

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: P907606

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907606
REPORT IS A COMBINATION OF REPORTS P899013 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-030D020US840-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

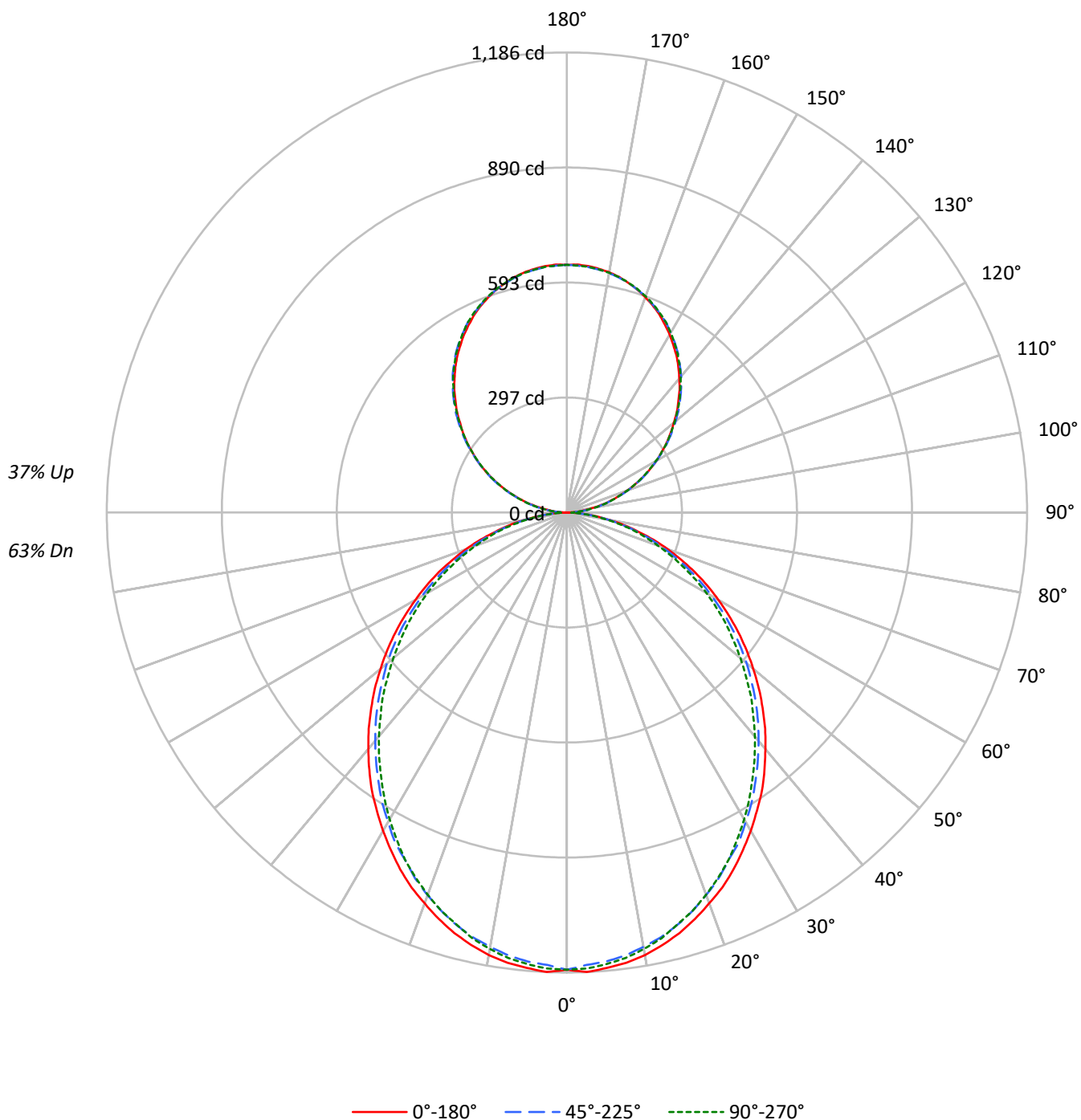
Lumens per Lamp: N/A
Luminaire Lumens: 4786.8 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 43.3
Input Voltage (V): 120
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

TEST NUMBER: P907606

CATALOG NUMBER: DFN2DIP-4P2F0-030D020US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P907606

CATALOG NUMBER: DFN2DIP-4P2F0-030D020US840-FLLFLL

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
RCR																	
0	110	110	110	110	103	103	103	103	90	90	90		79	79	79		68
1	101	96	92	89	94	90	87	84	79	77	74		69	67	66		60
2	92	84	78	72	86	79	73	69	70	65	62		61	58	55		53
3	84	74	66	60	78	70	63	58	61	56	52		54	50	46		47
4	77	66	57	51	71	62	54	49	55	49	44		48	43	40		42
5	70	58	50	44	66	55	48	42	49	43	38		43	38	35		38
6	65	53	44	38	61	50	42	37	44	38	33		39	34	30		34
7	60	48	39	34	56	45	38	32	40	34	30		36	31	27		31
8	56	43	35	30	52	41	34	29	37	31	26		33	28	24		29
9	52	40	32	27	49	38	30	26	34	28	24		30	25	22		27
10	49	36	29	24	46	35	28	23	31	25	21		28	23	20		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2952	2952	2952
5°	2951	2903	2925
10°	2921	2857	2881
15°	2872	2802	2814
20°	2808	2729	2746
25°	2744	2644	2668
30°	2666	2564	2570
35°	2591	2471	2467
40°	2500	2376	2368
45°	2409	2281	2267
50°	2309	2181	2151
55°	2204	2065	2042
60°	2085	1929	1918
65°	1955	1787	1771
70°	1788	1615	1612
75°	1561	1407	1459
80°	1284	1143	1181
85°	861	714	735

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2409 cd/sqm

TEST NUMBER: P907606

CATALOG NUMBER: DFN2DIP-4P2F0-030D020US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.0	2.3
10°-20°	312.2	6.5
20°-30°	458.8	9.6
30°-40°	532.8	11.1
40°-50°	532.2	11.1
50°-60°	464.1	9.7
60°-70°	343.1	7.2
70°-80°	194.1	4.1
80°-90°	53.0	1.1
90°-100°	39.5	0.8
100°-110°	125.6	2.6
110°-120°	214.9	4.5
120°-130°	282.7	5.9
130°-140°	317.3	6.6
140°-150°	311.1	6.5
150°-160°	261.0	5.5
160°-170°	173.1	3.6
170°-180°	60.5	1.3
0°-30°	881.9	18.4
0°-40°	1414.7	29.6
0°-60°	2411.0	50.4
0°-90°	3001.2	62.7
90°-120°	380.0	7.9
90°-150°	1291.1	27.0
90°-180°	1786.0	37.3
0°-180°	4786.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1179	1179	1179	1179	1179	
5°	1179	1174	1162	1171	1169	112
15°	1122	1116	1101	1105	1100	316
25°	1016	1007	987	990	987	467
35°	876	865	847	840	834	547
45°	713	705	688	676	671	550
55°	540	533	519	506	500	482
65°	364	357	346	336	330	360
75°	190	188	182	176	178	203
85°	46	45	44	41	40	52
90°	1	7	19	18	18	5
95°	28	34	34	34	34	31
105°	116	117	119	120	120	122
115°	216	219	218	217	216	213
125°	314	318	317	315	315	280
135°	406	412	413	412	411	314
145°	493	496	500	500	498	308
155°	563	565	566	569	568	259
165°	613	612	612	616	613	173
175°	638	636	635	639	636	61
180°	639	639	639	639	639	

TEST NUMBER: P907606

CATALOG NUMBER: DFN2DIP-4P2F0-030D020US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1178.8	1178.8	1178.8	1178.8	1178.8
2.5°	1185.7	1180.0	1167.5	1178.8	1176.7
5°	1178.8	1174.4	1161.9	1170.9	1168.7
7.5°	1170.9	1164.2	1151.7	1160.8	1158.5
10°	1158.5	1150.5	1137.0	1146.0	1142.7
12.5°	1141.5	1134.7	1121.2	1126.7	1124.5
15°	1122.2	1115.5	1100.7	1105.2	1099.5
17.5°	1098.3	1091.7	1076.8	1082.5	1076.8
20°	1072.3	1065.5	1049.7	1053.0	1048.5
22.5°	1046.3	1036.1	1021.3	1021.3	1019.0
25°	1015.6	1006.6	987.3	989.6	987.3
27.5°	981.6	973.6	959.0	955.6	950.0
30°	947.7	938.6	921.6	918.2	913.6
32.5°	911.4	904.6	886.5	879.6	875.0
35°	876.3	864.9	846.8	839.9	834.2
37.5°	836.6	826.4	808.2	800.2	794.6
40°	795.8	786.7	768.5	758.4	753.9
42.5°	756.1	747.0	728.9	717.5	710.7
45°	713.1	705.1	688.0	675.6	671.1
47.5°	671.1	663.2	645.0	632.5	625.7
50°	626.8	621.2	605.3	589.5	583.8
52.5°	583.8	575.8	561.2	548.7	540.7
55°	539.7	532.8	519.2	505.6	500.0
57.5°	495.3	489.7	474.9	461.3	456.8
60°	451.1	446.7	430.8	418.3	415.0
62.5°	408.1	400.1	388.8	377.5	372.9
65°	364.0	357.1	345.8	335.6	329.9
67.5°	318.6	312.9	302.7	294.8	290.2
70°	276.6	272.1	261.9	253.9	249.4
72.5°	233.6	228.9	223.3	215.4	212.1
75°	190.4	188.2	182.5	175.7	178.0
77.5°	151.9	147.3	145.0	141.7	138.4
80°	113.4	112.2	109.9	106.5	104.3
82.5°	77.1	77.1	76.0	71.4	71.4
85°	46.5	45.3	44.2	40.8	39.7
87.5°	20.4	18.2	15.9	12.5	11.3
90°	0.6	7.0	18.9	17.7	18.3
92.5°	11.9	16.2	16.8	17.4	17.4
95°	28.1	33.5	34.4	34.4	33.5
97.5°	46.8	51.8	53.9	53.9	53.9
100°	68.4	72.8	74.3	74.3	73.7
102.5°	91.1	94.3	96.4	97.0	96.4
105°	115.9	117.4	118.7	119.6	119.6
107.5°	140.6	142.9	142.9	143.3	140.6
110°	164.5	167.5	167.5	167.5	166.0

TEST NUMBER: P907606

CATALOG NUMBER: DFN2DIP-4P2F0-030D020US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	190.3	193.5	193.0	191.4	190.3
115°	215.7	218.7	217.8	217.2	215.7
117.5°	241.0	245.2	242.5	241.0	239.3
120°	266.3	270.5	266.3	266.3	264.6
122.5°	289.4	294.8	292.2	290.6	289.4
125°	313.7	318.5	317.0	315.3	314.7
127.5°	337.4	343.4	341.2	338.9	337.4
130°	359.5	366.5	365.5	364.4	362.2
132.5°	384.4	389.8	390.1	387.5	385.9
135°	405.8	411.7	412.8	412.3	410.7
137.5°	429.6	434.4	435.5	435.1	432.7
140°	450.6	455.4	458.2	458.2	456.1
142.5°	472.2	477.0	478.6	479.1	477.0
145°	492.6	496.4	499.6	500.1	498.0
147.5°	510.9	515.7	518.1	519.0	516.8
150°	529.8	533.0	535.1	536.8	535.1
152.5°	546.5	549.8	552.5	554.6	552.5
155°	563.3	564.8	566.5	569.3	567.5
157.5°	577.7	578.9	579.9	583.7	581.0
160°	590.7	591.8	592.4	595.6	593.3
162.5°	602.6	602.6	603.1	606.8	604.1
165°	612.8	612.2	612.2	616.0	613.4
167.5°	622.0	620.3	620.3	624.1	621.5
170°	628.9	627.4	626.8	630.7	627.4
172.5°	633.8	632.2	631.7	635.5	632.2
175°	637.6	636.1	634.9	638.7	635.5
177.5°	639.7	638.2	637.0	640.3	637.0
180°	638.7	638.7	638.7	638.7	638.7

TEST NUMBER: P907606

CATALOG NUMBER: DFN2DIP-4P2F0-030D020US840-FLLFLL

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	11.99	12.98	12.83	13.84	14.92	11.55	12.54	12.39	13.40	14.48
	3H	13.64	14.53	14.49	15.40	16.50	13.15	14.04	14.00	14.91	16.01
	4H	14.22	15.06	15.09	15.94	17.05	13.72	14.56	14.59	15.44	16.56
	6H	14.61	15.38	15.49	16.27	17.39	14.11	14.88	14.99	15.77	16.89
	8H	14.71	15.44	15.60	16.35	17.47	14.21	14.94	15.09	15.85	16.97
	12H	14.75	15.45	15.65	16.35	17.50	14.24	14.94	15.14	15.84	17.00
4H	2H	12.46	13.30	13.33	14.17	15.29	12.10	12.94	12.97	13.82	14.93
	3H	14.31	15.01	15.19	15.92	17.05	13.90	14.60	14.78	15.51	16.64
	4H	15.01	15.65	15.90	16.55	17.71	14.58	15.22	15.48	16.13	17.29
	6H	15.51	16.06	16.42	16.99	18.15	15.08	15.63	15.99	16.56	17.72
	8H	15.65	16.17	16.56	17.09	18.26	15.21	15.73	16.13	16.65	17.83
	12H	15.72	16.18	16.65	17.13	18.30	15.27	15.74	16.20	16.68	17.86
8H	4H	15.20	15.72	16.12	16.64	17.81	14.82	15.34	15.74	16.26	17.44
	6H	15.81	16.24	16.75	17.20	18.37	15.43	15.85	16.37	16.82	17.99
	8H	16.02	16.39	16.97	17.35	18.54	15.62	16.00	16.57	16.96	18.15
	12H	16.14	16.47	17.09	17.42	18.66	15.73	16.06	16.68	17.01	18.25
12H	4H	15.19	15.66	16.12	16.60	17.78	14.82	15.29	15.75	16.23	17.41
	6H	15.84	16.21	16.79	17.17	18.36	15.46	15.84	16.41	16.80	17.99
	8H	16.07	16.40	17.02	17.35	18.59	15.68	16.02	16.64	16.97	18.21