

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: P927664

Luminaire Tested: DFN2DIP-HX4F0-080D040US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927664
REPORT IS A COMBINATION OF REPORTS P900827 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D040US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

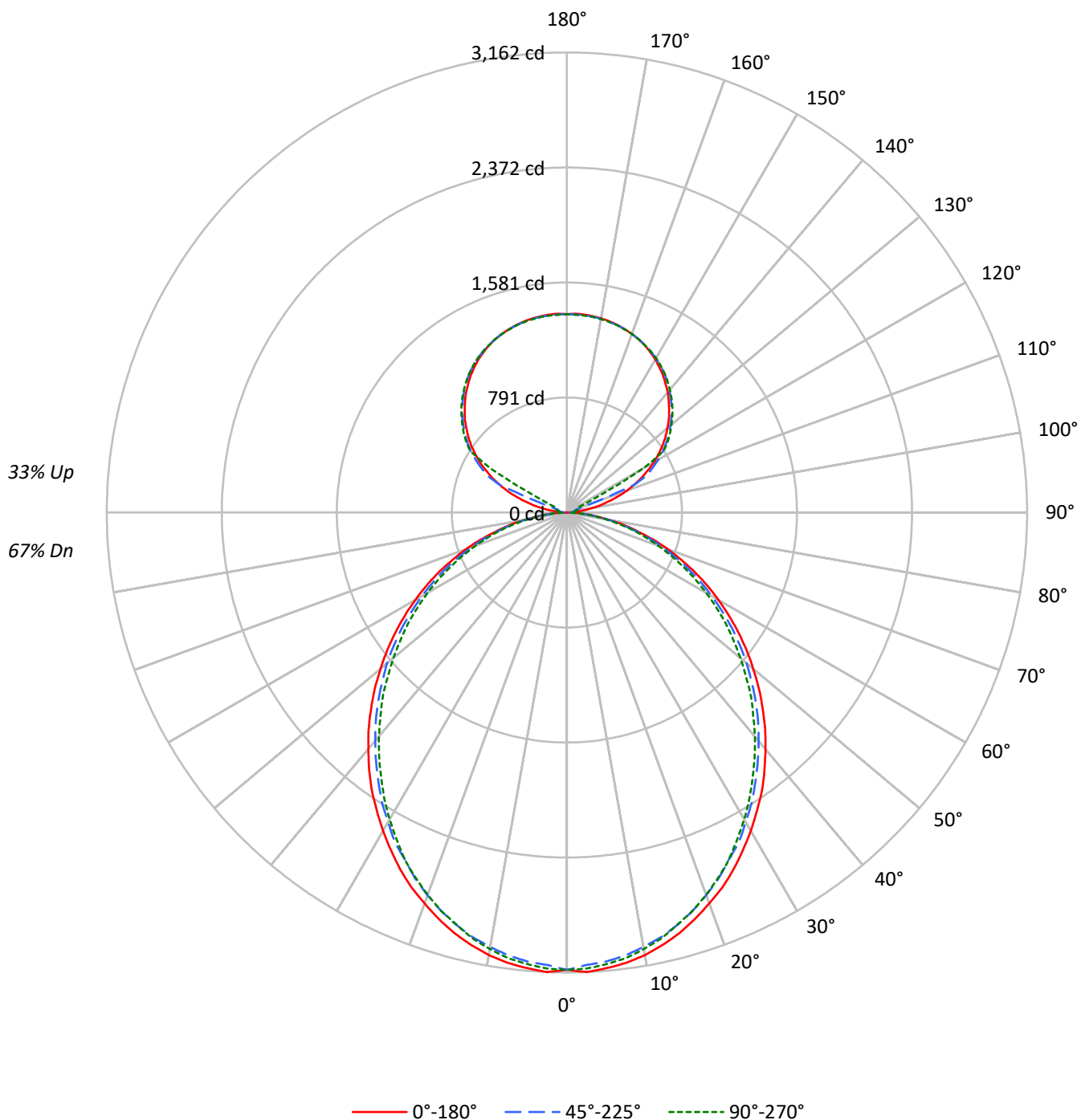
Lumens per Lamp: N/A
Luminaire Lumens: 11996.4 lumens
Efficiency: N/A
Efficacy: 112.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 106.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927664

CATALOG NUMBER: DFN2DIP-HX4F0-080D040US840-FLLONL

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2337	2337	2337
5°	2341	2305	2320
10°	2322	2274	2289
15°	2288	2237	2240
20°	2242	2185	2190
25°	2197	2123	2132
30°	2139	2065	2058
35°	2085	1997	1980
40°	2018	1929	1906
45°	1952	1860	1830
50°	1879	1788	1742
55°	1802	1704	1661
60°	1716	1605	1568
65°	1622	1502	1459
70°	1503	1377	1342
75°	1336	1227	1233
80°	1137	1036	1026
85°	825	706	682

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1952 cd/sqm

TEST NUMBER: P927664

CATALOG NUMBER: DFN2DIP-HX4F0-080D040US840-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.9	2.5
10°-20°	832.4	6.9
20°-30°	1223.3	10.2
30°-40°	1420.8	11.8
40°-50°	1419.1	11.8
50°-60°	1237.4	10.3
60°-70°	914.7	7.6
70°-80°	517.5	4.3
80°-90°	139.0	1.2
90°-100°	44.9	0.4
100°-110°	167.6	1.4
110°-120°	444.4	3.7
120°-130°	737.1	6.1
130°-140°	783.0	6.5
140°-150°	727.7	6.1
150°-160°	585.0	4.9
160°-170°	377.0	3.1
170°-180°	129.8	1.1
0°-30°	2351.6	19.6
0°-40°	3772.4	31.4
0°-60°	6428.8	53.6
0°-90°	8000.0	66.7
90°-120°	656.9	5.5
90°-150°	2904.6	24.2
90°-180°	3996.0	33.3
0°-180°	11996.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3143	3143	3143	3143	3143	
5°	3143	3132	3098	3122	3116	298
15°	2992	2974	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2336	2306	2258	2240	2225	1459
45°	1901	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1286
65°	970	952	922	895	880	959
75°	508	502	486	468	475	542
85°	124	121	118	109	106	138
90°	1	12	20	25	27	11
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1270	1276	1268	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	

TEST NUMBER: P927664

CATALOG NUMBER: DFN2DIP-HX4F0-080D040US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3143.3	3143.3	3143.3	3143.3	3143.3
2.5°	3161.6	3146.5	3113.2	3143.3	3137.5
5°	3143.3	3131.5	3098.2	3122.2	3116.4
7.5°	3122.2	3104.2	3070.9	3095.2	3089.2
10°	3089.2	3068.0	3031.7	3055.8	3046.9
12.5°	3043.6	3025.7	2989.4	3004.5	2998.4
15°	2992.3	2974.4	2934.9	2947.1	2932.1
17.5°	2928.8	2910.8	2871.4	2886.5	2871.4
20°	2859.2	2841.3	2799.0	2808.0	2796.0
22.5°	2790.0	2762.7	2723.2	2723.2	2717.2
25°	2708.2	2684.1	2632.9	2638.6	2632.9
27.5°	2617.4	2596.3	2557.1	2548.1	2533.1
30°	2527.0	2502.6	2457.4	2448.5	2436.2
32.5°	2430.2	2412.2	2363.7	2345.5	2333.3
35°	2336.5	2306.4	2257.9	2239.6	2224.6
37.5°	2230.6	2203.4	2155.0	2133.8	2118.8
40°	2122.0	2097.6	2049.2	2022.2	2010.0
42.5°	2016.2	1991.7	1943.7	1913.2	1895.3
45°	1901.4	1880.1	1834.6	1801.6	1789.5
47.5°	1789.5	1768.3	1719.8	1686.5	1668.5
50°	1671.4	1656.4	1614.0	1571.7	1556.6
52.5°	1556.6	1535.4	1496.3	1463.0	1441.8
55°	1438.9	1420.6	1384.4	1348.2	1333.0
57.5°	1320.9	1305.9	1266.4	1230.1	1217.9
60°	1202.9	1191.1	1148.6	1115.3	1106.3
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.4	952.1	921.9	894.7	879.6
67.5°	849.4	834.1	807.1	786.0	773.8
70°	737.6	725.3	698.2	677.0	665.1
72.5°	622.7	610.6	595.5	574.4	565.4
75°	507.6	501.9	486.5	468.5	474.6
77.5°	405.0	392.8	386.8	377.8	368.8
80°	302.4	299.2	293.1	284.2	278.0
82.5°	205.6	205.6	202.7	190.4	190.4
85°	123.8	120.9	118.0	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.6	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.5	62.2	73.0	76.9
110°	437.0	457.6	172.7	74.0	77.9



TEST NUMBER: P927664

CATALOG NUMBER: DFN2DIP-HX4F0-080D040US840-FLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.8	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	661.9	520.8	262.3
120°	690.5	705.2	723.0	734.9	601.7
122.5°	745.6	761.5	781.3	787.1	788.1
125°	801.9	814.8	833.5	840.5	843.4
127.5°	853.2	867.0	881.9	891.8	892.7
130°	901.5	917.4	928.1	939.0	938.1
132.5°	950.8	963.8	974.6	983.4	982.5
135°	992.3	1008.2	1017.0	1026.9	1024.9
137.5°	1035.7	1047.5	1057.5	1067.3	1064.3
140°	1078.1	1086.0	1096.8	1105.7	1100.8
142.5°	1113.7	1120.6	1133.4	1141.2	1136.3
145°	1151.2	1150.2	1166.8	1173.8	1168.8
147.5°	1183.6	1180.7	1197.4	1202.4	1198.5
150°	1215.2	1208.3	1224.2	1230.0	1225.1
152.5°	1241.9	1234.0	1248.7	1254.7	1247.8
155°	1267.5	1258.7	1270.5	1276.4	1268.5
157.5°	1288.2	1280.3	1289.3	1296.2	1288.2
160°	1306.0	1300.0	1306.0	1311.8	1305.0
162.5°	1321.7	1315.9	1320.8	1327.7	1318.8
165°	1335.6	1329.7	1332.6	1339.5	1332.6
167.5°	1346.5	1340.4	1343.5	1350.4	1341.5
170°	1355.4	1349.4	1351.3	1358.3	1349.4
172.5°	1361.2	1355.4	1357.4	1364.2	1355.4
175°	1366.1	1359.2	1361.2	1368.1	1358.3
177.5°	1368.1	1361.2	1362.2	1369.2	1360.3
180°	1363.2	1363.2	1363.2	1363.2	1363.2

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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	11.64	12.67	12.44	13.49	14.50	11.20	12.24	12.00	13.06	14.07
	3H	13.31	14.24	14.12	15.07	16.11	12.84	13.77	13.65	14.60	15.64
	4H	13.91	14.78	14.73	15.62	16.67	13.43	14.31	14.26	15.15	16.20
	6H	14.31	15.12	15.16	15.97	17.04	13.84	14.65	14.68	15.50	16.56
	8H	14.42	15.20	15.28	16.06	17.13	13.95	14.72	14.80	15.59	16.65
	12H	14.48	15.21	15.34	16.07	17.16	14.00	14.73	14.85	15.59	16.68
4H	2H	12.12	13.00	12.95	13.84	14.89	11.77	12.65	12.61	13.49	14.54
	3H	14.00	14.73	14.85	15.61	16.67	13.61	14.34	14.45	15.21	16.28
	4H	14.72	15.39	15.58	16.26	17.35	14.32	14.98	15.18	15.85	16.95
	6H	15.25	15.83	16.12	16.72	17.82	14.84	15.42	15.71	16.31	17.41
	8H	15.40	15.94	16.28	16.83	17.94	14.99	15.53	15.87	16.42	17.53
	12H	15.49	15.97	16.38	16.88	18.00	15.06	15.55	15.96	16.46	17.57
8H	4H	14.93	15.47	15.81	16.36	17.47	14.57	15.11	15.45	16.00	17.11
	6H	15.57	16.02	16.48	16.95	18.06	15.21	15.66	16.12	16.59	17.70
	8H	15.80	16.19	16.71	17.12	18.24	15.43	15.82	16.34	16.75	17.87
	12H	15.94	16.29	16.86	17.20	18.38	15.55	15.90	16.47	16.82	18.00
12H	4H	14.93	15.41	15.83	16.32	17.44	14.58	15.06	15.47	15.97	17.09
	6H	15.61	16.00	16.52	16.93	18.05	15.25	15.65	16.17	16.57	17.70
	8H	15.86	16.21	16.78	17.12	18.30	15.50	15.85	16.42	16.76	17.94