

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: P591955

Luminaire Tested: **GRZ-05L-930-10x10FR-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591955
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-930-10x10FR-X-UNV-STD-4F
Description: iO LED GRAZER WITH 10x10FR OPTIC
500 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

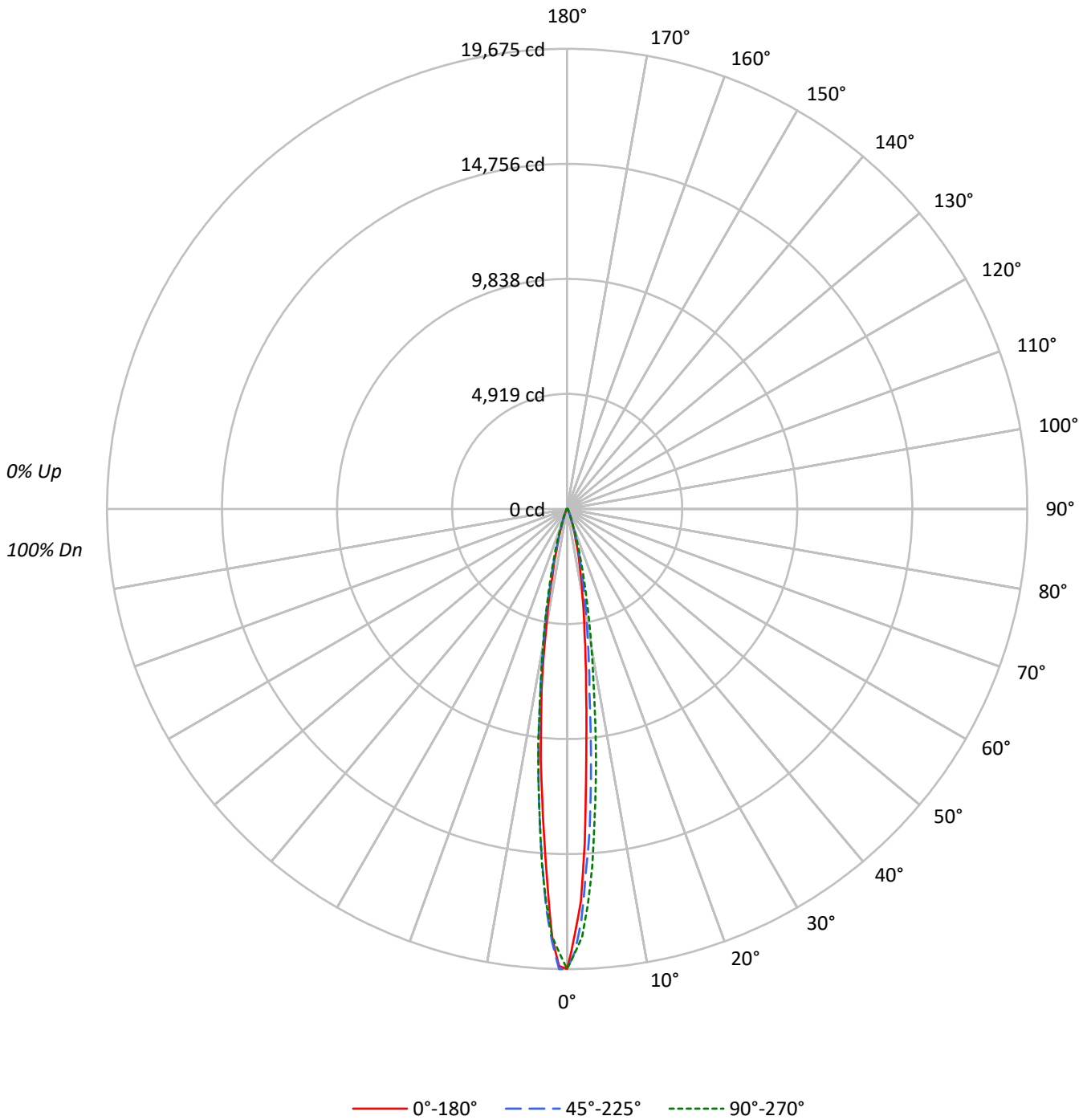
Lumens per Lamp: N/A
Luminaire Lumens: 1816.0 lumens
Efficiency: N/A
Efficacy: 94.1 lumens/watt
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25
Luminous Opening: Rectangular (W 4' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 19.3
Input Voltage (V): 120
Input Current (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	82	82	82	82	82		
8	95	89	85	83	94	89	85	83	88	85	82	87	84	82	86	84	82	81	81	81	81	81	81	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°	317555	317555	317555
5°	153304	217009	198707
10°	61932	96509	84973
15°	24552	35502	26300
20°	9588	11737	7728
25°	4422	4655	3558
30°	2610	2539	2088
35°	1766	1766	1397
40°	1338	1416	1102
45°	1151	1235	938
50°	985	1125	796
55°	892	1050	735
60°	785	1024	723
65°	714	997	714
70°	618	968	618
75°	468	817	580
80°	344	697	521
85°	352	352	352



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	947.9	52.2
10°-20°	572.9	31.5
20°-30°	127.9	7.0
30°-40°	55.3	3.0
40°-50°	39.8	2.2
50°-60°	31.6	1.7
60°-70°	23.5	1.3
70°-80°	13.6	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°	1648.7	90.8
0°-40°	1704.0	93.8
0°-60°	1775.4	97.8
0°-90°	1816.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1816.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	19668	19668	19668	19668	19668	
5°	9459	11672	13389	13451	12260	737
15°	1469	1892	2124	1749	1573	451
25°	248	282	261	205	200	127
35°	90	90	90	78	71	58
45°	50	54	54	48	41	39
55°	32	39	37	34	26	27
65°	19	28	26	22	19	18
75°	8	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°	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9
1°	18249.4	18822.4	18680.6	18814.9	18839.2	18930.6	18990.4	19031.4	19130.3	19094.9	18973.6
2°	16788.0	17105.3	17086.7	17168.8	17637.2	17571.9	17739.9	18094.5	18038.5	18120.6	18292.3
3°	14289.0	14985.1	14824.6	14809.7	15259.5	15453.6	16119.9	16276.7	16666.7	16929.9	16935.5
4°	11543.5	11995.2	12101.6	12962.0	12913.5	13764.5	14162.1	14488.7	14792.9	15744.7	15330.4
5°	9458.8	9792.9	10125.1	10548.8	10653.3	11672.3	11898.1	12368.5	13191.5	13548.0	13389.4
6°	7743.6	8072.1	8070.2	8495.7	8885.8	9613.7	9865.7	10541.3	11211.3	11681.6	11702.2
7°	6440.9	6629.4	6748.8	7023.2	7458.0	7844.4	8434.2	8878.3	9309.5	9800.3	10099.0
8°	5356.5	5537.5	5604.7	5854.8	6112.4	6661.1	7250.9	7596.1	8047.8	8475.2	8389.4
9°	4501.7	4783.5	4744.3	4891.8	5184.8	5556.2	5908.9	6420.3	6711.5	7133.3	7036.2
10°	3777.5	3956.7	4072.4	4257.2	4365.5	4772.3	4987.0	5319.2	5685.0	5742.8	5886.5
12.5°	2478.5	2519.6	2543.9	2635.3	2833.2	3031.0	3245.6	3421.1	3529.3	3551.7	3658.1
15°	1468.8	1539.8	1554.7	1679.7	1788.0	1892.5	2028.8	2054.9	2112.7	2090.3	2123.9
17.5°	903.3	910.8	966.8	968.6	1086.2	1140.4	1235.5	1257.9	1226.2	1209.4	1209.4
20°	558.0	561.8	576.7	615.9	638.3	698.0	746.6	752.1	735.4	699.9	683.1
22.5°	362.1	373.3	362.1	377.0	399.4	433.0	455.4	459.1	436.7	423.7	421.8
25°	248.2	250.1	259.4	250.1	261.3	281.8	289.3	294.9	276.2	270.6	261.3
27.5°	182.9	182.9	182.9	182.9	186.6	186.6	190.4	192.2	186.6	182.9	184.8
30°	140.0	138.1	140.0	140.0	136.2	140.0	141.8	141.8	138.1	138.1	136.2
32.5°	108.2	110.1	112.0	110.1	108.2	110.1	112.0	110.1	110.1	112.0	108.2
35°	89.6	89.6	91.5	89.6	89.6	89.6	91.5	91.5	91.5	91.5	89.6
37.5°	72.8	74.7	76.5	76.5	76.5	76.5	78.4	78.4	80.3	76.5	74.7
40°	63.5	63.5	65.3	65.3	67.2	65.3	67.2	69.1	69.1	67.2	67.2
42.5°	56.0	56.0	57.9	57.9	57.9	59.7	61.6	61.6	61.6	61.6	59.7
45°	50.4	48.5	50.4	52.3	54.1	54.1	56.0	57.9	56.0	56.0	54.1
47.5°	44.8	44.8	44.8	46.7	48.5	50.4	50.4	52.3	52.3	50.4	48.5
50°	39.2	39.2	41.1	42.9	44.8	46.7	46.7	48.5	48.5	46.7	44.8
52.5°	33.6	33.6	35.5	39.2	41.1	42.9	42.9	44.8	44.8	42.9	41.1
55°	31.7	29.9	31.7	33.6	37.3	39.2	41.1	41.1	41.1	39.2	37.3
57.5°	26.1	26.1	28.0	29.9	33.6	37.3	37.3	39.2	37.3	35.5	35.5
60°	24.3	24.3	26.1	28.0	31.7	35.5	35.5	35.5	33.6	31.7	31.7
62.5°	20.5	20.5	22.4	24.3	28.0	31.7	33.6	33.6	31.7	29.9	28.0
65°	18.7	18.7	18.7	22.4	26.1	28.0	29.9	29.9	28.0	26.1	26.1
67.5°	14.9	14.9	16.8	18.7	22.4	24.3	26.1	28.0	26.1	24.3	22.4
70°	13.1	13.1	13.1	16.8	20.5	22.4	24.3	24.3	22.4	20.5	20.5
72.5°	9.3	9.3	11.2	13.1	16.8	18.7	20.5	20.5	18.7	16.8	16.8
75°	7.5	7.5	9.3	11.2	13.1	14.9	16.8	16.8	16.8	14.9	13.1
77.5°	5.6	5.6	7.5	9.3	11.2	13.1	13.1	13.1	13.1	11.2	11.2
80°	3.7	3.7	5.6	5.6	7.5	9.3	9.3	9.3	9.3	7.5	7.5
82.5°	3.7	1.9	3.7	3.7	5.6	5.6	7.5	7.5	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°	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9	19667.9
1°	19272.2	19554.0	19367.4	19576.4	19675.3	19675.3	19708.9	19567.1	19473.8	19542.8
2°	18367.0	18613.4	18686.2	18645.1	18520.0	18538.7	18301.7	18277.4	17965.7	18325.9
3°	17064.3	17336.8	17224.8	17081.1	17105.3	16838.4	16457.7	16278.5	16168.4	16118.0
4°	15500.2	15675.7	15645.8	15545.0	15229.6	14917.9	14572.7	14688.4	13984.8	14078.1
5°	13800.0	13995.9	13895.2	13562.9	13451.0	13115.0	12941.4	12583.1	12204.2	12260.2
6°	11872.0	11806.7	11998.9	11765.6	11711.5	11119.9	11026.5	11086.3	10821.2	10797.0
7°	9910.5	10365.8	10238.9	10072.8	10009.4	9656.6	9600.6	9238.6	9261.0	9122.8
8°	8624.5	8669.3	8786.9	8561.1	8355.8	8312.8	8096.3	7883.6	7930.2	7833.2
9°	7170.6	7310.6	7215.4	7237.8	6970.9	6694.7	6592.0	6648.0	6489.4	6511.8
10°	5810.0	6035.9	5976.1	5925.7	5873.5	5587.9	5539.4	5412.5	5328.5	5182.9
12.5°	3658.1	3574.1	3615.2	3452.8	3389.3	3167.2	3124.3	3070.2	2889.1	2889.1
15°	2226.6	2049.3	2112.7	1907.4	1748.8	1702.1	1584.6	1586.4	1580.8	1573.4
17.5°	1172.1	1172.1	1146.0	983.6	935.1	851.1	839.9	851.1	823.1	828.7
20°	688.7	664.4	625.2	548.7	515.1	479.7	472.2	466.6	466.6	449.8
22.5°	423.7	403.1	380.7	334.1	308.0	296.8	285.6	291.2	291.2	293.0
25°	270.6	253.8	244.5	216.5	205.3	203.4	197.8	190.4	192.2	199.7
27.5°	181.0	173.6	166.1	154.9	147.4	143.7	143.7	145.6	141.8	138.1
30°	136.2	126.9	123.2	119.4	113.8	113.8	113.8	112.0	110.1	112.0
32.5°	108.2	102.7	98.9	95.2	93.3	91.5	93.3	91.5	89.6	87.7
35°	89.6	84.0	82.1	80.3	78.4	76.5	76.5	76.5	72.8	70.9
37.5°	74.7	72.8	72.8	69.1	67.2	65.3	65.3	65.3	61.6	61.6
40°	67.2	65.3	63.5	61.6	59.7	57.9	56.0	56.0	52.3	52.3
42.5°	59.7	57.9	57.9	56.0	54.1	50.4	50.4	48.5	46.7	46.7
45°	54.1	52.3	52.3	50.4	48.5	46.7	44.8	42.9	41.1	41.1
47.5°	50.4	48.5	48.5	46.7	42.9	41.1	39.2	37.3	37.3	37.3
50°	44.8	44.8	44.8	42.9	41.1	39.2	35.5	33.6	31.7	31.7
52.5°	41.1	41.1	39.2	39.2	37.3	35.5	31.7	29.9	29.9	29.9
55°	39.2	37.3	37.3	35.5	33.6	33.6	29.9	28.0	26.1	26.1
57.5°	35.5	33.6	33.6	31.7	31.7	29.9	26.1	26.1	24.3	24.3
60°	31.7	29.9	29.9	28.0	28.0	26.1	24.3	22.4	22.4	22.4
62.5°	28.0	26.1	28.0	26.1	26.1	24.3	22.4	20.5	20.5	20.5
65°	26.1	24.3	24.3	24.3	22.4	22.4	20.5	18.7	18.7	18.7
67.5°	22.4	20.5	22.4	20.5	20.5	18.7	18.7	16.8	16.8	14.9
70°	18.7	18.7	18.7	18.7	18.7	16.8	14.9	14.9	13.1	13.1
72.5°	16.8	16.8	16.8	16.8	14.9	14.9	13.1	13.1	11.2	11.2
75°	13.1	13.1	13.1	13.1	13.1	13.1	11.2	11.2	9.3	9.3
77.5°	11.2	11.2	11.2	11.2	11.2	9.3	9.3	7.5	7.5	7.5
80°	7.5	7.5	7.5	7.5	7.5	7.5	7.5	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)