

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: P919046

Luminaire Tested: DFN2DIP-HX3F0-090D070US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919046
REPORT IS A COMBINATION OF REPORTS P899269 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D070US935-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

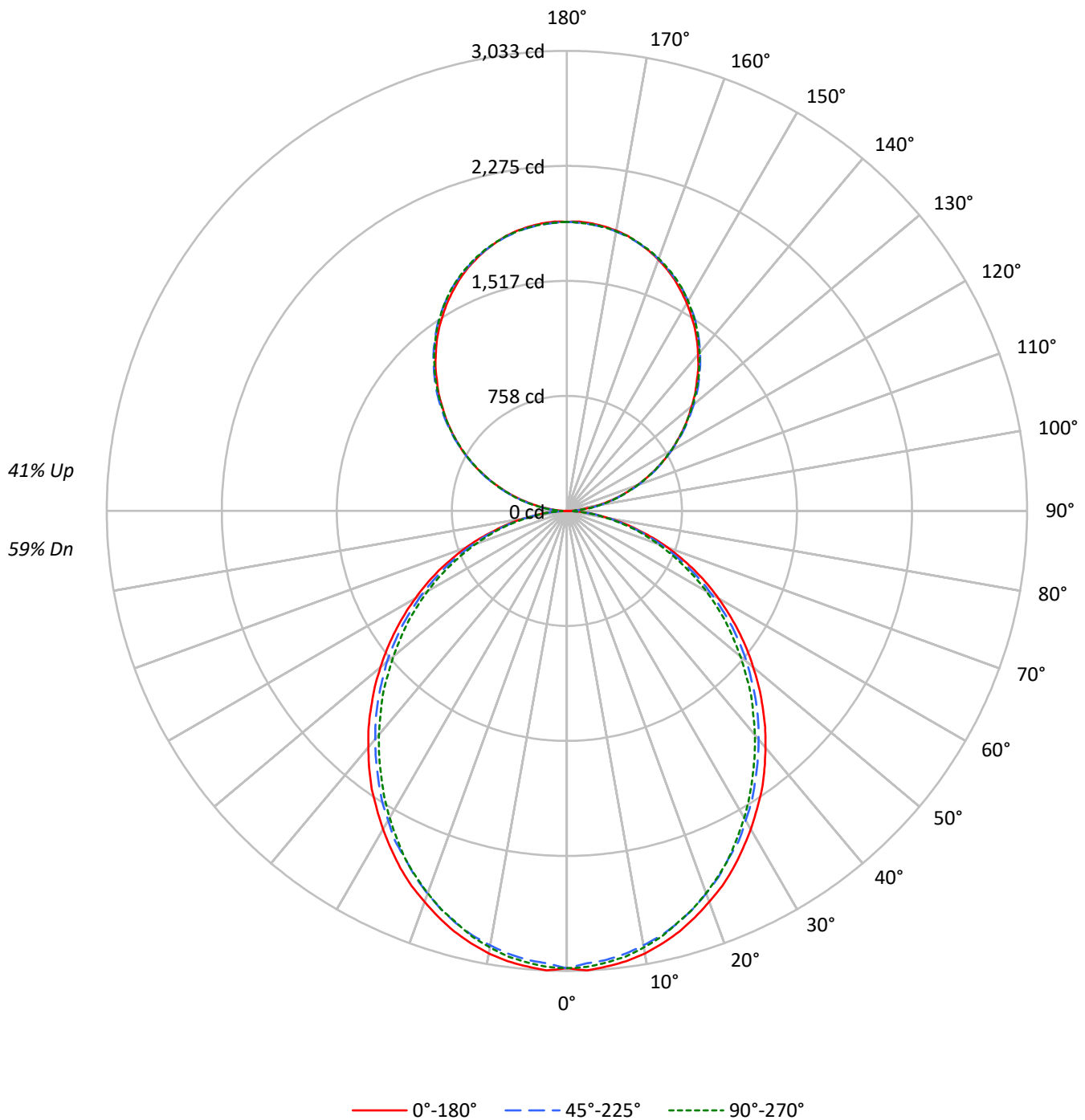
Lumens per Lamp: N/A
Luminaire Lumens: 13005.4 lumens
Efficiency: N/A
Efficacy: 89.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	95	91	88	93	89	86	83	78	75	73	67	65	63	57	56	54
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	50	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	42	39
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	33	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3493	3493	3493
5°	3497	3442	3465
10°	3467	3393	3416
15°	3414	3334	3341
20°	3344	3254	3264
25°	3274	3159	3176
30°	3186	3070	3063
35°	3103	2966	2945
40°	3001	2861	2832
45°	2899	2755	2716
50°	2788	2643	2582
55°	2671	2515	2459
60°	2539	2362	2317
65°	2394	2204	2150
70°	2211	2011	1970
75°	1957	1780	1801
80°	1650	1484	1483
85°	1170	982	962

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2899 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	283.8	2.2
10°-20°	798.5	6.1
20°-30°	1173.4	9.0
30°-40°	1362.9	10.5
40°-50°	1361.2	10.5
50°-60°	1186.9	9.1
60°-70°	877.4	6.7
70°-80°	496.4	3.8
80°-90°	136.4	1.0
90°-100°	117.9	0.9
100°-110°	374.8	2.9
110°-120°	641.3	4.9
120°-130°	843.5	6.5
130°-140°	946.7	7.3
140°-150°	928.4	7.1
150°-160°	778.8	6.0
160°-170°	516.5	4.0
170°-180°	180.5	1.4
0°-30°	2255.7	17.3
0°-40°	3618.6	27.8
0°-60°	6166.7	47.4
0°-90°	7676.9	59.0
90°-120°	1134.1	8.7
90°-150°	3852.7	29.6
90°-180°	5328.0	41.0
0°-180°	13005.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3015	3015	3015	3015	3015	
5°	3015	3004	2972	2995	2989	286
15°	2870	2853	2815	2827	2812	808
25°	2598	2575	2526	2531	2526	1195
35°	2241	2212	2166	2148	2134	1400
45°	1824	1804	1760	1728	1716	1408
55°	1380	1363	1328	1293	1279	1234
65°	931	913	884	858	844	920
75°	487	481	467	449	455	520
85°	119	116	113	104	102	132
90°	2	21	56	53	55	13
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3015.1	3015.1	3015.1	3015.1	3015.1
2.5°	3032.7	3018.2	2986.3	3015.1	3009.6
5°	3015.1	3003.8	2971.8	2994.9	2989.3
7.5°	2994.9	2977.7	2945.6	2969.1	2963.2
10°	2963.2	2942.9	2908.1	2931.2	2922.6
12.5°	2919.5	2902.3	2867.6	2881.9	2876.2
15°	2870.3	2853.1	2815.2	2826.9	2812.4
17.5°	2809.3	2792.1	2754.3	2768.8	2754.3
20°	2742.6	2725.4	2684.8	2693.4	2682.0
22.5°	2676.2	2650.1	2612.2	2612.2	2606.3
25°	2597.7	2574.6	2525.5	2531.0	2525.5
27.5°	2510.7	2490.4	2452.9	2444.3	2429.8
30°	2424.0	2400.5	2357.2	2348.5	2336.9
32.5°	2331.1	2313.8	2267.4	2249.9	2238.2
35°	2241.3	2212.3	2165.8	2148.4	2133.9
37.5°	2139.8	2113.6	2067.1	2046.9	2032.4
40°	2035.4	2012.1	1965.6	1939.7	1928.1
42.5°	1933.9	1910.6	1864.4	1835.2	1818.0
45°	1823.8	1803.5	1759.8	1728.1	1716.5
47.5°	1716.5	1696.2	1649.7	1617.7	1600.5
50°	1603.3	1588.8	1548.2	1507.6	1493.1
52.5°	1493.1	1472.8	1435.3	1403.3	1383.0
55°	1380.3	1362.7	1327.9	1293.2	1278.8
57.5°	1267.0	1252.6	1214.8	1180.0	1168.3
60°	1153.8	1142.5	1101.8	1069.9	1061.3
62.5°	1043.7	1023.4	994.5	965.6	953.9
65°	930.8	913.3	884.3	858.2	843.8
67.5°	814.8	800.1	774.2	754.0	742.3
70°	707.5	695.8	669.7	649.4	638.0
72.5°	597.4	585.7	571.2	551.0	542.3
75°	487.0	481.4	466.7	449.4	455.3
77.5°	388.5	376.9	371.0	362.4	353.8
80°	290.1	287.0	281.1	272.5	266.7
82.5°	197.2	197.2	194.4	182.7	182.7
85°	118.7	116.0	113.2	104.3	101.5
87.5°	52.3	46.4	40.6	32.0	28.9
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1

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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	12.37	13.32	13.24	14.21	15.35	11.94	12.89	12.81	13.78	14.92
	3H	14.03	14.88	14.91	15.78	16.94	13.56	14.41	14.44	15.31	16.48
	4H	14.61	15.42	15.52	16.33	17.50	14.14	14.95	15.05	15.86	17.03
	6H	15.01	15.75	15.93	16.67	17.86	14.54	15.28	15.46	16.20	17.39
	8H	15.11	15.82	16.04	16.76	17.94	14.65	15.35	15.57	16.29	17.47
	12H	15.16	15.84	16.09	16.77	17.97	14.69	15.36	15.62	16.29	17.50
4H	2H	12.84	13.64	13.74	14.55	15.72	12.49	13.30	13.40	14.21	15.38
	3H	14.70	15.37	15.62	16.32	17.50	14.31	14.98	15.23	15.93	17.11
	4H	15.41	16.03	16.34	16.96	18.18	15.01	15.62	15.94	16.56	17.77
	6H	15.93	16.45	16.87	17.42	18.63	15.52	16.05	16.46	17.01	18.22
	8H	16.07	16.57	17.02	17.52	18.75	15.67	16.16	16.61	17.12	18.34
	12H	16.15	16.59	17.11	17.57	18.80	15.73	16.18	16.70	17.15	18.38
8H	4H	15.61	16.11	16.56	17.06	18.29	15.26	15.75	16.20	16.71	17.93
	6H	16.24	16.65	17.21	17.65	18.87	15.88	16.29	16.85	17.29	18.51
	8H	16.46	16.82	17.44	17.80	19.05	16.09	16.45	17.07	17.44	18.68
	12H	16.59	16.90	17.57	17.88	19.17	16.21	16.53	17.19	17.51	18.80
12H	4H	15.60	16.05	16.57	17.02	18.25	15.25	15.70	16.22	16.67	17.90
	6H	16.27	16.63	17.25	17.62	18.86	15.92	16.28	16.90	17.27	18.51
	8H	16.51	16.83	17.49	17.81	19.10	16.15	16.47	17.14	17.45	18.74