

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: P928346

Luminaire Tested: DFN2DIP-HX4F0-080D120US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928346
REPORT IS A COMBINATION OF REPORTS P900972 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D120US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

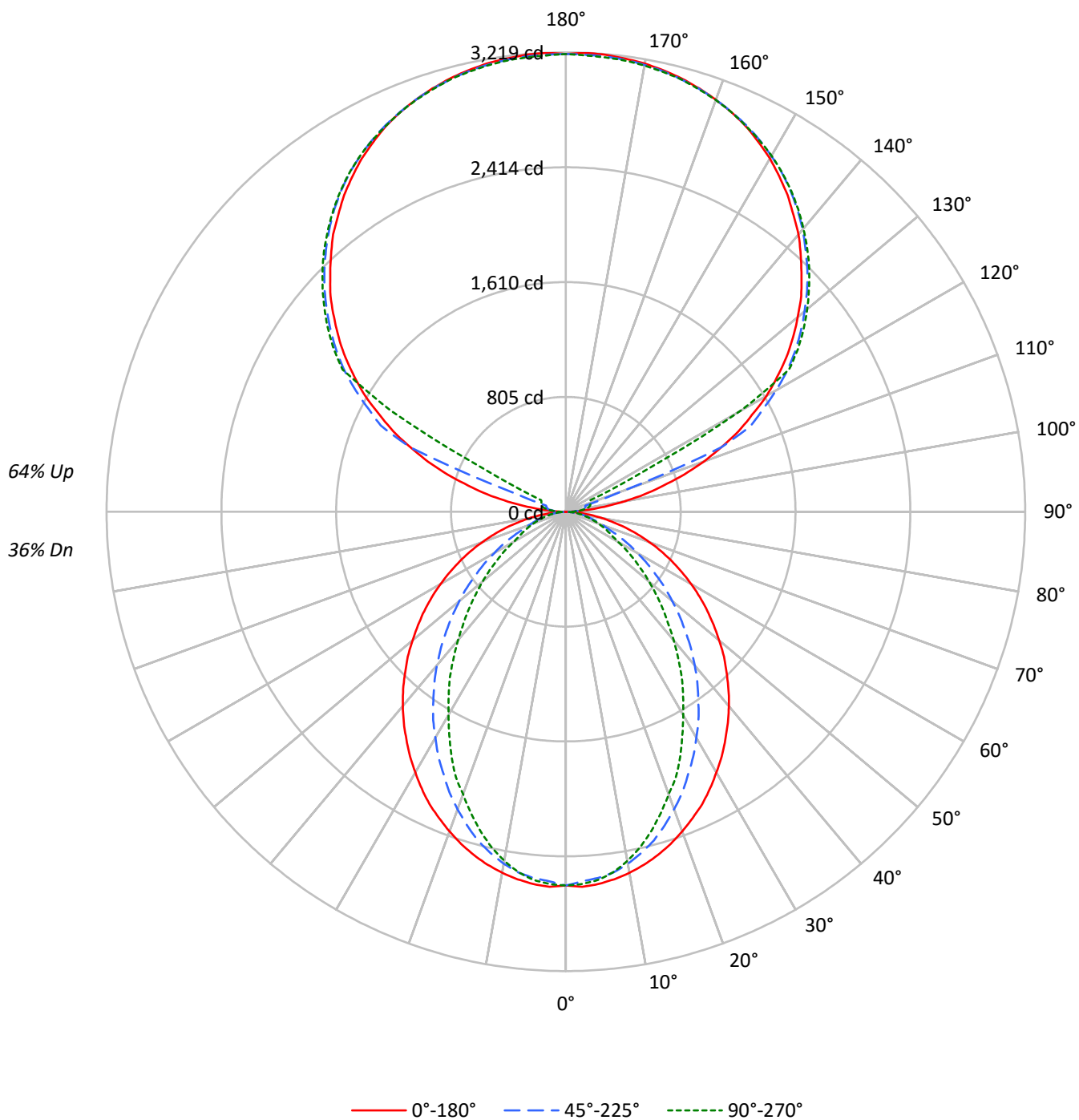
Lumens per Lamp: N/A
Luminaire Lumens: 14794.5 lumens
Efficiency: N/A
Efficacy: 85.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.6
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

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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	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	36		
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	31		
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	27		
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	23		
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	20		
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	18		
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	16		
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	14		
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	13		
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	12		
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	11		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1947	1947	1947
5°	1950	1916	1929
10°	1931	1879	1866
15°	1905	1817	1769
20°	1870	1732	1650
25°	1834	1636	1535
30°	1786	1538	1389
35°	1739	1432	1261
40°	1691	1323	1114
45°	1635	1201	981
50°	1577	1079	851
55°	1517	948	727
60°	1447	811	598
65°	1367	672	538
70°	1270	542	487
75°	1148	478	444
80°	971	402	385
85°	679	269	290

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1648 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	245.4	1.7
10°-20°	673.7	4.6
20°-30°	945.9	6.4
30°-40°	1031.1	7.0
40°-50°	947.7	6.4
50°-60°	744.3	5.0
60°-70°	484.4	3.3
70°-80°	249.4	1.7
80°-90°	69.3	0.5
90°-100°	105.8	0.7
100°-110°	394.3	2.7
110°-120°	1045.7	7.1
120°-130°	1734.3	11.7
130°-140°	1842.3	12.5
140°-150°	1712.2	11.6
150°-160°	1376.5	9.3
160°-170°	887.0	6.0
170°-180°	305.3	2.1
0°-30°	1865.1	12.6
0°-40°	2896.2	19.6
0°-60°	4588.1	31.0
0°-90°	5391.2	36.4
90°-120°	1545.7	10.4
90°-150°	6834.5	46.2
90°-180°	9403.0	63.6
0°-180°	14794.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2619	2619	2619	2619	2619	
5°	2619	2607	2576	2597	2590	248
15°	2491	2464	2384	2339	2315	702
25°	2261	2185	2028	1932	1896	1040
35°	1948	1827	1619	1469	1417	1219
45°	1593	1434	1185	1016	960	1230
55°	1211	1026	770	628	583	1082
65°	818	626	412	332	325	811
75°	436	270	190	173	171	461
85°	102	52	45	45	45	117
90°	2	28	46	58	63	14
95°	151	74	90	102	100	179
105°	706	775	142	167	176	754
115°	1334	1374	1432	357	190	1314
125°	1887	1917	1961	1978	1984	1683
135°	2335	2372	2393	2416	2412	1804
145°	2709	2706	2746	2762	2750	1694
155°	2982	2962	2990	3003	2985	1374
165°	3142	3129	3136	3152	3136	888
175°	3214	3198	3203	3219	3196	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2618.7	2618.7	2618.7	2618.7	2618.7
2.5°	2630.5	2618.7	2592.5	2616.4	2611.6
5°	2618.7	2606.9	2575.9	2597.3	2590.2
7.5°	2597.3	2583.2	2550.0	2559.3	2547.5
10°	2568.9	2552.3	2505.0	2497.7	2483.6
12.5°	2533.4	2512.1	2447.9	2433.8	2407.7
15°	2490.7	2464.5	2384.1	2339.1	2315.4
17.5°	2440.9	2402.9	2303.4	2251.3	2213.3
20°	2384.1	2336.6	2218.2	2159.1	2106.7
22.5°	2322.5	2267.9	2130.4	2049.9	2014.5
25°	2260.8	2185.0	2028.5	1931.5	1895.8
27.5°	2187.4	2106.7	1933.7	1822.4	1767.8
30°	2109.3	2019.0	1829.4	1708.7	1644.6
32.5°	2033.3	1924.2	1730.1	1587.8	1528.5
35°	1948.1	1827.1	1618.7	1469.4	1417.0
37.5°	1865.1	1734.6	1514.4	1350.7	1291.6
40°	1777.4	1635.3	1405.2	1237.0	1175.4
42.5°	1687.4	1535.8	1296.3	1120.9	1061.8
45°	1592.6	1433.7	1185.0	1016.5	959.7
47.5°	1502.6	1334.4	1078.4	909.9	857.9
50°	1402.9	1234.8	974.1	810.4	760.8
52.5°	1305.7	1127.9	874.4	718.1	673.1
55°	1210.9	1026.1	770.1	628.1	583.1
57.5°	1113.9	924.3	677.9	545.1	507.1
60°	1014.2	824.7	580.5	459.8	421.9
62.5°	917.2	727.6	497.6	384.0	365.1
65°	817.7	625.5	412.3	331.9	324.6
67.5°	722.9	530.8	331.9	291.4	284.4
70°	623.3	438.5	274.8	251.1	241.6
72.5°	528.5	353.0	229.8	211.0	206.2
75°	436.0	270.1	189.6	173.0	170.8
77.5°	343.7	191.8	149.4	139.8	135.0
80°	258.2	137.6	113.7	104.3	104.3
82.5°	180.0	92.5	78.2	73.4	73.4
85°	101.9	52.0	45.0	45.0	45.0
87.5°	37.9	18.8	18.8	16.6	16.6
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.7	74.1	90.4	102.2	99.8
97.5°	271.5	81.3	118.2	125.4	127.6
100°	410.9	92.9	132.3	150.7	155.5
102.5°	563.9	559.5	136.9	162.4	169.5
105°	705.5	775.3	141.7	167.0	176.4
107.5°	870.3	928.2	146.4	171.7	181.1
110°	1028.3	1076.8	406.2	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.8	1218.4	1179.1	178.6	185.7
115°	1334.4	1373.9	1432.0	357.4	190.5
117.5°	1471.5	1517.8	1557.5	1225.3	617.4
120°	1624.7	1659.4	1701.3	1729.2	1415.8
122.5°	1754.5	1791.7	1838.3	1852.1	1854.5
125°	1886.8	1917.1	1961.2	1977.5	1984.4
127.5°	2007.5	2040.0	2075.0	2098.2	2100.4
130°	2121.3	2158.5	2183.9	2209.5	2207.3
132.5°	2237.3	2267.7	2293.0	2314.0	2311.8
135°	2334.9	2372.1	2392.8	2416.2	2411.6
137.5°	2436.9	2464.7	2488.1	2511.3	2504.4
140°	2536.7	2555.4	2580.7	2601.7	2590.2
142.5°	2620.4	2636.7	2666.7	2685.2	2673.6
145°	2708.6	2706.2	2745.5	2761.9	2750.2
147.5°	2785.0	2778.1	2817.5	2829.1	2820.0
150°	2859.4	2843.1	2880.3	2894.1	2882.6
152.5°	2921.9	2903.5	2938.2	2952.3	2936.0
155°	2982.3	2961.6	2989.5	3003.3	2984.8
157.5°	3031.1	3012.6	3033.6	3049.8	3031.1
160°	3073.0	3058.9	3073.0	3086.7	3070.5
162.5°	3109.9	3096.2	3107.7	3124.0	3103.1
165°	3142.4	3128.6	3135.5	3151.8	3135.5
167.5°	3168.1	3154.0	3161.2	3177.4	3156.5
170°	3189.0	3175.0	3179.6	3195.9	3175.0
172.5°	3202.8	3189.0	3193.7	3210.0	3189.0
175°	3214.3	3198.1	3202.8	3219.1	3195.9
177.5°	3219.1	3202.8	3205.3	3221.5	3200.6
180°	3207.5	3207.5	3207.5	3207.5	3207.5

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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	8.05	8.78	9.12	9.85	11.30	4.02	4.75	5.09	5.82	7.28
	3H	9.72	10.37	10.80	11.45	12.92	5.20	5.86	6.28	6.93	8.41
	4H	10.32	10.94	11.41	12.02	13.50	5.65	6.27	6.74	7.35	8.83
	6H	10.74	11.31	11.84	12.39	13.88	5.97	6.54	7.07	7.62	9.11
	8H	10.87	11.41	11.97	12.50	13.99	6.06	6.60	7.16	7.70	9.18
	12H	10.92	11.44	12.03	12.53	14.04	6.10	6.61	7.21	7.70	9.21
4H	2H	8.05	8.67	9.15	9.75	11.23	4.60	5.22	5.70	6.30	7.78
	3H	9.88	10.39	10.98	11.50	12.99	5.95	6.46	7.05	7.57	9.06
	4H	10.57	11.04	11.67	12.13	13.65	6.49	6.97	7.60	8.06	9.57
	6H	11.08	11.48	12.19	12.60	14.10	6.91	7.31	8.03	8.43	9.94
	8H	11.25	11.63	12.37	12.74	14.26	7.04	7.41	8.15	8.53	10.05
	12H	11.34	11.68	12.47	12.81	14.33	7.10	7.44	8.23	8.56	10.09
8H	4H	10.53	10.90	11.64	12.01	13.54	6.77	7.14	7.88	8.26	9.78
	6H	11.09	11.40	12.23	12.55	14.07	7.28	7.60	8.42	8.75	10.27
	8H	11.31	11.58	12.45	12.71	14.25	7.48	7.75	8.62	8.88	10.42
	12H	11.44	11.68	12.59	12.81	14.39	7.59	7.83	8.74	8.96	10.54
12H	4H	10.47	10.81	11.61	11.94	13.46	6.77	7.11	7.90	8.23	9.76
	6H	11.06	11.34	12.21	12.47	14.01	7.33	7.61	8.48	8.74	10.28
	8H	11.28	11.52	12.43	12.65	14.23	7.54	7.78	8.69	8.91	10.48