

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: P592002

Luminaire Tested: **GRZ-10L-927-10x10FR-X-UNV-STD-2F**

Issue Date: 2/2/2022

**Test Information**

Test Method: LM-79-2019  
Report Number: P592002  
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-927-10x10FR-X-UNV-STD-2F  
Description: iO LED GRAZER WITH 10x10FR OPTIC  
1000 LUMENS PER FOOT, 2 FOOT FIXTURE  
SUMULATED RESULTS  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

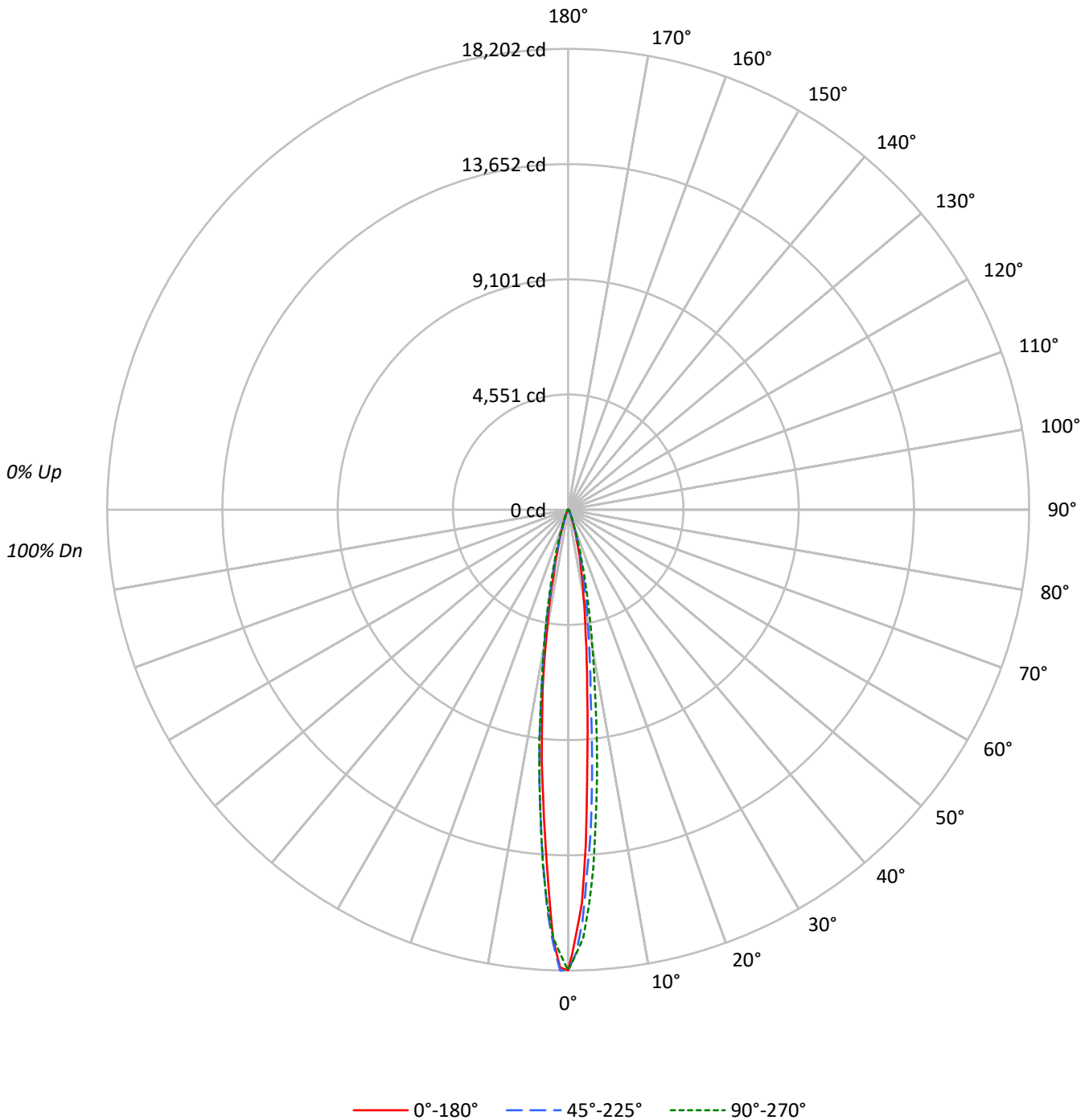
Lumens per Lamp: N/A  
Luminaire Lumens: 1680.0 lumens  
Efficiency: N/A  
Efficacy: 88.0 lumens/watt  
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25  
Luminous Opening: Rectangular (W 2' x L: 0.17' x H: 0')  
CIE Type: Direct

Input Watts (W): 19.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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°	587544	587544	587544
5°	283644	401512	367655
10°	114587	178564	157221
15°	45426	65688	48659
20°	17742	21715	14299
25°	8181	8612	6581
30°	4829	4698	3863
35°	3268	3268	2586
40°	2474	2622	2036
45°	2128	2288	1735
50°	1824	2080	1477
55°	1655	1942	1362
60°	1447	1899	1337
65°	1322	1849	1322
70°	1142	1794	1142
75°	861	1510	1073
80°	651	1283	967
85°	630	630	630



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	876.9	52.2
10°-20°	530.0	31.5
20°-30°	118.3	7.0
30°-40°	51.2	3.0
40°-50°	36.8	2.2
50°-60°	29.3	1.7
60°-70°	21.8	1.3
70°-80°	12.6	0.7
80°-90°	3.2	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°	1525.3	90.8
0°-40°	1576.4	93.8
0°-60°	1642.4	97.8
0°-90°	1680.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1680.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	18195	18195	18195	18195	18195	
5°	8750	10798	12387	12444	11342	682
15°	1359	1751	1965	1618	1456	417
25°	230	261	242	190	185	117
35°	83	83	83	72	66	53
45°	47	50	50	45	38	36
55°	29	36	34	31	24	25
65°	17	26	24	21	17	17
75°	7	14	12	12	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°	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9
1°	16882.7	17412.8	17281.6	17405.9	17428.3	17512.9	17568.2	17606.2	17697.7	17664.9	17552.6
2°	15530.8	15824.3	15807.0	15883.0	16316.4	16256.0	16411.4	16739.4	16687.6	16763.6	16922.4
3°	13218.9	13862.9	13714.4	13700.6	14116.7	14296.3	14912.7	15057.7	15418.6	15662.0	15667.2
4°	10679.0	11096.9	11195.3	11991.3	11946.4	12733.7	13101.5	13403.6	13685.1	14565.6	14182.3
5°	8750.4	9059.5	9366.8	9758.8	9855.4	10798.2	11007.1	11442.2	12203.6	12533.4	12386.6
6°	7163.7	7467.6	7465.8	7859.5	8220.4	8893.7	9126.8	9751.9	10371.7	10806.8	10825.8
7°	5958.5	6132.9	6243.4	6497.2	6899.5	7256.9	7802.5	8213.4	8612.3	9066.4	9342.6
8°	4955.3	5122.8	5185.0	5416.4	5654.6	6162.2	6707.9	7027.3	7445.1	7840.5	7761.1
9°	4164.6	4425.3	4389.0	4525.4	4796.5	5140.1	5466.4	5939.5	6208.9	6599.1	6509.3
10°	3494.6	3660.4	3767.4	3938.4	4038.5	4414.9	4613.5	4920.8	5259.2	5312.8	5445.7
12.5°	2292.9	2330.9	2353.4	2438.0	2621.0	2804.0	3002.6	3164.9	3265.0	3285.7	3384.1
15°	1358.8	1424.4	1438.3	1553.9	1654.1	1750.8	1876.8	1901.0	1954.5	1933.8	1964.9
17.5°	835.7	842.6	894.4	896.1	1004.9	1055.0	1143.0	1163.7	1134.4	1118.8	1118.8
20°	516.3	519.7	533.5	569.8	590.5	645.7	690.6	695.8	680.3	647.5	631.9
22.5°	335.0	345.3	335.0	348.8	369.5	400.6	421.3	424.7	404.0	391.9	390.2
25°	229.6	231.4	240.0	231.4	241.7	260.7	267.6	272.8	255.5	250.4	241.7
27.5°	169.2	169.2	169.2	169.2	172.7	172.7	176.1	177.8	172.7	169.2	170.9
30°	129.5	127.8	129.5	129.5	126.0	129.5	131.2	131.2	127.8	127.8	126.0
32.5°	100.1	101.9	103.6	101.9	100.1	101.9	103.6	101.9	101.9	103.6	100.1
35°	82.9	82.9	84.6	82.9	82.9	82.9	84.6	84.6	84.6	84.6	82.9
37.5°	67.3	69.1	70.8	70.8	70.8	70.8	72.5	72.5	74.2	70.8	69.1
40°	58.7	58.7	60.4	60.4	62.2	60.4	62.2	63.9	63.9	62.2	62.2
42.5°	51.8	51.8	53.5	53.5	53.5	55.3	57.0	57.0	57.0	57.0	55.3
45°	46.6	44.9	46.6	48.3	50.1	50.1	51.8	53.5	51.8	51.8	50.1
47.5°	41.4	41.4	41.4	43.2	44.9	46.6	46.6	48.3	48.3	46.6	44.9
50°	36.3	36.3	38.0	39.7	41.4	43.2	43.2	44.9	44.9	43.2	41.4
52.5°	31.1	31.1	32.8	36.3	38.0	39.7	39.7	41.4	41.4	39.7	38.0
55°	29.4	27.6	29.4	31.1	34.5	36.3	38.0	38.0	38.0	36.3	34.5
57.5°	24.2	24.2	25.9	27.6	31.1	34.5	34.5	36.3	34.5	32.8	32.8
60°	22.4	22.4	24.2	25.9	29.4	32.8	32.8	32.8	31.1	29.4	29.4
62.5°	19.0	19.0	20.7	22.4	25.9	29.4	31.1	31.1	29.4	27.6	25.9
65°	17.3	17.3	17.3	20.7	24.2	25.9	27.6	27.6	25.9	24.2	24.2
67.5°	13.8	13.8	15.5	17.3	20.7	22.4	24.2	25.9	24.2	22.4	20.7
70°	12.1	12.1	12.1	15.5	19.0	20.7	22.4	22.4	20.7	19.0	19.0
72.5°	8.6	8.6	10.4	12.1	15.5	17.3	19.0	19.0	17.3	15.5	15.5
75°	6.9	6.9	8.6	10.4	12.1	13.8	15.5	15.5	15.5	13.8	12.1
77.5°	5.2	5.2	6.9	8.6	10.4	12.1	12.1	12.1	12.1	10.4	10.4
80°	3.5	3.5	5.2	5.2	6.9	8.6	8.6	8.6	8.6	6.9	6.9
82.5°	3.5	1.7	3.5	3.5	5.2	5.2	6.9	6.9	5.2	5.2	5.2
85°	1.7	1.7	1.7	1.7	3.5	3.5	3.5	3.5	3.5	3.5	1.7
87.5°	0.0	0.0	0.0	0.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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°	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9	18194.9
1°	17828.9	18089.6	17917.0	18110.3	18201.8	18201.8	18232.9	18101.7	18015.4	18079.3
2°	16991.5	17219.4	17286.7	17248.8	17133.1	17150.3	16931.1	16908.6	16620.3	16953.5
3°	15786.3	16038.4	15934.8	15801.9	15824.3	15577.4	15225.2	15059.4	14957.6	14910.9
4°	14339.4	14501.7	14474.1	14380.9	14089.1	13800.7	13481.3	13588.4	12937.4	13023.8
5°	12766.5	12947.8	12854.6	12547.2	12443.6	12132.8	11972.3	11640.8	11290.3	11342.1
6°	10982.9	10922.5	11100.3	10884.5	10834.4	10287.1	10200.8	10256.0	10010.8	9988.4
7°	9168.3	9589.6	9472.1	9318.5	9259.8	8933.4	8881.6	8546.7	8567.4	8439.6
8°	7978.6	8020.1	8128.8	7919.9	7730.0	7690.3	7490.0	7293.2	7336.3	7246.6
9°	6633.6	6763.1	6675.0	6695.8	6448.9	6193.3	6098.4	6150.2	6003.4	6024.1
10°	5374.9	5583.8	5528.6	5482.0	5433.6	5169.4	5124.6	5007.1	4929.5	4794.8
12.5°	3384.1	3306.4	3344.4	3194.2	3135.5	2930.0	2890.3	2840.3	2672.8	2672.8
15°	2059.8	1895.8	1954.5	1764.6	1617.8	1574.7	1465.9	1467.6	1462.4	1455.5
17.5°	1084.3	1084.3	1060.1	909.9	865.0	787.3	777.0	787.3	761.4	766.6
20°	637.1	614.7	578.4	507.6	476.5	443.7	436.8	431.7	431.7	416.1
22.5°	391.9	372.9	352.2	309.1	284.9	274.5	264.2	269.4	269.4	271.1
25°	250.4	234.8	226.2	200.3	189.9	188.2	183.0	176.1	177.8	184.7
27.5°	167.5	160.6	153.7	143.3	136.4	132.9	132.9	134.7	131.2	127.8
30°	126.0	117.4	114.0	110.5	105.3	105.3	105.3	103.6	101.9	103.6
32.5°	100.1	95.0	91.5	88.1	86.3	84.6	86.3	84.6	82.9	81.2
35°	82.9	77.7	76.0	74.2	72.5	70.8	70.8	70.8	67.3	65.6
37.5°	69.1	67.3	67.3	63.9	62.2	60.4	60.4	60.4	57.0	57.0
40°	62.2	60.4	58.7	57.0	55.3	53.5	51.8	51.8	48.3	48.3
42.5°	55.3	53.5	53.5	51.8	50.1	46.6	46.6	44.9	43.2	43.2
45°	50.1	48.3	48.3	46.6	44.9	43.2	41.4	39.7	38.0	38.0
47.5°	46.6	44.9	44.9	43.2	39.7	38.0	36.3	34.5	34.5	34.5
50°	41.4	41.4	41.4	39.7	38.0	36.3	32.8	31.1	29.4	29.4
52.5°	38.0	38.0	36.3	36.3	34.5	32.8	29.4	27.6	27.6	27.6
55°	36.3	34.5	34.5	32.8	31.1	31.1	27.6	25.9	24.2	24.2
57.5°	32.8	31.1	31.1	29.4	29.4	27.6	24.2	24.2	22.4	22.4
60°	29.4	27.6	27.6	25.9	25.9	24.2	22.4	20.7	20.7	20.7
62.5°	25.9	24.2	25.9	24.2	24.2	22.4	20.7	19.0	19.0	19.0
65°	24.2	22.4	22.4	22.4	20.7	20.7	19.0	17.3	17.3	17.3
67.5°	20.7	19.0	20.7	19.0	19.0	17.3	17.3	15.5	15.5	13.8
70°	17.3	17.3	17.3	17.3	17.3	15.5	13.8	13.8	12.1	12.1
72.5°	15.5	15.5	15.5	15.5	13.8	13.8	12.1	12.1	10.4	10.4
75°	12.1	12.1	12.1	12.1	12.1	12.1	10.4	10.4	8.6	8.6
77.5°	10.4	10.4	10.4	10.4	10.4	8.6	8.6	6.9	6.9	6.9
80°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	5.2	5.2	5.2
82.5°	5.2	5.2	5.2	5.2	5.2	3.5	3.5	3.5	3.5	3.5
85°	3.5	3.5	3.5	3.5	3.5	1.7	1.7	1.7	1.7	1.7
87.5°	1.7	1.7	1.7	1.7	1.7	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)