

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: P919068

Luminaire Tested: DFN2DIP-HX4F0-040D110US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919068
REPORT IS A COMBINATION OF REPORTS P899425 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D110US935-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

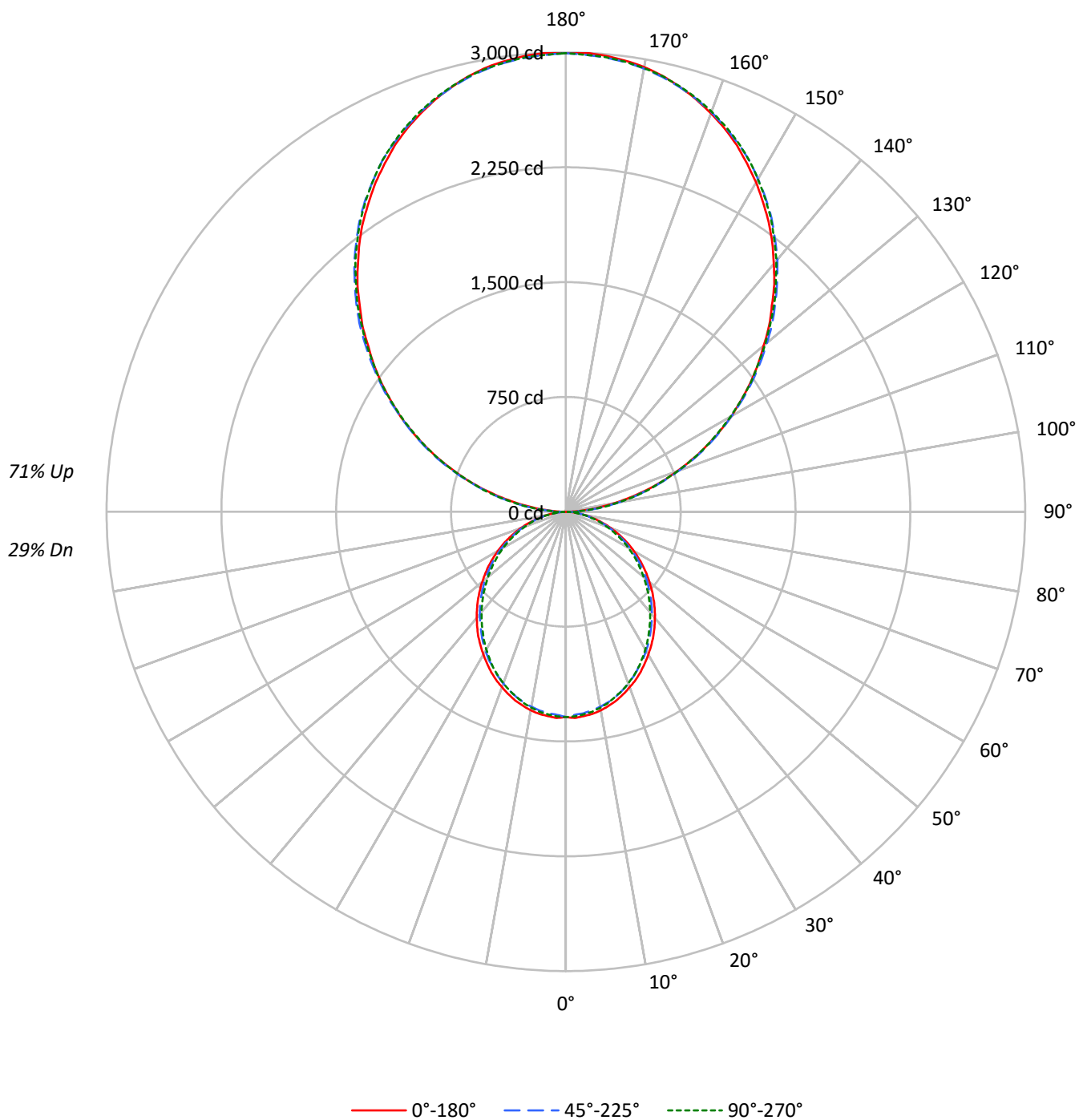
Lumens per Lamp: N/A
Luminaire Lumens: 11791.3 lumens
Efficiency: N/A
Efficacy: 119.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 98.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919068

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US935-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P919068

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US935-FLLFL

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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	996	996	996
5°	998	983	989
10°	990	970	976
15°	976	954	955
20°	956	932	934
25°	937	905	909
30°	912	881	877
35°	889	852	844
40°	860	822	813
45°	832	793	780
50°	801	762	743
55°	768	726	708
60°	732	684	669
65°	692	640	622
70°	640	587	572
75°	570	523	526
80°	485	442	438
85°	352	301	291

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2259 cd/sqm

TEST NUMBER: P919068

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US935-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.1	1.1
10°-20°	354.9	3.0
20°-30°	521.5	4.4
30°-40°	605.7	5.1
40°-50°	605.0	5.1
50°-60°	527.5	4.5
60°-70°	389.9	3.3
70°-80°	220.6	1.9
80°-90°	66.7	0.6
90°-100°	185.3	1.6
100°-110°	588.9	5.0
110°-120°	1007.8	8.5
120°-130°	1325.4	11.2
130°-140°	1487.7	12.6
140°-150°	1458.9	12.4
150°-160°	1223.8	10.4
160°-170°	811.6	6.9
170°-180°	283.7	2.4
0°-30°	1002.5	8.5
0°-40°	1608.3	13.6
0°-60°	2740.7	23.2
0°-90°	3418.0	29.0
90°-120°	1782.1	15.1
90°-150°	6054.2	51.3
90°-180°	8373.0	71.0
0°-180°	11791.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1340	1340	1340	1340	1340	
5°	1340	1335	1321	1331	1329	127
15°	1276	1268	1251	1256	1250	359
25°	1154	1144	1122	1125	1122	531
35°	996	983	963	955	948	622
45°	810	802	782	768	763	626
55°	614	606	590	575	568	548
65°	414	406	393	381	375	409
75°	216	214	207	200	202	231
85°	53	52	50	46	45	59
90°	3	32	88	83	86	12
95°	132	157	162	162	157	147
105°	544	551	556	561	561	574
115°	1011	1026	1021	1019	1011	1000
125°	1471	1494	1486	1478	1476	1315
135°	1903	1931	1936	1933	1926	1471
145°	2310	2328	2342	2345	2335	1443
155°	2641	2648	2657	2669	2661	1216
165°	2873	2871	2871	2889	2876	811
175°	2990	2983	2977	2995	2980	284
180°	2995	2995	2995	2995	2995	

TEST NUMBER: P919068

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US935-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1340.1	1340.1	1340.1	1340.1	1340.1
2.5°	1347.9	1341.4	1327.2	1340.1	1337.6
5°	1340.1	1335.0	1320.8	1331.0	1328.6
7.5°	1331.0	1323.4	1309.1	1319.6	1317.0
10°	1317.0	1307.9	1292.5	1302.8	1298.9
12.5°	1297.5	1289.9	1274.4	1280.9	1278.2
15°	1275.7	1268.0	1251.2	1256.4	1250.0
17.5°	1248.6	1241.0	1224.2	1230.5	1224.2
20°	1218.9	1211.3	1193.3	1197.0	1192.1
22.5°	1189.4	1177.8	1161.0	1161.0	1158.4
25°	1154.5	1144.3	1122.4	1124.9	1122.4
27.5°	1115.9	1106.8	1090.2	1086.3	1079.9
30°	1077.3	1066.9	1047.7	1043.8	1038.6
32.5°	1036.0	1028.4	1007.7	1000.0	994.7
35°	996.1	983.3	962.6	954.8	948.4
37.5°	951.0	939.3	918.7	909.7	903.3
40°	904.7	894.2	873.6	862.1	857.0
42.5°	859.5	849.1	828.6	815.6	808.0
45°	810.5	801.6	782.1	768.1	762.8
47.5°	762.8	753.8	733.2	719.0	711.4
50°	712.6	706.1	688.1	670.0	663.6
52.5°	663.6	654.6	637.9	623.7	614.7
55°	613.5	605.6	590.2	574.7	568.3
57.5°	563.1	556.7	539.8	524.4	519.3
60°	512.8	507.7	489.7	475.5	471.7
62.5°	463.9	454.9	442.0	429.1	424.0
65°	413.7	405.9	393.0	381.4	375.1
67.5°	362.1	355.6	344.1	335.1	329.9
70°	314.4	309.3	297.6	288.6	283.5
72.5°	265.5	260.3	253.9	244.9	241.0
75°	216.5	214.0	207.4	199.8	202.3
77.5°	172.6	167.5	164.9	161.0	157.2
80°	128.9	127.5	124.9	121.1	118.6
82.5°	87.6	87.6	86.4	81.2	81.2
85°	52.8	51.6	50.3	46.3	45.1
87.5°	23.2	20.7	18.1	14.2	12.8
90°	2.7	32.5	88.5	83.1	85.8
92.5°	56.0	75.9	78.5	81.3	81.3
95°	131.8	157.1	161.6	161.6	157.1
97.5°	219.5	242.9	252.9	252.9	252.9
100°	320.5	341.3	348.5	348.5	345.9
102.5°	427.1	442.5	452.5	455.1	452.5
105°	543.6	550.9	556.3	560.8	560.8
107.5°	659.2	670.0	670.0	671.8	659.2
110°	771.2	785.7	785.7	785.7	778.4

TEST NUMBER: P919068

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US935-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	892.2	907.5	904.8	897.6	892.2
115°	1011.4	1025.8	1021.3	1018.6	1011.4
117.5°	1129.7	1149.5	1136.9	1129.7	1122.5
120°	1248.9	1268.8	1248.9	1248.9	1240.8
122.5°	1357.3	1382.5	1369.8	1362.6	1357.3
125°	1471.0	1493.6	1486.3	1478.2	1475.5
127.5°	1582.1	1610.1	1600.2	1589.3	1582.1
130°	1685.9	1718.5	1713.9	1708.5	1698.6
132.5°	1802.4	1827.7	1829.5	1816.9	1809.6
135°	1902.6	1930.6	1936.0	1933.4	1926.1
137.5°	2014.6	2037.2	2041.7	2039.9	2029.1
140°	2113.1	2135.6	2148.3	2148.3	2138.4
142.5°	2214.2	2236.8	2244.0	2246.7	2236.8
145°	2309.9	2328.0	2342.4	2345.1	2335.2
147.5°	2395.7	2418.3	2429.1	2433.6	2423.7
150°	2484.2	2499.6	2509.5	2517.6	2509.5
152.5°	2562.8	2578.1	2590.7	2600.7	2590.7
155°	2641.4	2648.5	2656.7	2669.4	2661.2
157.5°	2709.0	2714.5	2718.9	2737.0	2724.4
160°	2769.6	2775.0	2777.7	2793.1	2782.2
162.5°	2825.5	2825.5	2828.3	2845.4	2832.8
165°	2873.4	2870.7	2870.7	2888.7	2876.1
167.5°	2916.7	2908.6	2908.6	2926.7	2914.0
170°	2949.3	2942.0	2939.4	2957.4	2942.0
172.5°	2971.8	2964.6	2961.9	2980.0	2964.6
175°	2989.9	2982.7	2977.2	2995.3	2980.0
177.5°	2999.8	2992.6	2987.1	3002.6	2987.1
180°	2995.3	2995.3	2995.3	2995.3	2995.3

TEST NUMBER: P919068

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US935-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	4.90	5.60	6.02	6.71	8.26	4.47	5.17	5.59	6.28	7.83
	3H	6.55	7.18	7.68	8.30	9.86	6.08	6.71	7.21	7.83	9.38
	4H	7.13	7.73	8.27	8.85	10.41	6.66	7.25	7.80	8.38	9.94
	6H	7.52	8.07	8.67	9.20	10.77	7.05	7.60	8.19	8.72	10.30
	8H	7.62	8.15	8.77	9.29	10.85	7.15	7.67	8.30	8.81	10.38
	12H	7.67	8.16	8.82	9.30	10.89	7.19	7.68	8.34	8.81	10.41
4H	2H	5.34	5.94	6.49	7.06	8.63	5.00	5.60	6.14	6.72	8.28
	3H	7.20	7.69	8.35	8.84	10.42	6.80	7.30	7.95	8.45	10.02
	4H	7.91	8.36	9.06	9.50	11.10	7.50	7.96	8.65	9.09	10.69
	6H	8.41	8.80	9.57	9.96	11.55	8.00	8.39	9.16	9.55	11.14
	8H	8.56	8.92	9.72	10.07	11.68	8.15	8.51	9.30	9.66	11.27
	12H	8.62	8.96	9.80	10.12	11.73	8.20	8.53	9.38	9.70	11.30
8H	4H	8.09	8.46	9.25	9.61	11.21	7.73	8.09	8.89	9.25	10.85
	6H	8.72	9.02	9.89	10.21	11.81	8.35	8.65	9.53	9.85	11.45
	8H	8.94	9.20	10.12	10.37	11.99	8.57	8.83	9.75	10.00	11.62
	12H	9.06	9.29	10.25	10.46	12.11	8.67	8.91	9.86	10.07	11.73
12H	4H	8.07	8.40	9.24	9.56	11.17	7.72	8.05	8.89	9.21	10.82
	6H	8.74	9.01	9.93	10.18	11.80	8.39	8.66	9.58	9.83	11.45
	8H	8.98	9.21	10.17	10.38	12.03	8.62	8.85	9.81	10.02	11.67

END OF REPORT