

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: P921239

Luminaire Tested: DFN2DIP-4P2F0-020D030US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921239
REPORT IS A COMBINATION OF REPORTS P900537 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D030US940-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

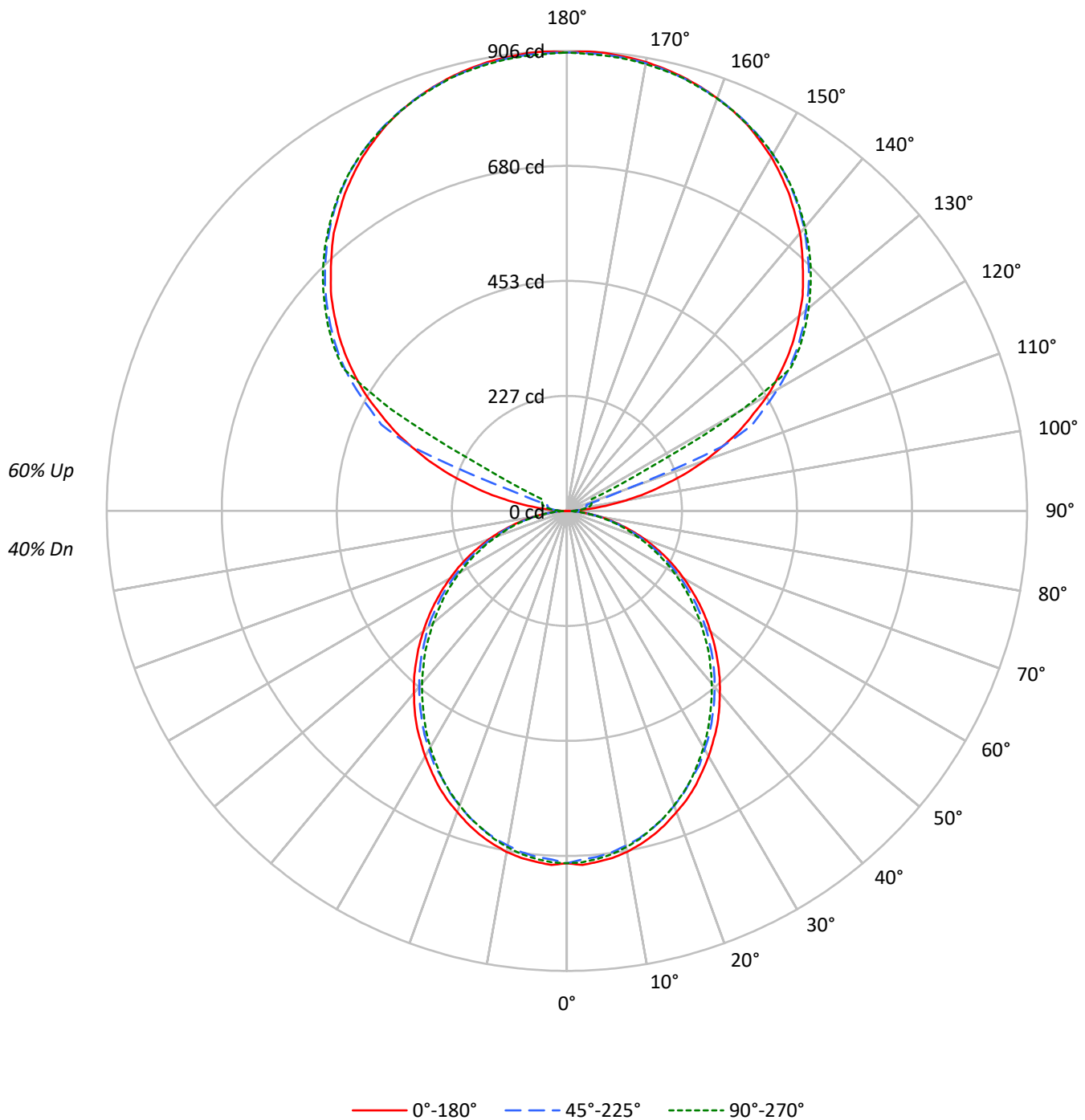
Lumens per Lamp: N/A
Luminaire Lumens: 4414.0 lumens
Efficiency: N/A
Efficacy: 110.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 40
Input Voltage (V): 120
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

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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	50	30	10
RCR																				
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47			40
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40			34
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33			28
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28			24
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24			21
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21			18
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19			16
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17			14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15			12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13			11
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12			10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1738	1738	1738
5°	1737	1709	1722
10°	1719	1682	1696
15°	1691	1649	1657
20°	1653	1607	1616
25°	1616	1556	1570
30°	1569	1509	1513
35°	1525	1454	1452
40°	1472	1399	1394
45°	1418	1343	1334
50°	1359	1284	1266
55°	1297	1216	1202
60°	1228	1136	1129
65°	1150	1052	1043
70°	1052	950	950
75°	919	828	859
80°	756	673	694
85°	506	420	433

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1418 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.3	1.5
10°-20°	183.8	4.2
20°-30°	270.1	6.1
30°-40°	313.7	7.1
40°-50°	313.3	7.1
50°-60°	273.2	6.2
60°-70°	201.9	4.6
70°-80°	114.2	2.6
80°-90°	31.8	0.7
90°-100°	29.8	0.7
100°-110°	111.0	2.5
110°-120°	294.3	6.7
120°-130°	488.2	11.1
130°-140°	518.5	11.7
140°-150°	481.9	10.9
150°-160°	387.5	8.8
160°-170°	249.7	5.7
170°-180°	85.9	1.9
0°-30°	519.1	11.8
0°-40°	832.8	18.9
0°-60°	1419.3	32.2
0°-90°	1767.2	40.0
90°-120°	435.1	9.9
90°-150°	1923.7	43.6
90°-180°	2647.0	60.0
0°-180°	4414.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	694	694	694	694	694	
5°	694	691	684	689	688	66
15°	661	657	648	651	647	186
25°	598	592	581	582	581	275
35°	516	509	498	494	491	322
45°	420	415	405	398	395	324
55°	318	314	306	298	294	284
65°	214	210	204	198	194	212
75°	112	111	107	103	105	120
85°	27	27	26	24	23	30
90°	1	8	13	16	18	4
95°	42	21	25	29	28	50
105°	199	218	40	47	50	212
115°	376	387	403	101	54	370
125°	531	540	552	557	559	474
135°	657	668	674	680	679	508
145°	762	762	773	777	774	477
155°	840	834	841	845	840	387
165°	884	881	883	887	883	250
175°	905	900	902	906	900	86
180°	903	903	903	903	903	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	693.9	693.9	693.9	693.9	693.9
2.5°	697.9	694.6	687.2	693.9	692.7
5°	693.9	691.3	683.9	689.3	688.0
7.5°	689.3	685.3	678.0	683.3	682.0
10°	682.0	677.3	669.3	674.6	672.6
12.5°	671.9	668.0	660.0	663.3	661.9
15°	660.6	656.7	647.9	650.6	647.3
17.5°	646.6	642.7	633.9	637.2	633.9
20°	631.2	627.2	617.9	619.9	617.2
22.5°	615.9	609.9	601.2	601.2	599.9
25°	597.9	592.5	581.2	582.5	581.2
27.5°	577.8	573.2	564.5	562.6	559.2
30°	557.9	552.5	542.5	540.6	537.8
32.5°	536.5	532.5	521.8	517.8	515.1
35°	515.9	509.2	498.5	494.5	491.1
37.5°	492.5	486.4	475.7	471.1	467.7
40°	468.4	463.1	452.4	446.5	443.7
42.5°	445.1	439.7	429.1	422.4	418.4
45°	419.7	415.1	405.0	397.7	395.0
47.5°	395.0	390.4	379.7	372.3	368.4
50°	369.0	365.7	356.3	347.0	343.7
52.5°	343.7	338.9	330.3	323.0	318.3
55°	317.6	313.6	305.6	297.7	294.3
57.5°	291.6	288.3	279.6	271.6	268.9
60°	265.6	263.0	253.6	246.2	244.2
62.5°	240.2	235.5	228.9	222.2	219.5
65°	214.2	210.2	203.6	197.5	194.2
67.5°	187.5	184.1	178.2	173.5	170.9
70°	162.8	160.2	154.1	149.5	146.9
72.5°	137.5	134.8	131.4	126.8	124.8
75°	112.1	110.8	107.4	103.4	104.8
77.5°	89.4	86.8	85.3	83.4	81.4
80°	66.8	66.1	64.7	62.7	61.3
82.5°	45.4	45.4	44.8	42.1	42.1
85°	27.3	26.7	26.0	24.0	23.4
87.5°	12.0	10.7	9.4	7.4	6.7
90°	0.6	7.8	13.0	16.4	17.6
92.5°	16.4	13.7	15.7	17.0	17.6
95°	42.4	20.9	25.4	28.8	28.1
97.5°	76.4	22.9	33.3	35.3	35.9
100°	115.7	26.1	37.3	42.4	43.8
102.5°	158.7	157.5	38.5	45.7	47.7
105°	198.6	218.2	39.9	47.0	49.7
107.5°	245.0	261.3	41.2	48.3	51.0
110°	289.4	303.1	114.3	49.0	51.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	331.3	343.0	331.9	50.3	52.3
115°	375.6	386.7	403.1	100.6	53.6
117.5°	414.2	427.2	438.4	344.9	173.8
120°	457.3	467.1	478.8	486.7	398.5
122.5°	493.8	504.4	517.5	521.3	522.0
125°	531.1	539.6	552.1	556.6	558.6
127.5°	565.1	574.2	584.1	590.6	591.2
130°	597.1	607.6	614.7	621.9	621.3
132.5°	629.7	638.3	645.4	651.3	650.7
135°	657.2	667.7	673.5	680.1	678.8
137.5°	685.9	693.8	700.3	706.9	704.9
140°	714.0	719.3	726.4	732.3	729.1
142.5°	737.6	742.2	750.6	755.8	752.6
145°	762.4	761.7	772.8	777.4	774.1
147.5°	783.9	781.9	793.1	796.3	793.7
150°	804.9	800.3	810.7	814.6	811.4
152.5°	822.4	817.3	827.1	831.0	826.4
155°	839.5	833.7	841.4	845.3	840.2
157.5°	853.2	848.0	853.9	858.4	853.2
160°	865.0	861.0	865.0	868.9	864.2
162.5°	875.4	871.5	874.8	879.3	873.4
165°	884.5	880.7	882.6	887.2	882.6
167.5°	891.7	887.8	889.7	894.4	888.5
170°	897.6	893.7	895.0	899.6	893.7
172.5°	901.5	897.6	898.9	903.5	897.6
175°	904.7	900.2	901.5	906.1	899.6
177.5°	906.1	901.5	902.2	906.8	900.9
180°	902.9	902.9	902.9	902.9	902.9

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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	8.06	8.84	9.10	9.88	11.29	7.62	8.39	8.65	9.44	10.85
	3H	9.69	10.39	10.74	11.44	12.87	9.20	9.90	10.25	10.95	12.38
	4H	10.26	10.92	11.32	11.98	13.41	9.77	10.43	10.83	11.48	12.92
	6H	10.64	11.25	11.71	12.31	13.75	10.14	10.75	11.21	11.81	13.25
	8H	10.73	11.31	11.81	12.39	13.83	10.23	10.81	11.30	11.89	13.33
	12H	10.77	11.32	11.85	12.39	13.85	10.26	10.81	11.34	11.88	13.34
4H	2H	8.50	9.16	9.57	10.22	11.65	8.14	8.80	9.21	9.86	11.29
	3H	10.33	10.88	11.40	11.96	13.41	9.92	10.47	11.00	11.56	13.00
	4H	11.02	11.53	12.10	12.60	14.07	10.60	11.11	11.68	12.18	13.65
	6H	11.51	11.95	12.60	13.04	14.50	11.08	11.51	12.17	12.61	14.07
	8H	11.65	12.05	12.74	13.14	14.62	11.21	11.62	12.30	12.71	14.18
	12H	11.71	12.07	12.81	13.18	14.66	11.26	11.63	12.37	12.73	14.21
8H	4H	11.20	11.61	12.29	12.69	14.17	10.82	11.23	11.91	12.32	13.79
	6H	11.80	12.14	12.91	13.27	14.74	11.41	11.75	12.52	12.88	14.35
	8H	12.00	12.30	13.12	13.41	14.90	11.61	11.90	12.73	13.02	14.51
	12H	12.12	12.38	13.24	13.48	15.02	11.71	11.96	12.83	13.07	14.61
12H	4H	11.18	11.55	12.28	12.65	14.13	10.81	11.18	11.91	12.28	13.76
	6H	11.82	12.12	12.94	13.23	14.72	11.45	11.74	12.57	12.86	14.35
	8H	12.04	12.30	13.17	13.41	14.94	11.66	11.92	12.78	13.03	14.56