614.1	1615.6	1614.1	1615.6	1614.1	1617.2	1615.6	1614.1	1614.1
7.5°	1538.2	1538.2	1538.2	1539.7	1541.2	1541.2	1541.2	1544.3	1544.3	1547.3	1545.8
10°	1419.8	1422.8	1422.8	1427.3	1431.9	1428.9	1430.4	1439.5	1442.5	1445.6	1448.6
12.5°	1275.5	1280.1	1283.1	1286.1	1290.7	1295.2	1296.8	1311.9	1316.5	1322.6	1333.2
15°	1107.0	1105.4	1114.5	1119.1	1132.8	1140.4	1144.9	1160.1	1175.3	1184.4	1196.5
17.5°	917.1	921.7	926.3	938.4	955.1	965.7	971.8	990.0	1014.3	1034.1	1052.3
20°	734.9	744.0	748.6	762.3	779.0	785.0	801.7	826.0	857.9	885.3	909.6
22.5°	566.4	570.9	583.1	598.3	616.5	630.2	646.9	671.2	704.6	731.9	765.3
25°	423.6	425.2	440.4	454.0	473.8	487.4	496.5	528.4	563.3	598.3	634.7
27.5°	308.2	311.3	320.4	334.1	355.3	364.4	379.6	406.9	440.4	478.3	516.3
30°	223.2	223.2	229.3	244.5	259.7	271.8	282.4	308.2	340.1	372.0	406.9
32.5°	156.4	157.9	164.0	174.6	189.8	198.9	206.5	230.8	256.6	288.5	318.9
35°	110.8	112.4	118.4	124.5	136.7	144.3	150.3	168.5	191.3	218.7	247.5
37.5°	80.5	82.0	85.0	89.6	98.7	103.3	109.3	124.5	142.7	164.0	189.8
40°	59.2	60.7	62.3	66.8	72.9	75.9	80.5	91.1	104.8	123.0	141.2
42.5°	45.6	45.6	47.1	50.1	53.1	56.2	59.2	66.8	77.4	91.1	107.8
45°	34.9	34.9	36.4	39.5	41.0	42.5	45.6	50.1	57.7	68.3	83.5
47.5°	28.9	28.9	28.9	30.4	31.9	33.4	34.9	39.5	44.0	54.7	63.8
50°	22.8	22.8	24.3	24.3	25.8	25.8	27.3	30.4	36.4	44.0	50.1
52.5°	19.7	19.7	19.7	19.7	19.7	21.3	21.3	24.3	30.4	33.4	36.4
55°	16.7	16.7	16.7	16.7	16.7	16.7	18.2	21.3	24.3	27.3	25.8
57.5°	13.7	13.7	13.7	13.7	13.7	15.2	15.2	18.2	19.7	18.2	18.2
60°	12.1	12.1	10.6	10.6	12.1	12.1	13.7	15.2	15.2	13.7	13.7
62.5°	10.6	9.1	9.1	9.1	10.6	12.1	12.1	12.1	10.6	10.6	10.6
65°	9.1	7.6	7.6	9.1	9.1	10.6	10.6	9.1	9.1	9.1	9.1
67.5°	7.6	7.6	7.6	7.6	9.1	9.1	9.1	7.6	7.6	7.6	7.6
70°	6.1	6.1	6.1	6.1	7.6	7.6	6.1	6.1	6.1	6.1	6.1
72.5°	4.6	4.6	4.6	6.1	6.1	6.1	4.6	4.6	4.6	6.1	4.6
75°	4.6	4.6	4.6	4.6	4.6	4.6	3.0	3.0	4.6	4.6	3.0
77.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
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°	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8	1668.8
2.5°	1653.6	1653.6	1652.1	1653.6	1653.6	1653.6	1653.6	1652.1	1653.6	1652.1
5°	1612.6	1612.6	1612.6	1609.6	1608.0	1609.6	1608.0	1606.5	1606.5	1608.0
7.5°	1542.8	1542.8	1541.2	1538.2	1538.2	1536.7	1533.6	1532.1	1530.6	1530.6
10°	1451.6	1450.1	1445.6	1444.1	1444.1	1439.5	1433.4	1433.4	1427.3	1428.9
12.5°	1337.8	1334.7	1333.2	1333.2	1327.1	1327.1	1322.6	1321.1	1318.0	1315.0
15°	1201.1	1205.7	1208.7	1207.2	1207.2	1202.6	1201.1	1198.1	1193.5	1196.5
17.5°	1066.0	1076.6	1079.6	1084.2	1085.7	1082.7	1078.1	1070.5	1066.0	1062.9
20°	932.3	947.5	958.1	961.2	961.2	959.7	958.1	946.0	944.5	936.9
22.5°	794.2	815.4	833.6	839.7	841.2	842.7	836.7	827.6	824.5	823.0
25°	665.1	693.9	712.2	724.3	727.3	731.9	728.9	724.3	715.2	713.7
27.5°	548.2	578.5	602.8	618.0	625.6	628.6	631.7	624.1	621.0	615.0
30°	443.4	478.3	504.1	525.4	529.9	536.0	537.5	539.1	533.0	533.0
32.5°	353.8	382.7	414.5	435.8	444.9	449.5	457.1	455.5	455.5	454.0
35°	277.9	306.7	335.6	358.4	369.0	375.1	384.2	388.7	390.2	390.2
37.5°	214.1	243.0	268.8	296.1	306.7	314.3	320.4	321.9	323.4	321.9
40°	164.0	191.3	217.1	235.4	243.0	249.0	256.6	262.7	265.7	267.2
42.5°	129.1	148.8	165.5	183.7	195.9	205.0	206.5	205.0	205.0	203.5
45°	97.2	112.4	138.2	142.7	145.8	147.3	151.8	153.4	153.4	153.4
47.5°	77.4	94.1	94.1	100.2	103.3	107.8	109.3	109.3	109.3	109.3
50°	57.7	60.7	65.3	69.8	71.4	71.4	72.9	72.9	72.9	72.9
52.5°	38.0	42.5	44.0	45.6	47.1	48.6	51.6	53.1	51.6	51.6
55°	27.3	28.9	30.4	33.4	33.4	34.9	41.0	41.0	41.0	41.0
57.5°	18.2	19.7	22.8	27.3	27.3	28.9	30.4	30.4	31.9	31.9
60°	15.2	16.7	18.2	19.7	21.3	24.3	27.3	22.8	22.8	22.8
62.5°	12.1	13.7	15.2	16.7	15.2	16.7	18.2	18.2	18.2	18.2
65°	10.6	12.1	10.6	12.1	13.7	13.7	12.1	13.7	13.7	15.2
67.5°	9.1	9.1	9.1	9.1	9.1	10.6	13.7	15.2	16.7	16.7
70°	6.1	6.1	6.1	9.1	9.1	10.6	12.1	15.2	15.2	16.7
72.5°	4.6	4.6	6.1	7.6	9.1	9.1	10.6	10.6	12.1	12.1
75°	4.6	4.6	6.1	6.1	6.1	6.1	7.6	7.6	7.6	7.6
77.5°	3.0	3.0	3.0	3.0	4.6	4.6	4.6	6.1	6.1	6.1
80°	1.5	1.5	1.5	1.5	3.0	3.0	3.0	3.0	3.0	3.0
82.5°	1.5	1.5	1.5	1.5	1.5	0.0	0.0	1.5	1.5	1.5
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)