

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: P591987

Luminaire Tested: **GRZ-05L-940-10x10FR-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591987
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-4F
Description: iO LED GRAZER WITH 10x10FR OPTIC
500 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

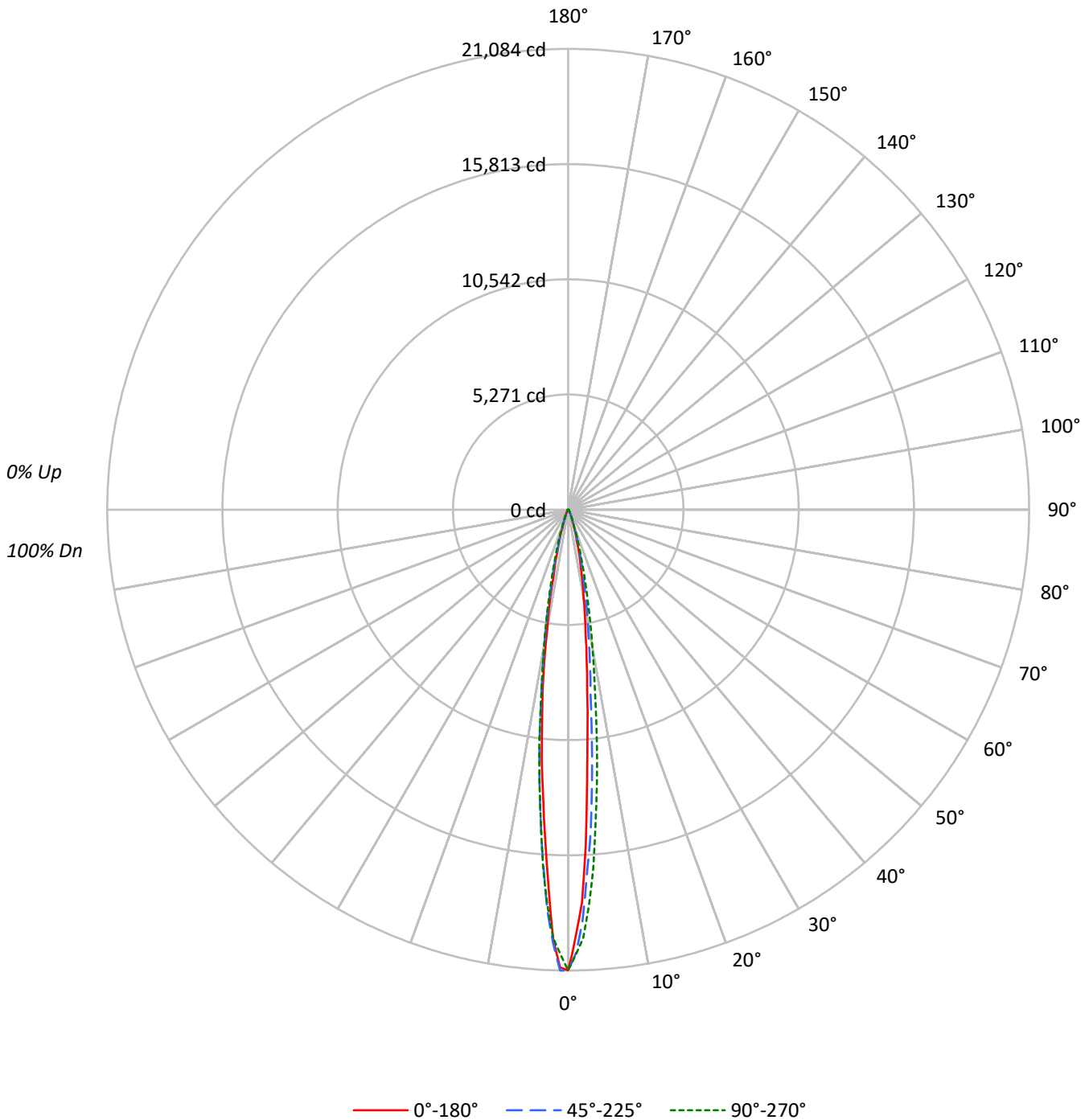
Lumens per Lamp: N/A
Luminaire Lumens: 1946.0 lumens
Efficiency: N/A
Efficacy: 100.8 lumens/watt
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25
Luminous Opening: Rectangular (W 4' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 19.3
Input Voltage (V): 120
Input Current (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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	113	111	109	113	111	109	107	107	105	104	103	102	101	100	99	98	97
2	111	108	105	102	109	106	103	101	103	101	99	100	98	97	97	96	95	93
3	108	103	100	97	106	102	99	96	100	97	95	97	95	93	95	93	92	91
4	105	100	96	93	103	99	95	92	97	94	91	95	92	90	93	91	89	88
5	102	96	93	90	101	96	92	89	94	91	89	93	90	88	91	89	87	86
6	100	94	90	87	98	93	89	87	92	89	86	91	88	86	89	87	85	84
7	97	91	87	85	96	91	87	84	90	86	84	89	86	84	88	85	83	82
8	95	89	85	83	94	89	85	83	88	85	82	87	84	82	86	84	82	81
9	93	87	83	81	92	87	83	81	86	83	81	85	82	80	85	82	80	79
10	91	85	82	79	91	85	82	79	84	81	79	84	81	79	83	81	79	78

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	340287	340287	340287
5°	164278	232544	212933
10°	66367	103417	91056
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°	1015.8	52.2
10°-20°	613.9	31.5
20°-30°	137.0	7.0
30°-40°	59.3	3.0
40°-50°	42.6	2.2
50°-60°	33.9	1.7
60°-70°	25.2	1.3
70°-80°	14.6	0.7
80°-90°	3.7	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°	1766.8	90.8
0°-40°	1826.0	93.8
0°-60°	1902.5	97.8
0°-90°	1946.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1946.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	21076	21076	21076	21076	21076	
5°	10136	12508	14348	14414	13138	790
15°	1574	2028	2276	1874	1686	484
25°	266	302	280	220	214	136
35°	96	96	96	84	76	62
45°	54	58	58	52	44	42
55°	34	42	40	36	28	29
65°	20	30	28	24	20	19
75°	8	16	14	14	10	9
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°	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8
1°	19555.8	20169.8	20017.8	20161.8	20187.8	20285.8	20349.8	20393.8	20499.8	20461.8	20331.8
2°	17989.8	18329.8	18309.8	18397.8	18899.8	18829.8	19009.8	19389.8	19329.8	19417.8	19601.8
3°	15311.9	16057.9	15885.9	15869.9	16351.8	16559.8	17273.8	17441.8	17859.8	18141.8	18147.8
4°	12369.9	12853.9	12967.9	13889.9	13837.9	14749.9	15175.9	15525.9	15851.9	16871.8	16427.8
5°	10135.9	10493.9	10849.9	11303.9	11415.9	12507.9	12749.9	13253.9	14135.9	14517.9	14347.9
6°	8297.9	8649.9	8647.9	9103.9	9521.9	10301.9	10571.9	11295.9	12013.9	12517.9	12539.9
7°	6901.9	7103.9	7231.9	7525.9	7991.9	8405.9	9037.9	9513.9	9975.9	10501.9	10821.9
8°	5739.9	5933.9	6005.9	6273.9	6549.9	7137.9	7769.9	8139.9	8623.9	9081.9	8989.9
9°	4824.0	5126.0	5084.0	5242.0	5555.9	5953.9	6331.9	6879.9	7191.9	7643.9	7539.9
10°	4048.0	4240.0	4364.0	4562.0	4678.0	5114.0	5344.0	5699.9	6091.9	6153.9	6307.9
12.5°	2656.0	2700.0	2726.0	2824.0	3036.0	3248.0	3478.0	3666.0	3782.0	3806.0	3920.0
15°	1574.0	1650.0	1666.0	1800.0	1916.0	2028.0	2174.0	2202.0	2264.0	2240.0	2276.0
17.5°	968.0	976.0	1036.0	1038.0	1164.0	1222.0	1324.0	1348.0	1314.0	1296.0	1296.0
20°	598.0	602.0	618.0	660.0	684.0	748.0	800.0	806.0	788.0	750.0	732.0
22.5°	388.0	400.0	388.0	404.0	428.0	464.0	488.0	492.0	468.0	454.0	452.0
25°	266.0	268.0	278.0	268.0	280.0	302.0	310.0	316.0	296.0	290.0	280.0
27.5°	196.0	196.0	196.0	196.0	200.0	200.0	204.0	206.0	200.0	196.0	198.0
30°	150.0	148.0	150.0	150.0	146.0	150.0	152.0	152.0	148.0	148.0	146.0
32.5°	116.0	118.0	120.0	118.0	116.0	118.0	120.0	118.0	118.0	120.0	116.0
35°	96.0	96.0	98.0	96.0	96.0	96.0	98.0	98.0	98.0	98.0	96.0
37.5°	78.0	80.0	82.0	82.0	82.0	82.0	84.0	84.0	86.0	82.0	80.0
40°	68.0	68.0	70.0	70.0	72.0	70.0	72.0	74.0	74.0	72.0	72.0
42.5°	60.0	60.0	62.0	62.0	62.0	64.0	66.0	66.0	66.0	66.0	64.0
45°	54.0	52.0	54.0	56.0	58.0	58.0	60.0	62.0	60.0	60.0	58.0
47.5°	48.0	48.0	48.0	50.0	52.0	54.0	54.0	56.0	56.0	54.0	52.0
50°	42.0	42.0	44.0	46.0	48.0	50.0	50.0	52.0	52.0	50.0	48.0
52.5°	36.0	36.0	38.0	42.0	44.0	46.0	46.0	48.0	48.0	46.0	44.0
55°	34.0	32.0	34.0	36.0	40.0	42.0	44.0	44.0	44.0	42.0	40.0
57.5°	28.0	28.0	30.0	32.0	36.0	40.0	40.0	42.0	40.0	38.0	38.0
60°	26.0	26.0	28.0	30.0	34.0	38.0	38.0	38.0	36.0	34.0	34.0
62.5°	22.0	22.0	24.0	26.0	30.0	34.0	36.0	36.0	34.0	32.0	30.0
65°	20.0	20.0	20.0	24.0	28.0	30.0	32.0	32.0	30.0	28.0	28.0
67.5°	16.0	16.0	18.0	20.0	24.0	26.0	28.0	30.0	28.0	26.0	24.0
70°	14.0	14.0	14.0	18.0	22.0	24.0	26.0	26.0	24.0	22.0	22.0
72.5°	10.0	10.0	12.0	14.0	18.0	20.0	22.0	22.0	20.0	18.0	18.0
75°	8.0	8.0	10.0	12.0	14.0	16.0	18.0	18.0	18.0	16.0	14.0
77.5°	6.0	6.0	8.0	10.0	12.0	14.0	14.0	14.0	14.0	12.0	12.0
80°	4.0	4.0	6.0	6.0	8.0	10.0	10.0	10.0	10.0	8.0	8.0
82.5°	4.0	2.0	4.0	4.0	6.0	6.0	8.0	8.0	6.0	6.0	6.0
85°	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0
87.5°	0.0	0.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8	21075.8
1°	20651.8	20953.8	20753.8	20977.8	21083.8	21083.8	21119.8	20967.8	20867.8	20941.8
2°	19681.8	19945.8	20023.8	19979.8	19845.8	19865.8	19611.8	19585.8	19251.8	19637.8
3°	18285.8	18577.8	18457.8	18303.8	18329.8	18043.8	17635.8	17443.8	17325.8	17271.8
4°	16609.8	16797.8	16765.8	16657.8	16319.8	15985.9	15615.9	15739.9	14985.9	15085.9
5°	14787.9	14997.9	14889.9	14533.9	14413.9	14053.9	13867.9	13483.9	13077.9	13137.9
6°	12721.9	12651.9	12857.9	12607.9	12549.9	11915.9	11815.9	11879.9	11595.9	11569.9
7°	10619.9	11107.9	10971.9	10793.9	10725.9	10347.9	10287.9	9899.9	9923.9	9775.9
8°	9241.9	9289.9	9415.9	9173.9	8953.9	8907.9	8675.9	8447.9	8497.9	8393.9
9°	7683.9	7833.9	7731.9	7755.9	7469.9	7173.9	7063.9	7123.9	6953.9	6977.9
10°	6225.9	6467.9	6403.9	6349.9	6293.9	5987.9	5935.9	5799.9	5709.9	5553.9
12.5°	3920.0	3830.0	3874.0	3700.0	3632.0	3394.0	3348.0	3290.0	3096.0	3096.0
15°	2386.0	2196.0	2264.0	2044.0	1874.0	1824.0	1698.0	1700.0	1694.0	1686.0
17.5°	1256.0	1256.0	1228.0	1054.0	1002.0	912.0	900.0	912.0	882.0	888.0
20°	738.0	712.0	670.0	588.0	552.0	514.0	506.0	500.0	500.0	482.0
22.5°	454.0	432.0	408.0	358.0	330.0	318.0	306.0	312.0	312.0	314.0
25°	290.0	272.0	262.0	232.0	220.0	218.0	212.0	204.0	206.0	214.0
27.5°	194.0	186.0	178.0	166.0	158.0	154.0	154.0	156.0	152.0	148.0
30°	146.0	136.0	132.0	128.0	122.0	122.0	122.0	120.0	118.0	120.0
32.5°	116.0	110.0	106.0	102.0	100.0	98.0	100.0	98.0	96.0	94.0
35°	96.0	90.0	88.0	86.0	84.0	82.0	82.0	82.0	78.0	76.0
37.5°	80.0	78.0	78.0	74.0	72.0	70.0	70.0	70.0	66.0	66.0
40°	72.0	70.0	68.0	66.0	64.0	62.0	60.0	60.0	56.0	56.0
42.5°	64.0	62.0	62.0	60.0	58.0	54.0	54.0	52.0	50.0	50.0
45°	58.0	56.0	56.0	54.0	52.0	50.0	48.0	46.0	44.0	44.0
47.5°	54.0	52.0	52.0	50.0	46.0	44.0	42.0	40.0	40.0	40.0
50°	48.0	48.0	48.0	46.0	44.0	42.0	38.0	36.0	34.0	34.0
52.5°	44.0	44.0	42.0	42.0	40.0	38.0	34.0	32.0	32.0	32.0
55°	42.0	40.0	40.0	38.0	36.0	36.0	32.0	30.0	28.0	28.0
57.5°	38.0	36.0	36.0	34.0	34.0	32.0	28.0	28.0	26.0	26.0
60°	34.0	32.0	32.0	30.0	30.0	28.0	26.0	24.0	24.0	24.0
62.5°	30.0	28.0	30.0	28.0	28.0	26.0	24.0	22.0	22.0	22.0
65°	28.0	26.0	26.0	26.0	24.0	24.0	22.0	20.0	20.0	20.0
67.5°	24.0	22.0	24.0	22.0	22.0	20.0	20.0	18.0	18.0	16.0
70°	20.0	20.0	20.0	20.0	20.0	18.0	16.0	16.0	14.0	14.0
72.5°	18.0	18.0	18.0	18.0	16.0	16.0	14.0	14.0	12.0	12.0
75°	14.0	14.0	14.0	14.0	14.0	14.0	12.0	12.0	10.0	10.0
77.5°	12.0	12.0	12.0	12.0	12.0	10.0	10.0	8.0	8.0	8.0
80°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0
82.5°	6.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0
85°	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0
87.5°	2.0	2.0	2.0	2.0	2.0	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)