

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: P915803

Luminaire Tested: DFN2DIP-4P2F0-040D020US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915803
REPORT IS A COMBINATION OF REPORTS P900535 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D020US930-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

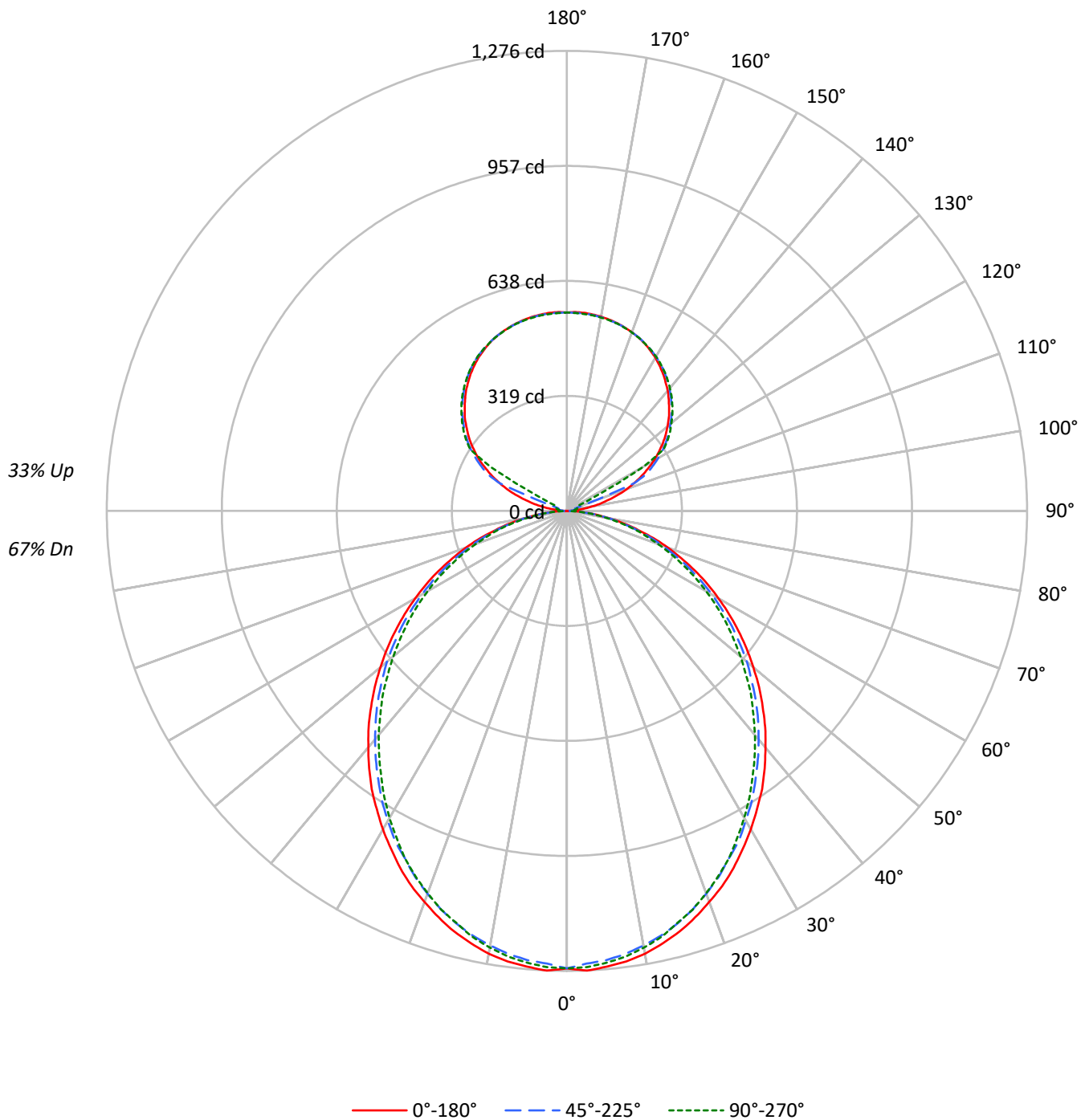
Lumens per Lamp: N/A
Luminaire Lumens: 4842.9 lumens
Efficiency: N/A
Efficacy: 86.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 56.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	0
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71	71	71	67
1	102	97	93	90	95	92	88	85	81	79	76		72	70	68		63	62	60	56
2	92	85	79	73	87	80	75	70	71	67	63		63	60	57		56	53	51	47
3	84	75	67	61	79	71	64	58	63	58	53		56	52	48		49	46	43	40
4	77	66	58	52	72	63	55	50	56	50	45		50	45	41		44	40	37	34
5	71	59	51	44	67	56	48	43	50	44	39		45	40	36		40	36	33	30
6	66	53	45	39	62	50	43	37	45	39	34		41	35	32		36	32	29	26
7	61	48	40	34	57	46	38	33	41	35	30		37	32	28		33	29	26	23
8	56	44	36	30	53	42	34	29	38	31	27		34	29	25		30	26	23	21
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28	24	21	19
10	49	37	29	24	46	35	28	24	32	26	22		29	24	20		26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3177	3177	3177
5°	3176	3125	3149
10°	3144	3075	3101
15°	3091	3016	3029
20°	3023	2938	2956
25°	2954	2846	2872
30°	2870	2760	2767
35°	2789	2659	2656
40°	2691	2558	2549
45°	2593	2455	2440
50°	2485	2347	2315
55°	2373	2223	2198
60°	2244	2077	2064
65°	2104	1924	1907
70°	1924	1737	1736
75°	1681	1515	1571
80°	1383	1230	1272
85°	926	768	791

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2593 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	2.5
10°-20°	336.0	6.9
20°-30°	493.8	10.2
30°-40°	573.6	11.8
40°-50°	572.9	11.8
50°-60°	499.5	10.3
60°-70°	369.3	7.6
70°-80°	208.9	4.3
80°-90°	56.1	1.2
90°-100°	18.1	0.4
100°-110°	67.6	1.4
110°-120°	179.4	3.7
120°-130°	297.6	6.1
130°-140°	316.1	6.5
140°-150°	293.8	6.1
150°-160°	236.2	4.9
160°-170°	152.2	3.1
170°-180°	52.4	1.1
0°-30°	949.3	19.6
0°-40°	1522.9	31.4
0°-60°	2595.3	53.6
0°-90°	3229.6	66.7
90°-120°	265.2	5.5
90°-150°	1172.6	24.2
90°-180°	1613.0	33.3
0°-180°	4842.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
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°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
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	12.57	13.60	13.37	14.42	15.43	12.12	13.16	12.92	13.98	14.99
	3H	14.22	15.15	15.03	15.98	17.02	13.73	14.66	14.54	15.49	16.53
	4H	14.80	15.68	15.63	16.51	17.57	14.30	15.18	15.13	16.02	17.07
	6H	15.19	16.00	16.03	16.85	17.91	14.69	15.50	15.53	16.35	17.41
	8H	15.29	16.06	16.14	16.93	17.99	14.79	15.56	15.64	16.43	17.49
	12H	15.34	16.07	16.19	16.93	18.02	14.83	15.56	15.68	16.42	17.51
4H	2H	13.04	13.91	13.87	14.75	15.80	12.68	13.56	13.51	14.40	15.45
	3H	14.89	15.62	15.74	16.50	17.56	14.48	15.22	15.33	16.09	17.15
	4H	15.59	16.26	16.45	17.13	18.23	15.17	15.84	16.03	16.71	17.80
	6H	16.10	16.67	16.97	17.57	18.67	15.67	16.24	16.54	17.14	18.23
	8H	16.24	16.78	17.12	17.67	18.78	15.80	16.34	16.68	17.23	18.34
	12H	16.31	16.80	17.21	17.71	18.82	15.86	16.35	16.76	17.26	18.37
8H	4H	15.79	16.33	16.67	17.22	18.33	15.41	15.95	16.29	16.84	17.95
	6H	16.40	16.85	17.31	17.78	18.89	16.02	16.46	16.92	17.39	18.50
	8H	16.61	17.00	17.52	17.93	19.06	16.22	16.61	17.13	17.54	18.66
	12H	16.73	17.08	17.65	18.00	19.18	16.32	16.67	17.24	17.59	18.77
12H	4H	15.78	16.27	16.68	17.18	18.29	15.41	15.90	16.31	16.81	17.92
	6H	16.43	16.82	17.34	17.75	18.87	16.05	16.45	16.97	17.37	18.50
	8H	16.66	17.01	17.58	17.92	19.10	16.28	16.63	17.20	17.54	18.72