

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: P921681

Luminaire Tested: DFN2DIP-HX3F0-050D070US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921681
REPORT IS A COMBINATION OF REPORTS P900782 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-050D070US940-RLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

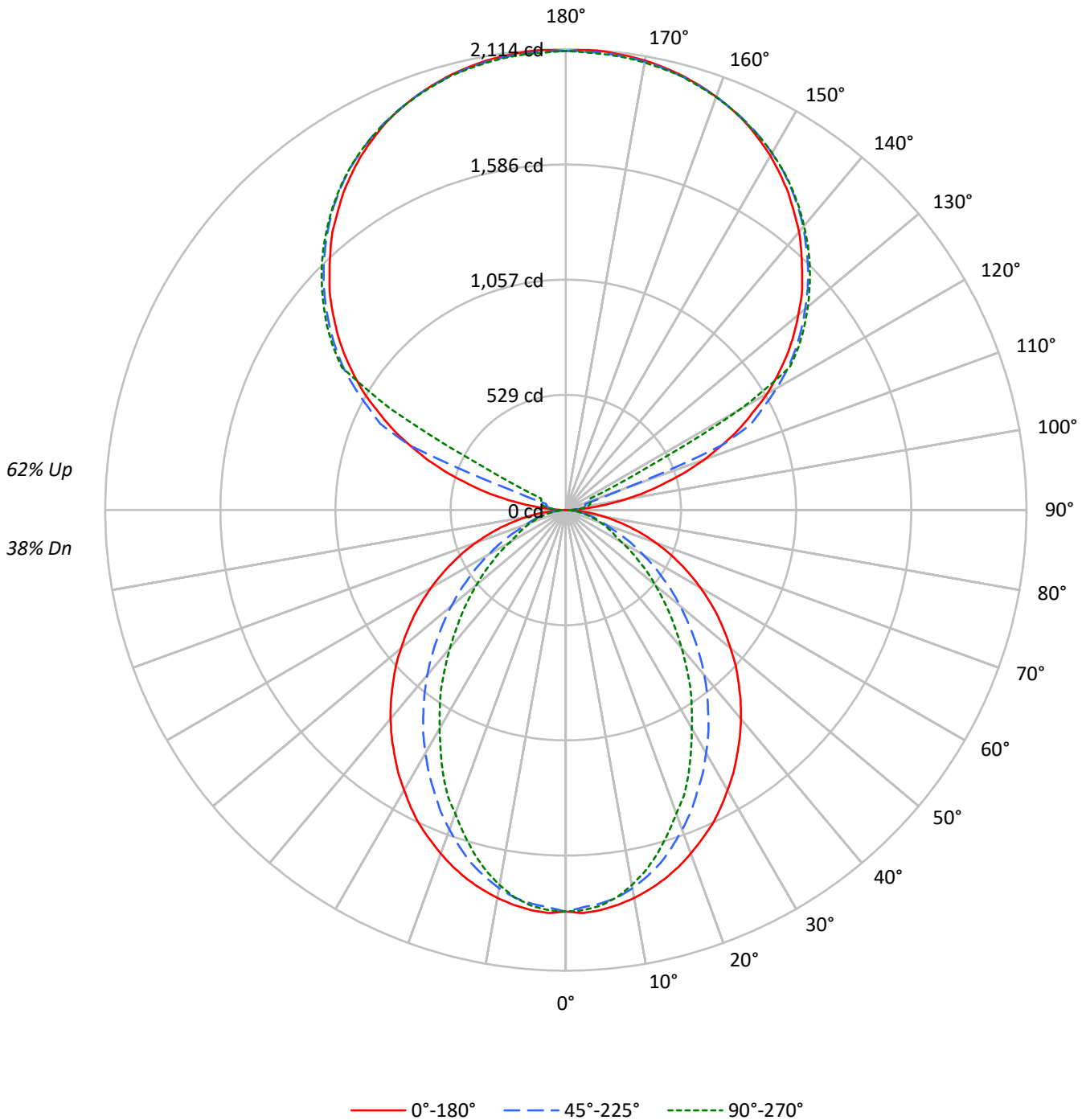
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9969.4 lumens
Efficiency: N/A
Efficacy: 101.5 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: Semi-Indirect

Input Watts (W): 98.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921681
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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	95	95	95	95	77	77	77	60	60	60	45	45	45	38			38
1	95	91	88	84	87	83	80	77	68	66	64	54	52	51	40	40	39	33			33
2	87	80	74	69	79	73	68	64	60	56	53	47	45	43	36	35	33	28			28
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	32	30	29	24			24
4	73	63	55	50	66	57	51	46	47	42	39	38	34	32	29	27	25	21			21
5	67	56	48	43	61	51	45	40	42	37	34	34	31	28	26	24	22	19			19
6	62	50	43	37	56	46	39	34	38	33	29	31	27	24	24	22	20	16			16
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	18	15			15
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16	13			13
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12			12
10	46	35	28	23	42	32	26	22	27	22	19	22	18	16	17	15	13	11			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2134	2134	2134
5°	2137	2099	2113
10°	2115	2056	2043
15°	2085	1987	1936
20°	2045	1892	1804
25°	2005	1786	1677
30°	1951	1677	1517
35°	1898	1560	1376
40°	1844	1439	1215
45°	1781	1305	1069
50°	1717	1170	926
55°	1649	1026	789
60°	1570	876	648
65°	1480	723	582
70°	1371	581	525
75°	1233	509	475
80°	1033	422	408
85°	706	275	300

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1781 cd/sqm



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CATALOG NUMBER: DFN2DIP-HX3F0-050D070US940-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.7	1.7
10°-20°	474.1	4.8
20°-30°	665.6	6.7
30°-40°	725.6	7.3
40°-50°	666.9	6.7
50°-60°	523.7	5.3
60°-70°	340.9	3.4
70°-80°	175.5	1.8
80°-90°	48.5	0.5
90°-100°	69.5	0.7
100°-110°	259.0	2.6
110°-120°	686.8	6.9
120°-130°	1139.1	11.4
130°-140°	1209.9	12.1
140°-150°	1124.5	11.3
150°-160°	904.1	9.1
160°-170°	582.6	5.8
170°-180°	200.5	2.0
0°-30°	1312.4	13.2
0°-40°	2038.0	20.4
0°-60°	3228.6	32.4
0°-90°	3793.5	38.1
90°-120°	1015.2	10.2
90°-150°	4488.7	45.0
90°-180°	6176.0	61.9
0°-180°	9969.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1843	1843	1843	1843	1843	
5°	1843	1834	1813	1828	1823	175
15°	1753	1734	1678	1646	1629	494
25°	1591	1538	1427	1359	1334	732
35°	1371	1286	1139	1034	997	858
45°	1121	1009	834	715	675	865
55°	852	722	542	442	410	761
65°	575	440	290	234	228	570
75°	307	190	133	122	120	324
85°	72	37	32	32	32	82
90°	1	18	30	38	41	9
95°	99	49	59	67	66	117
105°	463	509	93	110	116	495
115°	876	902	940	235	125	863
125°	1239	1259	1288	1299	1303	1105
135°	1534	1558	1572	1587	1584	1185
145°	1779	1777	1803	1814	1806	1113
155°	1959	1945	1963	1972	1960	903
165°	2064	2055	2059	2070	2059	583
175°	2111	2100	2104	2114	2099	201
180°	2107	2107	2107	2107	2107	



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CATALOG NUMBER: DFN2DIP-HX3F0-050D070US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1842.7	1842.7	1842.7	1842.7	1842.7
2.5°	1851.0	1842.7	1824.4	1841.1	1837.7
5°	1842.7	1834.4	1812.7	1827.6	1822.7
7.5°	1827.6	1817.8	1794.4	1801.0	1792.6
10°	1807.7	1796.0	1762.7	1757.7	1747.7
12.5°	1782.7	1767.7	1722.6	1712.7	1694.2
15°	1752.7	1734.3	1677.7	1646.0	1629.3
17.5°	1717.6	1691.0	1620.9	1584.2	1557.5
20°	1677.7	1644.2	1560.8	1519.3	1482.5
22.5°	1634.3	1595.9	1499.1	1442.5	1417.6
25°	1590.9	1537.5	1427.4	1359.1	1334.0
27.5°	1539.3	1482.5	1360.8	1282.4	1244.0
30°	1484.3	1420.8	1287.4	1202.4	1157.3
32.5°	1430.8	1354.1	1217.5	1117.3	1075.6
35°	1370.8	1285.8	1139.1	1033.9	997.2
37.5°	1312.4	1220.7	1065.7	950.5	908.9
40°	1250.7	1150.8	988.8	870.5	827.2
42.5°	1187.4	1080.7	912.2	788.7	747.2
45°	1120.7	1008.9	833.8	715.3	675.3
47.5°	1057.3	939.0	758.8	640.3	603.7
50°	987.3	868.9	685.5	570.2	535.4
52.5°	918.8	793.7	615.4	505.3	473.7
55°	852.1	722.0	541.9	441.9	410.3
57.5°	783.8	650.4	477.0	383.6	356.9
60°	713.7	580.3	408.5	323.6	296.9
62.5°	645.4	512.0	350.2	270.2	256.9
65°	575.3	440.2	290.2	233.5	228.5
67.5°	508.6	373.5	233.5	205.1	200.1
70°	438.6	308.5	193.4	176.7	170.0
72.5°	371.9	248.4	161.8	148.5	145.1
75°	306.8	190.0	133.4	121.7	120.1
77.5°	241.8	135.0	105.1	98.4	95.0
80°	181.7	96.8	80.0	73.4	73.4
82.5°	126.7	65.1	55.0	51.6	51.6
85°	71.7	36.6	31.7	31.7	31.7
87.5°	26.8	13.3	13.3	11.7	11.7
90°	1.4	18.3	30.4	38.2	41.1
92.5°	38.2	32.0	36.6	39.7	41.1
95°	99.0	48.7	59.4	67.1	65.5
97.5°	178.3	53.4	77.7	82.4	83.8
100°	269.9	61.0	86.9	99.0	102.1
102.5°	370.3	367.5	90.0	106.6	111.3
105°	463.4	509.2	93.0	109.7	115.8
107.5°	571.6	609.7	96.1	112.8	119.0
110°	675.4	707.2	266.8	114.4	120.4



TEST NUMBER: P921681

CATALOG NUMBER: DFN2DIP-HX3F0-050D070US940-RLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	772.9	800.2	774.4	117.3	122.0
115°	876.5	902.3	940.5	234.8	125.1
117.5°	966.4	996.8	1022.9	804.8	405.5
120°	1067.0	1089.8	1117.4	1135.7	929.9
122.5°	1152.3	1176.7	1207.4	1216.4	1218.0
125°	1239.2	1259.1	1288.1	1298.8	1303.2
127.5°	1318.5	1339.8	1362.8	1378.0	1379.5
130°	1393.2	1417.6	1434.3	1451.2	1449.7
132.5°	1469.4	1489.3	1506.0	1519.7	1518.3
135°	1533.5	1557.9	1571.6	1586.9	1583.9
137.5°	1600.4	1618.8	1634.1	1649.4	1644.8
140°	1666.0	1678.3	1695.0	1708.7	1701.1
142.5°	1721.0	1731.7	1751.4	1763.5	1756.0
145°	1779.0	1777.4	1803.2	1813.9	1806.3
147.5°	1829.1	1824.6	1850.5	1858.1	1852.1
150°	1877.9	1867.3	1891.8	1900.8	1893.2
152.5°	1919.0	1906.9	1929.8	1938.9	1928.3
155°	1958.7	1945.1	1963.4	1972.5	1960.3
157.5°	1990.7	1978.6	1992.3	2003.0	1990.7
160°	2018.3	2009.0	2018.3	2027.3	2016.6
162.5°	2042.6	2033.5	2041.0	2051.7	2038.0
165°	2063.9	2054.9	2059.3	2070.0	2059.3
167.5°	2080.7	2071.4	2076.2	2086.9	2073.1
170°	2094.4	2085.3	2088.3	2099.0	2085.3
172.5°	2103.5	2094.4	2097.6	2108.2	2094.4
175°	2111.1	2100.4	2103.5	2114.2	2099.0
177.5°	2114.2	2103.5	2105.1	2115.9	2102.0
180°	2106.6	2106.6	2106.6	2106.6	2106.6



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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	8.51	9.25	9.57	10.31	11.74	4.49	5.23	5.55	6.29	7.72
	3H	10.17	10.83	11.24	11.90	13.36	5.66	6.33	6.73	7.39	8.85
	4H	10.77	11.40	11.85	12.47	13.93	6.11	6.73	7.19	7.80	9.26
	6H	11.18	11.76	12.27	12.83	14.30	6.42	7.00	7.51	8.07	9.54
	8H	11.30	11.85	12.40	12.94	14.41	6.50	7.05	7.60	8.14	9.61
	12H	11.36	11.88	12.46	12.96	14.45	6.54	7.06	7.64	8.15	9.64
4H	2H	8.52	9.14	9.60	10.21	11.67	5.07	5.69	6.15	6.76	8.22
	3H	10.33	10.85	11.42	11.95	13.42	6.40	6.92	7.50	8.02	9.49
	4H	11.01	11.49	12.11	12.58	14.07	6.94	7.42	8.04	8.51	10.00
	6H	11.51	11.92	12.62	13.03	14.52	7.35	7.76	8.46	8.87	10.36
	8H	11.68	12.07	12.79	13.17	14.67	7.48	7.86	8.58	8.96	10.46
	12H	11.77	12.12	12.89	13.23	14.74	7.54	7.88	8.66	9.00	10.50
8H	4H	10.97	11.35	12.08	12.46	13.96	7.21	7.60	8.32	8.70	10.20
	6H	11.53	11.84	12.65	12.98	14.48	7.72	8.04	8.85	9.18	10.68
	8H	11.74	12.01	12.87	13.14	14.66	7.91	8.18	9.04	9.31	10.83
	12H	11.87	12.11	13.00	13.23	14.79	8.02	8.26	9.16	9.38	10.94
12H	4H	10.92	11.26	12.04	12.38	13.89	7.21	7.56	8.33	8.67	10.18
	6H	11.50	11.78	12.63	12.90	14.42	7.77	8.04	8.90	9.17	10.69
	8H	11.71	11.95	12.85	13.07	14.63	7.97	8.21	9.11	9.33	10.89