

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: P592019

Luminaire Tested: **GRZ-10L-930-10x10FR-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P592019
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-930-10x10FR-X-UNV-STD-4F
Description: iO LED GRAZER WITH 10x10FR OPTIC
1000 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

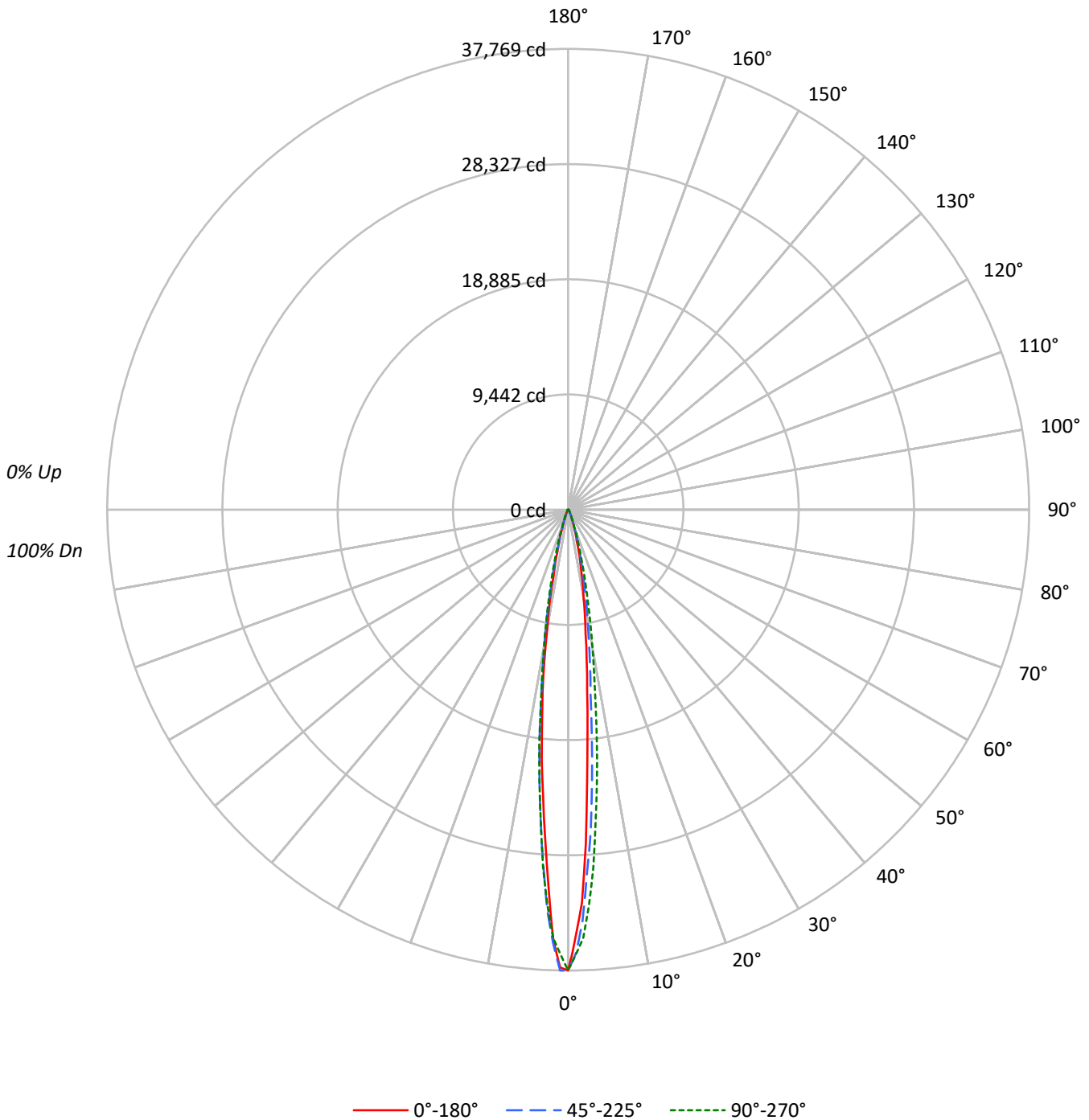
Lumens per Lamp: N/A
Luminaire Lumens: 3486.0 lumens
Efficiency: N/A
Efficacy: 91.7 lumens/watt
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25
Luminous Opening: Rectangular (W 4' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 38
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: 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°	609578	609578	609578
5°	294281	416570	381441
10°	118886	185259	163116
15°	47131	68150	50484
20°	18405	22531	14835
25°	8489	8936	6828
30°	5010	4875	4008
35°	3390	3390	2683
40°	2567	2719	2114
45°	2208	2372	1799
50°	1889	2160	1530
55°	1714	2018	1413
60°	1505	1967	1389
65°	1368	1918	1368
70°	1185	1860	1185
75°	892	1566	1117
80°	669	1330	995
85°	667	667	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1819.7	52.2
10°-20°	1099.8	31.5
20°-30°	245.5	7.0
30°-40°	106.1	3.0
40°-50°	76.3	2.2
50°-60°	60.7	1.7
60°-70°	45.2	1.3
70°-80°	26.1	0.7
80°-90°	6.6	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°	3164.9	90.8
0°-40°	3271.1	93.8
0°-60°	3408.1	97.8
0°-90°	3486.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3486.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	37754	37754	37754	37754	37754	
5°	18157	22406	25702	25820	23535	1415
15°	2820	3633	4077	3357	3020	866
25°	476	541	502	394	383	243
35°	172	172	172	150	136	111
45°	97	104	104	93	79	75
55°	61	75	72	64	50	53
65°	36	54	50	43	36	35
75°	14	29	25	25	18	16
85°	4	7	4	7	4	4
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°	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5
1°	35031.6	36131.5	35859.3	36117.2	36163.8	36339.3	36454.0	36532.8	36722.7	36654.6	36421.7
2°	32226.4	32835.5	32799.6	32957.3	33856.5	33731.1	34053.6	34734.3	34626.8	34784.4	35114.0
3°	27429.2	28765.5	28457.4	28428.7	29292.2	29664.8	30943.8	31244.7	31993.5	32498.7	32509.4
4°	22159.0	23026.0	23230.2	24881.9	24788.7	26422.4	27185.5	27812.5	28396.5	30223.7	29428.3
5°	18157.1	18798.4	19436.2	20249.4	20450.1	22406.2	22839.7	23742.6	25322.5	26006.8	25702.3
6°	14864.6	15495.2	15491.6	16308.5	17057.2	18454.5	18938.2	20235.1	21521.3	22424.1	22463.5
7°	12363.9	12725.8	12955.0	13481.7	14316.5	15058.1	16190.2	17042.9	17870.5	18812.8	19386.0
8°	10282.4	10629.9	10758.9	11238.9	11733.3	12786.7	13918.8	14581.6	15448.6	16269.0	16104.2
9°	8641.5	9182.5	9107.2	9390.3	9952.7	10665.7	11342.8	12324.5	12883.4	13693.1	13506.8
10°	7251.4	7595.3	7817.5	8172.1	8379.9	9161.0	9573.0	10210.7	10912.9	11024.0	11299.8
12.5°	4757.8	4836.6	4883.2	5058.8	5438.5	5818.3	6230.3	6567.1	6774.9	6817.9	7022.1
15°	2819.6	2955.7	2984.4	3224.4	3432.2	3632.9	3894.4	3944.6	4055.6	4012.6	4077.1
17.5°	1734.0	1748.4	1855.8	1859.4	2085.1	2189.0	2371.7	2414.7	2353.8	2321.6	2321.6
20°	1071.2	1078.4	1107.1	1182.3	1225.3	1339.9	1433.1	1443.8	1411.6	1343.5	1311.3
22.5°	695.0	716.5	695.0	723.7	766.7	831.2	874.2	881.3	838.4	813.3	809.7
25°	476.5	480.1	498.0	480.1	501.6	541.0	555.3	566.1	530.2	519.5	501.6
27.5°	351.1	351.1	351.1	351.1	358.3	358.3	365.4	369.0	358.3	351.1	354.7
30°	268.7	265.1	268.7	268.7	261.5	268.7	272.3	272.3	265.1	265.1	261.5
32.5°	207.8	211.4	215.0	211.4	207.8	211.4	215.0	211.4	211.4	215.0	207.8
35°	172.0	172.0	175.6	172.0	172.0	172.0	175.6	175.6	175.6	175.6	172.0
37.5°	139.7	143.3	146.9	146.9	146.9	146.9	150.5	150.5	154.1	146.9	143.3
40°	121.8	121.8	125.4	125.4	129.0	125.4	129.0	132.6	132.6	129.0	129.0
42.5°	107.5	107.5	111.1	111.1	111.1	114.6	118.2	118.2	118.2	118.2	114.6
45°	96.7	93.2	96.7	100.3	103.9	103.9	107.5	111.1	107.5	107.5	103.9
47.5°	86.0	86.0	86.0	89.6	93.2	96.7	96.7	100.3	100.3	96.7	93.2
50°	75.2	75.2	78.8	82.4	86.0	89.6	89.6	93.2	93.2	89.6	86.0
52.5°	64.5	64.5	68.1	75.2	78.8	82.4	82.4	86.0	86.0	82.4	78.8
55°	60.9	57.3	60.9	64.5	71.7	75.2	78.8	78.8	78.8	75.2	71.7
57.5°	50.2	50.2	53.7	57.3	64.5	71.7	71.7	75.2	71.7	68.1	68.1
60°	46.6	46.6	50.2	53.7	60.9	68.1	68.1	68.1	64.5	60.9	60.9
62.5°	39.4	39.4	43.0	46.6	53.7	60.9	64.5	64.5	60.9	57.3	53.7
65°	35.8	35.8	35.8	43.0	50.2	53.7	57.3	57.3	53.7	50.2	50.2
67.5°	28.7	28.7	32.2	35.8	43.0	46.6	50.2	53.7	50.2	46.6	43.0
70°	25.1	25.1	25.1	32.2	39.4	43.0	46.6	46.6	43.0	39.4	39.4
72.5°	17.9	17.9	21.5	25.1	32.2	35.8	39.4	39.4	35.8	32.2	32.2
75°	14.3	14.3	17.9	21.5	25.1	28.7	32.2	32.2	32.2	28.7	25.1
77.5°	10.7	10.7	14.3	17.9	21.5	25.1	25.1	25.1	25.1	21.5	21.5
80°	7.2	7.2	10.7	10.7	14.3	17.9	17.9	17.9	17.9	14.3	14.3
82.5°	7.2	3.6	7.2	7.2	10.7	10.7	14.3	14.3	10.7	10.7	10.7
85°	3.6	3.6	3.6	3.6	7.2	7.2	7.2	7.2	7.2	7.2	3.6
87.5°	0.0	0.0	0.0	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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°	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5	37754.5
1°	36995.0	37536.0	37177.7	37578.9	37768.8	37768.8	37833.3	37561.0	37381.9	37514.5
2°	35257.4	35730.3	35870.0	35791.2	35551.1	35587.0	35132.0	35085.4	34487.1	35178.5
3°	32756.6	33279.7	33064.7	32788.9	32835.5	32323.1	31592.3	31248.3	31036.9	30940.2
4°	29754.3	30091.1	30033.8	29840.3	29234.8	28636.5	27973.7	28195.9	26845.2	27024.3
5°	26490.5	26866.7	26673.2	26035.5	25820.5	25175.6	24842.4	24154.6	23427.3	23534.8
6°	22789.6	22664.2	23033.2	22585.3	22481.4	21345.7	21166.6	21281.2	20772.5	20725.9
7°	19024.1	19898.3	19654.7	19335.8	19214.0	18536.9	18429.4	17734.4	17777.4	17512.2
8°	16555.7	16641.6	16867.4	16433.8	16039.8	15957.3	15541.8	15133.3	15222.9	15036.6
9°	13764.7	14033.4	13850.7	13893.7	13381.4	12851.1	12654.1	12761.6	12457.1	12500.0
10°	11152.9	11586.5	11471.8	11375.1	11274.8	10726.6	10633.5	10389.8	10228.6	9949.2
12.5°	7022.1	6860.9	6939.7	6628.0	6506.2	6079.8	5997.4	5893.5	5546.0	5546.0
15°	4274.2	3933.8	4055.6	3661.5	3357.0	3267.4	3041.7	3045.3	3034.5	3020.2
17.5°	2249.9	2249.9	2199.8	1888.1	1794.9	1633.7	1612.2	1633.7	1580.0	1590.7
20°	1322.0	1275.4	1200.2	1053.3	988.8	920.8	906.4	895.7	895.7	863.4
22.5°	813.3	773.9	730.9	641.3	591.1	569.6	548.2	558.9	558.9	562.5
25°	519.5	487.2	469.3	415.6	394.1	390.5	379.8	365.4	369.0	383.3
27.5°	347.5	333.2	318.9	297.4	283.0	275.9	275.9	279.5	272.3	265.1
30°	261.5	243.6	236.5	229.3	218.5	218.5	218.5	215.0	211.4	215.0
32.5°	207.8	197.0	189.9	182.7	179.1	175.6	179.1	175.6	172.0	168.4
35°	172.0	161.2	157.6	154.1	150.5	146.9	146.9	146.9	139.7	136.1
37.5°	143.3	139.7	139.7	132.6	129.0	125.4	125.4	125.4	118.2	118.2
40°	129.0	125.4	121.8	118.2	114.6	111.1	107.5	107.5	100.3	100.3
42.5°	114.6	111.1	111.1	107.5	103.9	96.7	96.7	93.2	89.6	89.6
45°	103.9	100.3	100.3	96.7	93.2	89.6	86.0	82.4	78.8	78.8
47.5°	96.7	93.2	93.2	89.6	82.4	78.8	75.2	71.7	71.7	71.7
50°	86.0	86.0	86.0	82.4	78.8	75.2	68.1	64.5	60.9	60.9
52.5°	78.8	78.8	75.2	75.2	71.7	68.1	60.9	57.3	57.3	57.3
55°	75.2	71.7	71.7	68.1	64.5	64.5	57.3	53.7	50.2	50.2
57.5°	68.1	64.5	64.5	60.9	60.9	57.3	50.2	50.2	46.6	46.6
60°	60.9	57.3	57.3	53.7	53.7	50.2	46.6	43.0	43.0	43.0
62.5°	53.7	50.2	53.7	50.2	50.2	46.6	43.0	39.4	39.4	39.4
65°	50.2	46.6	46.6	46.6	43.0	43.0	39.4	35.8	35.8	35.8
67.5°	43.0	39.4	43.0	39.4	39.4	35.8	35.8	32.2	32.2	28.7
70°	35.8	35.8	35.8	35.8	35.8	32.2	28.7	28.7	25.1	25.1
72.5°	32.2	32.2	32.2	32.2	28.7	28.7	25.1	25.1	21.5	21.5
75°	25.1	25.1	25.1	25.1	25.1	25.1	21.5	21.5	17.9	17.9
77.5°	21.5	21.5	21.5	21.5	21.5	17.9	17.9	14.3	14.3	14.3
80°	14.3	14.3	14.3	14.3	14.3	14.3	14.3	10.7	10.7	10.7
82.5°	10.7	10.7	10.7	10.7	10.7	7.2	7.2	7.2	7.2	7.2
85°	7.2	7.2	7.2	7.2	7.2	3.6	3.6	3.6	3.6	3.6
87.5°	3.6	3.6	3.6	3.6	3.6	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)