

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: P928308

Luminaire Tested: DFN2DIP-HX4F0-070D120US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928308
REPORT IS A COMBINATION OF REPORTS P900969 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D120US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

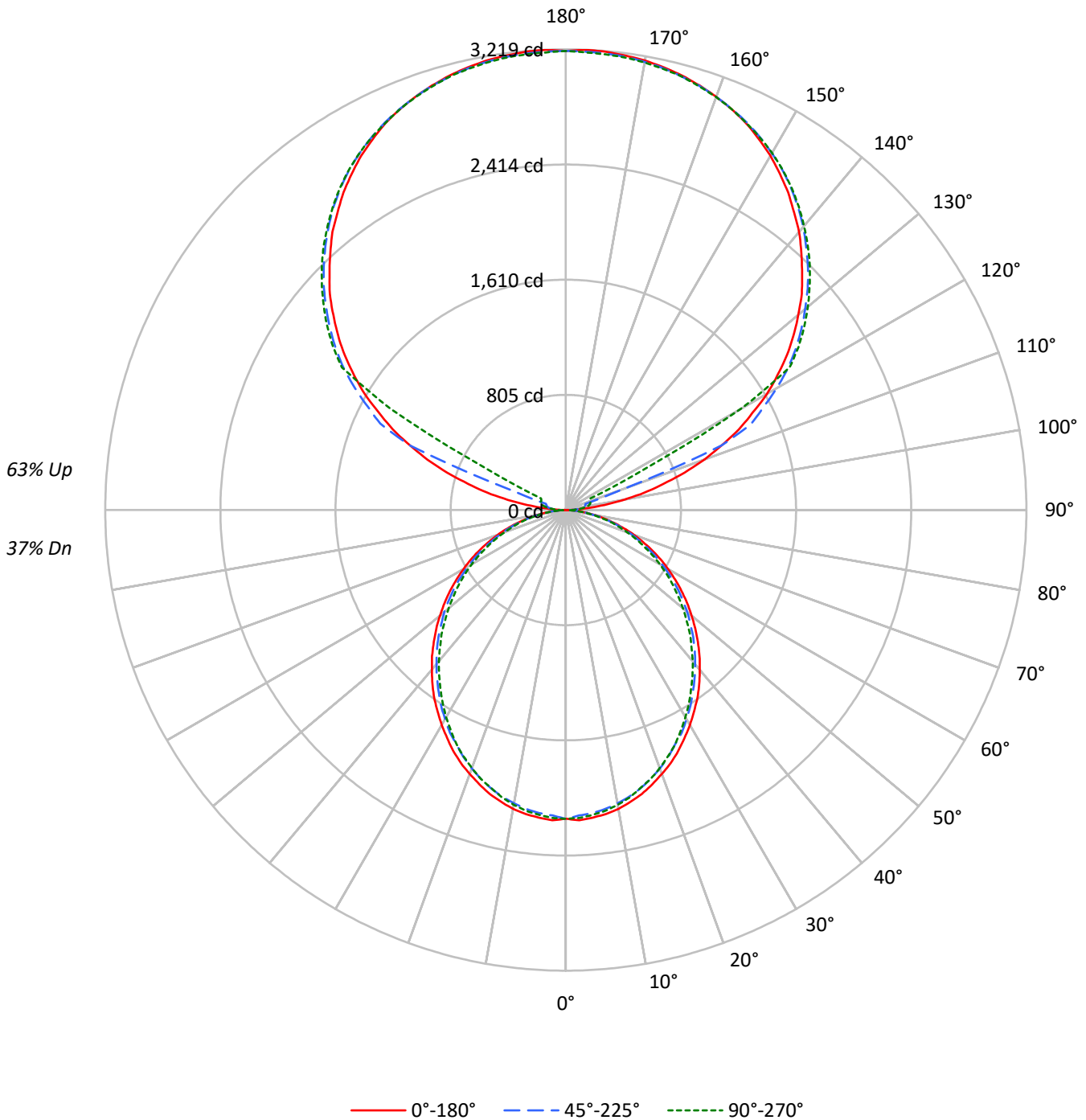
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14897.6 lumens
Efficiency: N/A
Efficacy: 91.8 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: Semi-Indirect

Input Watts (W): 162.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	44	44	44	37
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37	37	37	37	31
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31	31	31	31	26
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27	27	27	27	22
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	23	23	23	19
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20	20	20	20	16
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18	18	18	18	14
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16	16	16	16	13
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14	14	14	14	11
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13	13	13	13	10
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11	11	11	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1604	1604	1604
5°	1607	1582	1592
10°	1594	1561	1571
15°	1571	1535	1537
20°	1539	1500	1503
25°	1508	1457	1463
30°	1468	1418	1412
35°	1431	1371	1359
40°	1385	1324	1308
45°	1339	1276	1256
50°	1289	1227	1195
55°	1237	1169	1140
60°	1178	1101	1077
65°	1113	1031	1002
70°	1031	945	921
75°	917	842	846
80°	780	711	704
85°	567	485	468

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°	203.0	1.4
10°-20°	571.3	3.8
20°-30°	839.5	5.6
30°-40°	975.1	6.5
40°-50°	973.8	6.5
50°-60°	849.2	5.7
60°-70°	627.7	4.2
70°-80°	355.2	2.4
80°-90°	99.4	0.7
90°-100°	105.8	0.7
100°-110°	394.3	2.6
110°-120°	1045.7	7.0
120°-130°	1734.3	11.6
130°-140°	1842.3	12.4
140°-150°	1712.2	11.5
150°-160°	1376.5	9.2
160°-170°	887.0	6.0
170°-180°	305.3	2.0
0°-30°	1613.8	10.8
0°-40°	2588.9	17.4
0°-60°	4411.9	29.6
0°-90°	5494.2	36.9
90°-120°	1545.7	10.4
90°-150°	6834.5	45.9
90°-180°	9403.0	63.1
0°-180°	14897.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2157	2157	2157	2157	2157	
5°	2157	2149	2126	2143	2139	205
15°	2054	2041	2014	2022	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1236	1228	1007
55°	988	975	950	925	915	883
65°	666	653	633	614	604	658
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
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°	2157.2	2157.2	2157.2	2157.2	2157.2
2.5°	2169.8	2159.4	2136.5	2157.2	2153.2
5°	2157.2	2149.1	2126.2	2142.7	2138.7
7.5°	2142.7	2130.3	2107.4	2124.2	2120.0
10°	2120.0	2105.5	2080.6	2097.1	2091.0
12.5°	2088.7	2076.5	2051.6	2061.9	2057.7
15°	2053.6	2041.2	2014.1	2022.5	2012.2
17.5°	2009.9	1997.7	1970.6	1981.0	1970.6
20°	1962.2	1949.9	1920.8	1927.0	1918.9
22.5°	1914.7	1896.0	1868.9	1868.9	1864.7
25°	1858.6	1842.0	1806.9	1810.8	1806.9
27.5°	1796.3	1781.8	1754.9	1748.7	1738.4
30°	1734.2	1717.5	1686.5	1680.3	1671.9
32.5°	1667.7	1655.4	1622.2	1609.7	1601.3
35°	1603.5	1582.8	1549.5	1537.0	1526.7
37.5°	1530.9	1512.2	1478.9	1464.4	1454.0
40°	1456.3	1439.5	1406.3	1387.8	1379.4
42.5°	1383.6	1366.9	1333.9	1313.0	1300.6
45°	1304.8	1290.3	1259.0	1236.4	1228.0
47.5°	1228.0	1213.5	1180.2	1157.3	1145.1
50°	1147.1	1136.7	1107.6	1078.6	1068.2
52.5°	1068.2	1053.8	1026.9	1004.0	989.4
55°	987.5	975.0	950.1	925.2	914.8
57.5°	906.5	896.1	869.1	844.2	835.9
60°	825.5	817.3	788.4	765.5	759.3
62.5°	746.7	732.2	711.5	690.9	682.5
65°	666.0	653.4	632.7	614.0	603.7
67.5°	583.0	572.5	553.9	539.4	531.0
70°	506.2	497.9	479.1	464.6	456.4
72.5°	427.4	419.0	408.7	394.2	388.0
75°	348.4	344.4	333.8	321.6	325.7
77.5°	278.0	269.6	265.4	259.2	253.1
80°	207.5	205.4	201.2	195.0	190.8
82.5°	141.1	141.1	139.1	130.8	130.8
85°	85.0	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.9	20.7
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	7.56	8.32	8.63	9.38	10.83	7.13	7.89	8.19	8.95	10.40
	3H	9.22	9.89	10.29	10.97	12.43	8.74	9.42	9.81	10.49	11.96
	4H	9.80	10.44	10.88	11.52	12.99	9.33	9.97	10.41	11.04	12.51
	6H	10.19	10.79	11.29	11.86	13.35	9.72	10.31	10.81	11.39	12.87
	8H	10.30	10.86	11.39	11.95	13.43	9.82	10.38	10.92	11.48	12.96
	12H	10.34	10.88	11.44	11.96	13.47	9.86	10.39	10.96	11.48	12.98
4H	2H	8.01	8.65	9.10	9.73	11.20	7.67	8.31	8.76	9.38	10.86
	3H	9.87	10.41	10.97	11.51	12.99	9.48	10.01	10.57	11.11	12.60
	4H	10.58	11.07	11.68	12.16	13.67	10.17	10.67	11.28	11.76	13.26
	6H	11.09	11.51	12.20	12.63	14.13	10.68	11.10	11.79	12.22	13.72
	8H	11.24	11.63	12.35	12.74	14.25	10.83	11.22	11.94	12.33	13.84
	12H	11.31	11.66	12.43	12.78	14.30	10.88	11.24	12.01	12.36	13.88
8H	4H	10.77	11.16	11.88	12.27	13.78	10.41	10.80	11.52	11.91	13.42
	6H	11.40	11.72	12.53	12.87	14.38	11.03	11.36	12.17	12.51	14.02
	8H	11.62	11.90	12.76	13.03	14.56	11.25	11.53	12.39	12.66	14.20
	12H	11.75	12.00	12.89	13.12	14.69	11.36	11.61	12.50	12.74	14.31
12H	4H	10.75	11.11	11.88	12.23	13.75	10.40	10.75	11.52	11.87	13.39
	6H	11.43	11.71	12.56	12.84	14.37	11.07	11.36	12.21	12.49	14.02
	8H	11.66	11.92	12.81	13.04	14.61	11.31	11.56	12.45	12.68	14.25