

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: iO LED

Report Number: P592034

Luminaire Tested: **GRZ-10L-935-10x10FR-X-UNV-STD-2F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P592034
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2111-457-16)
Test Lab: INNOVATION CENTER
Issue Date: 2/2/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: iO LED
Catalog Number: GRZ-10L-935-10x10FR-X-UNV-STD-2F
Description: iO LED GRAZER WITH 10x10FR OPTIC
1000 LUMENS PER FOOT, 2 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

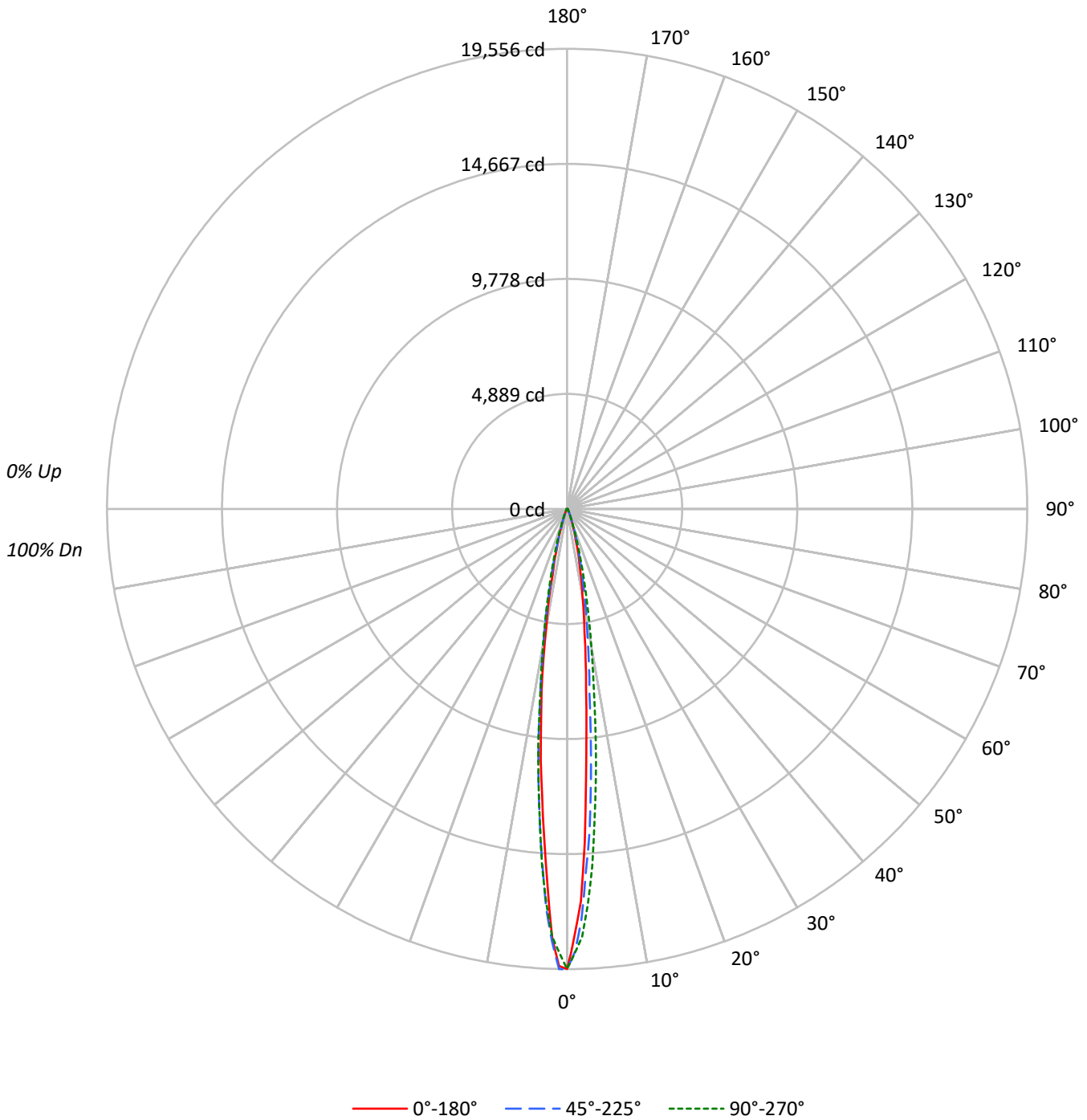
Lumens per Lamp: N/A
Luminaire Lumens: 1805.0 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25
Luminous Opening: Rectangular (W 2' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 19.1
Input Voltage (V): 120
Input Current (A_{in}): 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: 24 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	100	100	100	100	100		
1	115	113	111	109	113	111	109	107	107	105	104	103	102	101	100	99	98	97	97	96	95	95	95	97		
2	111	108	105	102	109	106	103	101	103	101	99	100	98	97	97	96	95	93	93	92	92	92	92	93		
3	108	103	100	97	106	102	99	96	100	97	95	97	95	93	95	93	92	91	91	90	90	90	90	91		
4	105	100	96	93	103	99	95	92	97	94	91	95	92	90	93	91	89	88	88	87	87	87	87	88		
5	102	96	93	90	101	96	92	89	94	91	89	93	90	88	91	89	87	86	86	85	85	85	85	86		
6	100	94	90	87	98	93	89	87	92	89	86	91	88	86	89	87	85	84	84	83	83	83	83	84		
7	97	91	87	85	96	91	87	84	90	86	84	89	86	84	88	85	83	82	82	81	81	81	81	82		
8	95	89	85	83	94	89	85	83	88	85	82	87	84	82	86	84	82	81	81	80	80	80	80	81		
9	93	87	83	81	92	87	83	81	86	83	81	85	82	80	85	82	80	79	79	79	79	79	79	79		
10	91	85	82	79	91	85	82	79	84	81	79	84	81	79	83	81	79	78	78	78	78	78	78	78		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	631260	631260	631260
5°	304750	431389	395010
10°	123116	191850	168917
15°	48806	70576	52279
20°	19062	23333	15364
25°	8790	9253	7073
30°	5187	5049	4150
35°	3508	3508	2779
40°	2660	2816	2188
45°	2288	2457	1863
50°	1959	2236	1582
55°	1773	2089	1464
60°	1556	2034	1440
65°	1421	1987	1421
70°	1227	1926	1227
75°	923	1622	1160
80°	688	1376	1041
85°	704	704	704



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	942.2	52.2
10°-20°	569.5	31.5
20°-30°	127.1	7.0
30°-40°	55.0	3.0
40°-50°	39.5	2.2
50°-60°	31.4	1.7
60°-70°	23.4	1.3
70°-80°	13.5	0.7
80°-90°	3.5	0.2
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°	1638.7	90.8
0°-40°	1693.7	93.8
0°-60°	1764.6	97.8
0°-90°	1805.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1805.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	19549	19549	19549	19549	19549	
5°	9402	11602	13308	13370	12186	733
15°	1460	1881	2111	1738	1564	449
25°	247	280	260	204	198	126
35°	89	89	89	78	70	57
45°	50	54	54	48	41	39
55°	32	39	37	33	26	27
65°	19	28	26	22	19	18
75°	7	15	13	13	9	8
85°	2	4	2	4	2	2
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7
1°	18138.9	18708.4	18567.4	18701.0	18725.1	18816.0	18875.3	18916.2	19014.5	18979.2	18858.6
2°	16686.4	17001.7	16983.2	17064.8	17530.4	17465.5	17632.4	17984.9	17929.3	18010.9	18181.5
3°	14202.4	14894.4	14734.8	14720.0	15167.1	15360.0	16022.2	16178.1	16565.8	16827.3	16832.9
4°	11473.6	11922.5	12028.3	12883.5	12835.2	13681.1	14076.3	14400.9	14703.3	15649.4	15237.5
5°	9401.5	9733.6	10063.8	10484.9	10588.7	11601.6	11826.1	12293.6	13111.6	13466.0	13308.3
6°	7696.7	8023.2	8021.3	8444.3	8832.0	9555.5	9805.9	10477.4	11143.4	11610.9	11631.3
7°	6401.8	6589.2	6707.9	6980.6	7412.9	7796.9	8383.1	8824.6	9253.1	9741.0	10037.8
8°	5324.1	5504.0	5570.8	5819.4	6075.4	6620.7	7206.9	7550.1	7999.1	8423.9	8338.5
9°	4474.4	4754.5	4715.6	4862.1	5153.4	5522.5	5873.2	6381.4	6670.8	7090.1	6993.6
10°	3754.7	3932.7	4047.8	4231.4	4339.0	4743.4	4956.7	5287.0	5650.5	5708.1	5850.9
12.5°	2463.5	2504.3	2528.5	2619.4	2816.0	3012.6	3226.0	3400.3	3507.9	3530.2	3635.9
15°	1459.9	1530.4	1545.3	1669.6	1777.2	1881.0	2016.5	2042.4	2099.9	2077.7	2111.1
17.5°	897.9	905.3	960.9	962.8	1079.7	1133.4	1228.1	1250.3	1218.8	1202.1	1202.1
20°	554.7	558.4	573.2	612.2	634.4	693.8	742.0	747.6	730.9	695.7	679.0
22.5°	359.9	371.0	359.9	374.7	397.0	430.4	452.6	456.3	434.1	421.1	419.2
25°	246.7	248.6	257.9	248.6	259.7	280.1	287.5	293.1	274.6	269.0	259.7
27.5°	181.8	181.8	181.8	181.8	185.5	185.5	189.2	191.1	185.5	181.8	183.7
30°	139.1	137.3	139.1	139.1	135.4	139.1	141.0	141.0	137.3	137.3	135.4
32.5°	107.6	109.4	111.3	109.4	107.6	109.4	111.3	109.4	109.4	111.3	107.6
35°	89.0	89.0	90.9	89.0	89.0	89.0	90.9	90.9	90.9	90.9	89.0
37.5°	72.3	74.2	76.1	76.1	76.1	76.1	77.9	77.9	79.8	76.1	74.2
40°	63.1	63.1	64.9	64.9	66.8	64.9	66.8	68.6	68.6	66.8	66.8
42.5°	55.7	55.7	57.5	57.5	57.5	59.4	61.2	61.2	61.2	61.2	59.4
45°	50.1	48.2	50.1	51.9	53.8	53.8	55.7	57.5	55.7	55.7	53.8
47.5°	44.5	44.5	44.5	46.4	48.2	50.1	50.1	51.9	51.9	50.1	48.2
50°	39.0	39.0	40.8	42.7	44.5	46.4	46.4	48.2	48.2	46.4	44.5
52.5°	33.4	33.4	35.2	39.0	40.8	42.7	42.7	44.5	44.5	42.7	40.8
55°	31.5	29.7	31.5	33.4	37.1	39.0	40.8	40.8	40.8	39.0	37.1
57.5°	26.0	26.0	27.8	29.7	33.4	37.1	37.1	39.0	37.1	35.2	35.2
60°	24.1	24.1	26.0	27.8	31.5	35.2	35.2	35.2	33.4	31.5	31.5
62.5°	20.4	20.4	22.3	24.1	27.8	31.5	33.4	33.4	31.5	29.7	27.8
65°	18.6	18.6	18.6	22.3	26.0	27.8	29.7	29.7	27.8	26.0	26.0
67.5°	14.8	14.8	16.7	18.6	22.3	24.1	26.0	27.8	26.0	24.1	22.3
70°	13.0	13.0	13.0	16.7	20.4	22.3	24.1	24.1	22.3	20.4	20.4
72.5°	9.3	9.3	11.1	13.0	16.7	18.6	20.4	20.4	18.6	16.7	16.7
75°	7.4	7.4	9.3	11.1	13.0	14.8	16.7	16.7	16.7	14.8	13.0
77.5°	5.6	5.6	7.4	9.3	11.1	13.0	13.0	13.0	13.0	11.1	11.1
80°	3.7	3.7	5.6	5.6	7.4	9.3	9.3	9.3	9.3	7.4	7.4
82.5°	3.7	1.9	3.7	3.7	5.6	5.6	7.4	7.4	5.6	5.6	5.6
85°	1.9	1.9	1.9	1.9	3.7	3.7	3.7	3.7	3.7	3.7	1.9
87.5°	0.0	0.0	0.0	0.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7	19548.7
1°	19155.5	19435.6	19250.1	19457.8	19556.2	19556.2	19589.5	19448.6	19355.8	19424.4
2°	18255.7	18500.6	18573.0	18532.2	18407.9	18426.4	18190.8	18166.7	17856.9	18214.9
3°	16960.9	17231.7	17120.4	16977.6	17001.7	16736.4	16358.0	16179.9	16070.5	16020.4
4°	15406.4	15580.7	15551.1	15450.9	15137.4	14827.6	14484.4	14599.4	13900.0	13992.8
5°	13716.4	13911.2	13811.0	13480.8	13369.5	13035.6	12863.1	12506.9	12130.3	12186.0
6°	11800.1	11735.2	11926.2	11694.4	11640.6	11052.5	10959.8	11019.1	10755.7	10731.6
7°	9850.4	10303.1	10176.9	10011.8	9948.7	9598.1	9542.5	9182.6	9204.9	9067.6
8°	8572.3	8616.8	8733.7	8509.2	8305.1	8262.5	8047.3	7835.8	7882.2	7785.7
9°	7127.2	7266.3	7171.7	7194.0	6928.7	6654.1	6552.1	6607.8	6450.1	6472.3
10°	5774.8	5999.3	5939.9	5889.8	5837.9	5554.1	5505.8	5379.7	5296.2	5151.5
12.5°	3635.9	3552.5	3593.3	3431.9	3368.8	3148.1	3105.4	3051.6	2871.6	2871.6
15°	2213.1	2036.9	2099.9	1895.9	1738.2	1691.8	1575.0	1576.8	1571.2	1563.8
17.5°	1165.0	1165.0	1139.0	977.6	929.4	845.9	834.8	845.9	818.1	823.7
20°	684.5	660.4	621.4	545.4	512.0	476.8	469.3	463.8	463.8	447.1
22.5°	421.1	400.7	378.4	332.1	306.1	295.0	283.8	289.4	289.4	291.2
25°	269.0	252.3	243.0	215.2	204.1	202.2	196.6	189.2	191.1	198.5
27.5°	179.9	172.5	165.1	154.0	146.6	142.8	142.8	144.7	141.0	137.3
30°	135.4	126.1	122.4	118.7	113.2	113.2	113.2	111.3	109.4	111.3
32.5°	107.6	102.0	98.3	94.6	92.8	90.9	92.8	90.9	89.0	87.2
35°	89.0	83.5	81.6	79.8	77.9	76.1	76.1	76.1	72.3	70.5
37.5°	74.2	72.3	72.3	68.6	66.8	64.9	64.9	64.9	61.2	61.2
40°	66.8	64.9	63.1	61.2	59.4	57.5	55.7	55.7	51.9	51.9
42.5°	59.4	57.5	57.5	55.7	53.8	50.1	50.1	48.2	46.4	46.4
45°	53.8	51.9	51.9	50.1	48.2	46.4	44.5	42.7	40.8	40.8
47.5°	50.1	48.2	48.2	46.4	42.7	40.8	39.0	37.1	37.1	37.1
50°	44.5	44.5	44.5	42.7	40.8	39.0	35.2	33.4	31.5	31.5
52.5°	40.8	40.8	39.0	39.0	37.1	35.2	31.5	29.7	29.7	29.7
55°	39.0	37.1	37.1	35.2	33.4	33.4	29.7	27.8	26.0	26.0
57.5°	35.2	33.4	33.4	31.5	31.5	29.7	26.0	26.0	24.1	24.1
60°	31.5	29.7	29.7	27.8	27.8	26.0	24.1	22.3	22.3	22.3
62.5°	27.8	26.0	27.8	26.0	26.0	24.1	22.3	20.4	20.4	20.4
65°	26.0	24.1	24.1	24.1	22.3	22.3	20.4	18.6	18.6	18.6
67.5°	22.3	20.4	22.3	20.4	20.4	18.6	18.6	16.7	16.7	14.8
70°	18.6	18.6	18.6	18.6	18.6	16.7	14.8	14.8	13.0	13.0
72.5°	16.7	16.7	16.7	16.7	14.8	14.8	13.0	13.0	11.1	11.1
75°	13.0	13.0	13.0	13.0	13.0	13.0	11.1	11.1	9.3	9.3
77.5°	11.1	11.1	11.1	11.1	11.1	9.3	9.3	7.4	7.4	7.4
80°	7.4	7.4	7.4	7.4	7.4	7.4	7.4	5.6	5.6	5.6
82.5°	5.6	5.6	5.6	5.6	5.6	3.7	3.7	3.7	3.7	3.7
85°	3.7	3.7	3.7	3.7	3.7	1.9	1.9	1.9	1.9	1.9
87.5°	1.9	1.9	1.9	1.9	1.9	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)