

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: P929134

Luminaire Tested: DFN2DIP-HX4F0-120D110US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929134
REPORT IS A COMBINATION OF REPORTS P900962 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D110US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

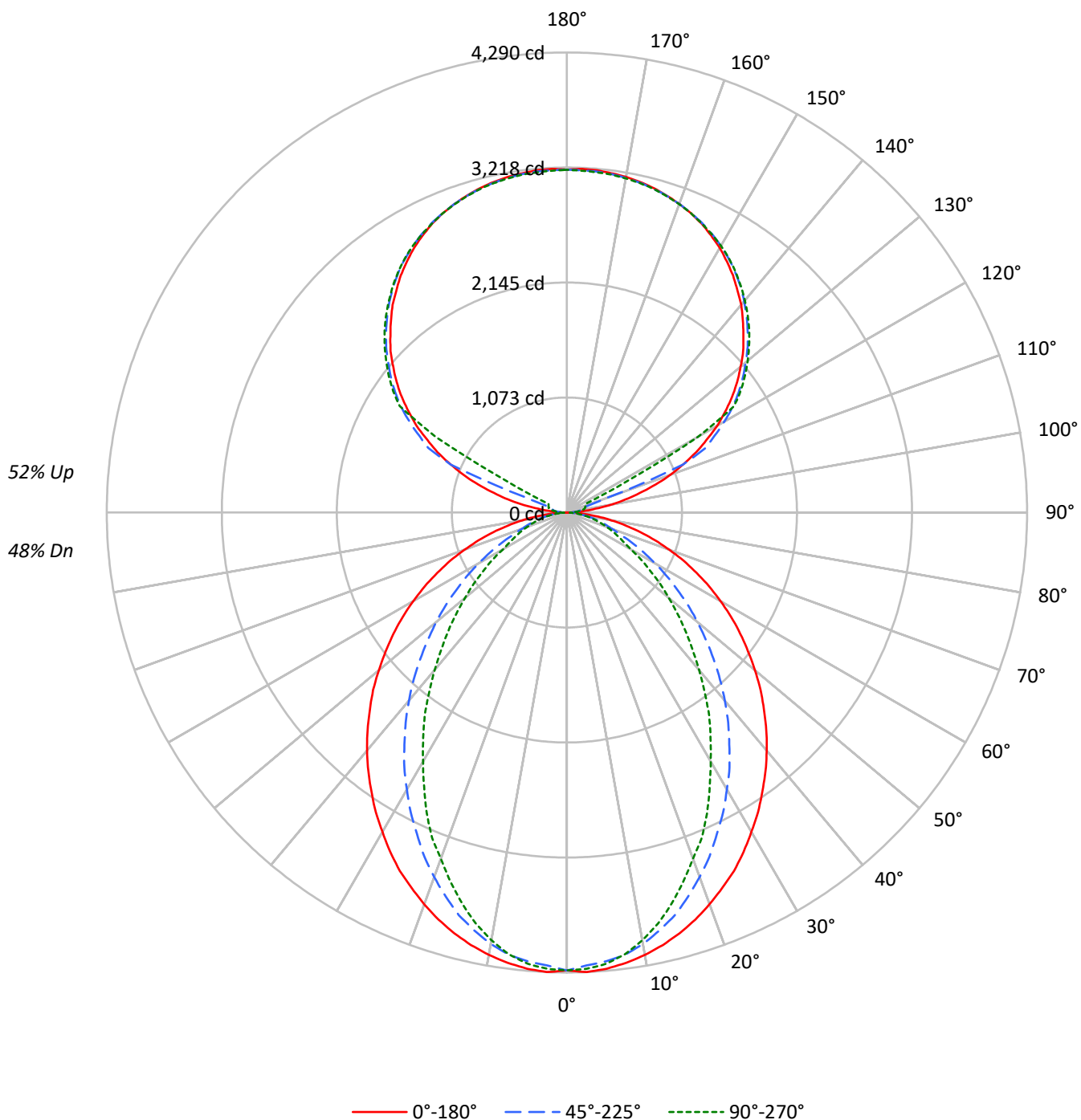
Lumens per Lamp: N/A
Luminaire Lumens: 18158.5 lumens
Efficiency: N/A
Efficacy: 85.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 213.4
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	98	98	98	98	82	82	82	68	68	68	55	55	55
1	98	94	90	87	90	87	83	80	73	71	69	60	59	58	49	48	47
2	90	82	77	72	82	76	71	67	64	61	58	54	51	49	44	42	40
3	82	73	66	60	75	67	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	35	33	30
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	36	42	36	32	35	31	28	29	26	24
7	59	47	39	34	54	44	37	32	38	32	29	32	28	25	27	24	21
8	55	43	35	30	51	40	33	29	35	29	25	30	25	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	27	23	29	24	21	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3175	3175	3175
5°	3180	3125	3145
10°	3149	3064	3043
15°	3106	2963	2885
20°	3049	2824	2691
25°	2991	2668	2503
30°	2912	2507	2266
35°	2835	2335	2057
40°	2757	2157	1817
45°	2666	1959	1600
50°	2572	1759	1388
55°	2473	1546	1185
60°	2360	1323	975
65°	2229	1095	878
70°	2071	884	795
75°	1872	780	724
80°	1583	655	628
85°	1107	439	473

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2666 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	400.2	2.2
10°-20°	1098.7	6.1
20°-30°	1542.5	8.5
30°-40°	1681.4	9.3
40°-50°	1545.4	8.5
50°-60°	1213.7	6.7
60°-70°	790.0	4.4
70°-80°	406.7	2.2
80°-90°	109.4	0.6
90°-100°	105.4	0.6
100°-110°	392.9	2.2
110°-120°	1042.0	5.7
120°-130°	1728.3	9.5
130°-140°	1835.9	10.1
140°-150°	1706.2	9.4
150°-160°	1371.8	7.6
160°-170°	883.9	4.9
170°-180°	304.2	1.7
0°-30°	3041.3	16.7
0°-40°	4722.7	26.0
0°-60°	7481.8	41.2
0°-90°	8787.8	48.4
90°-120°	1540.3	8.5
90°-150°	6810.7	37.5
90°-180°	9371.0	51.6
0°-180°	18158.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4270	4270	4270	4270	4270	
5°	4270	4251	4200	4235	4224	405
15°	4062	4019	3888	3814	3776	1144
25°	3687	3563	3308	3150	3091	1696
35°	3177	2980	2640	2396	2311	1988
45°	2597	2338	1932	1658	1565	2006
55°	1975	1673	1256	1024	951	1764
65°	1333	1020	672	541	529	1322
75°	711	440	309	282	278	752
85°	166	85	73	73	73	191
90°	2	28	46	58	62	17
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4270.2	4270.2	4270.2	4270.2	4270.2
2.5°	4289.5	4270.2	4227.6	4266.5	4258.7
5°	4270.2	4250.9	4200.5	4235.3	4223.9
7.5°	4235.3	4212.4	4158.3	4173.4	4154.2
10°	4189.0	4162.0	4084.8	4073.0	4050.1
12.5°	4131.2	4096.4	3991.8	3968.9	3926.2
15°	4061.5	4018.9	3887.7	3814.2	3775.7
17.5°	3980.3	3918.4	3756.0	3671.2	3609.3
20°	3887.7	3810.2	3617.1	3520.7	3435.4
22.5°	3787.2	3698.3	3474.0	3342.7	3285.0
25°	3686.8	3562.9	3307.9	3149.6	3091.4
27.5°	3567.0	3435.4	3153.3	2971.7	2882.7
30°	3439.5	3292.4	2983.2	2786.4	2681.8
32.5°	3315.7	3137.7	2821.2	2589.2	2492.4
35°	3176.7	2979.5	2639.6	2396.1	2310.8
37.5°	3041.4	2828.6	2469.4	2202.5	2106.2
40°	2898.3	2666.7	2291.6	2017.2	1916.8
42.5°	2751.5	2504.3	2114.0	1827.8	1731.5
45°	2596.9	2337.9	1932.3	1657.7	1565.0
47.5°	2450.1	2175.9	1758.5	1483.8	1399.0
50°	2287.8	2013.5	1588.4	1321.5	1240.7
52.5°	2129.2	1839.3	1426.0	1171.0	1097.6
55°	1974.6	1673.3	1255.9	1024.2	950.8
57.5°	1816.3	1507.2	1105.4	888.9	827.0
60°	1654.0	1344.8	946.7	749.9	688.0
62.5°	1495.7	1186.5	811.4	626.1	595.3
65°	1333.3	1020.1	672.4	541.2	529.3
67.5°	1178.8	865.5	541.2	475.2	463.7
70°	1016.4	715.1	448.2	409.6	394.0
72.5°	861.9	575.7	374.7	344.0	336.2
75°	710.9	440.3	309.2	282.1	278.4
77.5°	560.5	312.8	243.6	228.0	220.2
80°	421.1	224.3	185.3	170.1	170.1
82.5°	293.6	150.8	127.5	119.7	119.7
85°	166.1	84.9	73.4	73.4	73.4
87.5°	61.9	30.7	30.7	27.0	27.0
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.3	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.9	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.9	2363.9	2384.5	2407.9	2403.1
137.5°	2428.5	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.6
152.5°	2911.8	2893.4	2928.0	2942.0	2925.9
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.1	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.7	3140.8	3124.7
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3178.0	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3178.0	3182.6	3198.8	3178.0
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4

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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	11.01	11.83	11.99	12.81	14.11	6.98	7.80	7.96	8.79	10.08
	3H	12.69	13.42	13.68	14.41	15.73	8.17	8.90	9.16	9.90	11.22
	4H	13.30	13.99	14.30	14.99	16.31	8.62	9.31	9.63	10.31	11.64
	6H	13.72	14.35	14.73	15.36	16.70	8.95	9.58	9.96	10.59	11.92
	8H	13.84	14.45	14.86	15.47	16.80	9.04	9.64	10.05	10.66	12.00
	12H	13.91	14.48	14.93	15.49	16.85	9.08	9.66	10.10	10.67	12.03
4H	2H	11.03	11.72	12.03	12.72	14.04	7.58	8.27	8.59	9.27	10.59
	3H	12.86	13.43	13.87	14.46	15.80	8.93	9.50	9.94	10.53	11.87
	4H	13.55	14.07	14.57	15.09	16.46	9.48	10.00	10.50	11.02	12.39
	6H	14.06	14.51	15.10	15.56	16.92	9.90	10.35	10.93	11.39	12.75
	8H	14.24	14.66	15.28	15.70	17.07	10.03	10.45	11.06	11.48	12.86
	12H	14.33	14.71	15.39	15.77	17.15	10.09	10.47	11.15	11.52	12.90
8H	4H	13.52	13.94	14.55	14.97	16.35	9.76	10.18	10.79	11.21	12.59
	6H	14.08	14.43	15.14	15.51	16.88	10.28	10.62	11.34	11.70	13.08
	8H	14.30	14.61	15.37	15.67	17.06	10.47	10.78	11.54	11.84	13.23
	12H	14.44	14.71	15.51	15.77	17.20	10.59	10.86	11.66	11.92	13.35
12H	4H	13.47	13.85	14.52	14.90	16.28	9.76	10.14	10.81	11.19	12.57
	6H	14.06	14.36	15.12	15.43	16.82	10.33	10.63	11.39	11.70	13.09
	8H	14.28	14.55	15.35	15.61	17.04	10.54	10.81	11.61	11.86	13.30

END OF REPORT