

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: P915791

Luminaire Tested: DFN2DIP-4P2F0-030D020US930-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915791
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-4P2F0-030D020US930-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

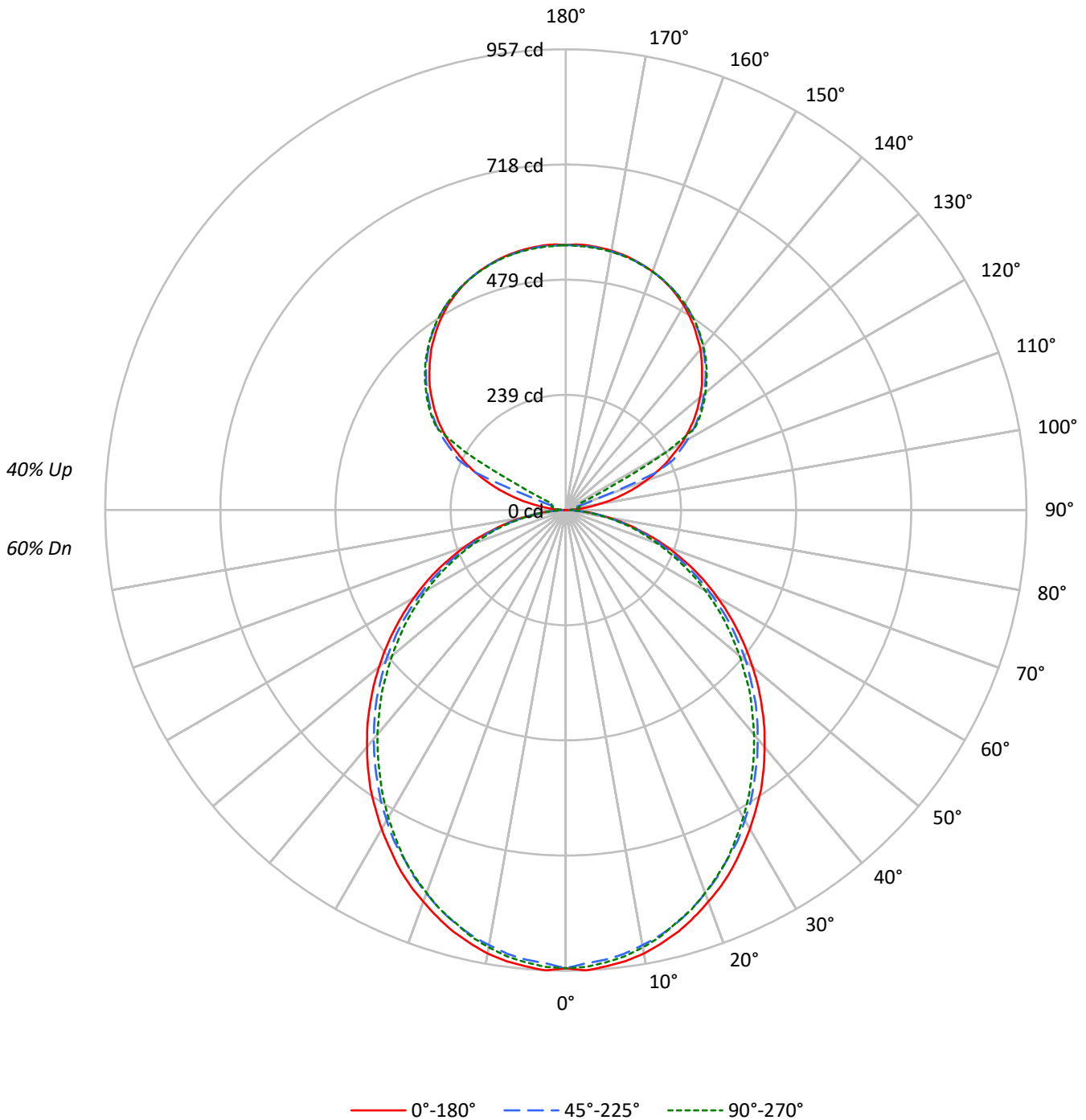
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4035.7 lumens
Efficiency: N/A
Efficacy: 93.2 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°	2383	2383	2383
5°	2382	2344	2362
10°	2358	2306	2326
15°	2319	2262	2272
20°	2267	2203	2217
25°	2215	2134	2154
30°	2152	2070	2075
35°	2092	1994	1991
40°	2018	1918	1912
45°	1945	1842	1830
50°	1864	1761	1736
55°	1780	1667	1649
60°	1683	1558	1548
65°	1578	1443	1430
70°	1444	1303	1302
75°	1260	1136	1178
80°	1037	922	953
85°	695	576	593

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1945 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.6	2.2
10°-20°	252.0	6.2
20°-30°	370.4	9.2
30°-40°	430.2	10.7
40°-50°	429.7	10.6
50°-60°	374.6	9.3
60°-70°	277.0	6.9
70°-80°	156.7	3.9
80°-90°	42.3	1.0
90°-100°	18.1	0.4
100°-110°	67.6	1.7
110°-120°	179.4	4.4
120°-130°	297.6	7.4
130°-140°	316.1	7.8
140°-150°	293.8	7.3
150°-160°	236.2	5.9
160°-170°	152.2	3.8
170°-180°	52.4	1.3
0°-30°	712.0	17.6
0°-40°	1142.2	28.3
0°-60°	1946.5	48.2
0°-90°	2422.4	60.0
90°-120°	265.2	6.6
90°-150°	1172.6	29.1
90°-180°	1613.0	40.0
0°-180°	4035.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	952	952	952	952	952	
5°	952	948	938	945	944	90
15°	906	901	889	892	888	255
25°	820	813	797	799	797	377
35°	707	698	684	678	674	442
45°	576	569	556	545	542	444
55°	436	430	419	408	404	390
65°	294	288	279	271	266	290
75°	154	152	147	142	144	164
85°	38	37	36	33	32	42
90°	0	5	8	10	11	4
95°	26	13	16	18	17	31
105°	121	133	24	29	30	129
115°	229	236	246	61	33	225
125°	324	329	336	339	340	289
135°	401	407	410	415	414	309
145°	465	464	471	474	472	291
155°	512	508	513	515	512	236
165°	539	537	538	541	538	152
175°	552	549	550	552	548	52
180°	550	550	550	550	550	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	951.7	951.7	951.7	951.7	951.7
2.5°	957.2	952.7	942.6	951.7	950.0
5°	951.7	948.1	938.0	945.3	943.5
7.5°	945.3	939.9	929.8	937.2	935.3
10°	935.3	928.9	917.9	925.2	922.5
12.5°	921.5	916.1	905.1	909.6	907.8
15°	906.0	900.6	888.6	892.3	887.7
17.5°	886.7	881.3	869.4	873.9	869.4
20°	865.7	860.2	847.4	850.1	846.5
22.5°	844.7	836.5	824.5	824.5	822.6
25°	819.9	812.7	797.1	798.9	797.1
27.5°	792.5	786.0	774.2	771.5	767.0
30°	765.1	757.7	744.0	741.3	737.6
32.5°	735.8	730.3	715.7	710.1	706.5
35°	707.4	698.3	683.6	678.1	673.5
37.5°	675.4	667.2	652.5	646.0	641.5
40°	642.5	635.1	620.4	612.3	608.6
42.5°	610.4	603.1	588.5	579.3	573.8
45°	575.7	569.2	555.5	545.4	541.8
47.5°	541.8	535.4	520.7	510.6	505.2
50°	506.1	501.5	488.7	475.9	471.3
52.5°	471.3	464.9	453.1	443.0	436.5
55°	435.7	430.2	419.1	408.2	403.7
57.5°	399.9	395.3	383.4	372.4	368.8
60°	364.2	360.6	347.8	337.7	335.0
62.5°	329.5	323.0	313.9	304.8	301.1
65°	293.8	288.3	279.2	270.9	266.4
67.5°	257.2	252.6	244.3	238.0	234.3
70°	223.3	219.6	211.4	205.0	201.4
72.5°	188.6	184.8	180.3	173.9	171.2
75°	153.7	152.0	147.3	141.9	143.7
77.5°	122.6	119.0	117.1	114.4	111.7
80°	91.6	90.6	88.7	86.0	84.2
82.5°	62.2	62.2	61.4	57.6	57.6
85°	37.5	36.6	35.7	32.9	32.0
87.5°	16.5	14.7	12.8	10.1	9.1
90°	0.4	4.8	7.9	9.9	10.8
92.5°	9.9	8.4	9.5	10.4	10.8
95°	25.8	12.7	15.5	17.5	17.1
97.5°	46.6	13.9	20.3	21.5	21.9
100°	70.5	15.9	22.7	25.8	26.7
102.5°	96.8	96.0	23.5	27.9	29.1
105°	121.1	133.0	24.3	28.6	30.2
107.5°	149.4	159.2	25.1	29.4	31.1
110°	176.4	184.7	69.7	29.9	31.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	201.9	209.0	202.3	30.7	31.9
115°	228.9	235.7	245.7	61.3	32.7
117.5°	252.4	260.4	267.2	210.3	105.9
120°	278.8	284.7	291.9	296.7	242.9
122.5°	301.0	307.4	315.4	317.7	318.2
125°	323.8	328.9	336.5	339.2	340.5
127.5°	344.5	350.0	356.0	360.0	360.4
130°	363.9	370.3	374.7	379.1	378.7
132.5°	383.8	389.1	393.4	397.0	396.6
135°	400.6	407.0	410.5	414.6	413.8
137.5°	418.1	422.9	426.9	430.9	429.7
140°	435.2	438.5	442.8	446.4	444.4
142.5°	449.6	452.4	457.5	460.7	458.7
145°	464.7	464.3	471.1	473.9	471.9
147.5°	477.8	476.6	483.4	485.3	483.8
150°	490.6	487.8	494.2	496.5	494.6
152.5°	501.3	498.1	504.1	506.5	503.7
155°	511.7	508.1	512.9	515.3	512.1
157.5°	520.1	516.9	520.5	523.3	520.1
160°	527.3	524.8	527.3	529.6	526.8
162.5°	533.5	531.2	533.2	536.0	532.4
165°	539.2	536.8	537.9	540.8	537.9
167.5°	543.6	541.1	542.3	545.2	541.5
170°	547.1	544.7	545.5	548.3	544.7
172.5°	549.5	547.1	548.0	550.7	547.1
175°	551.5	548.7	549.5	552.3	548.3
177.5°	552.3	549.5	549.9	552.7	549.1
180°	550.3	550.3	550.3	550.3	550.3



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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	11.03	11.99	11.90	12.88	14.00	10.59	11.55	11.45	12.43	13.55
	3H	12.68	13.54	13.55	14.43	15.58	12.19	13.05	13.06	13.94	15.09
	4H	13.25	14.07	14.15	14.97	16.13	12.76	13.57	13.65	14.48	15.63
	6H	13.64	14.39	14.55	15.30	16.47	13.14	13.89	14.05	14.80	15.97
	8H	13.74	14.45	14.65	15.38	16.55	13.24	13.95	14.15	14.88	16.05
	12H	13.78	14.46	14.70	15.38	16.58	13.27	13.96	14.19	14.88	16.07
4H	2H	11.49	12.31	12.39	13.21	14.36	11.14	11.95	12.03	12.85	14.01
	3H	13.34	14.02	14.25	14.95	16.12	12.93	13.61	13.84	14.55	15.72
	4H	14.04	14.66	14.96	15.59	16.79	13.62	14.24	14.54	15.17	16.36
	6H	14.54	15.07	15.47	16.03	17.23	14.11	14.64	15.04	15.60	16.79
	8H	14.68	15.18	15.62	16.13	17.34	14.24	14.74	15.18	15.69	16.90
	12H	14.75	15.20	15.70	16.16	17.38	14.30	14.75	15.26	15.72	16.93
8H	4H	14.23	14.73	15.17	15.68	16.89	13.85	14.35	14.79	15.30	16.51
	6H	14.84	15.25	15.80	16.24	17.45	14.45	14.87	15.42	15.86	17.07
	8H	15.04	15.41	16.02	16.39	17.62	14.65	15.02	15.62	16.00	17.22
	12H	15.17	15.49	16.14	16.46	17.74	14.76	15.08	15.73	16.05	17.33
12H	4H	14.22	14.67	15.18	15.63	16.85	13.85	14.30	14.81	15.27	16.48
	6H	14.86	15.23	15.84	16.21	17.44	14.49	14.86	15.46	15.84	17.06
	8H	15.09	15.41	16.07	16.39	17.66	14.71	15.03	15.69	16.01	17.28