

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: P902848

Luminaire Tested: DFN2DIP-PN2F0-020D020US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902848
REPORT IS A COMBINATION OF REPORTS P899461 AND P896349
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-020D020US830-FLLFLL
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

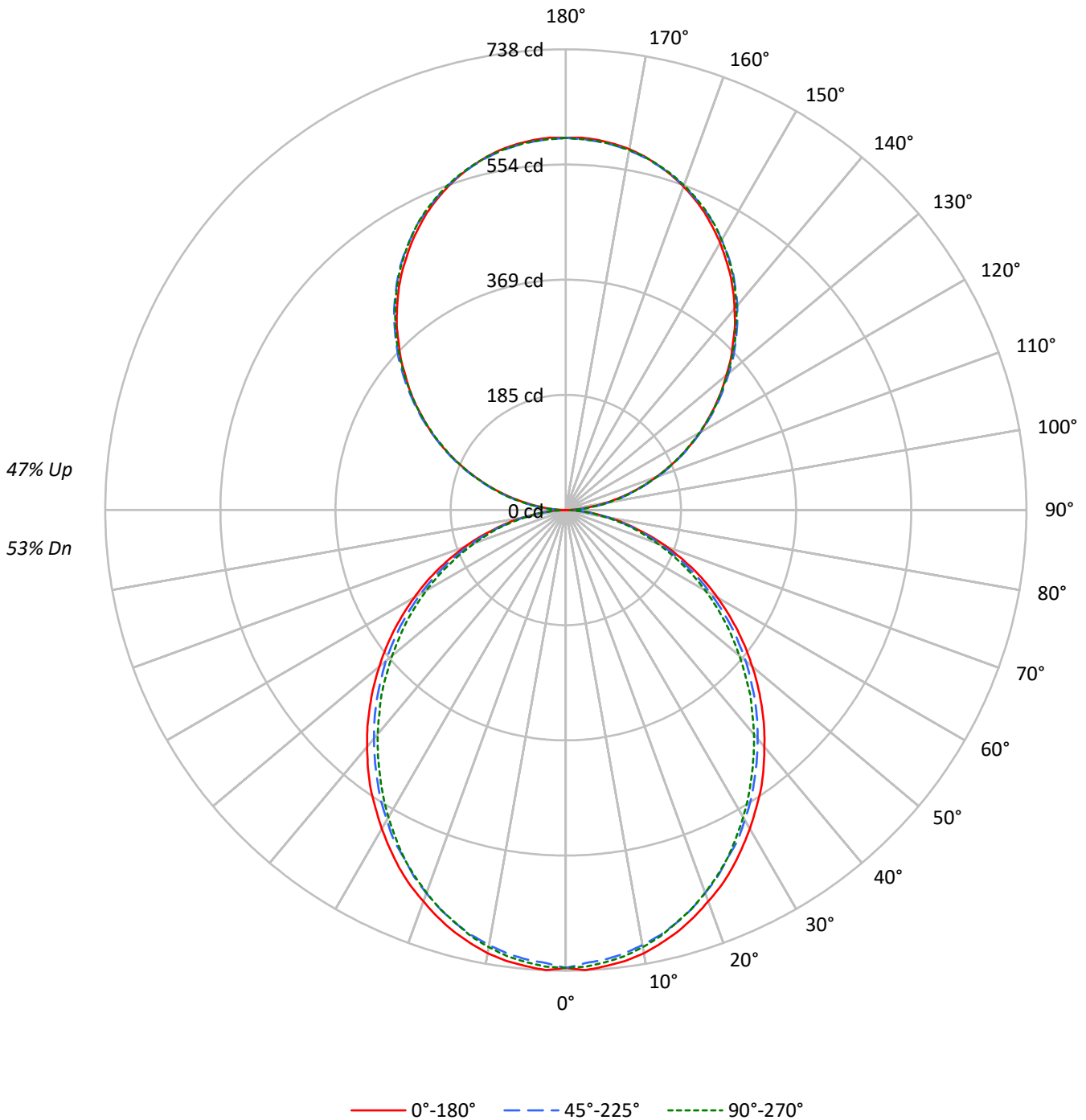
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3534.5 lumens
Efficiency: N/A
Efficacy: 109.4 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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53			
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	45			
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	37			
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	32			
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	27			
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	24			
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	21			
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	18			
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	16			
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	15			
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	13			

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	2.0
10°-20°	194.2	5.5
20°-30°	285.5	8.1
30°-40°	331.5	9.4
40°-50°	331.1	9.4
50°-60°	288.7	8.2
60°-70°	213.4	6.0
70°-80°	120.8	3.4
80°-90°	33.6	0.9
90°-100°	36.9	1.0
100°-110°	117.2	3.3
110°-120°	200.6	5.7
120°-130°	263.8	7.5
130°-140°	296.1	8.4
140°-150°	290.4	8.2
150°-160°	243.6	6.9
160°-170°	161.5	4.6
170°-180°	56.5	1.6
0°-30°	548.7	15.5
0°-40°	880.3	24.9
0°-60°	1500.2	42.4
0°-90°	1867.9	52.8
90°-120°	354.7	10.0
90°-150°	1205.0	34.1
90°-180°	1667.0	47.2
0°-180°	3534.5	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°	1	6	18	16	17	3
95°	26	31	32	32	31	29
105°	108	110	111	112	112	114
115°	201	204	203	203	201	199
125°	293	297	296	294	294	262
135°	379	384	385	385	383	293
145°	460	463	466	467	465	287
155°	526	527	529	531	530	242
165°	572	571	571	575	572	161
175°	595	594	593	596	593	57
180°	596	596	596	596	596	



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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°	0.6	6.5	17.6	16.5	17.1
92.5°	11.1	15.1	15.6	16.2	16.2
95°	26.2	31.3	32.1	32.1	31.3
97.5°	43.6	48.4	50.3	50.3	50.3
100°	63.8	68.0	69.4	69.4	68.8
102.5°	85.0	88.0	90.0	90.6	90.0
105°	108.2	109.6	110.7	111.6	111.6
107.5°	131.2	133.4	133.4	133.7	131.2
110°	153.5	156.4	156.4	156.4	155.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	177.6	180.6	180.1	178.6	177.6
115°	201.3	204.2	203.3	202.7	201.3
117.5°	224.9	228.8	226.3	224.9	223.4
120°	248.5	252.5	248.5	248.5	246.9
122.5°	270.1	275.1	272.7	271.3	270.1
125°	292.8	297.3	295.9	294.3	293.7
127.5°	314.9	320.5	318.5	316.3	314.9
130°	335.5	342.0	341.1	340.1	338.1
132.5°	358.7	363.8	364.1	361.7	360.1
135°	378.7	384.3	385.3	384.8	383.3
137.5°	401.0	405.5	406.4	406.0	403.9
140°	420.6	425.1	427.6	427.6	425.7
142.5°	440.7	445.2	446.7	447.1	445.2
145°	459.8	463.4	466.3	466.7	464.8
147.5°	476.8	481.4	483.5	484.4	482.4
150°	494.5	497.5	499.5	501.1	499.5
152.5°	510.1	513.1	515.7	517.6	515.7
155°	525.8	527.2	528.8	531.3	529.7
157.5°	539.2	540.3	541.2	544.8	542.2
160°	551.3	552.3	552.9	555.9	553.7
162.5°	562.4	562.4	562.9	566.4	563.8
165°	571.9	571.4	571.4	575.0	572.5
167.5°	580.5	578.9	578.9	582.5	580.0
170°	587.0	585.6	585.0	588.6	585.6
172.5°	591.5	590.0	589.6	593.1	590.0
175°	595.1	593.7	592.6	596.2	593.1
177.5°	597.1	595.7	594.6	597.6	594.6
180°	596.2	596.2	596.2	596.2	596.2



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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	9.02	9.91	9.95	10.86	12.09	8.59	9.47	9.52	10.42	11.65
	3H	10.66	11.46	11.61	12.42	13.67	10.18	10.98	11.13	11.94	13.19
	4H	11.24	11.99	12.20	12.96	14.22	10.76	11.51	11.72	12.47	13.74
	6H	11.62	12.32	12.59	13.29	14.56	11.14	11.83	12.11	12.80	14.08
	8H	11.72	12.38	12.70	13.37	14.64	11.24	11.90	12.21	12.88	14.16
	12H	11.76	12.39	12.75	13.37	14.67	11.27	11.90	12.25	12.88	14.18
4H	2H	9.48	10.23	10.44	11.19	12.46	9.13	9.88	10.09	10.84	12.11
	3H	11.32	11.95	12.29	12.94	14.22	10.92	11.55	11.90	12.54	13.82
	4H	12.02	12.60	13.00	13.58	14.88	11.61	12.18	12.59	13.17	14.47
	6H	12.52	13.01	13.51	14.02	15.32	12.10	12.59	13.09	13.60	14.90
	8H	12.66	13.12	13.65	14.12	15.44	12.23	12.70	13.23	13.70	15.01
	12H	12.72	13.14	13.74	14.16	15.48	12.29	12.71	13.30	13.73	15.04
8H	4H	12.21	12.67	13.20	13.67	14.99	11.84	12.30	12.84	13.31	14.62
	6H	12.82	13.20	13.84	14.24	15.55	12.44	12.82	13.46	13.87	15.18
	8H	13.02	13.36	14.05	14.39	15.72	12.64	12.98	13.67	14.01	15.34
	12H	13.14	13.44	14.18	14.47	15.84	12.75	13.04	13.78	14.07	15.44
12H	4H	12.19	12.61	13.21	13.63	14.95	11.83	12.25	12.85	13.27	14.59
	6H	12.84	13.18	13.87	14.21	15.54	12.48	12.82	13.51	13.85	15.18
	8H	13.07	13.37	14.10	14.39	15.77	12.70	13.00	13.73	14.02	15.40