

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: P918519

Luminaire Tested: DFN2DIP-4P2F0-030D020US935-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918519
REPORT IS A COMBINATION OF REPORTS P900533 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-030D020US935-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

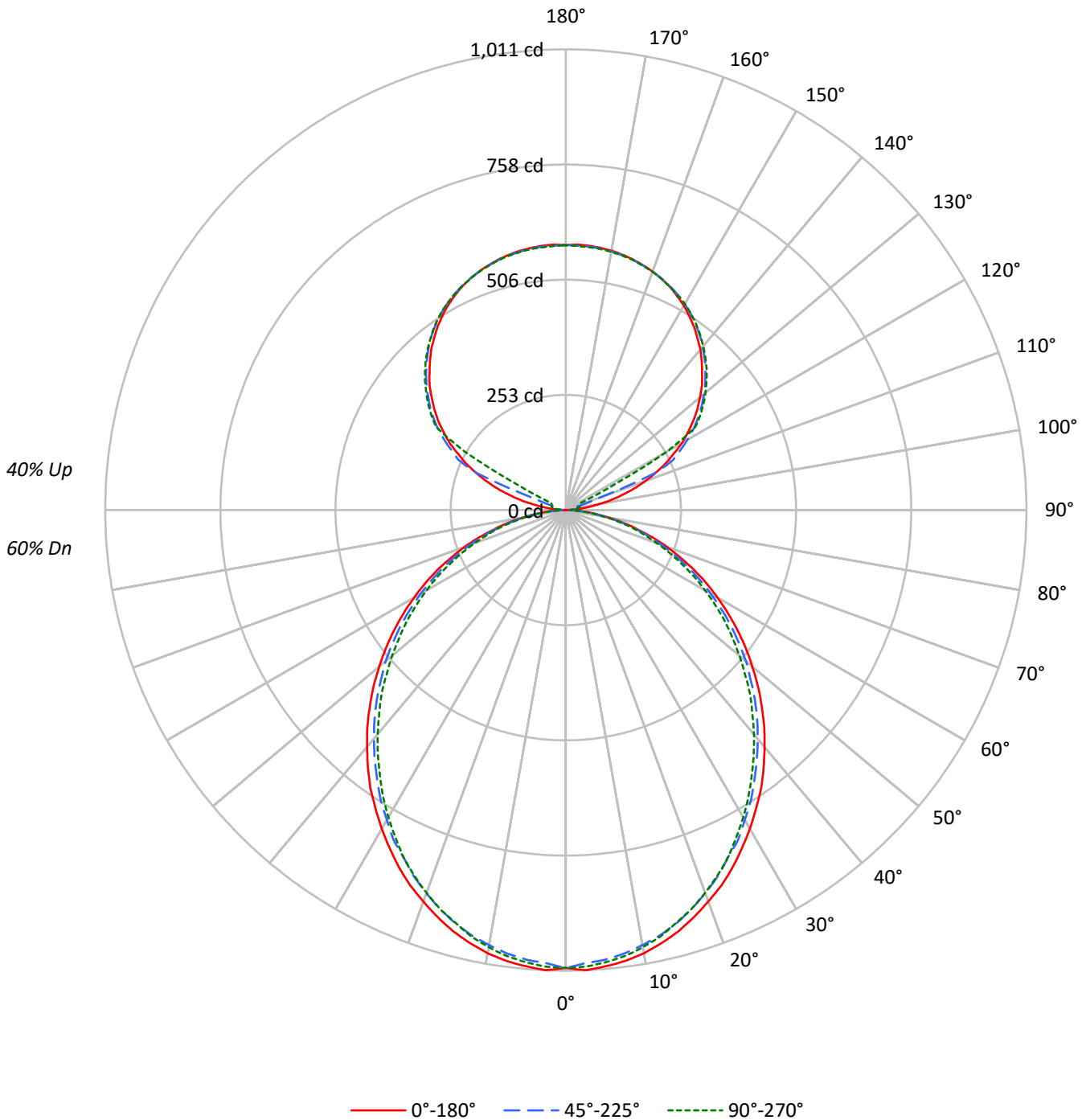
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4261.9 lumens
Efficiency: N/A
Efficacy: 98.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 43.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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
RCR																				
0	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60		
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55	51		
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47	42		
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40	36		
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34	31		
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30	27		
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26	24		
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23	21		
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21	19		
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19	17		
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17	15		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2517	2517	2517
5°	2516	2475	2494
10°	2490	2436	2456
15°	2448	2389	2399
20°	2394	2327	2341
25°	2340	2254	2275
30°	2273	2186	2191
35°	2209	2106	2103
40°	2132	2026	2019
45°	2054	1945	1933
50°	1969	1859	1833
55°	1879	1761	1741
60°	1778	1645	1635
65°	1666	1524	1510
70°	1524	1377	1375
75°	1331	1200	1245
80°	1095	974	1007
85°	733	609	626

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2054 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	94.6	2.2
10°-20°	266.2	6.2
20°-30°	391.1	9.2
30°-40°	454.3	10.7
40°-50°	453.7	10.6
50°-60°	395.6	9.3
60°-70°	292.5	6.9
70°-80°	165.5	3.9
80°-90°	44.7	1.0
90°-100°	19.2	0.4
100°-110°	71.4	1.7
110°-120°	189.5	4.4
120°-130°	314.2	7.4
130°-140°	333.8	7.8
140°-150°	310.2	7.3
150°-160°	249.4	5.9
160°-170°	160.7	3.8
170°-180°	55.3	1.3
0°-30°	751.9	17.6
0°-40°	1206.2	28.3
0°-60°	2055.6	48.2
0°-90°	2558.2	60.0
90°-120°	280.0	6.6
90°-150°	1238.3	29.1
90°-180°	1704.0	40.0
0°-180°	4261.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1005	1005	1005	1005	1005	
5°	1005	1001	991	998	996	95
15°	957	951	938	942	938	269
25°	866	858	842	844	842	398
35°	747	737	722	716	711	467
45°	608	601	587	576	572	469
55°	460	454	443	431	426	411
65°	310	304	295	286	281	307
75°	162	160	156	150	152	173
85°	40	39	38	35	34	44
90°	0	5	8	10	11	4
95°	27	13	16	18	18	32
105°	128	140	26	30	32	137
115°	242	249	260	65	34	238
125°	342	347	355	358	360	305
135°	423	430	434	438	437	327
145°	491	490	498	500	498	307
155°	540	537	542	544	541	249
165°	569	567	568	571	568	161
175°	582	580	580	583	579	55
180°	581	581	581	581	581	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1005.0	1005.0	1005.0	1005.0	1005.0
2.5°	1010.9	1006.1	995.4	1005.0	1003.2
5°	1005.0	1001.3	990.6	998.3	996.4
7.5°	998.3	992.6	981.9	989.7	987.7
10°	987.7	980.9	969.4	977.1	974.2
12.5°	973.2	967.4	955.9	960.6	958.7
15°	956.7	951.1	938.4	942.3	937.5
17.5°	936.4	930.7	918.1	922.9	918.1
20°	914.2	908.4	894.9	897.8	894.0
22.5°	892.1	883.4	870.7	870.7	868.7
25°	865.9	858.2	841.8	843.7	841.8
27.5°	836.9	830.1	817.6	814.8	809.9
30°	808.0	800.2	785.7	782.8	778.9
32.5°	777.1	771.3	755.8	749.9	746.1
35°	747.1	737.4	721.9	716.1	711.3
37.5°	713.3	704.6	689.1	682.3	677.4
40°	678.5	670.7	655.2	646.6	642.7
42.5°	644.6	636.9	621.5	611.7	606.0
45°	608.0	601.1	586.6	576.0	572.1
47.5°	572.1	565.4	549.9	539.2	533.5
50°	534.4	529.6	516.1	502.6	497.7
52.5°	497.7	490.9	478.5	467.8	461.0
55°	460.1	454.3	442.6	431.1	426.3
57.5°	422.3	417.5	404.9	393.3	389.4
60°	384.6	380.8	367.3	356.6	353.8
62.5°	347.9	341.1	331.5	321.8	318.0
65°	310.3	304.4	294.8	286.1	281.3
67.5°	271.6	266.7	258.0	251.3	247.5
70°	235.8	232.0	223.3	216.5	212.7
72.5°	199.1	195.2	190.4	183.7	180.8
75°	162.3	160.5	155.6	149.8	151.8
77.5°	129.5	125.6	123.6	120.8	118.0
80°	96.7	95.7	93.7	90.8	88.9
82.5°	65.7	65.7	64.8	60.9	60.9
85°	39.6	38.7	37.7	34.8	33.8
87.5°	17.4	15.5	13.5	10.7	9.6
90°	0.4	5.1	8.4	10.5	11.4
92.5°	10.5	8.9	10.1	10.9	11.4
95°	27.3	13.4	16.4	18.5	18.1
97.5°	49.2	14.7	21.4	22.7	23.2
100°	74.5	16.8	23.9	27.3	28.2
102.5°	102.2	101.3	24.8	29.4	30.7
105°	127.9	140.4	25.7	30.2	31.9
107.5°	157.7	168.2	26.5	31.1	32.8
110°	186.3	195.1	73.6	31.6	33.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	213.2	220.8	213.6	32.4	33.7
115°	241.8	248.9	259.5	64.7	34.5
117.5°	266.6	275.0	282.1	222.1	111.8
120°	294.4	300.7	308.2	313.3	256.5
122.5°	317.9	324.6	333.0	335.5	336.0
125°	341.9	347.3	355.3	358.3	359.6
127.5°	363.8	369.6	376.0	380.1	380.6
130°	384.3	391.1	395.7	400.4	399.9
132.5°	405.4	410.9	415.4	419.2	418.9
135°	423.1	429.8	433.5	437.8	437.0
137.5°	441.5	446.6	450.8	455.0	453.7
140°	459.6	463.0	467.6	471.4	469.3
142.5°	474.8	477.8	483.2	486.5	484.4
145°	490.8	490.3	497.5	500.4	498.3
147.5°	504.6	503.3	510.5	512.6	510.9
150°	518.1	515.1	521.9	524.3	522.3
152.5°	529.4	526.1	532.4	534.9	531.9
155°	540.4	536.6	541.7	544.2	540.8
157.5°	549.2	545.9	549.7	552.6	549.2
160°	556.8	554.2	556.8	559.3	556.4
162.5°	563.4	560.9	563.1	566.0	562.2
165°	569.4	566.9	568.1	571.1	568.1
167.5°	574.0	571.4	572.7	575.7	571.9
170°	577.8	575.2	576.1	579.0	575.2
172.5°	580.3	577.8	578.7	581.6	577.8
175°	582.4	579.5	580.3	583.2	579.0
177.5°	583.2	580.3	580.7	583.7	579.9
180°	581.2	581.2	581.2	581.2	581.2



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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	11.22	12.18	12.09	13.07	14.19	10.78	11.74	11.64	12.62	13.74
	3H	12.87	13.73	13.74	14.62	15.77	12.38	13.24	13.25	14.13	15.28
	4H	13.44	14.26	14.34	15.16	16.32	12.95	13.76	13.84	14.67	15.82
	6H	13.83	14.58	14.74	15.49	16.66	13.33	14.08	14.24	14.99	16.16
	8H	13.93	14.64	14.84	15.57	16.74	13.43	14.14	14.34	15.07	16.24
	12H	13.97	14.65	14.89	15.57	16.77	13.46	14.15	14.38	15.07	16.26
4H	2H	11.68	12.50	12.58	13.40	14.55	11.33	12.14	12.22	13.04	14.20
	3H	13.53	14.21	14.44	15.14	16.31	13.12	13.80	14.03	14.74	15.91
	4H	14.23	14.85	15.15	15.78	16.98	13.81	14.43	14.73	15.36	16.55
	6H	14.73	15.26	15.66	16.22	17.41	14.30	14.83	15.23	15.79	16.98
	8H	14.87	15.37	15.81	16.32	17.53	14.43	14.93	15.37	15.88	17.09
	12H	14.94	15.39	15.89	16.35	17.57	14.49	14.94	15.45	15.91	17.12
8H	4H	14.42	14.92	15.36	15.87	17.08	14.04	14.54	14.98	15.49	16.70
	6H	15.03	15.44	15.99	16.43	17.64	14.64	15.06	15.61	16.05	17.26
	8H	15.23	15.60	16.21	16.58	17.81	14.84	15.21	15.81	16.19	17.41
	12H	15.36	15.68	16.33	16.65	17.93	14.95	15.27	15.92	16.24	17.52
12H	4H	14.41	14.86	15.36	15.82	17.04	14.04	14.49	15.00	15.45	16.67
	6H	15.05	15.42	16.03	16.40	17.63	14.68	15.05	15.65	16.03	17.25
	8H	15.28	15.60	16.26	16.58	17.85	14.90	15.22	15.88	16.19	17.47