

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: P591939

Luminaire Tested: **GRZ-05L-927-10x10FR-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591939
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-927-10x10FR-X-UNV-STD-4F
Description: iO LED GRAZER WITH 10x10FR OPTIC
500 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1751.9 lumens
Efficiency: N/A
Efficacy: 90.8 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

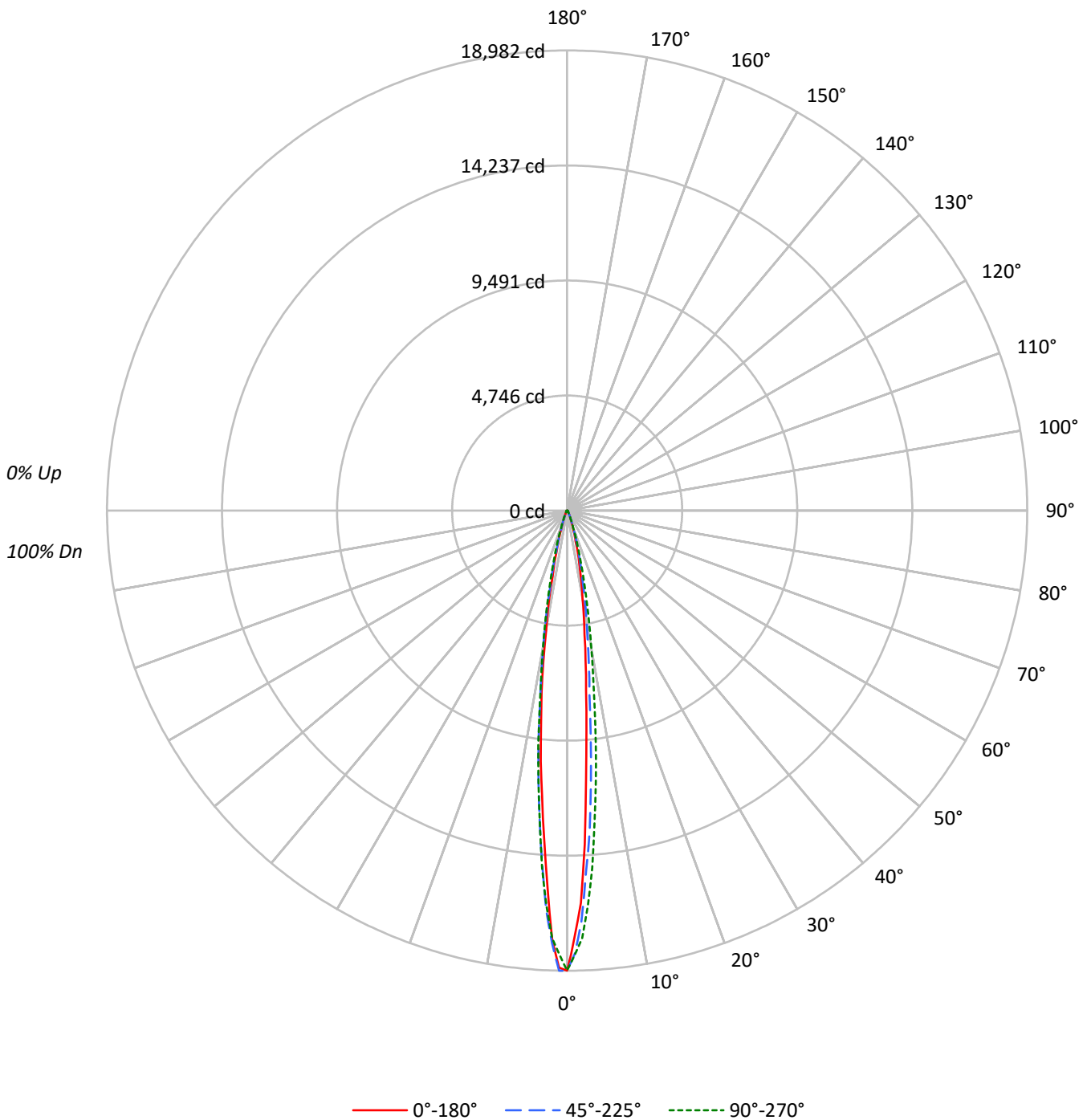
Input Watts (W): 19.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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°	306362	306362	306362
5°	147900	209361	191704
10°	59750	93108	81979
15°	23687	34252	25372
20°	9251	11323	7455
25°	4267	4491	3433
30°	2517	2450	2014
35°	1703	1703	1348
40°	1290	1366	1062
45°	1110	1192	904
50°	949	1085	769
55°	861	1013	709
60°	756	988	698
65°	688	963	688
70°	595	935	595
75°	449	786	561
80°	335	669	502
85°	333	333	333



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	914.5	52.2
10°-20°	552.7	31.5
20°-30°	123.4	7.0
30°-40°	53.3	3.0
40°-50°	38.3	2.2
50°-60°	30.5	1.7
60°-70°	22.7	1.3
70°-80°	13.1	0.7
80°-90°	3.3	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°	1590.6	90.8
0°-40°	1644.0	93.8
0°-60°	1712.8	97.8
0°-90°	1751.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1751.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	18975	18975	18975	18975	18975	
5°	9125	11261	12918	12977	11828	711
15°	1417	1826	2049	1687	1518	435
25°	240	272	252	198	193	122
35°	86	86	86	76	68	56
45°	49	52	52	47	40	38
55°	31	38	36	32	25	27
65°	18	27	25	22	18	17
75°	7	14	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°	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7
1°	17606.3	18159.1	18022.2	18151.8	18175.3	18263.5	18321.1	18360.7	18456.2	18421.9	18304.9
2°	16196.4	16502.5	16484.5	16563.7	17015.7	16952.6	17114.7	17456.8	17402.8	17482.0	17647.7
3°	13785.4	14457.0	14302.2	14287.8	14721.7	14909.0	15551.8	15703.0	16079.4	16333.2	16338.6
4°	11136.7	11572.5	11675.1	12505.2	12458.4	13279.4	13663.0	13978.1	14271.6	15189.9	14790.1
5°	9125.4	9447.7	9768.3	10177.0	10277.8	11261.0	11478.8	11932.6	12726.6	13070.6	12917.5
6°	7470.7	7787.6	7785.8	8196.3	8572.7	9274.9	9518.0	10169.8	10816.2	11270.0	11289.8
7°	6213.9	6395.7	6511.0	6775.7	7195.2	7567.9	8136.9	8565.5	8981.4	9455.0	9743.0
8°	5167.7	5342.4	5407.2	5648.5	5897.0	6426.3	6995.3	7328.4	7764.2	8176.5	8093.7
9°	4343.0	4614.9	4577.1	4719.4	5002.1	5360.4	5700.7	6194.1	6475.0	6881.9	6788.3
10°	3644.4	3817.3	3928.9	4107.2	4211.6	4604.1	4811.2	5131.7	5484.6	5540.4	5679.1
12.5°	2391.2	2430.8	2454.2	2542.4	2733.3	2924.2	3131.2	3300.5	3404.9	3426.5	3529.2
15°	1417.1	1485.5	1499.9	1620.5	1725.0	1825.8	1957.3	1982.5	2038.3	2016.7	2049.1
17.5°	871.5	878.7	932.7	934.5	1047.9	1100.2	1192.0	1213.6	1183.0	1166.8	1166.8
20°	538.4	542.0	556.4	594.2	615.8	673.4	720.2	725.6	709.4	675.2	659.0
22.5°	349.3	360.1	349.3	363.7	385.3	417.7	439.3	442.9	421.3	408.7	406.9
25°	239.5	241.3	250.3	241.3	252.1	271.9	279.1	284.5	266.5	261.1	252.1
27.5°	176.5	176.5	176.5	176.5	180.1	180.1	183.7	185.5	180.1	176.5	178.3
30°	135.0	133.2	135.0	135.0	131.4	135.0	136.8	136.8	133.2	133.2	131.4
32.5°	104.4	106.2	108.0	106.2	104.4	106.2	108.0	106.2	106.2	108.0	104.4
35°	86.4	86.4	88.2	86.4	86.4	86.4	88.2	88.2	88.2	88.2	86.4
37.5°	70.2	72.0	73.8	73.8	73.8	73.8	75.6	75.6	77.4	73.8	72.0
40°	61.2	61.2	63.0	63.0	64.8	63.0	64.8	66.6	66.6	64.8	64.8
42.5°	54.0	54.0	55.8	55.8	55.8	57.6	59.4	59.4	59.4	59.4	57.6
45°	48.6	46.8	48.6	50.4	52.2	52.2	54.0	55.8	54.0	54.0	52.2
47.5°	43.2	43.2	43.2	45.0	46.8	48.6	48.6	50.4	50.4	48.6	46.8
50°	37.8	37.8	39.6	41.4	43.2	45.0	45.0	46.8	46.8	45.0	43.2
52.5°	32.4	32.4	34.2	37.8	39.6	41.4	41.4	43.2	43.2	41.4	39.6
55°	30.6	28.8	30.6	32.4	36.0	37.8	39.6	39.6	39.6	37.8	36.0
57.5°	25.2	25.2	27.0	28.8	32.4	36.0	36.0	37.8	36.0	34.2	34.2
60°	23.4	23.4	25.2	27.0	30.6	34.2	34.2	34.2	32.4	30.6	30.6
62.5°	19.8	19.8	21.6	23.4	27.0	30.6	32.4	32.4	30.6	28.8	27.0
65°	18.0	18.0	18.0	21.6	25.2	27.0	28.8	28.8	27.0	25.2	25.2
67.5°	14.4	14.4	16.2	18.0	21.6	23.4	25.2	27.0	25.2	23.4	21.6
70°	12.6	12.6	12.6	16.2	19.8	21.6	23.4	23.4	21.6	19.8	19.8
72.5°	9.0	9.0	10.8	12.6	16.2	18.0	19.8	19.8	18.0	16.2	16.2
75°	7.2	7.2	9.0	10.8	12.6	14.4	16.2	16.2	16.2	14.4	12.6
77.5°	5.4	5.4	7.2	9.0	10.8	12.6	12.6	12.6	12.6	10.8	10.8
80°	3.6	3.6	5.4	5.4	7.2	9.0	9.0	9.0	9.0	7.2	7.2
82.5°	3.6	1.8	3.6	3.6	5.4	5.4	7.2	7.2	5.4	5.4	5.4
85°	1.8	1.8	1.8	1.8	3.6	3.6	3.6	3.6	3.6	3.6	1.8
87.5°	0.0	0.0	0.0	0.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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°	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7	18974.7
1°	18593.0	18864.9	18684.8	18886.5	18981.9	18981.9	19014.3	18877.5	18787.5	18854.1
2°	17719.7	17957.4	18027.6	17988.0	17867.4	17885.4	17656.7	17633.3	17332.6	17680.1
3°	16462.9	16725.8	16617.7	16479.1	16502.5	16245.0	15877.7	15704.8	15598.6	15550.0
4°	14954.0	15123.2	15094.4	14997.2	14692.9	14392.2	14059.1	14170.7	13491.9	13581.9
5°	13313.6	13502.7	13405.5	13085.0	12976.9	12652.8	12485.4	12139.6	11774.1	11828.1
6°	11453.6	11390.6	11576.1	11351.0	11298.8	10728.0	10637.9	10695.6	10439.9	10416.5
7°	9561.2	10000.5	9878.1	9717.8	9656.6	9316.3	9262.3	8913.0	8934.6	8801.3
8°	8320.6	8363.8	8477.2	8259.4	8061.3	8019.9	7811.0	7605.7	7650.7	7557.1
9°	6917.9	7053.0	6961.1	6982.7	6725.2	6458.8	6359.7	6413.7	6260.7	6282.3
10°	5605.3	5823.1	5765.5	5716.9	5666.5	5391.0	5344.2	5221.7	5140.7	5000.3
12.5°	3529.2	3448.1	3487.8	3331.1	3269.9	3055.6	3014.2	2962.0	2787.3	2787.3
15°	2148.1	1977.1	2038.3	1840.2	1687.2	1642.1	1528.7	1530.5	1525.1	1517.9
17.5°	1130.8	1130.8	1105.6	948.9	902.1	821.1	810.3	821.1	794.1	799.5
20°	664.4	641.0	603.2	529.4	497.0	462.8	455.6	450.2	450.2	433.9
22.5°	408.7	388.9	367.3	322.3	297.1	286.3	275.5	280.9	280.9	282.7
25°	261.1	244.9	235.9	208.9	198.1	196.3	190.9	183.7	185.5	192.7
27.5°	174.7	167.5	160.3	149.4	142.2	138.6	138.6	140.4	136.8	133.2
30°	131.4	122.4	118.8	115.2	109.8	109.8	109.8	108.0	106.2	108.0
32.5°	104.4	99.0	95.4	91.8	90.0	88.2	90.0	88.2	86.4	84.6
35°	86.4	81.0	79.2	77.4	75.6	73.8	73.8	73.8	70.2	68.4
37.5°	72.0	70.2	70.2	66.6	64.8	63.0	63.0	63.0	59.4	59.4
40°	64.8	63.0	61.2	59.4	57.6	55.8	54.0	54.0	50.4	50.4
42.5°	57.6	55.8	55.8	54.0	52.2	48.6	48.6	46.8	45.0	45.0
45°	52.2	50.4	50.4	48.6	46.8	45.0	43.2	41.4	39.6	39.6
47.5°	48.6	46.8	46.8	45.0	41.4	39.6	37.8	36.0	36.0	36.0
50°	43.2	43.2	43.2	41.4	39.6	37.8	34.2	32.4	30.6	30.6
52.5°	39.6	39.6	37.8	37.8	36.0	34.2	30.6	28.8	28.8	28.8
55°	37.8	36.0	36.0	34.2	32.4	32.4	28.8	27.0	25.2	25.2
57.5°	34.2	32.4	32.4	30.6	30.6	28.8	25.2	25.2	23.4	23.4
60°	30.6	28.8	28.8	27.0	27.0	25.2	23.4	21.6	21.6	21.6
62.5°	27.0	25.2	27.0	25.2	25.2	23.4	21.6	19.8	19.8	19.8
65°	25.2	23.4	23.4	23.4	21.6	21.6	19.8	18.0	18.0	18.0
67.5°	21.6	19.8	21.6	19.8	19.8	18.0	18.0	16.2	16.2	14.4
70°	18.0	18.0	18.0	18.0	18.0	16.2	14.4	14.4	12.6	12.6
72.5°	16.2	16.2	16.2	16.2	14.4	14.4	12.6	12.6	10.8	10.8
75°	12.6	12.6	12.6	12.6	12.6	12.6	10.8	10.8	9.0	9.0
77.5°	10.8	10.8	10.8	10.8	10.8	9.0	9.0	7.2	7.2	7.2
80°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	5.4	5.4	5.4
82.5°	5.4	5.4	5.4	5.4	5.4	3.6	3.6	3.6	3.6	3.6
85°	3.6	3.6	3.6	3.6	3.6	1.8	1.8	1.8	1.8	1.8
87.5°	1.8	1.8	1.8	1.8	1.8	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)