

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: P929460

Luminaire Tested: DFN2DIP-HX4F0-120D120US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929460
REPORT IS A COMBINATION OF REPORTS P900979 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D120US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

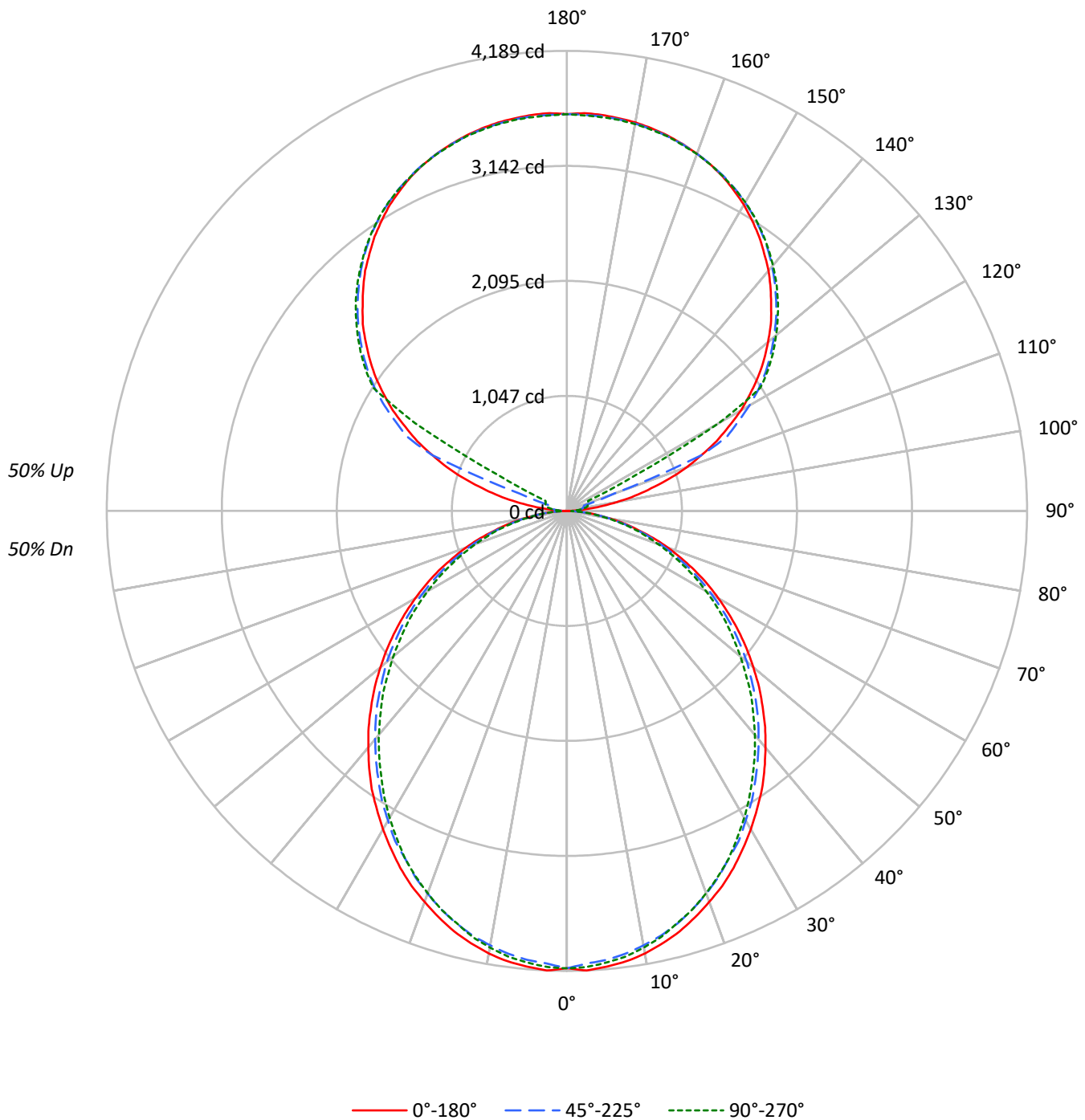
Lumens per Lamp: N/A
Luminaire Lumens: 21193.9 lumens
Efficiency: N/A
Efficacy: 95.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 222.1
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

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	1.8
10°-20°	1103.0	5.2
20°-30°	1620.9	7.6
30°-40°	1882.6	8.9
40°-50°	1880.3	8.9
50°-60°	1639.5	7.7
60°-70°	1212.0	5.7
70°-80°	685.7	3.2
80°-90°	187.3	0.9
90°-100°	119.1	0.6
100°-110°	444.1	2.1
110°-120°	1177.7	5.6
120°-130°	1953.3	9.2
130°-140°	2074.9	9.8
140°-150°	1928.4	9.1
150°-160°	1550.3	7.3
160°-170°	999.0	4.7
170°-180°	343.8	1.6
0°-30°	3115.9	14.7
0°-40°	4998.5	23.6
0°-60°	8518.3	40.2
0°-90°	10603.3	50.0
90°-120°	1740.9	8.2
90°-150°	7697.4	36.3
90°-180°	10591.0	50.0
0°-180°	21193.9	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°	2	31	52	66	70	20
95°	170	84	102	115	112	201
105°	795	873	160	188	199	849
115°	1503	1547	1613	403	214	1480
125°	2125	2159	2209	2227	2235	1895
135°	2630	2672	2695	2721	2716	2031
145°	3051	3048	3092	3111	3098	1908
155°	3359	3336	3367	3382	3362	1548
165°	3539	3524	3531	3550	3531	1000
175°	3620	3602	3607	3626	3599	345
180°	3612	3612	3612	3612	3612	



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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°	2.5	31.3	52.2	65.5	70.5
92.5°	65.5	54.9	62.7	68.0	70.5
95°	169.7	83.5	101.8	115.2	112.4
97.5°	305.8	91.6	133.2	141.2	143.7
100°	462.8	104.6	149.0	169.7	175.1
102.5°	635.1	630.1	154.2	182.9	190.9
105°	794.6	873.2	159.6	188.1	198.6
107.5°	980.2	1045.4	164.8	193.4	203.9
110°	1158.1	1212.8	457.5	196.2	206.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.4	1372.3	1327.9	201.1	209.2
115°	1502.9	1547.4	1612.8	402.6	214.5
117.5°	1657.2	1709.4	1754.1	1380.0	695.3
120°	1829.8	1868.9	1916.1	1947.5	1594.5
122.5°	1976.0	2018.0	2070.4	2085.9	2088.7
125°	2125.0	2159.2	2208.9	2227.1	2234.9
127.5°	2261.0	2297.6	2337.0	2363.1	2365.6
130°	2389.1	2431.1	2459.6	2488.5	2486.0
132.5°	2519.8	2554.0	2582.5	2606.2	2603.7
135°	2629.7	2671.6	2694.9	2721.3	2716.1
137.5°	2744.6	2775.9	2802.3	2828.4	2820.6
140°	2857.0	2878.0	2906.6	2930.2	2917.2
142.5°	2951.3	2969.6	3003.5	3024.2	3011.2
145°	3050.6	3047.9	3092.2	3110.6	3097.5
147.5°	3136.6	3128.9	3173.3	3186.3	3176.1
150°	3220.4	3202.1	3244.0	3259.5	3246.5
152.5°	3290.9	3270.1	3309.2	3325.0	3306.7
155°	3358.8	3335.5	3366.9	3382.5	3361.7
157.5°	3413.8	3393.0	3416.6	3434.9	3413.8
160°	3461.0	3445.2	3461.0	3476.5	3458.2
162.5°	3502.6	3487.1	3500.1	3518.4	3494.9
165°	3539.2	3523.7	3531.4	3549.8	3531.4
167.5°	3568.1	3552.2	3560.3	3578.6	3555.1
170°	3591.6	3575.8	3581.1	3599.4	3575.8
172.5°	3607.2	3591.6	3597.0	3615.3	3591.6
175°	3620.2	3601.9	3607.2	3625.5	3599.4
177.5°	3625.5	3607.2	3610.0	3628.3	3604.8
180°	3612.5	3612.5	3612.5	3612.5	3612.5

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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	11.20	12.06	12.16	13.04	14.31	10.77	11.63	11.73	12.61	13.88
	3H	12.86	13.64	13.83	14.62	15.91	12.39	13.16	13.36	14.15	15.44
	4H	13.45	14.18	14.43	15.17	16.47	12.98	13.71	13.96	14.70	16.00
	6H	13.85	14.53	14.85	15.52	16.83	13.38	14.05	14.37	15.04	16.36
	8H	13.96	14.60	14.96	15.61	16.92	13.48	14.12	14.48	15.13	16.44
	12H	14.01	14.62	15.01	15.62	16.95	13.53	14.14	14.53	15.14	16.47
4H	2H	11.67	12.40	12.65	13.38	14.68	11.32	12.05	12.31	13.04	14.34
	3H	13.53	14.14	14.53	15.16	16.47	13.14	13.75	14.14	14.76	16.08
	4H	14.25	14.81	15.25	15.81	17.15	13.84	14.40	14.85	15.41	16.75
	6H	14.76	15.24	15.78	16.28	17.61	14.35	14.84	15.37	15.87	17.20
	8H	14.91	15.36	15.93	16.39	17.74	14.50	14.95	15.52	15.97	17.33
	12H	14.99	15.39	16.02	16.43	17.79	14.57	14.97	15.60	16.01	17.37
8H	4H	14.45	14.89	15.46	15.92	17.27	14.08	14.53	15.10	15.56	16.91
	6H	15.08	15.45	16.12	16.51	17.86	14.71	15.09	15.76	16.15	17.50
	8H	15.30	15.63	16.35	16.68	18.04	14.93	15.26	15.98	16.31	17.68
	12H	15.43	15.72	16.49	16.77	18.18	15.05	15.33	16.10	16.38	17.79
12H	4H	14.43	14.84	15.47	15.88	17.23	14.08	14.48	15.12	15.52	16.88
	6H	15.11	15.44	16.16	16.49	17.85	14.76	15.08	15.81	16.13	17.50
	8H	15.35	15.64	16.40	16.68	18.09	14.99	15.28	16.05	16.33	17.74

END OF REPORT