

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: P929428

Luminaire Tested: DFN2DIP-HX4F0-120D040US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929428
REPORT IS A COMBINATION OF REPORTS P900835 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D040US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

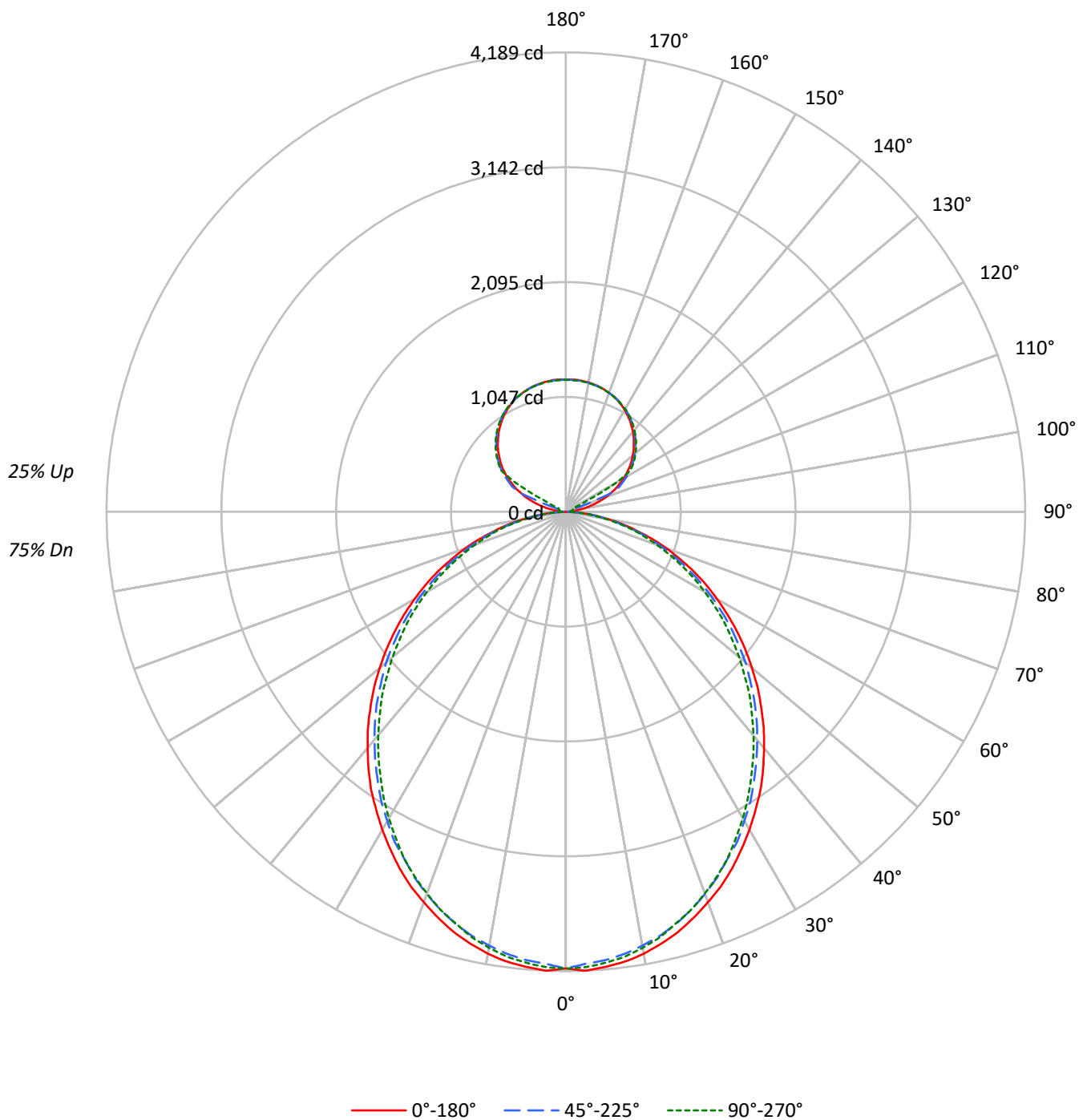
Lumens per Lamp: N/A
Luminaire Lumens: 14129.3 lumens
Efficiency: N/A
Efficacy: 90.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 156.3
Input Voltage (V):
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

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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	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41
5	72	60	52	46	69	58	50	44	53	46	41	48	43	39	44	40	36
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25
9	54	41	33	28	51	39	32	27	37	30	26	34	28	24	31	26	23
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3097	3097	3097
5°	3102	3054	3074
10°	3077	3013	3033
15°	3032	2964	2968
20°	2971	2895	2902
25°	2911	2813	2825
30°	2835	2737	2727
35°	2763	2647	2624
40°	2674	2556	2525
45°	2586	2464	2425
50°	2489	2369	2308
55°	2388	2258	2201
60°	2274	2126	2078
65°	2150	1990	1934
70°	1991	1824	1778
75°	1771	1626	1634
80°	1507	1373	1360
85°	1093	936	904

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2586 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	392.0	2.8
10°-20°	1103.0	7.8
20°-30°	1620.9	11.5
30°-40°	1882.6	13.3
40°-50°	1880.3	13.3
50°-60°	1639.5	11.6
60°-70°	1212.0	8.6
70°-80°	685.7	4.9
80°-90°	183.1	1.3
90°-100°	39.7	0.3
100°-110°	148.0	1.0
110°-120°	392.6	2.8
120°-130°	651.1	4.6
130°-140°	691.6	4.9
140°-150°	642.8	4.5
150°-160°	516.8	3.7
160°-170°	333.0	2.4
170°-180°	114.6	0.8
0°-30°	3115.9	22.1
0°-40°	4998.5	35.4
0°-60°	8518.3	60.3
0°-90°	10599.1	75.0
90°-120°	580.3	4.1
90°-150°	2565.8	18.2
90°-180°	3530.0	25.0
0°-180°	14129.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4165	4165	4165	4165	4165	
5°	4165	4149	4105	4137	4129	395
15°	3965	3941	3889	3905	3885	1117
25°	3588	3556	3488	3496	3488	1651
35°	3096	3056	2992	2968	2948	1933
45°	2519	2491	2431	2387	2371	1944
55°	1907	1882	1834	1786	1766	1705
65°	1286	1262	1222	1186	1166	1271
75°	673	665	645	621	629	718
85°	164	160	156	144	140	183
90°	1	10	17	22	24	13
95°	57	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	538	134	72	493
125°	708	720	736	742	745	632
135°	877	891	898	907	905	677
145°	1017	1016	1031	1037	1032	636
155°	1120	1112	1122	1128	1120	516
165°	1180	1175	1177	1183	1177	333
175°	1207	1201	1202	1208	1200	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4165.0	4165.0	4165.0	4165.0	4165.0
2.5°	4189.2	4169.2	4125.1	4165.0	4157.3
5°	4165.0	4149.2	4105.1	4136.9	4129.2
7.5°	4136.9	4113.1	4068.9	4101.2	4093.2
10°	4093.2	4065.1	4017.1	4049.0	4037.1
12.5°	4032.8	4009.0	3961.0	3981.0	3972.9
15°	3964.9	3941.0	3888.8	3904.9	3884.9
17.5°	3880.7	3856.9	3804.6	3824.6	3804.6
20°	3788.5	3764.7	3708.7	3720.5	3704.8
22.5°	3696.7	3660.6	3608.3	3608.3	3600.3
25°	3588.3	3556.5	3488.5	3496.2	3488.5
27.5°	3468.1	3440.1	3388.3	3376.3	3356.4
30°	3348.3	3316.0	3256.1	3244.2	3228.1
32.5°	3219.9	3196.2	3132.0	3107.8	3091.7
35°	3095.9	3056.0	2991.8	2967.6	2947.6
37.5°	2955.6	2919.6	2855.4	2827.4	2807.4
40°	2811.7	2779.4	2715.2	2679.5	2663.3
42.5°	2671.5	2639.2	2575.4	2535.1	2511.2
45°	2519.3	2491.3	2430.9	2387.2	2371.0
47.5°	2371.0	2342.9	2278.8	2234.6	2210.8
50°	2214.7	2194.7	2138.6	2082.5	2062.5
52.5°	2062.5	2034.5	1982.6	1938.4	1910.4
55°	1906.6	1882.4	1834.3	1786.3	1766.3
57.5°	1750.2	1730.2	1677.9	1630.0	1613.8
60°	1593.8	1578.1	1522.0	1477.9	1465.9
62.5°	1441.7	1413.6	1373.8	1333.8	1317.7
65°	1285.8	1261.6	1221.6	1185.5	1165.6
67.5°	1125.6	1105.2	1069.5	1041.5	1025.4
70°	977.3	961.1	925.0	897.0	881.3
72.5°	825.2	809.0	789.1	761.1	749.1
75°	672.7	665.0	644.6	620.8	628.9
77.5°	536.6	520.5	512.5	500.5	488.6
80°	400.7	396.4	388.4	376.5	368.4
82.5°	272.3	272.3	268.6	252.4	252.4
85°	164.0	160.2	156.4	144.1	140.2
87.5°	72.3	64.1	56.1	44.2	40.0
90°	0.8	10.4	17.4	21.9	23.5
92.5°	21.9	18.3	20.9	22.7	23.5
95°	56.6	27.8	33.9	38.4	37.5
97.5°	102.0	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.6	58.3
102.5°	211.7	210.1	51.4	60.9	63.6
105°	264.8	291.1	53.2	62.7	66.2
107.5°	326.7	348.5	54.9	64.5	68.0
110°	386.1	404.3	152.5	65.4	68.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.8	457.4	442.6	67.1	69.8
115°	500.9	515.8	537.6	134.2	71.5
117.5°	552.4	569.8	584.7	460.0	231.7
120°	609.9	623.0	638.7	649.2	531.5
122.5°	658.7	672.7	690.1	695.3	696.2
125°	708.3	719.8	736.3	742.4	745.0
127.5°	753.7	765.9	779.0	787.7	788.5
130°	796.4	810.4	819.8	829.5	828.7
132.5°	839.9	851.3	860.9	868.7	867.9
135°	876.6	890.6	898.3	907.1	905.4
137.5°	914.8	925.3	934.1	942.8	940.2
140°	952.3	959.3	968.9	976.7	972.4
142.5°	983.8	989.9	1001.2	1008.0	1003.8
145°	1016.9	1016.0	1030.7	1036.9	1032.5
147.5°	1045.5	1042.9	1057.7	1062.1	1058.7
150°	1073.4	1067.4	1081.4	1086.5	1082.2
152.5°	1097.0	1090.0	1103.0	1108.3	1102.2
155°	1119.6	1111.9	1122.3	1127.5	1120.5
157.5°	1137.9	1131.0	1138.9	1145.0	1137.9
160°	1153.6	1148.4	1153.6	1158.8	1152.7
162.5°	1167.5	1162.4	1166.7	1172.8	1165.0
165°	1179.8	1174.6	1177.2	1183.2	1177.2
167.5°	1189.4	1184.0	1186.8	1192.9	1185.0
170°	1197.2	1192.0	1193.7	1199.8	1192.0
172.5°	1202.4	1197.2	1199.0	1205.1	1197.2
175°	1206.7	1200.6	1202.4	1208.5	1199.8
177.5°	1208.5	1202.4	1203.3	1209.5	1201.6
180°	1204.2	1204.2	1204.2	1204.2	1204.2

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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	13.25	14.39	13.96	15.12	15.98	12.82	13.96	13.52	14.69	15.55
	3H	14.93	15.96	15.65	16.69	17.59	14.46	15.48	15.18	16.22	17.12
	4H	15.53	16.50	16.27	17.25	18.15	15.06	16.03	15.80	16.77	17.68
	6H	15.94	16.84	16.70	17.60	18.52	15.47	16.36	16.22	17.12	18.04
	8H	16.06	16.91	16.82	17.69	18.61	15.58	16.44	16.35	17.21	18.14
	12H	16.12	16.93	16.89	17.70	18.65	15.63	16.45	16.40	17.22	18.17
4H	2H	13.74	14.71	14.49	15.46	16.37	13.40	14.37	14.14	15.11	16.02
	3H	15.63	16.44	16.39	17.23	18.15	15.24	16.05	16.00	16.83	17.76
	4H	16.36	17.10	17.13	17.88	18.83	15.96	16.69	16.73	17.48	18.43
	6H	16.89	17.53	17.68	18.34	19.30	16.48	17.12	17.27	17.93	18.89
	8H	17.05	17.65	17.84	18.45	19.42	16.64	17.23	17.43	18.04	19.01
	12H	17.14	17.67	17.95	18.50	19.48	16.71	17.25	17.53	18.08	19.06
8H	4H	16.58	17.18	17.37	17.98	18.95	16.22	16.82	17.01	17.62	18.59
	6H	17.22	17.72	18.05	18.57	19.54	16.86	17.36	17.68	18.20	19.18
	8H	17.45	17.89	18.28	18.73	19.72	17.08	17.52	17.91	18.36	19.35
	12H	17.59	17.98	18.43	18.82	19.86	17.21	17.60	18.05	18.43	19.48
12H	4H	16.58	17.12	17.39	17.94	18.92	16.23	16.76	17.04	17.59	18.57
	6H	17.26	17.70	18.09	18.54	19.53	16.91	17.35	17.74	18.19	19.18
	8H	17.51	17.90	18.35	18.74	19.78	17.16	17.54	17.99	18.38	19.43

END OF REPORT