

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: P591938

Luminaire Tested: **GRZ-05L-927-10x10FR-X-UNV-STD-2F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591938
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-2F
Description: iO LED GRAZER WITH 10x10FR OPTIC
500 LUMENS PER FOOT, 2 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

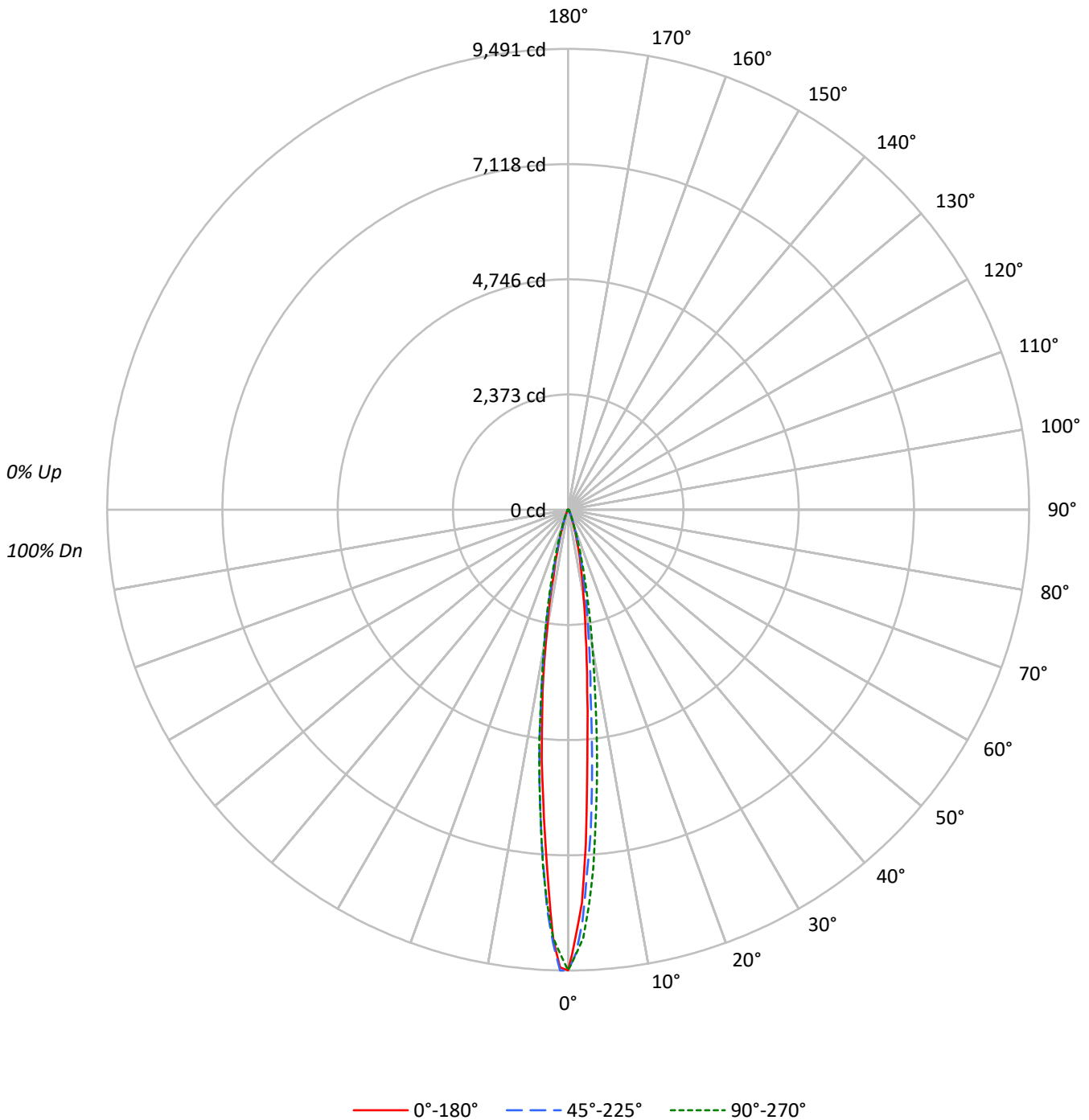
Lumens per Lamp: N/A
Luminaire Lumens: 876.0 lumens
Efficiency: N/A
Efficacy: 91.2 lumens/watt
Spacing Criteria (0/90/45): 0.19 / 0.25 / 0.25
Luminous Opening: Rectangular (W 2' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 9.6
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



TEST NUMBER: P591938
CATALOG NUMBER: GRZ-05L-927-10x10FR-X-UNV-STD-2F

Luminous Intensity Polar Plot





TEST NUMBER: P591938

CATALOG NUMBER: GRZ-05L-927-10x10FR-X-UNV-STD-2F

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°	306364	306364	306364
5°	147900	209362	191706
10°	59750	93107	81978
15°	23686	34250	25374
20°	9251	11323	7457
25°	4265	4489	3431
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



TEST NUMBER: P591938

CATALOG NUMBER: GRZ-05L-927-10x10FR-X-UNV-STD-2F

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	457.3	52.2
10°-20°	276.4	31.6
20°-30°	61.7	7.0
30°-40°	26.7	3.0
40°-50°	19.2	2.2
50°-60°	15.2	1.7
60°-70°	11.3	1.3
70°-80°	6.6	0.7
80°-90°	1.7	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°	795.3	90.8
0°-40°	822.0	93.8
0°-60°	856.4	97.8
0°-90°	876.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	876.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	9487	9487	9487	9487	9487	
5°	4563	5630	6459	6488	5914	356
15°	708	913	1024	844	759	218
25°	120	136	126	99	96	61
35°	43	43	43	38	34	28
45°	24	26	26	23	20	19
55°	15	19	18	16	13	13
65°	9	14	13	11	9	9
75°	4	7	6	6	4	4
85°	1	2	1	2	1	1
90°	0	0	0	0	0	



TEST NUMBER: P591938

CATALOG NUMBER: GRZ-05L-927-10x10FR-X-UNV-STD-2F

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4
1°	8803.1	9079.5	9011.1	9075.9	9087.6	9131.7	9160.6	9180.4	9228.1	9211.0	9152.4
2°	8098.2	8251.2	8242.2	8281.9	8507.8	8476.3	8557.4	8728.4	8701.4	8741.0	8823.8
3°	6892.7	7228.5	7151.1	7143.9	7360.9	7454.5	7775.9	7851.5	8039.7	8166.6	8169.3
4°	5568.4	5786.2	5837.5	6252.6	6229.2	6639.7	6831.5	6989.0	7135.8	7594.9	7395.1
5°	4562.7	4723.9	4884.1	5088.5	5138.9	5630.5	5739.4	5966.3	6363.3	6535.3	6458.8
6°	3735.3	3893.8	3892.9	4098.2	4286.3	4637.4	4759.0	5084.9	5408.1	5635.0	5644.9
7°	3106.9	3197.9	3255.5	3387.8	3597.6	3784.0	4068.5	4282.7	4490.7	4727.5	4871.5
8°	2583.9	2671.2	2703.6	2824.2	2948.5	3213.2	3497.7	3664.2	3882.1	4088.3	4046.8
9°	2171.5	2307.5	2288.6	2359.7	2501.0	2680.2	2850.3	3097.0	3237.5	3440.9	3394.1
10°	1822.2	1908.6	1964.5	2053.6	2105.8	2302.1	2405.6	2565.9	2742.3	2770.2	2839.5
12.5°	1195.6	1215.4	1227.1	1271.2	1366.7	1462.1	1565.6	1650.2	1702.5	1713.3	1764.6
15°	708.5	742.7	749.9	810.3	862.5	912.9	978.6	991.2	1019.1	1008.3	1024.5
17.5°	435.7	439.3	466.4	467.3	524.0	550.1	596.0	606.8	591.5	583.4	583.4
20°	269.2	271.0	278.2	297.1	307.9	336.7	360.1	362.8	354.7	337.6	329.5
22.5°	174.7	180.1	174.7	181.9	192.7	208.9	219.7	221.5	210.7	204.4	203.5
25°	119.7	120.6	125.1	120.6	126.0	135.9	139.5	142.2	133.2	130.5	126.0
27.5°	88.2	88.2	88.2	88.2	90.0	90.0	91.8	92.7	90.0	88.2	89.1
30°	67.5	66.6	67.5	67.5	65.7	67.5	68.4	68.4	66.6	66.6	65.7
32.5°	52.2	53.1	54.0	53.1	52.2	53.1	54.0	53.1	53.1	54.0	52.2
35°	43.2	43.2	44.1	43.2	43.2	43.2	44.1	44.1	44.1	44.1	43.2
37.5°	35.1	36.0	36.9	36.9	36.9	36.9	37.8	37.8	38.7	36.9	36.0
40°	30.6	30.6	31.5	31.5	32.4	31.5	32.4	33.3	33.3	32.4	32.4
42.5°	27.0	27.0	27.9	27.9	27.9	28.8	29.7	29.7	29.7	29.7	28.8
45°	24.3	23.4	24.3	25.2	26.1	26.1	27.0	27.9	27.0	27.0	26.1
47.5°	21.6	21.6	21.6	22.5	23.4	24.3	24.3	25.2	25.2	24.3	23.4
50°	18.9	18.9	19.8	20.7	21.6	22.5	22.5	23.4	23.4	22.5	21.6
52.5°	16.2	16.2	17.1	18.9	19.8	20.7	20.7	21.6	21.6	20.7	19.8
55°	15.3	14.4	15.3	16.2	18.0	18.9	19.8	19.8	19.8	18.9	18.0
57.5°	12.6	12.6	13.5	14.4	16.2	18.0	18.0	18.9	18.0	17.1	17.1
60°	11.7	11.7	12.6	13.5	15.3	17.1	17.1	17.1	16.2	15.3	15.3
62.5°	9.9	9.9	10.8	11.7	13.5	15.3	16.2	16.2	15.3	14.4	13.5
65°	9.0	9.0	9.0	10.8	12.6	13.5	14.4	14.4	13.5	12.6	12.6
67.5°	7.2	7.2	8.1	9.0	10.8	11.7	12.6	13.5	12.6	11.7	10.8
70°	6.3	6.3	6.3	8.1	9.9	10.8	11.7	11.7	10.8	9.9	9.9
72.5°	4.5	4.5	5.4	6.3	8.1	9.0	9.9	9.9	9.0	8.1	8.1
75°	3.6	3.6	4.5	5.4	6.3	7.2	8.1	8.1	8.1	7.2	6.3
77.5°	2.7	2.7	3.6	4.5	5.4	6.3	6.3	6.3	6.3	5.4	5.4
80°	1.8	1.8	2.7	2.7	3.6	4.5	4.5	4.5	4.5	3.6	3.6
82.5°	1.8	0.9	1.8	1.8	2.7	2.7	3.6	3.6	2.7	2.7	2.7
85°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	0.9
87.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P591938

CATALOG NUMBER: GRZ-05L-927-10x10FR-X-UNV-STD-2F

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4	9487.4
1°	9296.5	9432.4	9342.4	9443.2	9491.0	9491.0	9507.2	9438.7	9393.7	9427.0
2°	8859.9	8978.7	9013.8	8994.0	8933.7	8942.7	8828.3	8816.6	8666.3	8840.0
3°	8231.4	8362.9	8308.9	8239.5	8251.2	8122.5	7938.8	7852.4	7799.3	7775.0
4°	7477.0	7561.6	7547.2	7498.6	7346.4	7196.1	7029.5	7085.4	6745.9	6791.0
5°	6656.8	6751.3	6702.7	6542.5	6488.5	6326.4	6242.7	6069.8	5887.1	5914.1
6°	5726.8	5695.3	5788.0	5675.5	5649.4	5364.0	5319.0	5347.8	5219.9	5208.2
7°	4780.6	5000.3	4939.0	4858.9	4828.3	4658.2	4631.1	4456.5	4467.3	4400.7
8°	4160.3	4181.9	4238.6	4129.7	4030.6	4009.9	3905.5	3802.9	3825.4	3778.6
9°	3459.0	3526.5	3480.6	3491.4	3362.6	3229.4	3179.9	3206.9	3130.3	3141.1
10°	2802.6	2911.6	2882.8	2858.5	2833.2	2695.5	2672.1	2610.9	2570.4	2500.1
12.5°	1764.6	1724.1	1743.9	1665.6	1634.9	1527.8	1507.1	1481.0	1393.7	1393.7
15°	1074.1	988.5	1019.1	920.1	843.6	821.1	764.4	765.3	762.6	759.0
17.5°	565.4	565.4	552.8	474.5	451.1	410.5	405.1	410.5	397.0	399.7
20°	332.2	320.5	301.6	264.7	248.5	231.4	227.8	225.1	225.1	217.0
22.5°	204.4	194.5	183.7	161.2	148.5	143.1	137.7	140.4	140.4	141.3
25°	130.5	122.4	117.9	104.4	99.0	98.1	95.4	91.8	92.7	96.3
27.5°	87.3	83.7	80.1	74.7	71.1	69.3	69.3	70.2	68.4	66.6
30°	65.7	61.2	59.4	57.6	54.9	54.9	54.9	54.0	53.1	54.0
32.5°	52.2	49.5	47.7	45.9	45.0	44.1	45.0	44.1	43.2	42.3
35°	43.2	40.5	39.6	38.7	37.8	36.9	36.9	36.9	35.1	34.2
37.5°	36.0	35.1	35.1	33.3	32.4	31.5	31.5	31.5	29.7	29.7
40°	32.4	31.5	30.6	29.7	28.8	27.9	27.0	27.0	25.2	25.2
42.5°	28.8	27.9	27.9	27.0	26.1	24.3	24.3	23.4	22.5	22.5
45°	26.1	25.2	25.2	24.3	23.4	22.5	21.6	20.7	19.8	19.8
47.5°	24.3	23.4	23.4	22.5	20.7	19.8	18.9	18.0	18.0	18.0
50°	21.6	21.6	21.6	20.7	19.8	18.9	17.1	16.2	15.3	15.3
52.5°	19.8	19.8	18.9	18.9	18.0	17.1	15.3	14.4	14.4	14.4
55°	18.9	18.0	18.0	17.1	16.2	16.2	14.4	13.5	12.6	12.6
57.5°	17.1	16.2	16.2	15.3	15.3	14.4	12.6	12.6	11.7	11.7
60°	15.3	14.4	14.4	13.5	13.5	12.6	11.7	10.8	10.8	10.8
62.5°	13.5	12.6	13.5	12.6	12.6	11.7	10.8	9.9	9.9	9.9
65°	12.6	11.7	11.7	11.7	10.8	10.8	9.9	9.0	9.0	9.0
67.5°	10.8	9.9	10.8	9.9	9.9	9.0	9.0	8.1	8.1	7.2
70°	9.0	9.0	9.0	9.0	9.0	8.1	7.2	7.2	6.3	6.3
72.5°	8.1	8.1	8.1	8.1	7.2	7.2	6.3	6.3	5.4	5.4
75°	6.3	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	4.5
77.5°	5.4	5.4	5.4	5.4	5.4	4.5	4.5	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	2.7	2.7	2.7
82.5°	2.7	2.7	2.7	2.7	2.7	1.8	1.8	1.8	1.8	1.8
85°	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9
87.5°	0.9	0.9	0.9	0.9	0.9	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)