

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: P907609

Luminaire Tested: DFN2DIP-4P2F0-030D020US840-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907609
REPORT IS A COMBINATION OF REPORTS P900534 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-030D020US840-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

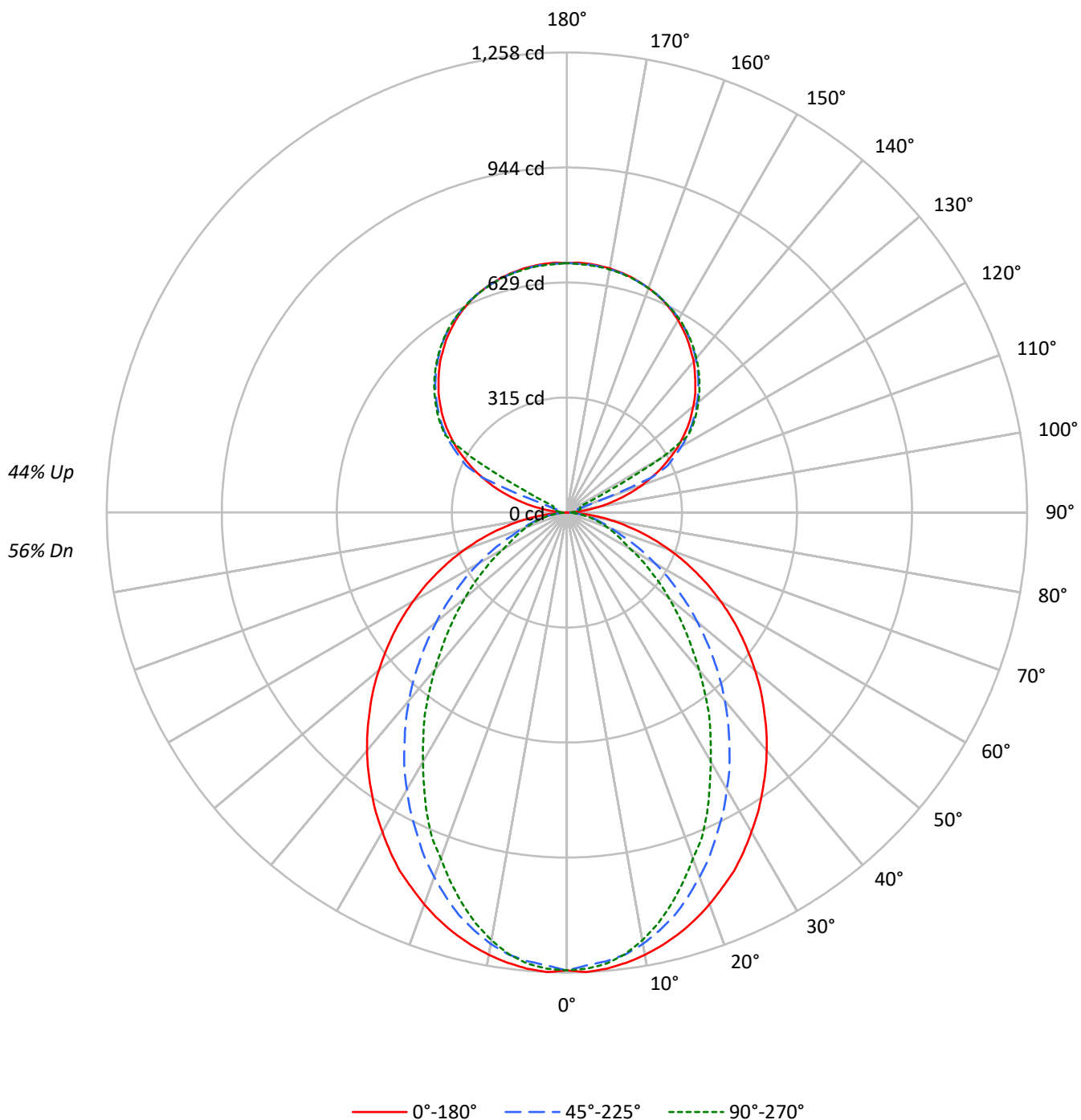
Lumens per Lamp: N/A
Luminaire Lumens: 4574.6 lumens
Efficiency: N/A
Efficacy: 105.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 43.3
Input Voltage (V):
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3135	3135	3135
5°	3134	3078	3100
10°	3097	3009	2994
15°	3048	2902	2833
20°	2985	2758	2638
25°	2921	2597	2449
30°	2837	2433	2212
35°	2754	2258	2004
40°	2670	2078	1766
45°	2573	1878	1550
50°	2471	1678	1340
55°	2365	1465	1139
60°	2241	1243	933
65°	2099	1019	833
70°	1926	810	747
75°	1709	699	669
80°	1398	565	565
85°	902	347	398

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2573 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.4	2.6
10°-20°	322.1	7.0
20°-30°	452.3	9.9
30°-40°	493.0	10.8
40°-50°	453.1	9.9
50°-60°	355.9	7.8
60°-70°	231.6	5.1
70°-80°	119.2	2.6
80°-90°	31.6	0.7
90°-100°	22.5	0.5
100°-110°	83.8	1.8
110°-120°	222.2	4.9
120°-130°	368.6	8.1
130°-140°	391.5	8.6
140°-150°	363.9	8.0
150°-160°	292.5	6.4
160°-170°	188.5	4.1
170°-180°	64.9	1.4
0°-30°	891.8	19.5
0°-40°	1384.8	30.3
0°-60°	2193.8	48.0
0°-90°	2576.3	56.3
90°-120°	328.5	7.2
90°-150°	1452.4	31.7
90°-180°	1998.0	43.7
0°-180°	4574.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1252	1252	1252	1252	1252	
5°	1252	1246	1232	1242	1238	119
15°	1191	1178	1140	1118	1107	336
25°	1081	1045	970	924	906	497
35°	932	874	774	703	678	583
45°	762	686	567	486	459	588
55°	579	491	368	300	279	517
65°	391	299	197	159	155	388
75°	208	129	91	83	82	220
85°	49	25	22	22	22	56
90°	0	6	10	12	13	4
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°	1252.1	1252.1	1252.1	1252.1	1252.1
2.5°	1257.8	1252.1	1239.6	1251.0	1248.8
5°	1252.1	1246.5	1231.7	1241.9	1238.5
7.5°	1241.9	1235.2	1219.3	1223.8	1218.1
10°	1228.3	1220.4	1197.8	1194.3	1187.6
12.5°	1211.3	1201.1	1170.5	1163.8	1151.2
15°	1190.9	1178.4	1139.9	1118.4	1107.1
17.5°	1167.1	1149.0	1101.4	1076.5	1058.3
20°	1139.9	1117.2	1060.6	1032.4	1007.3
22.5°	1110.5	1084.4	1018.7	980.2	963.2
25°	1081.1	1044.7	970.0	923.5	906.5
27.5°	1045.9	1007.3	924.6	871.4	845.3
30°	1008.6	965.4	874.7	817.1	786.4
32.5°	972.2	920.1	827.3	759.2	730.8
35°	931.5	873.6	774.0	702.6	677.6
37.5°	891.8	829.4	724.1	645.8	617.6
40°	849.9	781.9	672.0	591.5	562.1
42.5°	806.8	734.4	619.9	535.9	507.7
45°	761.5	685.5	566.6	486.0	458.9
47.5°	718.4	638.0	515.6	435.1	410.2
50°	670.9	590.4	465.7	387.5	363.8
52.5°	624.3	539.4	418.2	343.4	321.8
55°	579.0	490.6	368.2	300.3	278.8
57.5°	532.6	441.9	324.2	260.6	242.5
60°	484.9	394.4	277.6	219.8	201.8
62.5°	438.6	347.9	237.9	183.6	174.6
65°	390.9	299.1	197.1	158.6	155.2
67.5°	345.7	253.8	158.6	139.4	135.9
70°	298.0	209.6	131.4	120.1	115.5
72.5°	252.7	168.7	109.9	100.9	98.6
75°	208.4	129.2	90.7	82.7	81.6
77.5°	164.3	91.7	71.4	66.9	64.5
80°	123.5	65.7	54.3	49.9	49.9
82.5°	86.0	44.2	37.4	35.1	35.1
85°	48.7	24.8	21.5	21.5	21.5
87.5°	18.2	9.0	9.0	8.0	8.0
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	11.55	12.44	12.46	13.36	14.54	7.51	8.40	8.42	9.32	10.50
	3H	13.21	14.00	14.13	14.93	16.14	8.69	9.48	9.61	10.41	11.61
	4H	13.81	14.55	14.74	15.49	16.71	9.12	9.87	10.06	10.81	12.02
	6H	14.21	14.90	15.16	15.84	17.07	9.43	10.12	10.37	11.06	12.29
	8H	14.33	14.99	15.28	15.94	17.17	9.51	10.16	10.46	11.12	12.35
	12H	14.39	15.01	15.34	15.96	17.21	9.55	10.17	10.51	11.12	12.37
4H	2H	11.57	12.32	12.51	13.26	14.47	8.10	8.85	9.04	9.79	11.00
	3H	13.38	14.00	14.33	14.97	16.20	9.43	10.05	10.38	11.02	12.25
	4H	14.06	14.62	15.02	15.58	16.84	9.97	10.53	10.93	11.49	12.75
	6H	14.55	15.04	15.53	16.02	17.28	10.37	10.85	11.34	11.84	13.09
	8H	14.72	15.17	15.69	16.15	17.42	10.48	10.94	11.46	11.92	13.18
	12H	14.80	15.21	15.79	16.21	17.48	10.54	10.95	11.53	11.94	13.22
8H	4H	14.02	14.48	15.00	15.46	16.72	10.24	10.69	11.21	11.67	12.94
	6H	14.57	14.94	15.57	15.96	17.23	10.73	11.10	11.73	12.13	13.39
	8H	14.77	15.10	15.78	16.11	17.39	10.90	11.24	11.91	12.24	13.53
	12H	14.89	15.18	15.90	16.19	17.52	11.01	11.30	12.02	12.30	13.63
12H	4H	13.98	14.39	14.97	15.38	16.65	10.24	10.65	11.23	11.65	12.92
	6H	14.54	14.87	15.55	15.88	17.16	10.77	11.10	11.78	12.11	13.40
	8H	14.75	15.04	15.76	16.04	17.37	10.97	11.26	11.98	12.26	13.59