

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: P907619

Luminaire Tested: DFN2DIP-4P2F0-040D020US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907619
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-4P2F0-040D020US840-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

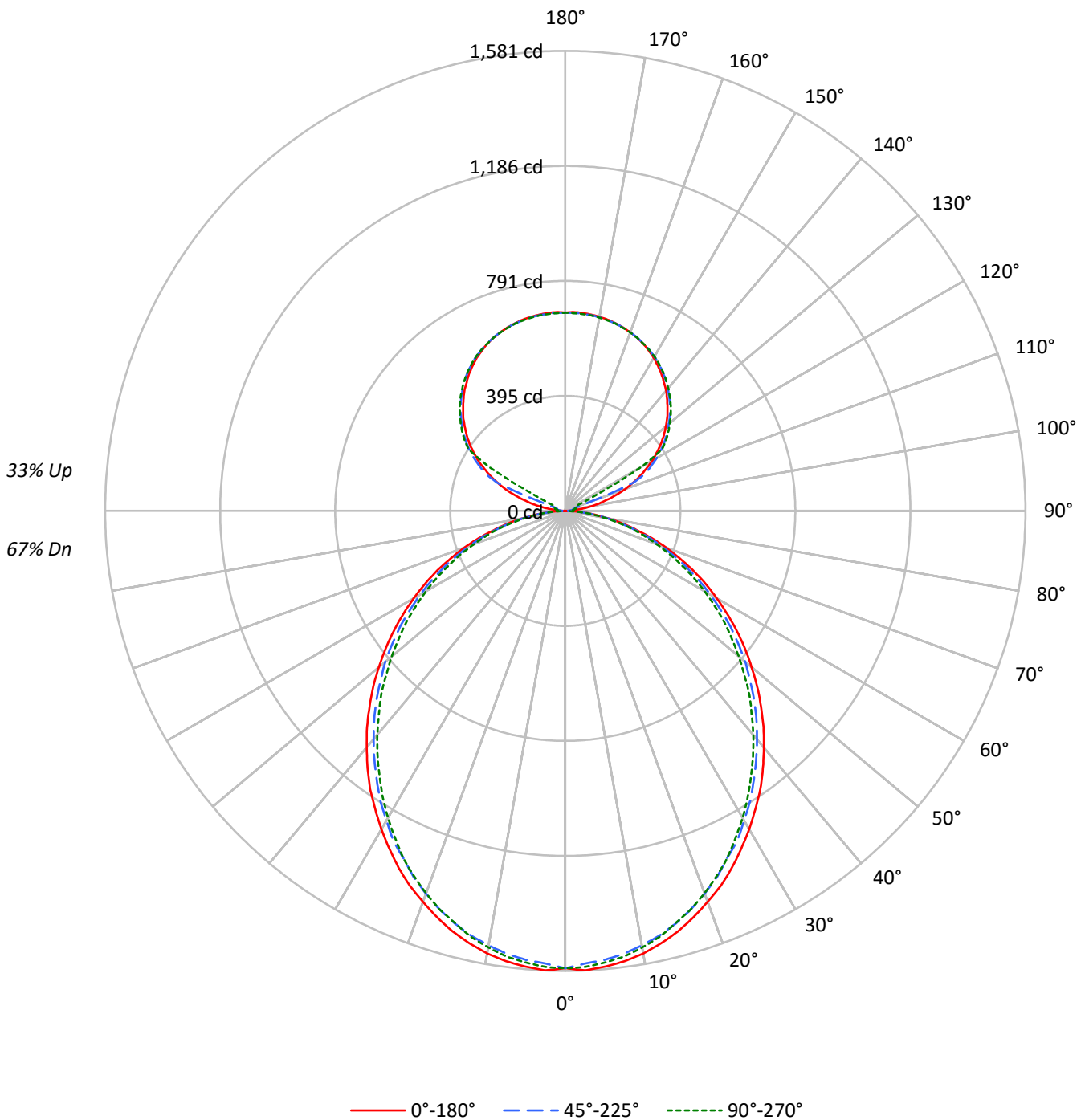
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5998.6 lumens
Efficiency: N/A
Efficacy: 106.9 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				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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67				67
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60	56				56
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51	47				47
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43	40				40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34				34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30				30
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29	26				26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23				23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21				21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19				19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17				17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3936	3936	3936
5°	3934	3871	3900
10°	3894	3809	3841
15°	3829	3736	3752
20°	3744	3639	3661
25°	3659	3525	3557
30°	3554	3418	3427
35°	3455	3294	3289
40°	3334	3168	3158
45°	3212	3041	3023
50°	3079	2908	2867
55°	2939	2754	2723
60°	2780	2573	2557
65°	2605	2383	2362
70°	2384	2152	2149
75°	2082	1876	1946
80°	1712	1523	1575
85°	1146	952	980

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3212 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	2.5
10°-20°	416.2	6.9
20°-30°	611.7	10.2
30°-40°	710.5	11.8
40°-50°	709.6	11.8
50°-60°	618.7	10.3
60°-70°	457.4	7.6
70°-80°	258.8	4.3
80°-90°	69.5	1.2
90°-100°	22.5	0.4
100°-110°	83.8	1.4
110°-120°	222.2	3.7
120°-130°	368.6	6.1
130°-140°	391.5	6.5
140°-150°	363.9	6.1
150°-160°	292.5	4.9
160°-170°	188.5	3.1
170°-180°	64.9	1.1
0°-30°	1175.9	19.6
0°-40°	1886.3	31.4
0°-60°	3214.6	53.6
0°-90°	4000.3	66.7
90°-120°	328.5	5.5
90°-150°	1452.4	24.2
90°-180°	1998.0	33.3
0°-180°	5998.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	0	6	10	12	13	6
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	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
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



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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



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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	13.31	14.35	14.11	15.17	16.18	12.87	13.90	13.67	14.72	15.73
	3H	14.96	15.89	15.77	16.72	17.76	14.47	15.40	15.28	16.23	17.27
	4H	15.54	16.42	16.37	17.26	18.31	15.05	15.92	15.88	16.76	17.82
	6H	15.93	16.74	16.77	17.59	18.65	15.43	16.24	16.27	17.09	18.15
	8H	16.03	16.80	16.88	17.67	18.73	15.53	16.30	16.38	17.17	18.23
	12H	16.08	16.81	16.94	17.67	18.76	15.57	16.31	16.43	17.17	18.26
4H	2H	13.78	14.66	14.61	15.50	16.55	13.42	14.30	14.26	15.14	16.19
	3H	15.63	16.37	16.48	17.24	18.31	15.23	15.96	16.07	16.83	17.90
	4H	16.34	17.00	17.20	17.88	18.97	15.91	16.58	16.77	17.45	18.54
	6H	16.84	17.42	17.71	18.31	19.41	16.41	16.99	17.28	17.88	18.98
	8H	16.98	17.52	17.86	18.41	19.52	16.55	17.09	17.42	17.97	19.08
	12H	17.05	17.54	17.95	18.45	19.56	16.61	17.09	17.50	18.00	19.12
8H	4H	16.53	17.07	17.41	17.96	19.07	16.16	16.70	17.03	17.58	18.69
	6H	17.15	17.59	18.05	18.52	19.63	16.76	17.21	17.67	18.14	19.25
	8H	17.35	17.75	18.27	18.67	19.80	16.96	17.35	17.87	18.28	19.41
	12H	17.48	17.83	18.39	18.74	19.92	17.07	17.42	17.98	18.33	19.51
12H	4H	16.53	17.01	17.42	17.92	19.04	16.16	16.64	17.05	17.55	18.67
	6H	17.17	17.57	18.09	18.49	19.62	16.80	17.19	17.71	18.12	19.24
	8H	17.40	17.75	18.32	18.67	19.85	17.02	17.37	17.94	18.29	19.47