

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: P913593

Luminaire Tested: DFN2DIP-HX3F0-090D070US927-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913593
REPORT IS A COMBINATION OF REPORTS P900790 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D070US927-RLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

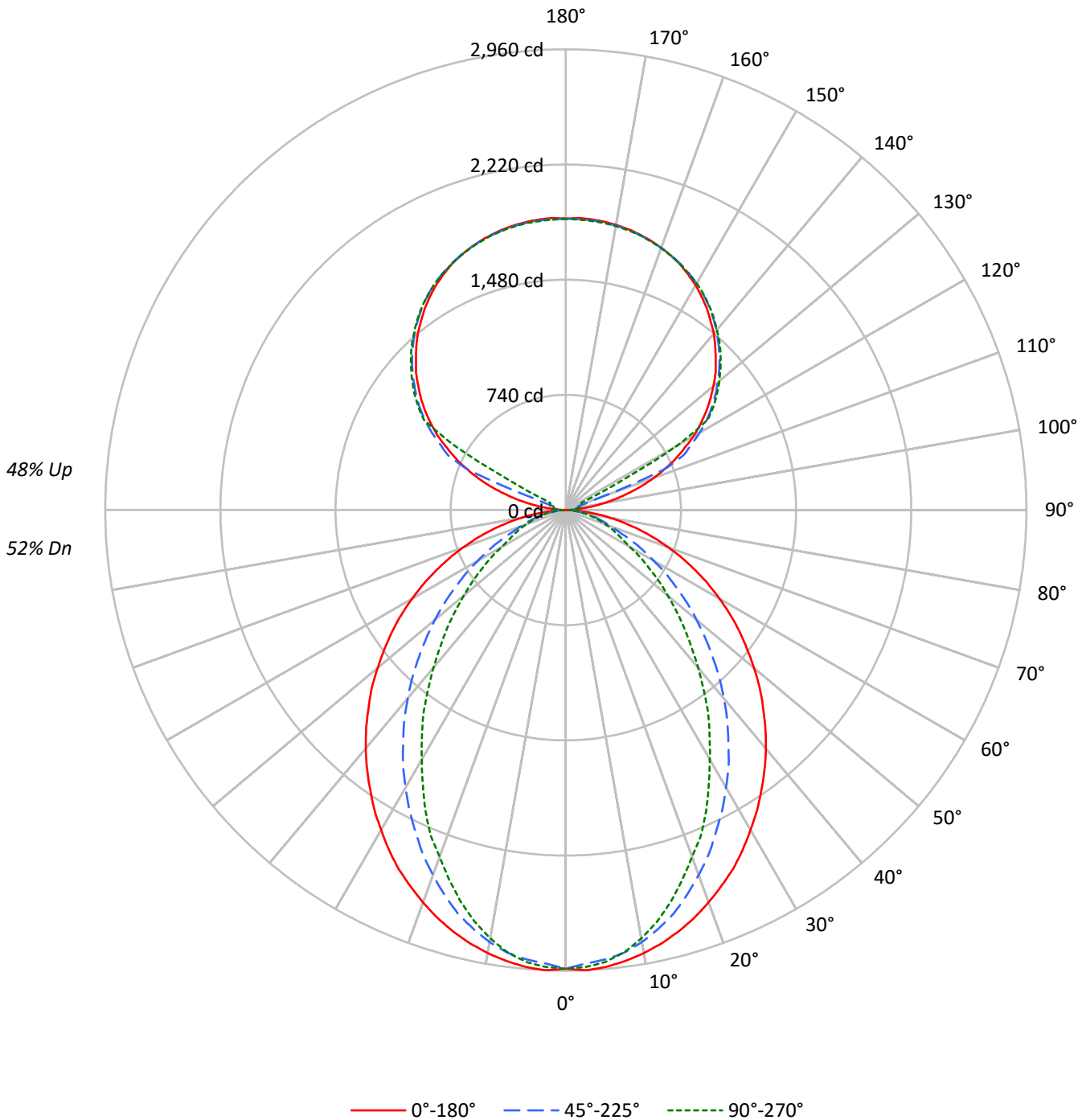
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11550.0 lumens
Efficiency: N/A
Efficacy: 79.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
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			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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52	52	52	52
1	99	95	91	88	91	88	85	82	75	73	71	63	62	60	52	51	50	45	45	45	45
2	90	83	77	72	84	77	72	68	66	63	59	56	53	51	47	45	43	39	39	39	39
3	83	74	67	61	76	69	62	57	59	54	50	50	47	44	42	39	37	33	33	33	33
4	76	66	58	52	70	61	54	49	53	48	43	45	41	38	38	35	33	29	29	29	29
5	70	59	51	45	65	55	48	43	47	42	38	41	36	33	34	31	29	26	26	26	26
6	65	53	45	39	60	49	42	37	43	37	33	37	33	29	31	28	26	23	23	23	23
7	60	48	40	35	55	45	38	33	39	34	30	34	29	26	29	25	23	20	20	20	20
8	56	44	36	31	52	41	34	29	36	30	26	31	27	24	26	23	21	18	18	18	18
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	25	21	19	17	17	17	17
10	49	37	30	25	45	35	28	24	30	25	22	27	22	19	23	20	17	15	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3413	3413	3413
5°	3417	3357	3379
10°	3382	3289	3267
15°	3334	3178	3095
20°	3271	3025	2885
25°	3206	2856	2682
30°	3120	2681	2426
35°	3035	2495	2201
40°	2949	2301	1943
45°	2849	2087	1709
50°	2745	1872	1481
55°	2637	1641	1261
60°	2511	1401	1037
65°	2367	1156	931
70°	2192	929	840
75°	1971	813	760
80°	1652	675	653
85°	1128	439	479

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2849 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.2	2.4
10°-20°	758.1	6.6
20°-30°	1064.4	9.2
30°-40°	1160.3	10.0
40°-50°	1066.4	9.2
50°-60°	837.5	7.3
60°-70°	545.1	4.7
70°-80°	280.6	2.4
80°-90°	74.9	0.6
90°-100°	61.7	0.5
100°-110°	230.0	2.0
110°-120°	610.1	5.3
120°-130°	1011.9	8.8
130°-140°	1074.9	9.3
140°-150°	999.0	8.6
150°-160°	803.2	7.0
160°-170°	517.5	4.5
170°-180°	178.1	1.5
0°-30°	2098.7	18.2
0°-40°	3258.9	28.2
0°-60°	5162.8	44.7
0°-90°	6063.5	52.5
90°-120°	901.9	7.8
90°-150°	3987.7	34.5
90°-180°	5487.0	47.5
0°-180°	11550.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2947	2947	2947	2947	2947	
5°	2947	2933	2899	2923	2915	279
15°	2803	2773	2683	2632	2606	790
25°	2544	2459	2283	2173	2133	1170
35°	2192	2056	1822	1653	1595	1372
45°	1792	1613	1333	1144	1080	1384
55°	1363	1155	867	707	656	1218
65°	920	704	464	373	365	912
75°	491	304	213	195	192	519
85°	114	58	51	51	51	132
90°	1	16	27	34	36	11
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	779	802	836	209	111	767
125°	1101	1119	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1612	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1834	1826	1830	1839	1830	518
175°	1876	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2946.7	2946.7	2946.7	2946.7	2946.7
2.5°	2960.0	2946.7	2917.2	2944.1	2938.8
5°	2946.7	2933.4	2898.6	2922.6	2914.7
7.5°	2922.6	2906.8	2869.4	2879.9	2866.6
10°	2890.7	2872.0	2818.8	2810.6	2794.7
12.5°	2850.7	2826.7	2754.6	2738.7	2709.3
15°	2802.7	2773.3	2682.7	2632.0	2605.5
17.5°	2746.7	2704.0	2591.9	2533.3	2490.6
20°	2682.7	2629.2	2495.9	2429.5	2370.6
22.5°	2613.4	2552.0	2397.2	2306.7	2266.8
25°	2544.1	2458.6	2282.7	2173.4	2133.3
27.5°	2461.5	2370.6	2176.0	2050.6	1989.2
30°	2373.5	2271.9	2058.6	1922.8	1850.6
32.5°	2288.0	2165.2	1946.8	1786.7	1719.9
35°	2192.1	2056.0	1821.5	1653.4	1594.6
37.5°	2098.7	1951.9	1704.1	1519.9	1453.4
40°	2000.0	1840.2	1581.3	1392.0	1322.7
42.5°	1898.7	1728.1	1458.7	1261.3	1194.8
45°	1792.1	1613.3	1333.4	1143.8	1079.9
47.5°	1690.8	1501.5	1213.5	1023.9	965.4
50°	1578.7	1389.4	1096.1	911.9	856.1
52.5°	1469.3	1269.2	984.0	808.0	757.4
55°	1362.6	1154.6	866.6	706.8	656.1
57.5°	1253.4	1040.1	762.8	613.4	570.7
60°	1141.3	928.0	653.3	517.5	474.8
62.5°	1032.1	818.8	559.9	432.1	410.8
65°	920.0	703.9	464.0	373.4	365.3
67.5°	813.4	597.2	373.4	327.9	320.0
70°	701.4	493.4	309.3	282.7	271.9
72.5°	594.7	397.2	258.6	237.3	232.0
75°	490.6	303.9	213.3	194.6	192.1
77.5°	386.7	215.9	168.0	157.3	151.9
80°	290.6	154.8	127.9	117.4	117.4
82.5°	202.6	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.5
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.5	79.9	94.7	98.9
105°	411.7	452.3	82.6	97.4	102.9
107.5°	507.8	541.6	85.4	100.2	105.7
110°	600.0	628.3	237.0	101.6	106.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.7	710.9	687.9	104.2	108.4
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.6	885.6	908.7	714.9	360.2
120°	947.9	968.2	992.7	1008.9	826.1
122.5°	1023.7	1045.4	1072.6	1080.6	1082.0
125°	1100.9	1118.6	1144.3	1153.8	1157.8
127.5°	1171.3	1190.3	1210.7	1224.2	1225.5
130°	1237.7	1259.4	1274.2	1289.2	1287.9
132.5°	1305.4	1323.1	1337.9	1350.1	1348.8
135°	1362.3	1384.0	1396.1	1409.8	1407.1
137.5°	1421.8	1438.1	1451.8	1465.3	1461.3
140°	1480.0	1491.0	1505.8	1518.0	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1560.0
145°	1580.4	1579.0	1601.9	1611.5	1604.7
147.5°	1624.9	1621.0	1643.9	1650.7	1645.4
150°	1668.3	1658.9	1680.6	1688.6	1681.9
152.5°	1704.9	1694.1	1714.4	1722.5	1713.1
155°	1740.1	1728.0	1744.2	1752.3	1741.5
157.5°	1768.5	1757.8	1770.0	1779.5	1768.5
160°	1793.0	1784.8	1793.0	1801.0	1791.5
162.5°	1814.6	1806.5	1813.2	1822.7	1810.5
165°	1833.5	1825.5	1829.5	1839.0	1829.5
167.5°	1848.5	1840.2	1844.4	1853.9	1841.7
170°	1860.7	1852.5	1855.2	1864.7	1852.5
172.5°	1868.8	1860.7	1863.4	1872.9	1860.7
175°	1875.5	1866.0	1868.8	1878.2	1864.7
177.5°	1878.2	1868.8	1870.2	1879.7	1867.4
180°	1871.4	1871.4	1871.4	1871.4	1871.4



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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	11.60	12.45	12.54	13.41	14.64	7.58	8.43	8.52	9.38	10.62
	3H	13.27	14.03	14.23	15.00	16.26	8.76	9.52	9.72	10.49	11.75
	4H	13.88	14.59	14.84	15.56	16.83	9.21	9.93	10.18	10.90	12.17
	6H	14.29	14.95	15.27	15.93	17.21	9.53	10.19	10.51	11.16	12.45
	8H	14.42	15.04	15.40	16.03	17.31	9.62	10.25	10.60	11.24	12.52
	12H	14.47	15.07	15.46	16.06	17.36	9.66	10.26	10.65	11.24	12.55
4H	2H	11.62	12.34	12.59	13.31	14.58	8.17	8.89	9.14	9.86	11.13
	3H	13.44	14.04	14.43	15.04	16.32	9.52	10.11	10.50	11.11	12.40
	4H	14.13	14.67	15.12	15.67	16.97	10.06	10.61	11.05	11.60	12.91
	6H	14.64	15.11	15.64	16.12	17.43	10.48	10.95	11.48	11.96	13.27
	8H	14.81	15.25	15.81	16.25	17.57	10.60	11.04	11.61	12.05	13.37
	12H	14.90	15.30	15.92	16.32	17.64	10.67	11.06	11.69	12.08	13.41
8H	4H	14.10	14.53	15.10	15.54	16.86	10.34	10.78	11.34	11.78	13.10
	6H	14.66	15.02	15.68	16.07	17.38	10.85	11.21	11.88	12.26	13.58
	8H	14.87	15.19	15.90	16.22	17.56	11.04	11.36	12.08	12.39	13.73
	12H	15.00	15.28	16.04	16.31	17.69	11.15	11.43	12.19	12.46	13.85
12H	4H	14.05	14.44	15.07	15.47	16.79	10.34	10.74	11.37	11.76	13.09
	6H	14.63	14.95	15.67	15.98	17.32	10.90	11.22	11.94	12.25	13.59
	8H	14.85	15.13	15.89	16.16	17.54	11.11	11.39	12.15	12.42	13.80