

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: P907597

Luminaire Tested: DFN2DIP-4P2F0-020D020US840-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907597
REPORT IS A COMBINATION OF REPORTS P900532 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D020US840-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

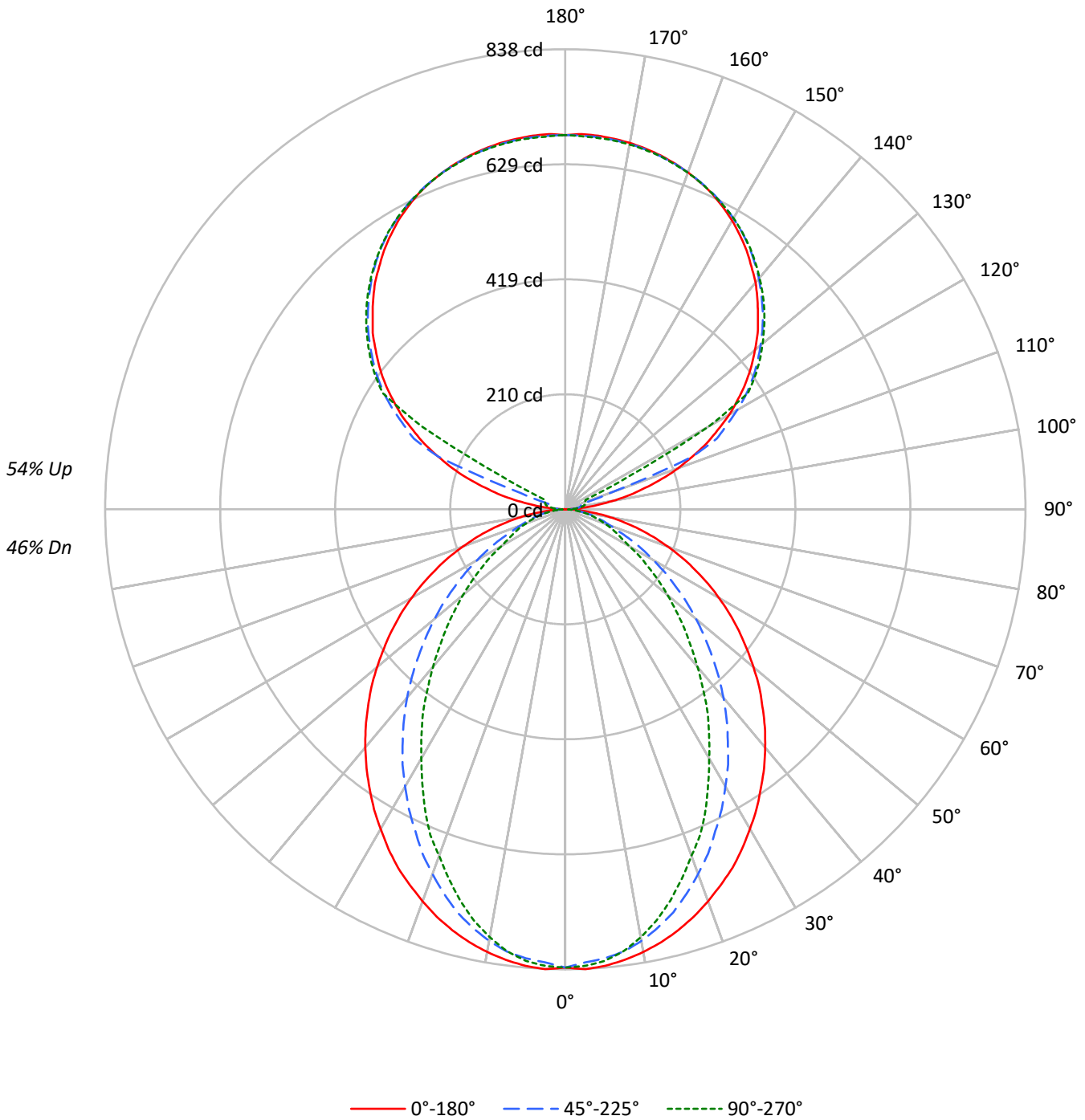
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3716.3 lumens
Efficiency: N/A
Efficacy: 115.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 32.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P907597
CATALOG NUMBER: DFN2DIP-4P2F0-020D020US840-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P907597
 CATALOG NUMBER: DFN2DIP-4P2F0-020D020US840-RLLONL

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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2090	2090	2090
5°	2089	2052	2067
10°	2065	2006	1996
15°	2032	1935	1889
20°	1990	1839	1759
25°	1947	1731	1633
30°	1891	1622	1475
35°	1836	1505	1336
40°	1780	1385	1177
45°	1715	1252	1033
50°	1648	1119	894
55°	1577	977	759
60°	1495	829	622
65°	1399	680	556
70°	1284	540	498
75°	1140	466	446
80°	932	377	376
85°	600	231	265

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1715 cd/sqm



TEST NUMBER: P907597

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	78.2	2.1
10°-20°	214.8	5.8
20°-30°	301.5	8.1
30°-40°	328.7	8.8
40°-50°	302.1	8.1
50°-60°	237.3	6.4
60°-70°	154.4	4.2
70°-80°	79.5	2.1
80°-90°	21.5	0.6
90°-100°	22.5	0.6
100°-110°	83.8	2.3
110°-120°	222.2	6.0
120°-130°	368.6	9.9
130°-140°	391.5	10.5
140°-150°	363.9	9.8
150°-160°	292.5	7.9
160°-170°	188.5	5.1
170°-180°	64.9	1.7
0°-30°	594.5	16.0
0°-40°	923.2	24.8
0°-60°	1462.6	39.4
0°-90°	1718.0	46.2
90°-120°	328.5	8.8
90°-150°	1452.4	39.1
90°-180°	1998.0	53.8
0°-180°	3716.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	835	835	835	835	835	
5°	835	831	821	828	826	79
15°	794	786	760	746	738	224
25°	721	696	647	616	604	331
35°	621	582	516	468	452	389
45°	508	457	378	324	306	392
55°	386	327	246	200	186	345
65°	261	199	132	106	104	258
75°	139	86	60	55	54	147
85°	32	17	14	14	14	37
90°	0	6	10	12	13	3
95°	32	16	19	22	21	38
105°	150	165	30	35	38	160
115°	284	292	304	76	40	279
125°	401	407	417	420	422	358
135°	496	504	508	514	512	383
145°	576	575	584	587	584	360
155°	634	629	635	638	634	292
165°	668	665	666	670	666	189
175°	683	680	681	684	679	65
180°	682	682	682	682	682	



TEST NUMBER: P907597

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	834.8	834.8	834.8	834.8	834.8
2.5°	838.5	834.8	826.4	834.0	832.5
5°	834.8	831.0	821.1	828.0	825.7
7.5°	828.0	823.4	812.8	815.9	812.0
10°	818.9	813.5	798.5	796.2	791.7
12.5°	807.6	800.7	780.3	775.9	767.5
15°	794.0	785.6	759.9	745.6	738.1
17.5°	778.1	766.0	734.3	717.6	705.6
20°	759.9	744.8	707.1	688.2	671.6
22.5°	740.3	723.0	679.1	653.5	642.2
25°	720.7	696.5	646.6	615.7	604.3
27.5°	697.3	671.6	616.4	580.9	563.5
30°	672.4	643.6	583.2	544.7	524.2
32.5°	648.1	613.4	551.5	506.1	487.3
35°	621.0	582.5	516.0	468.4	451.7
37.5°	594.5	552.9	482.7	430.6	411.7
40°	566.5	521.3	448.0	394.4	374.7
42.5°	537.9	489.6	413.2	357.3	338.5
45°	507.7	457.0	377.8	324.1	305.9
47.5°	479.0	425.4	343.8	290.0	273.5
50°	447.3	393.6	310.5	258.3	242.6
52.5°	416.2	359.5	278.7	228.9	214.6
55°	386.0	327.1	245.5	200.3	185.8
57.5°	355.1	294.6	216.1	173.8	161.7
60°	323.4	262.9	185.1	146.6	134.5
62.5°	292.4	232.0	158.6	122.4	116.3
65°	260.6	199.4	131.5	105.8	103.5
67.5°	230.5	169.2	105.8	92.9	90.7
70°	198.6	139.8	87.6	80.1	77.1
72.5°	168.4	112.5	73.2	67.3	65.7
75°	139.0	86.0	60.4	55.1	54.4
77.5°	109.6	61.2	47.6	44.5	43.0
80°	82.3	43.8	36.3	33.2	33.2
82.5°	57.4	29.5	24.9	23.4	23.4
85°	32.4	16.6	14.3	14.3	14.3
87.5°	12.1	6.1	6.1	5.3	5.3
90°	0.5	6.0	9.8	12.3	13.3
92.5°	12.3	10.4	11.8	12.8	13.3
95°	32.0	15.8	19.2	21.7	21.2
97.5°	57.7	17.3	25.1	26.7	27.2
100°	87.4	19.7	28.1	32.0	33.0
102.5°	119.9	118.9	29.1	34.5	36.1
105°	150.0	164.7	30.1	35.4	37.5
107.5°	185.0	197.2	31.1	36.5	38.5
110°	218.5	228.8	86.3	37.1	39.0



TEST NUMBER: P907597

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	250.0	258.9	250.5	38.0	39.5
115°	283.6	292.0	304.4	75.9	40.5
117.5°	312.7	322.6	330.9	260.4	131.2
120°	345.3	352.6	361.5	367.5	300.8
122.5°	372.8	380.7	390.6	393.5	394.2
125°	401.0	407.4	416.8	420.2	421.7
127.5°	426.7	433.5	441.0	445.9	446.4
130°	450.8	458.7	464.1	469.6	469.1
132.5°	475.4	481.9	487.3	491.7	491.3
135°	496.2	504.1	508.5	513.5	512.5
137.5°	517.9	523.8	528.8	533.7	532.2
140°	539.1	543.1	548.5	552.9	550.5
142.5°	556.8	560.4	566.7	570.7	568.2
145°	575.6	575.1	583.5	586.9	584.5
147.5°	591.9	590.4	598.7	601.2	599.3
150°	607.6	604.2	612.1	615.0	612.6
152.5°	621.0	617.0	624.4	627.4	623.9
155°	633.8	629.3	635.3	638.2	634.3
157.5°	644.2	640.3	644.7	648.1	644.2
160°	653.1	650.1	653.1	656.0	652.6
162.5°	660.9	657.9	660.5	663.9	659.4
165°	667.8	664.9	666.3	669.8	666.3
167.5°	673.3	670.2	671.8	675.3	670.8
170°	677.7	674.7	675.7	679.1	674.7
172.5°	680.6	677.7	678.7	682.2	677.7
175°	683.1	679.6	680.6	684.1	679.1
177.5°	684.1	680.6	681.2	684.6	680.1
180°	681.7	681.7	681.7	681.7	681.7



TEST NUMBER: P907597
 CATALOG NUMBER: DFN2DIP-4P2F0-020D020US840-RLLONL

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	9.21	10.01	10.21	11.01	12.34	5.17	5.97	6.17	6.98	8.30
	3H	10.86	11.58	11.87	12.59	13.94	6.34	7.05	7.35	8.07	9.41
	4H	11.45	12.13	12.47	13.15	14.50	6.77	7.45	7.79	8.46	9.82
	6H	11.86	12.48	12.89	13.50	14.87	7.07	7.70	8.10	8.71	10.08
	8H	11.97	12.56	13.01	13.60	14.96	7.15	7.74	8.19	8.78	10.14
	12H	12.02	12.59	13.06	13.62	15.00	7.19	7.75	8.22	8.78	10.16
4H	2H	9.22	9.90	10.25	10.91	12.27	5.75	6.43	6.78	7.44	8.80
	3H	11.02	11.58	12.05	12.63	13.99	7.08	7.64	8.11	8.68	10.05
	4H	11.69	12.21	12.73	13.24	14.63	7.60	8.12	8.64	9.15	10.55
	6H	12.18	12.63	13.23	13.68	15.07	8.00	8.44	9.05	9.50	10.89
	8H	12.35	12.76	13.40	13.81	15.21	8.11	8.53	9.17	9.58	10.98
	12H	12.43	12.80	13.50	13.87	15.27	8.17	8.54	9.23	9.60	11.01
8H	4H	11.65	12.07	12.70	13.12	14.52	7.87	8.28	8.92	9.33	10.73
	6H	12.19	12.53	13.27	13.63	15.03	8.36	8.70	9.43	9.79	11.19
	8H	12.39	12.69	13.48	13.77	15.19	8.53	8.83	9.61	9.91	11.33
	12H	12.52	12.78	13.60	13.85	15.31	8.63	8.89	9.72	9.97	11.43
12H	4H	11.60	11.98	12.67	13.04	14.45	7.87	8.24	8.94	9.31	10.71
	6H	12.17	12.47	13.25	13.54	14.96	8.40	8.70	9.48	9.77	11.19
	8H	12.37	12.63	13.45	13.70	15.16	8.59	8.85	9.67	9.92	11.38