

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: P591986

Luminaire Tested: **GRZ-05L-940-10x10FR-X-UNV-STD-2F**

Issue Date: 2/2/2022

**Test Information**

Test Method: LM-79-2019  
Report Number: P591986  
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-05L-940-10x10FR-X-UNV-STD-2F  
Description: iO LED GRAZER WITH 10x10FR OPTIC  
500 LUMENS PER FOOT, 2 FOOT FIXTURE  
SUMULATED RESULTS  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

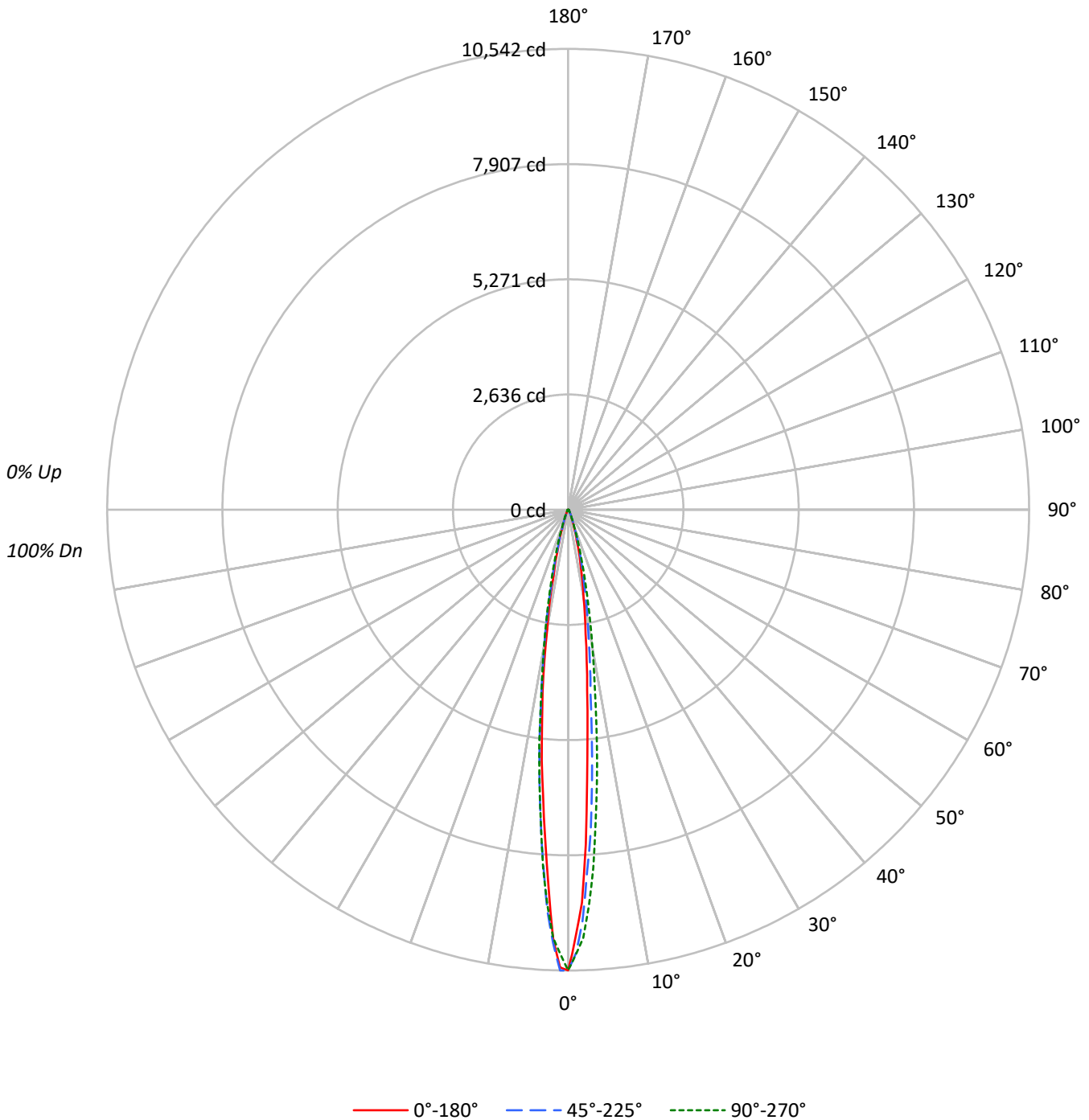
Lumens per Lamp: N/A  
Luminaire Lumens: 973.0 lumens  
Efficiency: N/A  
Efficacy: 101.4 lumens/watt  
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25  
Luminous Opening: Rectangular (W 2' x L: 0.17' x H: 0')  
CIE Type: Direct

Input Watts (W): 9.6  
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							
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10				
RCR																								
0	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	106	102	102	102	102	100	100	100	100
1	115	113	111	109	113	111	109	107	107	105	104	104	103	102	101	101	100	99	98	98	97	97	97	97
2	111	108	105	102	109	106	103	101	103	101	99	99	100	98	97	97	97	96	95	95	93	93	93	93
3	108	103	100	97	106	102	99	96	100	97	95	95	97	95	93	93	95	93	92	92	91	91	91	91
4	105	100	96	93	103	99	95	92	97	94	91	91	95	92	90	90	93	91	89	89	88	88	88	88
5	102	96	93	90	101	96	92	89	94	91	89	89	93	90	88	88	91	89	87	87	86	86	86	86
6	100	94	90	87	98	93	89	87	92	89	86	86	91	88	86	86	89	87	85	85	84	84	84	84
7	97	91	87	85	96	91	87	84	90	86	84	84	89	86	84	84	88	85	83	83	82	82	82	82
8	95	89	85	83	94	89	85	83	88	85	82	82	87	84	82	82	86	84	82	82	81	81	81	81
9	93	87	83	81	92	87	83	81	86	83	81	81	85	82	80	80	85	82	80	80	79	79	79	79
10	91	85	82	79	91	85	82	79	84	81	79	79	84	81	79	79	83	81	79	79	78	78	78	78

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	340287	340287	340287
5°	164279	232542	212931
10°	66367	103419	91057
15°	26310	38044	28182
20°	10275	12577	8282
25°	4739	4988	3812
30°	2797	2722	2237
35°	1892	1892	1498
40°	1433	1518	1180
45°	1233	1324	1005
50°	1055	1206	854
55°	957	1126	788
60°	840	1098	775
65°	764	1070	764
70°	661	1039	661
75°	499	873	624
80°	372	744	558
85°	371	371	371



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	507.9	52.2
10°-20°	307.0	31.5
20°-30°	68.5	7.0
30°-40°	29.6	3.0
40°-50°	21.3	2.2
50°-60°	16.9	1.7
60°-70°	12.6	1.3
70°-80°	7.3	0.7
80°-90°	1.9	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°	883.4	90.8
0°-40°	913.0	93.8
0°-60°	951.3	97.8
0°-90°	973.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	973.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	10538	10538	10538	10538	10538	
5°	5068	6254	7174	7207	6569	395
15°	787	1014	1138	937	843	242
25°	133	151	140	110	107	68
35°	48	48	48	42	38	31
45°	27	29	29	26	22	21
55°	17	21	20	18	14	15
65°	10	15	14	12	10	10
75°	4	8	7	7	5	4
85°	1	2	1	2	1	1
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°	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9
1°	9777.9	10084.9	10008.9	10080.9	10093.9	10142.9	10174.9	10196.9	10249.9	10230.9	10165.9
2°	8994.9	9164.9	9154.9	9198.9	9449.9	9414.9	9504.9	9694.9	9664.9	9708.9	9800.9
3°	7655.9	8028.9	7942.9	7934.9	8175.9	8279.9	8636.9	8720.9	8929.9	9070.9	9073.9
4°	6184.9	6426.9	6483.9	6944.9	6918.9	7374.9	7587.9	7762.9	7925.9	8435.9	8213.9
5°	5068.0	5247.0	5424.9	5651.9	5707.9	6253.9	6374.9	6626.9	7067.9	7258.9	7173.9
6°	4149.0	4325.0	4324.0	4552.0	4761.0	5151.0	5286.0	5647.9	6006.9	6258.9	6269.9
7°	3451.0	3552.0	3616.0	3763.0	3996.0	4203.0	4519.0	4757.0	4988.0	5251.0	5411.0
8°	2870.0	2967.0	3003.0	3137.0	3275.0	3569.0	3885.0	4070.0	4312.0	4541.0	4495.0
9°	2412.0	2563.0	2542.0	2621.0	2778.0	2977.0	3166.0	3440.0	3596.0	3822.0	3770.0
10°	2024.0	2120.0	2182.0	2281.0	2339.0	2557.0	2672.0	2850.0	3046.0	3077.0	3154.0
12.5°	1328.0	1350.0	1363.0	1412.0	1518.0	1624.0	1739.0	1833.0	1891.0	1903.0	1960.0
15°	787.0	825.0	833.0	900.0	958.0	1014.0	1087.0	1101.0	1132.0	1120.0	1138.0
17.5°	484.0	488.0	518.0	519.0	582.0	611.0	662.0	674.0	657.0	648.0	648.0
20°	299.0	301.0	309.0	330.0	342.0	374.0	400.0	403.0	394.0	375.0	366.0
22.5°	194.0	200.0	194.0	202.0	214.0	232.0	244.0	246.0	234.0	227.0	226.0
25°	133.0	134.0	139.0	134.0	140.0	151.0	155.0	158.0	148.0	145.0	140.0
27.5°	98.0	98.0	98.0	98.0	100.0	100.0	102.0	103.0	100.0	98.0	99.0
30°	75.0	74.0	75.0	75.0	73.0	75.0	76.0	76.0	74.0	74.0	73.0
32.5°	58.0	59.0	60.0	59.0	58.0	59.0	60.0	59.0	59.0	60.0	58.0
35°	48.0	48.0	49.0	48.0	48.0	48.0	49.0	49.0	49.0	49.0	48.0
37.5°	39.0	40.0	41.0	41.0	41.0	41.0	42.0	42.0	43.0	41.0	40.0
40°	34.0	34.0	35.0	35.0	36.0	35.0	36.0	37.0	37.0	36.0	36.0
42.5°	30.0	30.0	31.0	31.0	31.0	32.0	33.0	33.0	33.0	33.0	32.0
45°	27.0	26.0	27.0	28.0	29.0	29.0	30.0	31.0	30.0	30.0	29.0
47.5°	24.0	24.0	24.0	25.0	26.0	27.0	27.0	28.0	28.0	27.0	26.0
50°	21.0	21.0	22.0	23.0	24.0	25.0	25.0	26.0	26.0	25.0	24.0
52.5°	18.0	18.0	19.0	21.0	22.0	23.0	23.0	24.0	24.0	23.0	22.0
55°	17.0	16.0	17.0	18.0	20.0	21.0	22.0	22.0	22.0	21.0	20.0
57.5°	14.0	14.0	15.0	16.0	18.0	20.0	20.0	21.0	20.0	19.0	19.0
60°	13.0	13.0	14.0	15.0	17.0	19.0	19.0	19.0	18.0	17.0	17.0
62.5°	11.0	11.0	12.0	13.0	15.0	17.0	18.0	18.0	17.0	16.0	15.0
65°	10.0	10.0	10.0	12.0	14.0	15.0	16.0	16.0	15.0	14.0	14.0
67.5°	8.0	8.0	9.0	10.0	12.0	13.0	14.0	15.0	14.0	13.0	12.0
70°	7.0	7.0	7.0	9.0	11.0	12.0	13.0	13.0	12.0	11.0	11.0
72.5°	5.0	5.0	6.0	7.0	9.0	10.0	11.0	11.0	10.0	9.0	9.0
75°	4.0	4.0	5.0	6.0	7.0	8.0	9.0	9.0	9.0	8.0	7.0
77.5°	3.0	3.0	4.0	5.0	6.0	7.0	7.0	7.0	7.0	6.0	6.0
80°	2.0	2.0	3.0	3.0	4.0	5.0	5.0	5.0	5.0	4.0	4.0
82.5°	2.0	1.0	2.0	2.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
85°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9	10537.9
1°	10325.9	10476.9	10376.9	10488.9	10541.9	10541.9	10559.9	10483.9	10433.9	10470.9
2°	9840.9	9972.9	10011.9	9989.9	9922.9	9932.9	9805.9	9792.9	9625.9	9818.9
3°	9142.9	9288.9	9228.9	9151.9	9164.9	9021.9	8817.9	8721.9	8662.9	8635.9
4°	8304.9	8398.9	8382.9	8328.9	8159.9	7992.9	7807.9	7869.9	7492.9	7542.9
5°	7393.9	7498.9	7444.9	7266.9	7206.9	7026.9	6933.9	6741.9	6538.9	6568.9
6°	6360.9	6325.9	6428.9	6303.9	6274.9	5957.9	5907.9	5939.9	5797.9	5784.9
7°	5310.0	5553.9	5485.9	5397.0	5363.0	5174.0	5144.0	4950.0	4962.0	4888.0
8°	4621.0	4645.0	4708.0	4587.0	4477.0	4454.0	4338.0	4224.0	4249.0	4197.0
9°	3842.0	3917.0	3866.0	3878.0	3735.0	3587.0	3532.0	3562.0	3477.0	3489.0
10°	3113.0	3234.0	3202.0	3175.0	3147.0	2994.0	2968.0	2900.0	2855.0	2777.0
12.5°	1960.0	1915.0	1937.0	1850.0	1816.0	1697.0	1674.0	1645.0	1548.0	1548.0
15°	1193.0	1098.0	1132.0	1022.0	937.0	912.0	849.0	850.0	847.0	843.0
17.5°	628.0	628.0	614.0	527.0	501.0	456.0	450.0	456.0	441.0	444.0
20°	369.0	356.0	335.0	294.0	276.0	257.0	253.0	250.0	250.0	241.0
22.5°	227.0	216.0	204.0	179.0	165.0	159.0	153.0	156.0	156.0	157.0
25°	145.0	136.0	131.0	116.0	110.0	109.0	106.0	102.0	103.0	107.0
27.5°	97.0	93.0	89.0	83.0	79.0	77.0	77.0	78.0	76.0	74.0
30°	73.0	68.0	66.0	64.0	61.0	61.0	61.0	60.0	59.0	60.0
32.5°	58.0	55.0	53.0	51.0	50.0	49.0	50.0	49.0	48.0	47.0
35°	48.0	45.0	44.0	43.0	42.0	41.0	41.0	41.0	39.0	38.0
37.5°	40.0	39.0	39.0	37.0	36.0	35.0	35.0	35.0	33.0	33.0
40°	36.0	35.0	34.0	33.0	32.0	31.0	30.0	30.0	28.0	28.0
42.5°	32.0	31.0	31.0	30.0	29.0	27.0	27.0	26.0	25.0	25.0
45°	29.0	28.0	28.0	27.0	26.0	25.0	24.0	23.0	22.0	22.0
47.5°	27.0	26.0	26.0	25.0	23.0	22.0	21.0	20.0	20.0	20.0
50°	24.0	24.0	24.0	23.0	22.0	21.0	19.0	18.0	17.0	17.0
52.5°	22.0	22.0	21.0	21.0	20.0	19.0	17.0	16.0	16.0	16.0
55°	21.0	20.0	20.0	19.0	18.0	18.0	16.0	15.0	14.0	14.0
57.5°	19.0	18.0	18.0	17.0	17.0	16.0	14.0	14.0	13.0	13.0
60°	17.0	16.0	16.0	15.0	15.0	14.0	13.0	12.0	12.0	12.0
62.5°	15.0	14.0	15.0	14.0	14.0	13.0	12.0	11.0	11.0	11.0
65°	14.0	13.0	13.0	13.0	12.0	12.0	11.0	10.0	10.0	10.0
67.5°	12.0	11.0	12.0	11.0	11.0	10.0	10.0	9.0	9.0	8.0
70°	10.0	10.0	10.0	10.0	10.0	9.0	8.0	8.0	7.0	7.0
72.5°	9.0	9.0	9.0	9.0	8.0	8.0	7.0	7.0	6.0	6.0
75°	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	5.0
77.5°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.0	4.0
80°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0
82.5°	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0
87.5°	1.0	1.0	1.0	1.0	1.0	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)