

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Brand: NEO-RAY

Report Number: P902849

Luminaire Tested: DFN2DIP-PN2F0-020D020US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902849
REPORT IS A COMBINATION OF REPORTS P900981 AND P897905
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-020D020US830-FLLONL
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

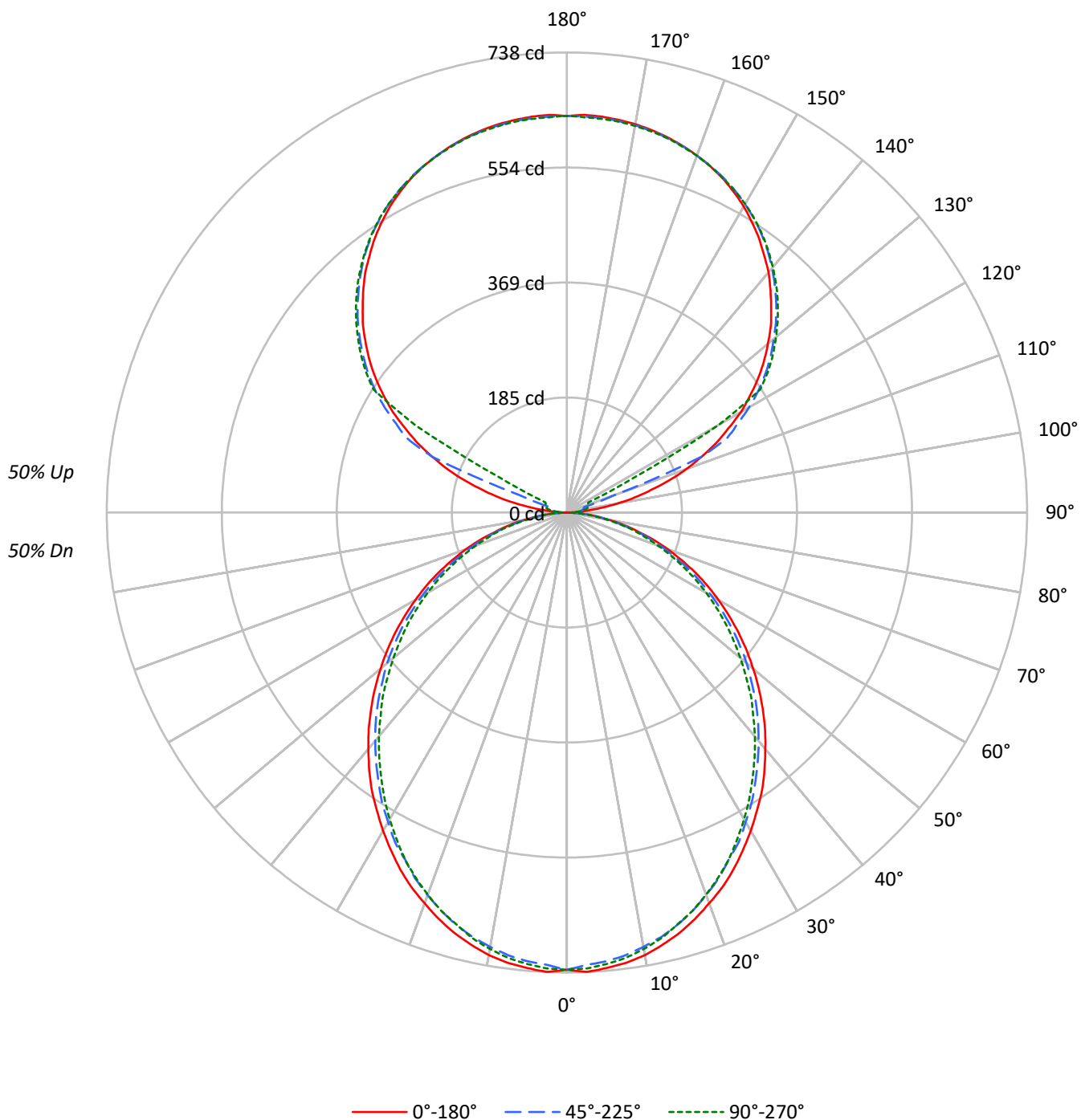
Lumens per Lamp: N/A
Luminaire Lumens: 3732.5 lumens
Efficiency: N/A
Efficacy: 115.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 32.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1589	1589	1589
5°	1589	1563	1575
10°	1573	1539	1551
15°	1547	1510	1515
20°	1514	1471	1479
25°	1480	1426	1437
30°	1438	1383	1385
35°	1399	1334	1330
40°	1350	1284	1277
45°	1302	1233	1223
50°	1249	1180	1161
55°	1193	1118	1102
60°	1130	1046	1036
65°	1061	971	958
70°	973	878	873
75°	852	768	791
80°	706	627	641
85°	477	396	402

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1302 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	1.8
10°-20°	194.2	5.2
20°-30°	285.5	7.6
30°-40°	331.5	8.9
40°-50°	331.1	8.9
50°-60°	288.7	7.7
60°-70°	213.4	5.7
70°-80°	120.8	3.2
80°-90°	33.0	0.9
90°-100°	21.0	0.6
100°-110°	78.2	2.1
110°-120°	207.4	5.6
120°-130°	344.0	9.2
130°-140°	365.4	9.8
140°-150°	339.6	9.1
150°-160°	273.0	7.3
160°-170°	175.9	4.7
170°-180°	60.6	1.6
0°-30°	548.7	14.7
0°-40°	880.3	23.6
0°-60°	1500.2	40.2
0°-90°	1867.4	50.0
90°-120°	306.6	8.2
90°-150°	1355.6	36.3
90°-180°	1865.0	50.0
0°-180°	3732.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	734	734	734	734	734	
5°	734	731	723	729	727	70
15°	698	694	685	688	684	197
25°	632	626	614	616	614	291
35°	545	538	527	523	519	340
45°	444	439	428	420	418	342
55°	336	332	323	315	311	300
65°	226	222	215	209	205	224
75°	118	117	114	109	111	126
85°	29	28	28	25	25	32
90°	0	6	9	12	12	3
95°	30	15	18	20	20	35
105°	140	154	28	33	35	150
115°	265	272	284	71	38	261
125°	374	380	389	392	394	334
135°	463	470	475	479	478	358
145°	537	537	545	548	546	336
155°	592	587	593	596	592	273
165°	623	621	622	625	622	176
175°	638	634	635	638	634	61
180°	636	636	636	636	636	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	733.5	733.5	733.5	733.5	733.5
2.5°	737.7	734.2	726.4	733.5	732.2
5°	733.5	730.8	722.9	728.6	727.2
7.5°	728.6	724.3	716.6	722.3	720.9
10°	720.9	716.0	707.5	713.0	711.0
12.5°	710.2	706.1	697.6	701.1	699.6
15°	698.2	694.1	684.9	687.7	684.2
17.5°	683.4	679.3	670.1	673.5	670.1
20°	667.2	663.0	653.1	655.3	652.4
22.5°	651.0	644.7	635.5	635.5	634.0
25°	632.0	626.3	614.3	615.7	614.3
27.5°	610.8	605.9	596.7	594.6	591.1
30°	589.7	584.0	573.4	571.4	568.4
32.5°	567.0	562.9	551.6	547.3	544.5
35°	545.3	538.2	526.9	522.6	519.1
37.5°	520.6	514.2	502.8	497.9	494.4
40°	495.1	489.5	478.2	471.9	469.0
42.5°	470.4	464.8	453.6	446.5	442.2
45°	443.7	438.8	428.1	420.4	417.5
47.5°	417.5	412.6	401.3	393.5	389.4
50°	390.0	386.5	376.6	366.7	363.3
52.5°	363.3	358.3	349.1	341.4	336.5
55°	335.7	331.5	323.0	314.6	311.0
57.5°	308.2	304.7	295.5	287.1	284.2
60°	280.7	278.0	268.1	260.2	258.2
62.5°	253.9	248.9	242.0	234.9	232.1
65°	226.4	222.2	215.2	208.8	205.3
67.5°	198.2	194.6	188.3	183.4	180.6
70°	172.1	169.3	162.9	158.0	155.2
72.5°	145.3	142.5	138.9	134.0	132.0
75°	118.5	117.2	113.5	109.3	110.7
77.5°	94.5	91.7	90.2	88.1	86.1
80°	70.6	69.8	68.4	66.3	64.8
82.5°	48.0	48.0	47.3	44.5	44.5
85°	28.8	28.2	27.5	25.4	24.7
87.5°	12.7	11.3	9.9	7.8	7.1
90°	0.5	5.6	9.1	11.5	12.4
92.5°	11.5	9.7	11.0	12.0	12.4
95°	29.9	14.7	17.9	20.3	19.8
97.5°	53.8	16.1	23.5	24.9	25.4
100°	81.5	18.4	26.2	29.9	30.8
102.5°	111.9	110.9	27.1	32.2	33.6
105°	140.0	153.7	28.1	33.1	35.0
107.5°	172.7	184.1	29.0	34.0	35.9
110°	204.0	213.6	80.6	34.6	36.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	233.4	241.7	233.8	35.4	36.9
115°	264.7	272.5	284.1	70.9	37.8
117.5°	291.8	301.0	308.9	243.1	122.4
120°	322.3	329.1	337.4	343.0	280.8
122.5°	348.0	355.3	364.6	367.3	367.9
125°	374.3	380.2	389.0	392.2	393.6
127.5°	398.2	404.6	411.6	416.1	416.6
130°	420.8	428.1	433.2	438.3	437.8
132.5°	443.7	449.8	454.8	458.9	458.5
135°	463.2	470.5	474.6	479.3	478.3
137.5°	483.3	488.9	493.5	498.1	496.7
140°	503.1	506.9	511.9	516.0	513.8
142.5°	519.7	523.0	529.0	532.6	530.3
145°	537.2	536.8	544.6	547.8	545.5
147.5°	552.4	551.0	558.8	561.1	559.3
150°	567.1	563.9	571.3	574.0	571.7
152.5°	579.6	575.9	582.8	585.6	582.3
155°	591.5	587.4	593.0	595.7	592.0
157.5°	601.2	597.6	601.7	604.9	601.2
160°	609.5	606.7	609.5	612.3	609.1
162.5°	616.8	614.1	616.4	619.6	615.5
165°	623.3	620.6	621.9	625.2	621.9
167.5°	628.4	625.6	627.0	630.3	626.0
170°	632.5	629.7	630.7	633.9	629.7
172.5°	635.3	632.5	633.5	636.7	632.5
175°	637.5	634.3	635.3	638.5	633.9
177.5°	638.5	635.3	635.7	638.9	634.8
180°	636.2	636.2	636.2	636.2	636.2

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	8.77	9.63	9.72	10.60	11.87	8.33	9.19	9.29	10.16	11.43
	3H	10.41	11.18	11.37	12.16	13.45	9.93	10.70	10.90	11.68	12.97
	4H	10.98	11.71	11.96	12.70	14.00	10.50	11.23	11.48	12.22	13.52
	6H	11.37	12.04	12.36	13.03	14.34	10.88	11.55	11.87	12.54	13.86
	8H	11.46	12.10	12.46	13.11	14.42	10.98	11.62	11.97	12.62	13.94
	12H	11.50	12.11	12.51	13.11	14.45	11.01	11.62	12.01	12.62	13.96
4H	2H	9.22	9.95	10.21	10.93	12.24	8.87	9.60	9.86	10.59	11.89
	3H	11.06	11.67	12.06	12.68	14.00	10.66	11.27	11.66	12.29	13.60
	4H	11.76	12.32	12.76	13.32	14.66	11.34	11.90	12.35	12.91	14.25
	6H	12.25	12.74	13.27	13.77	15.10	11.83	12.31	12.85	13.35	14.68
	8H	12.39	12.84	13.41	13.87	15.22	11.97	12.42	12.99	13.44	14.79
	12H	12.46	12.86	13.49	13.90	15.26	12.02	12.43	13.06	13.47	14.83
8H	4H	11.94	12.39	12.96	13.42	14.77	11.57	12.02	12.59	13.05	14.40
	6H	12.55	12.92	13.59	13.99	15.34	12.18	12.55	13.22	13.61	14.96
	8H	12.76	13.09	13.81	14.14	15.50	12.38	12.70	13.43	13.76	15.12
	12H	12.88	13.16	13.93	14.21	15.62	12.48	12.77	13.53	13.81	15.22
12H	4H	11.93	12.33	12.96	13.37	14.73	11.57	11.97	12.60	13.01	14.37
	6H	12.58	12.90	13.63	13.95	15.32	12.21	12.54	13.26	13.59	14.96
	8H	12.80	13.09	13.86	14.14	15.55	12.43	12.72	13.49	13.77	15.18