

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: P919171

Luminaire Tested: DFN2DIP-HX4F0-100D080US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919171
REPORT IS A COMBINATION OF REPORTS P899384 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D080US935-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

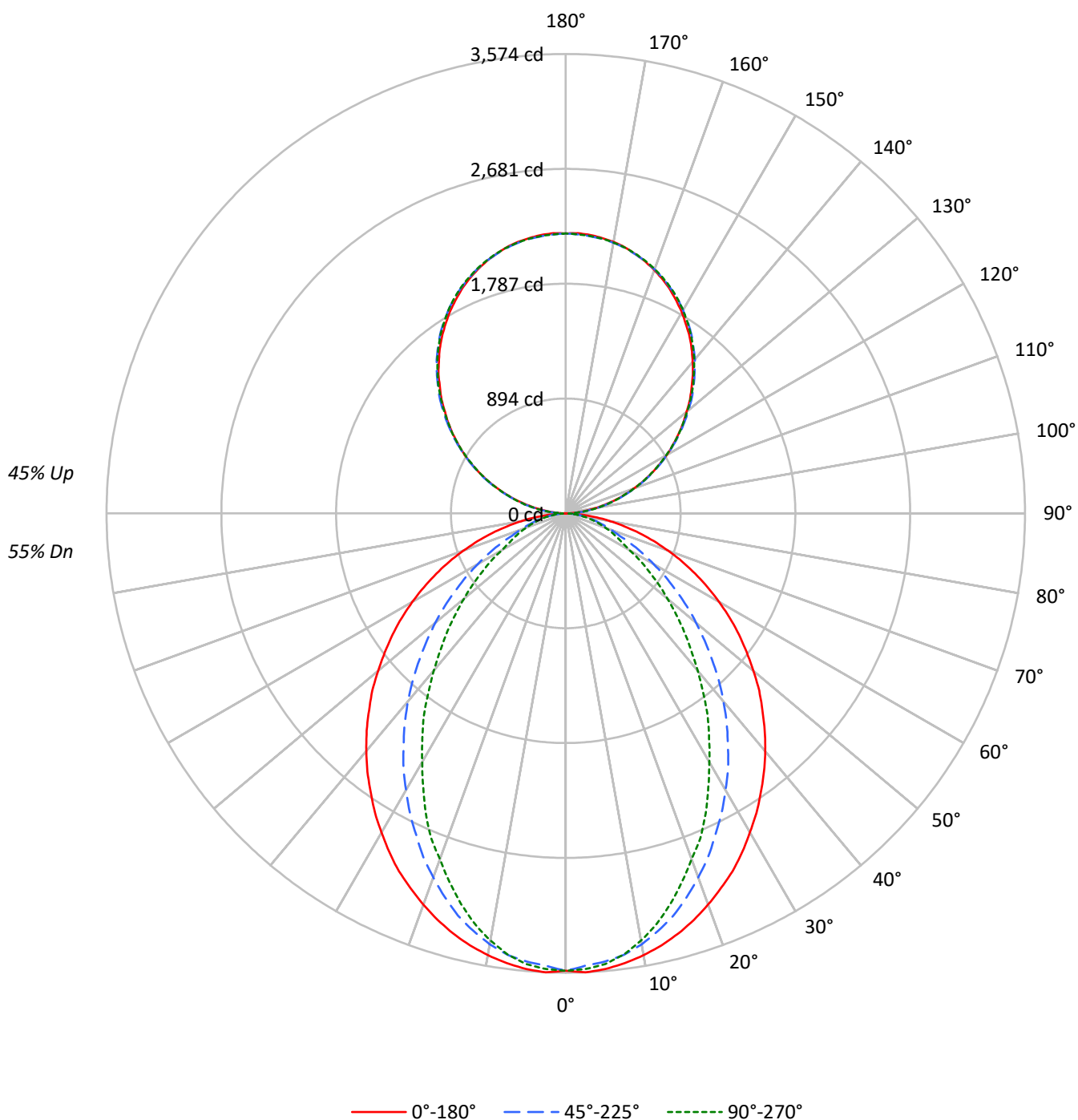
Lumens per Lamp: N/A
Luminaire Lumens: 13414.4 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 144.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60
1	99	95	91	88	92	89	85	82	76	74	72	65	63	62	54	53	52
2	91	84	78	73	84	78	73	69	67	63	60	57	55	52	48	46	45
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	41	39
4	76	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34
5	70	59	51	45	65	55	48	43	48	43	38	42	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	25	22	19
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2646	2646	2646
5°	2650	2604	2621
10°	2624	2553	2536
15°	2588	2469	2404
20°	2541	2353	2242
25°	2492	2223	2086
30°	2427	2090	1888
35°	2362	1946	1714
40°	2297	1797	1515
45°	2221	1632	1334
50°	2143	1466	1157
55°	2061	1288	987
60°	1966	1102	813
65°	1857	913	732
70°	1725	736	663
75°	1560	650	603
80°	1320	546	523
85°	923	366	394

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2221 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	2.5
10°-20°	915.5	6.8
20°-30°	1285.4	9.6
30°-40°	1401.2	10.4
40°-50°	1287.8	9.6
50°-60°	1011.4	7.5
60°-70°	658.3	4.9
70°-80°	338.9	2.5
80°-90°	92.7	0.7
90°-100°	134.8	1.0
100°-110°	428.3	3.2
110°-120°	733.0	5.5
120°-130°	964.0	7.2
130°-140°	1082.0	8.1
140°-150°	1061.0	7.9
150°-160°	890.1	6.6
160°-170°	590.3	4.4
170°-180°	206.3	1.5
0°-30°	2534.4	18.9
0°-40°	3935.6	29.3
0°-60°	6234.8	46.5
0°-90°	7324.7	54.6
90°-120°	1296.1	9.7
90°-150°	4403.1	32.8
90°-180°	6090.0	45.4
0°-180°	13414.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	2	24	64	60	62	13
95°	96	114	118	118	114	107
105°	395	401	405	408	408	417
115°	736	746	743	741	736	728
125°	1070	1086	1081	1075	1073	956
135°	1384	1404	1408	1406	1401	1070
145°	1680	1693	1704	1706	1698	1050
155°	1921	1926	1932	1941	1935	884
165°	2090	2088	2088	2101	2092	590
175°	2174	2169	2165	2178	2167	207
180°	2178	2178	2178	2178	2178	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
90°	2.0	23.7	64.4	60.4	62.4
92.5°	40.7	55.2	57.2	59.1	59.1
95°	95.9	114.3	117.5	117.5	114.3
97.5°	159.6	176.7	183.9	183.9	183.9
100°	233.2	248.2	253.5	253.5	251.5
102.5°	310.6	321.8	329.0	331.0	329.0
105°	395.4	400.6	404.6	407.9	407.9
107.5°	479.4	487.3	487.3	488.6	479.4
110°	560.9	571.4	571.4	571.4	566.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	648.8	660.0	658.1	652.8	648.8
115°	735.6	746.1	742.8	740.8	735.6
117.5°	821.6	836.0	826.8	821.6	816.3
120°	908.3	922.7	908.3	908.3	902.3
122.5°	987.0	1005.5	996.3	991.0	987.0
125°	1069.8	1086.2	1081.0	1075.0	1073.1
127.5°	1150.6	1171.0	1163.7	1155.9	1150.6
130°	1226.1	1249.7	1246.5	1242.6	1235.4
132.5°	1310.9	1329.2	1330.6	1321.4	1316.1
135°	1383.7	1404.1	1408.1	1406.1	1400.8
137.5°	1465.2	1481.6	1484.9	1483.6	1475.7
140°	1536.8	1553.2	1562.4	1562.4	1555.1
142.5°	1610.3	1626.8	1632.0	1634.0	1626.8
145°	1680.0	1693.1	1703.6	1705.6	1698.3
147.5°	1742.3	1758.8	1766.6	1770.0	1762.7
150°	1806.7	1817.8	1825.1	1831.0	1825.1
152.5°	1863.8	1875.0	1884.2	1891.4	1884.2
155°	1921.0	1926.2	1932.2	1941.3	1935.4
157.5°	1970.2	1974.2	1977.5	1990.5	1981.4
160°	2014.2	2018.2	2020.2	2031.3	2023.4
162.5°	2054.9	2054.9	2056.9	2069.4	2060.2
165°	2089.7	2087.7	2087.7	2100.9	2091.7
167.5°	2121.2	2115.4	2115.4	2128.5	2119.3
170°	2144.9	2139.7	2137.7	2150.9	2139.7
172.5°	2161.4	2156.1	2154.1	2167.2	2156.1
175°	2174.5	2169.2	2165.2	2178.4	2167.2
177.5°	2181.7	2176.4	2172.5	2183.7	2172.5
180°	2178.4	2178.4	2178.4	2178.4	2178.4

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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	10.95	11.82	11.87	12.75	13.96	6.92	7.79	7.84	8.73	9.93
	3H	12.63	13.41	13.56	14.35	15.58	8.11	8.89	9.05	9.84	11.07
	4H	13.24	13.97	14.19	14.92	16.16	8.57	9.30	9.52	10.25	11.49
	6H	13.66	14.34	14.63	15.30	16.55	8.89	9.57	9.85	10.52	11.78
	8H	13.79	14.43	14.76	15.41	16.66	8.98	9.63	9.95	10.60	11.85
	12H	13.86	14.47	14.83	15.43	16.71	9.03	9.64	10.00	10.61	11.88
4H	2H	10.97	11.70	11.93	12.66	13.90	7.52	8.25	8.48	9.21	10.45
	3H	12.80	13.41	13.77	14.40	15.65	8.88	9.49	9.84	10.47	11.72
	4H	13.50	14.06	14.47	15.03	16.31	9.43	9.98	10.40	10.96	12.24
	6H	14.02	14.50	15.00	15.49	16.77	9.85	10.33	10.84	11.33	12.61
	8H	14.19	14.64	15.18	15.63	16.92	9.98	10.43	10.97	11.42	12.71
	12H	14.29	14.69	15.30	15.70	17.00	10.05	10.45	11.06	11.46	12.76
8H	4H	13.47	13.92	14.46	14.91	16.20	9.71	10.16	10.70	11.15	12.44
	6H	14.04	14.41	15.05	15.44	16.73	10.23	10.60	11.25	11.64	12.93
	8H	14.26	14.58	15.28	15.60	16.91	10.43	10.75	11.45	11.77	13.08
	12H	14.40	14.68	15.42	15.70	17.05	10.55	10.83	11.57	11.85	13.20
12H	4H	13.42	13.83	14.43	14.83	16.13	9.72	10.12	10.72	11.13	12.43
	6H	14.01	14.34	15.04	15.36	16.67	10.28	10.61	11.30	11.63	12.94
	8H	14.24	14.52	15.26	15.54	16.89	10.50	10.78	11.52	11.80	13.15