

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: P591971

Luminaire Tested: **GRZ-05L-935-10x10FR-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591971
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-935-10x10FR-X-UNV-STD-4F
Description: iO LED GRAZER WITH 10x10FR OPTIC
500 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

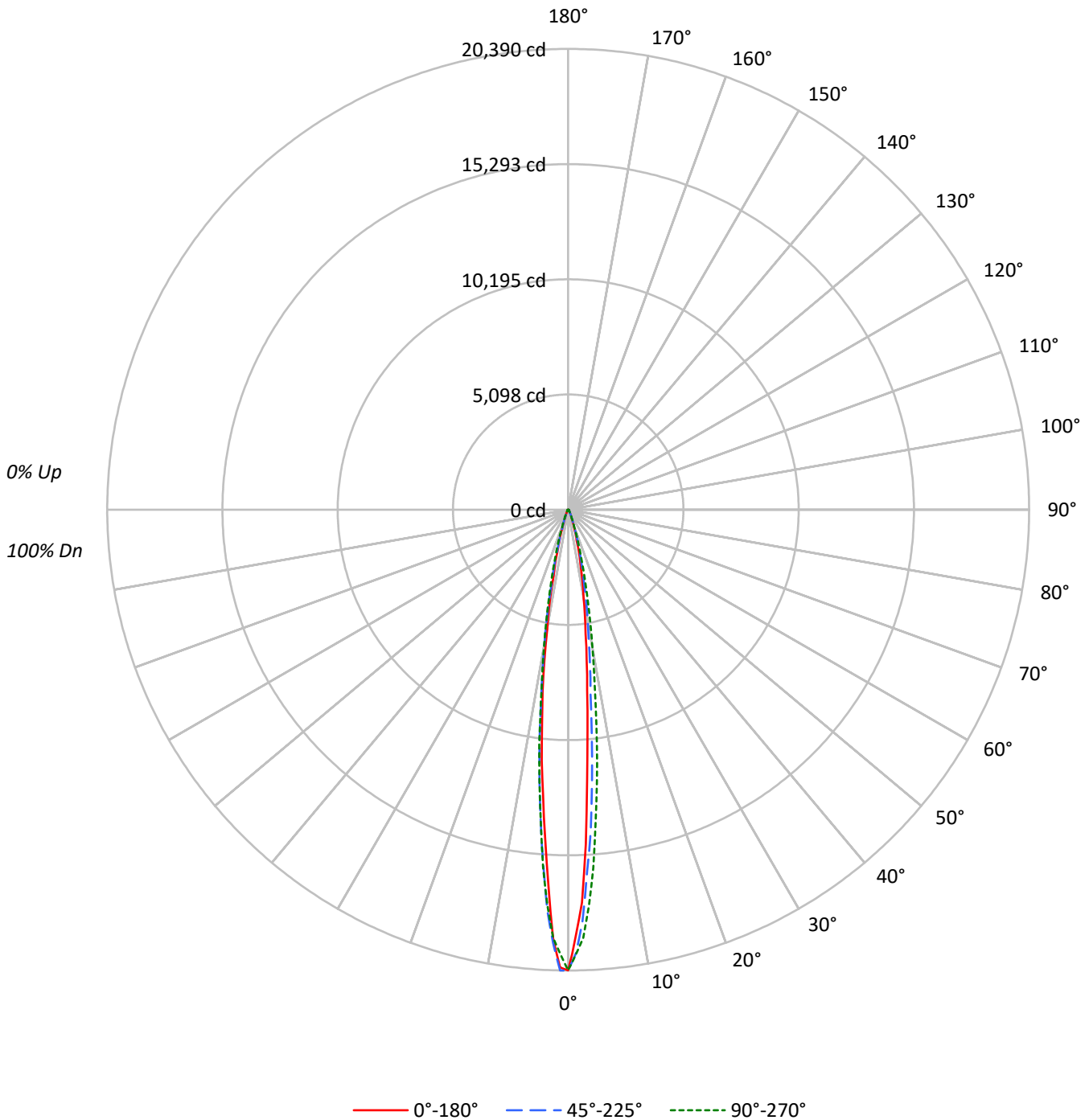
Lumens per Lamp: N/A
Luminaire Lumens: 1882.0 lumens
Efficiency: N/A
Efficacy: 97.5 lumens/watt
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25
Luminous Opening: Rectangular (W 4' x L: 0.17' x H: 0')
CIE Type: Direct

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	93	92	92	92	93		
3	108	103	100	97	106	102	99	96	100	97	95	97	95	93	95	93	92	91	91	91	90	90	90	91		
4	105	100	96	93	103	99	95	92	97	94	91	95	92	90	93	91	89	88	88	88	87	87	87	88		
5	102	96	93	90	101	96	92	89	94	91	89	93	90	88	91	89	87	86	86	86	85	85	85	86		
6	100	94	90	87	98	93	89	87	92	89	86	91	88	86	89	87	85	84	84	84	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	81	81	81	82		
8	95	89	85	83	94	89	85	83	88	85	82	87	84	82	86	84	82	81	81	81	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	78	78	78	79		
10	91	85	82	79	91	85	82	79	84	81	79	84	81	79	83	81	79	78	78	78	77	77	77	78		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	329096	329096	329096
5°	158876	224895	205929
10°	64183	100017	88062
15°	25444	36792	27254
20°	9936	12163	8009
25°	4582	4824	3688
30°	2705	2632	2165
35°	1829	1829	1449
40°	1387	1467	1142
45°	1192	1281	973
50°	1020	1165	826
55°	926	1089	763
60°	811	1062	749
65°	737	1035	737
70°	637	1006	637
75°	480	842	605
80°	363	716	539
85°	352	352	352



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	982.4	52.2
10°-20°	593.8	31.5
20°-30°	132.5	7.0
30°-40°	57.3	3.0
40°-50°	41.2	2.2
50°-60°	32.8	1.7
60°-70°	24.4	1.3
70°-80°	14.1	0.7
80°-90°	3.6	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°	1708.7	90.8
0°-40°	1766.0	93.8
0°-60°	1839.9	97.8
0°-90°	1882.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1882.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	20383	20383	20383	20383	20383	
5°	9803	12096	13876	13940	12706	764
15°	1522	1961	2201	1812	1630	468
25°	257	292	271	213	207	131
35°	93	93	93	81	74	60
45°	52	56	56	50	43	40
55°	33	41	39	35	27	28
65°	19	29	27	23	19	19
75°	8	16	14	14	10	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°	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7
1°	18912.7	19506.5	19359.5	19498.7	19523.9	19618.7	19680.5	19723.1	19825.6	19788.9	19663.1
2°	17398.2	17727.0	17707.7	17792.8	18278.2	18210.6	18384.6	18752.1	18694.1	18779.2	18957.2
3°	14808.3	15529.7	15363.4	15347.9	15814.1	16015.2	16705.7	16868.2	17272.5	17545.2	17551.0
4°	11963.1	12431.1	12541.4	13433.1	13382.8	14264.8	14676.8	15015.2	15330.5	16317.0	15887.6
5°	9802.6	10148.8	10493.1	10932.1	11040.4	12096.5	12330.6	12818.0	13671.0	14040.4	13876.0
6°	8025.0	8365.4	8363.5	8804.5	9208.8	9963.1	10224.2	10924.4	11618.8	12106.2	12127.5
7°	6674.9	6870.3	6994.1	7278.4	7729.1	8129.5	8740.7	9201.0	9647.8	10156.5	10466.0
8°	5551.2	5738.8	5808.4	6067.6	6334.5	6903.2	7514.4	7872.2	8340.3	8783.2	8694.3
9°	4665.3	4957.4	4916.8	5069.6	5373.2	5758.1	6123.7	6653.7	6955.4	7392.5	7292.0
10°	3914.8	4100.5	4220.4	4411.9	4524.1	4945.8	5168.2	5512.5	5891.6	5951.6	6100.5
12.5°	2568.6	2611.2	2636.3	2731.1	2936.1	3141.2	3363.6	3545.4	3657.6	3680.8	3791.0
15°	1522.2	1595.7	1611.2	1740.8	1853.0	1961.3	2102.5	2129.6	2189.5	2166.3	2201.1
17.5°	936.2	943.9	1001.9	1003.9	1125.7	1181.8	1280.4	1303.7	1270.8	1253.4	1253.4
20°	578.3	582.2	597.7	638.3	661.5	723.4	773.7	779.5	762.1	725.3	707.9
22.5°	375.2	386.8	375.2	390.7	413.9	448.7	471.9	475.8	452.6	439.1	437.1
25°	257.2	259.2	268.9	259.2	270.8	292.1	299.8	305.6	286.3	280.5	270.8
27.5°	189.6	189.6	189.6	189.6	193.4	193.4	197.3	199.2	193.4	189.6	191.5
30°	145.1	143.1	145.1	145.1	141.2	145.1	147.0	147.0	143.1	143.1	141.2
32.5°	112.2	114.1	116.1	114.1	112.2	114.1	116.1	114.1	114.1	116.1	112.2
35°	92.8	92.8	94.8	92.8	92.8	92.8	94.8	94.8	94.8	94.8	92.8
37.5°	75.4	77.4	79.3	79.3	79.3	79.3	81.2	81.2	83.2	79.3	77.4
40°	65.8	65.8	67.7	67.7	69.6	67.7	69.6	71.6	71.6	69.6	69.6
42.5°	58.0	58.0	60.0	60.0	60.0	61.9	63.8	63.8	63.8	63.8	61.9
45°	52.2	50.3	52.2	54.2	56.1	56.1	58.0	60.0	58.0	58.0	56.1
47.5°	46.4	46.4	46.4	48.4	50.3	52.2	52.2	54.2	54.2	52.2	50.3
50°	40.6	40.6	42.6	44.5	46.4	48.4	48.4	50.3	50.3	48.4	46.4
52.5°	34.8	34.8	36.7	40.6	42.6	44.5	44.5	46.4	46.4	44.5	42.6
55°	32.9	30.9	32.9	34.8	38.7	40.6	42.6	42.6	42.6	40.6	38.7
57.5°	27.1	27.1	29.0	30.9	34.8	38.7	38.7	40.6	38.7	36.7	36.7
60°	25.1	25.1	27.1	29.0	32.9	36.7	36.7	36.7	34.8	32.9	32.9
62.5°	21.3	21.3	23.2	25.1	29.0	32.9	34.8	34.8	32.9	30.9	29.0
65°	19.3	19.3	19.3	23.2	27.1	29.0	30.9	30.9	29.0	27.1	27.1
67.5°	15.5	15.5	17.4	19.3	23.2	25.1	27.1	29.0	27.1	25.1	23.2
70°	13.5	13.5	13.5	17.4	21.3	23.2	25.1	25.1	23.2	21.3	21.3
72.5°	9.7	9.7	11.6	13.5	17.4	19.3	21.3	21.3	19.3	17.4	17.4
75°	7.7	7.7	9.7	11.6	13.5	15.5	17.4	17.4	17.4	15.5	13.5
77.5°	5.8	5.8	7.7	9.7	11.6	13.5	13.5	13.5	13.5	11.6	11.6
80°	3.9	3.9	5.8	5.8	7.7	9.7	9.7	9.7	9.7	7.7	7.7
82.5°	3.9	1.9	3.9	3.9	5.8	5.8	7.7	7.7	5.8	5.8	5.8
85°	1.9	1.9	1.9	1.9	3.9	3.9	3.9	3.9	3.9	3.9	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°	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7	20382.7
1°	19972.6	20264.7	20071.3	20287.9	20390.4	20390.4	20425.2	20278.2	20181.5	20253.1
2°	19034.5	19289.8	19365.3	19322.7	19193.1	19212.5	18966.8	18941.7	18618.7	18992.0
3°	17684.4	17966.8	17850.8	17701.9	17727.0	17450.4	17055.8	16870.1	16756.0	16703.8
4°	16063.6	16245.4	16214.5	16110.0	15783.1	15460.1	15102.3	15222.2	14493.0	14589.7
5°	14301.5	14504.6	14400.2	14055.9	13939.8	13591.7	13411.8	13040.4	12647.8	12705.8
6°	12303.5	12235.8	12435.0	12193.2	12137.1	11524.0	11427.3	11489.2	11214.5	11189.4
7°	10270.6	10742.6	10611.1	10438.9	10373.1	10007.6	9949.6	9574.3	9597.5	9454.4
8°	8938.0	8984.4	9106.2	8872.2	8659.4	8615.0	8390.6	8170.1	8218.4	8117.9
9°	7431.2	7576.3	7477.6	7500.9	7224.3	6938.0	6831.6	6889.6	6725.2	6748.4
10°	6021.2	6255.2	6193.3	6141.1	6086.9	5791.0	5740.7	5609.2	5522.2	5371.3
12.5°	3791.0	3704.0	3746.6	3578.3	3512.5	3282.3	3237.9	3181.8	2994.2	2994.2
15°	2307.5	2123.8	2189.5	1976.8	1812.4	1764.0	1642.1	1644.1	1638.3	1630.5
17.5°	1214.7	1214.7	1187.6	1019.3	969.0	882.0	870.4	882.0	853.0	858.8
20°	713.7	688.6	648.0	568.7	533.8	497.1	489.4	483.6	483.6	466.1
22.5°	439.1	417.8	394.6	346.2	319.1	307.5	295.9	301.7	301.7	303.7
25°	280.5	263.1	253.4	224.4	212.8	210.8	205.0	197.3	199.2	207.0
27.5°	187.6	179.9	172.1	160.5	152.8	148.9	148.9	150.9	147.0	143.1
30°	141.2	131.5	127.7	123.8	118.0	118.0	118.0	116.1	114.1	116.1
32.5°	112.2	106.4	102.5	98.6	96.7	94.8	96.7	94.8	92.8	90.9
35°	92.8	87.0	85.1	83.2	81.2	79.3	79.3	79.3	75.4	73.5
37.5°	77.4	75.4	75.4	71.6	69.6	67.7	67.7	67.7	63.8	63.8
40°	69.6	67.7	65.8	63.8	61.9	60.0	58.0	58.0	54.2	54.2
42.5°	61.9	60.0	60.0	58.0	56.1	52.2	52.2	50.3	48.4	48.4
45°	56.1	54.2	54.2	52.2	50.3	48.4	46.4	44.5	42.6	42.6
47.5°	52.2	50.3	50.3	48.4	44.5	42.6	40.6	38.7	38.7	38.7
50°	46.4	46.4	46.4	44.5	42.6	40.6	36.7	34.8	32.9	32.9
52.5°	42.6	42.6	40.6	40.6	38.7	36.7	32.9	30.9	30.9	30.9
55°	40.6	38.7	38.7	36.7	34.8	34.8	30.9	29.0	27.1	27.1
57.5°	36.7	34.8	34.8	32.9	32.9	30.9	27.1	27.1	25.1	25.1
60°	32.9	30.9	30.9	29.0	29.0	27.1	25.1	23.2	23.2	23.2
62.5°	29.0	27.1	29.0	27.1	27.1	25.1	23.2	21.3	21.3	21.3
65°	27.1	25.1	25.1	25.1	23.2	23.2	21.3	19.3	19.3	19.3
67.5°	23.2	21.3	23.2	21.3	21.3	19.3	19.3	17.4	17.4	15.5
70°	19.3	19.3	19.3	19.3	19.3	17.4	15.5	15.5	13.5	13.5
72.5°	17.4	17.4	17.4	17.4	15.5	15.5	13.5	13.5	11.6	11.6
75°	13.5	13.5	13.5	13.5	13.5	13.5	11.6	11.6	9.7	9.7
77.5°	11.6	11.6	11.6	11.6	11.6	9.7	9.7	7.7	7.7	7.7
80°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	5.8	5.8	5.8
82.5°	5.8	5.8	5.8	5.8	5.8	3.9	3.9	3.9	3.9	3.9
85°	3.9	3.9	3.9	3.9	3.9	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)