

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: P921242

Luminaire Tested: DFN2DIP-4P2F0-020D040US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921242
REPORT IS A COMBINATION OF REPORTS P899023 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US940-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

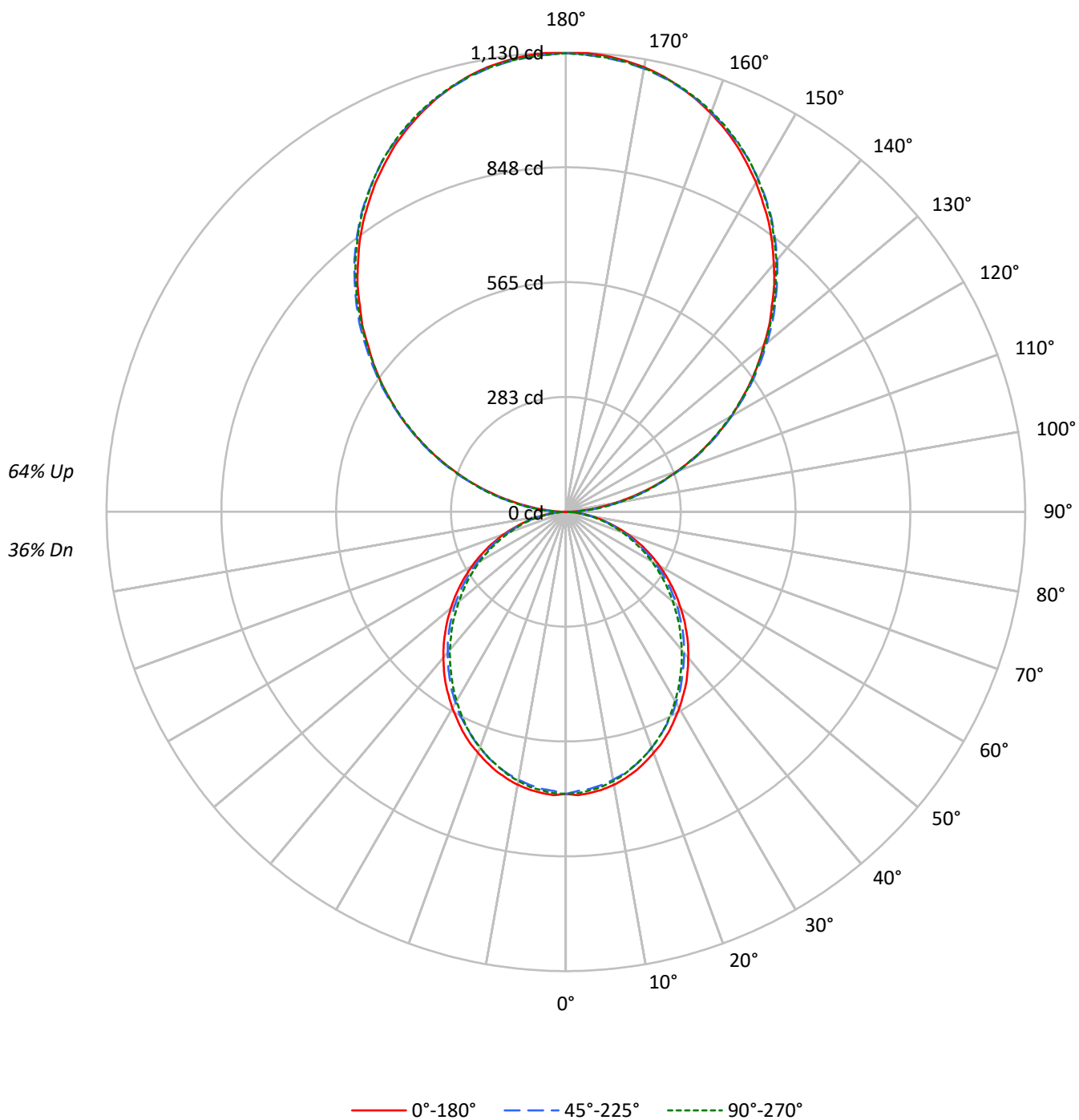
Lumens per Lamp: N/A
Luminaire Lumens: 4922.3 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
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
RCR																	
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

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: 90°

Vertical Angle: 90°

Luminance: 1677 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.3	1.3
10°-20°	183.8	3.7
20°-30°	270.1	5.5
30°-40°	313.7	6.4
40°-50°	313.3	6.4
50°-60°	273.2	5.5
60°-70°	201.9	4.1
70°-80°	114.2	2.3
80°-90°	33.4	0.7
90°-100°	69.8	1.4
100°-110°	221.8	4.5
110°-120°	379.5	7.7
120°-130°	499.2	10.1
130°-140°	560.3	11.4
140°-150°	549.4	11.2
150°-160°	460.9	9.4
160°-170°	305.7	6.2
170°-180°	106.8	2.2
0°-30°	519.1	10.5
0°-40°	832.8	16.9
0°-60°	1419.3	28.8
0°-90°	1768.8	35.9
90°-120°	671.2	13.6
90°-150°	2280.1	46.3
90°-180°	3153.0	64.1
0°-180°	4922.3	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	12	33	31	32	5
95°	50	59	61	61	59	55
105°	205	207	210	211	211	216
115°	381	386	385	384	381	377
125°	554	562	560	557	556	495
135°	717	727	729	728	725	554
145°	870	877	882	883	880	544
155°	995	998	1000	1005	1002	458
165°	1082	1081	1081	1088	1083	305
175°	1126	1123	1121	1128	1122	107
180°	1128	1128	1128	1128	1128	

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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°	1.0	12.2	33.3	31.3	32.3
92.5°	21.0	28.5	29.6	30.6	30.6
95°	49.7	59.2	60.9	60.9	59.2
97.5°	82.7	91.5	95.2	95.2	95.2
100°	120.7	128.6	131.3	131.3	130.3
102.5°	160.9	166.7	170.4	171.4	170.4
105°	204.7	207.4	209.5	211.2	211.2
107.5°	248.3	252.4	252.4	253.0	248.3
110°	290.4	295.9	295.9	295.9	293.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	336.0	341.8	340.7	338.0	336.0
115°	380.8	386.4	384.6	383.6	380.8
117.5°	425.4	432.9	428.2	425.4	422.8
120°	470.4	477.8	470.4	470.4	467.3
122.5°	511.1	520.7	515.9	513.2	511.1
125°	554.0	562.5	559.8	556.7	555.7
127.5°	595.8	606.4	602.6	598.5	595.8
130°	634.9	647.2	645.5	643.5	639.7
132.5°	678.8	688.3	689.0	684.2	681.5
135°	716.6	727.1	729.2	728.1	725.4
137.5°	758.8	767.2	768.9	768.2	764.2
140°	795.8	804.3	809.0	809.0	805.3
142.5°	833.9	842.4	845.1	846.1	842.4
145°	870.0	876.7	882.2	883.2	879.5
147.5°	902.2	910.7	914.8	916.5	912.8
150°	935.6	941.4	945.1	948.2	945.1
152.5°	965.2	970.9	975.7	979.5	975.7
155°	994.7	997.5	1000.5	1005.3	1002.2
157.5°	1020.3	1022.3	1024.0	1030.8	1026.0
160°	1043.0	1045.1	1046.1	1051.9	1047.8
162.5°	1064.1	1064.1	1065.1	1071.6	1066.8
165°	1082.2	1081.1	1081.1	1087.9	1083.2
167.5°	1098.5	1095.4	1095.4	1102.2	1097.4
170°	1110.7	1108.0	1107.0	1113.7	1108.0
172.5°	1119.2	1116.5	1115.4	1122.3	1116.5
175°	1126.1	1123.3	1121.2	1128.0	1122.3
177.5°	1129.8	1127.0	1125.0	1130.8	1125.0
180°	1128.0	1128.0	1128.0	1128.0	1128.0

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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	7.59	8.34	8.66	9.41	10.87	7.15	7.90	8.22	8.97	10.43
	3H	9.22	9.89	10.30	10.97	12.45	8.73	9.40	9.81	10.48	11.96
	4H	9.79	10.42	10.88	11.51	12.99	9.30	9.93	10.39	11.01	12.50
	6H	10.17	10.75	11.26	11.84	13.33	9.67	10.25	10.76	11.34	12.83
	8H	10.26	10.82	11.36	11.92	13.40	9.76	10.31	10.86	11.41	12.90
	12H	10.29	10.82	11.40	11.92	13.43	9.79	10.32	10.89	11.41	12.92
4H	2H	8.03	8.66	9.12	9.75	11.23	7.67	8.31	8.77	9.39	10.87
	3H	9.86	10.39	10.96	11.49	12.99	9.45	9.98	10.55	11.09	12.58
	4H	10.55	11.03	11.66	12.13	13.65	10.12	10.61	11.23	11.71	13.23
	6H	11.04	11.45	12.15	12.57	14.08	10.60	11.02	11.72	12.14	13.65
	8H	11.17	11.56	12.29	12.67	14.20	10.73	11.12	11.85	12.24	13.76
	12H	11.23	11.58	12.36	12.71	14.24	10.78	11.13	11.91	12.26	13.79
8H	4H	10.72	11.11	11.84	12.23	13.75	10.34	10.73	11.46	11.85	13.37
	6H	11.32	11.64	12.46	12.80	14.32	10.93	11.26	12.07	12.41	13.93
	8H	11.53	11.81	12.67	12.94	14.48	11.13	11.41	12.27	12.55	14.09
	12H	11.64	11.88	12.78	13.02	14.59	11.23	11.47	12.37	12.61	14.18
12H	4H	10.70	11.05	11.83	12.18	13.71	10.33	10.68	11.46	11.81	13.34
	6H	11.34	11.63	12.49	12.76	14.30	10.97	11.25	12.11	12.39	13.93
	8H	11.56	11.81	12.71	12.94	14.52	11.18	11.43	12.33	12.56	14.14