

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: P910335

Luminaire Tested: DFN2DIP-4P2F0-030D020US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910335
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-4P2F0-030D020US850-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

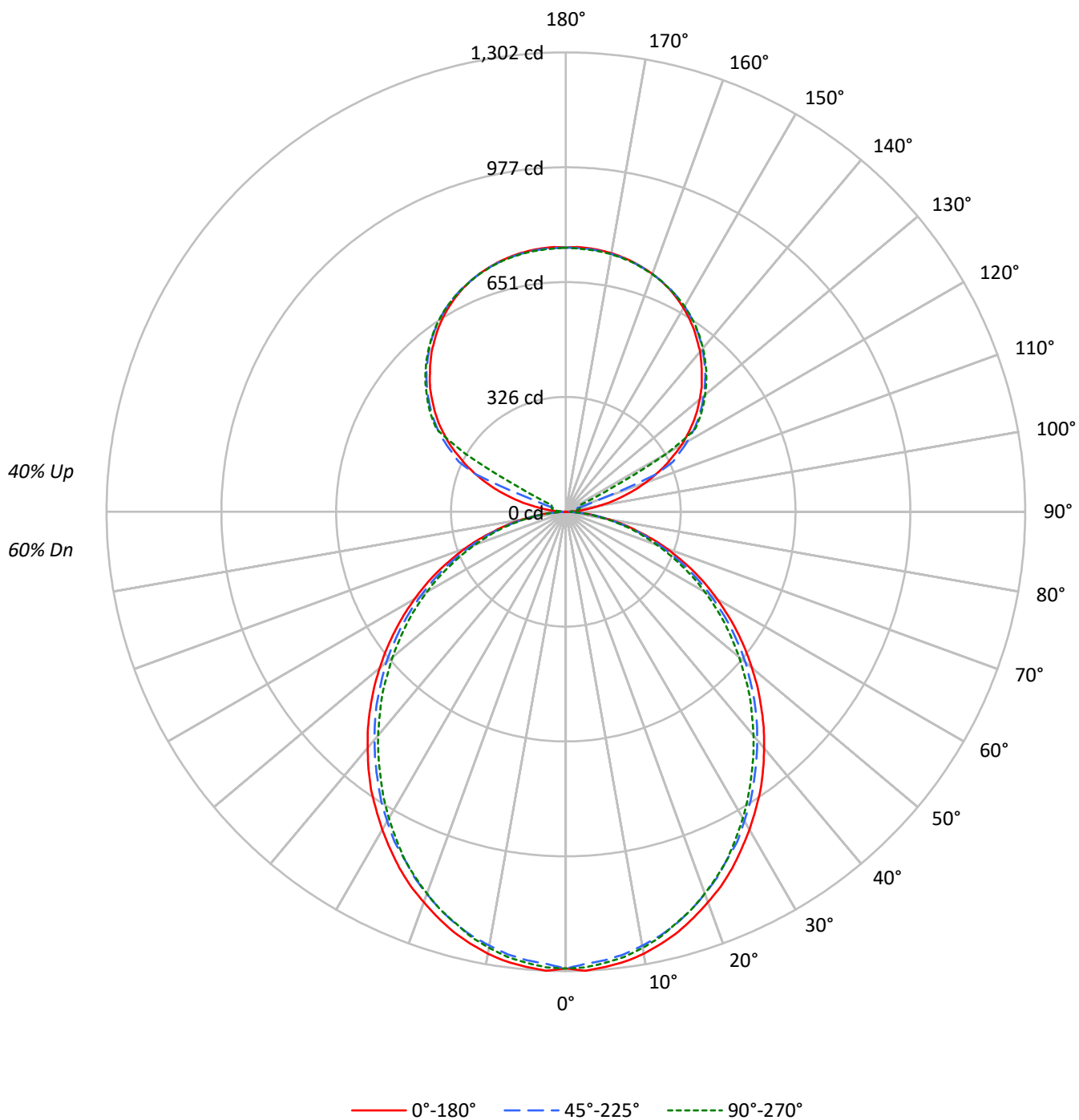
Lumens per Lamp: N/A
Luminaire Lumens: 5489.6 lumens
Efficiency: N/A
Efficacy: 126.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

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
RW	70	50	30	10	70	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
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3241	3241	3241
5°	3240	3188	3212
10°	3207	3137	3164
15°	3154	3077	3090
20°	3084	2997	3015
25°	3014	2903	2930
30°	2928	2815	2822
35°	2845	2713	2709
40°	2745	2609	2601
45°	2645	2505	2489
50°	2536	2395	2362
55°	2420	2268	2243
60°	2290	2119	2106
65°	2146	1963	1945
70°	1964	1773	1771
75°	1714	1545	1603
80°	1410	1255	1298
85°	945	785	807

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2645 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.8	2.2
10°-20°	342.8	6.2
20°-30°	503.8	9.2
30°-40°	585.2	10.7
40°-50°	584.4	10.6
50°-60°	509.6	9.3
60°-70°	376.7	6.9
70°-80°	213.1	3.9
80°-90°	57.6	1.0
90°-100°	24.7	0.4
100°-110°	92.0	1.7
110°-120°	244.0	4.4
120°-130°	404.8	7.4
130°-140°	429.9	7.8
140°-150°	399.6	7.3
150°-160°	321.3	5.9
160°-170°	207.0	3.8
170°-180°	71.2	1.3
0°-30°	968.5	17.6
0°-40°	1553.6	28.3
0°-60°	2647.7	48.2
0°-90°	3295.1	60.0
90°-120°	360.7	6.6
90°-150°	1595.0	29.1
90°-180°	2194.0	40.0
0°-180°	5489.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1294	1294	1294	1294	1294	
5°	1294	1290	1276	1286	1283	123
15°	1232	1225	1209	1214	1208	347
25°	1115	1106	1084	1087	1084	513
35°	962	950	930	922	916	601
45°	783	774	756	742	737	604
55°	593	585	570	555	549	530
65°	400	392	380	368	362	395
75°	209	207	200	193	196	223
85°	51	50	49	45	44	57
90°	1	6	11	14	15	5
95°	35	17	21	24	23	42
105°	165	181	33	39	41	176
115°	311	321	334	83	44	307
125°	440	447	458	462	463	393
135°	545	554	558	564	563	421
145°	632	632	641	645	642	395
155°	696	691	698	701	697	321
165°	733	730	732	736	732	207
175°	750	746	748	751	746	71
180°	749	749	749	749	749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1294.5	1294.5	1294.5	1294.5	1294.5
2.5°	1302.1	1295.9	1282.1	1294.5	1292.2
5°	1294.5	1289.7	1275.9	1285.9	1283.4
7.5°	1285.9	1278.5	1264.7	1274.8	1272.2
10°	1272.2	1263.5	1248.6	1258.5	1254.8
12.5°	1253.5	1246.1	1231.2	1237.3	1234.9
15°	1232.3	1225.0	1208.7	1213.7	1207.5
17.5°	1206.1	1198.8	1182.5	1188.7	1182.5
20°	1177.5	1170.1	1152.7	1156.4	1151.5
22.5°	1149.0	1137.8	1121.5	1121.5	1119.0
25°	1115.3	1105.5	1084.3	1086.7	1084.3
27.5°	1077.9	1069.2	1053.1	1049.4	1043.2
30°	1040.7	1030.7	1012.1	1008.3	1003.3
32.5°	1000.9	993.4	973.5	965.9	960.9
35°	962.3	949.9	929.9	922.4	916.1
37.5°	918.7	907.5	887.5	878.8	872.6
40°	873.9	863.9	843.9	832.9	827.9
42.5°	830.3	820.3	800.5	787.9	780.5
45°	783.1	774.3	755.6	741.9	736.9
47.5°	736.9	728.3	708.3	694.6	687.1
50°	688.4	682.1	664.7	647.3	641.1
52.5°	641.1	632.4	616.3	602.5	593.8
55°	592.6	585.1	570.1	555.3	549.1
57.5°	544.0	537.8	521.6	506.6	501.6
60°	495.4	490.5	473.1	459.3	455.7
62.5°	448.1	439.4	427.0	414.5	409.6
65°	399.7	392.1	379.7	368.5	362.3
67.5°	349.9	343.6	332.4	323.7	318.7
70°	303.8	298.8	287.6	278.8	273.9
72.5°	256.5	251.4	245.2	236.5	232.9
75°	209.0	206.7	200.4	193.0	195.5
77.5°	166.8	161.8	159.3	155.6	151.9
80°	124.5	123.2	120.7	117.0	114.6
82.5°	84.6	84.6	83.5	78.4	78.4
85°	51.0	49.8	48.6	44.8	43.6
87.5°	22.4	20.0	17.4	13.8	12.4
90°	0.6	6.5	10.8	13.5	14.6
92.5°	13.5	11.4	13.0	14.1	14.6
95°	35.2	17.3	21.1	23.8	23.3
97.5°	63.3	19.0	27.6	29.3	29.8
100°	95.9	21.6	30.8	35.2	36.3
102.5°	131.6	130.5	31.9	37.9	39.6
105°	164.7	180.9	33.0	38.9	41.1
107.5°	203.2	216.6	34.2	40.0	42.3
110°	240.0	251.3	94.8	40.7	42.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	274.6	284.3	275.1	41.7	43.4
115°	311.4	320.6	334.3	83.4	44.5
117.5°	343.3	354.2	363.4	286.0	144.1
120°	379.2	387.3	397.0	403.6	330.4
122.5°	409.4	418.1	429.0	432.2	432.8
125°	440.4	447.4	457.7	461.5	463.1
127.5°	468.6	476.1	484.3	489.6	490.2
130°	495.1	503.7	509.7	515.7	515.1
132.5°	522.1	529.2	535.1	540.0	539.5
135°	545.0	553.6	558.4	563.9	562.8
137.5°	568.7	575.2	580.7	586.1	584.4
140°	592.0	596.4	602.3	607.2	604.5
142.5°	611.5	615.4	622.4	626.7	623.9
145°	632.1	631.6	640.8	644.6	641.9
147.5°	650.0	648.3	657.5	660.2	658.1
150°	667.3	663.5	672.2	675.4	672.7
152.5°	681.9	677.6	685.7	689.0	685.1
155°	696.0	691.1	697.7	700.9	696.6
157.5°	707.4	703.1	708.0	711.8	707.4
160°	717.2	713.9	717.2	720.4	716.6
162.5°	725.7	722.5	725.3	729.1	724.2
165°	733.4	730.2	731.7	735.6	731.7
167.5°	739.4	736.0	737.7	741.6	736.6
170°	744.2	740.9	742.0	745.8	740.9
172.5°	747.5	744.2	745.4	749.1	744.2
175°	750.1	746.4	747.5	751.2	745.8
177.5°	751.2	747.5	748.0	751.8	746.9
180°	748.6	748.6	748.6	748.6	748.6

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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	12.10	13.06	12.97	13.95	15.07	11.66	12.61	12.52	13.50	14.62
	3H	13.75	14.61	14.62	15.50	16.65	13.26	14.12	14.13	15.01	16.16
	4H	14.32	15.14	15.22	16.04	17.20	13.83	14.64	14.72	15.55	16.70
	6H	14.71	15.46	15.62	16.37	17.54	14.21	14.96	15.12	15.87	17.04
	8H	14.81	15.52	15.72	16.45	17.62	14.31	15.02	15.22	15.95	17.12
	12H	14.85	15.53	15.77	16.45	17.65	14.34	15.02	15.26	15.95	17.14
4H	2H	12.56	13.37	13.46	14.28	15.43	12.20	13.02	13.10	13.92	15.08
	3H	14.41	15.09	15.32	16.02	17.19	14.00	14.68	14.91	15.61	16.79
	4H	15.11	15.73	16.03	16.66	17.86	14.68	15.30	15.61	16.23	17.43
	6H	15.61	16.14	16.54	17.10	18.29	15.18	15.71	16.11	16.66	17.86
	8H	15.75	16.25	16.69	17.20	18.41	15.31	15.81	16.25	16.76	17.97
	12H	15.82	16.27	16.77	17.23	18.45	15.37	15.82	16.32	16.78	18.00
8H	4H	15.30	15.80	16.24	16.75	17.96	14.92	15.42	15.86	16.37	17.58
	6H	15.91	16.32	16.87	17.31	18.52	15.52	15.94	16.49	16.93	18.14
	8H	16.11	16.48	17.09	17.46	18.69	15.72	16.09	16.69	17.07	18.29
	12H	16.23	16.56	17.21	17.53	18.81	15.82	16.15	16.80	17.12	18.40
12H	4H	15.29	15.74	16.24	16.70	17.92	14.92	15.37	15.87	16.33	17.55
	6H	15.93	16.30	16.91	17.28	18.51	15.56	15.93	16.53	16.90	18.13
	8H	16.16	16.48	17.14	17.46	18.73	15.78	16.10	16.76	17.07	18.35