

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: P928542

Luminaire Tested: DFN2DIP-HX4F0-050D070US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928542
REPORT IS A COMBINATION OF REPORTS P900876 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D070US930-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

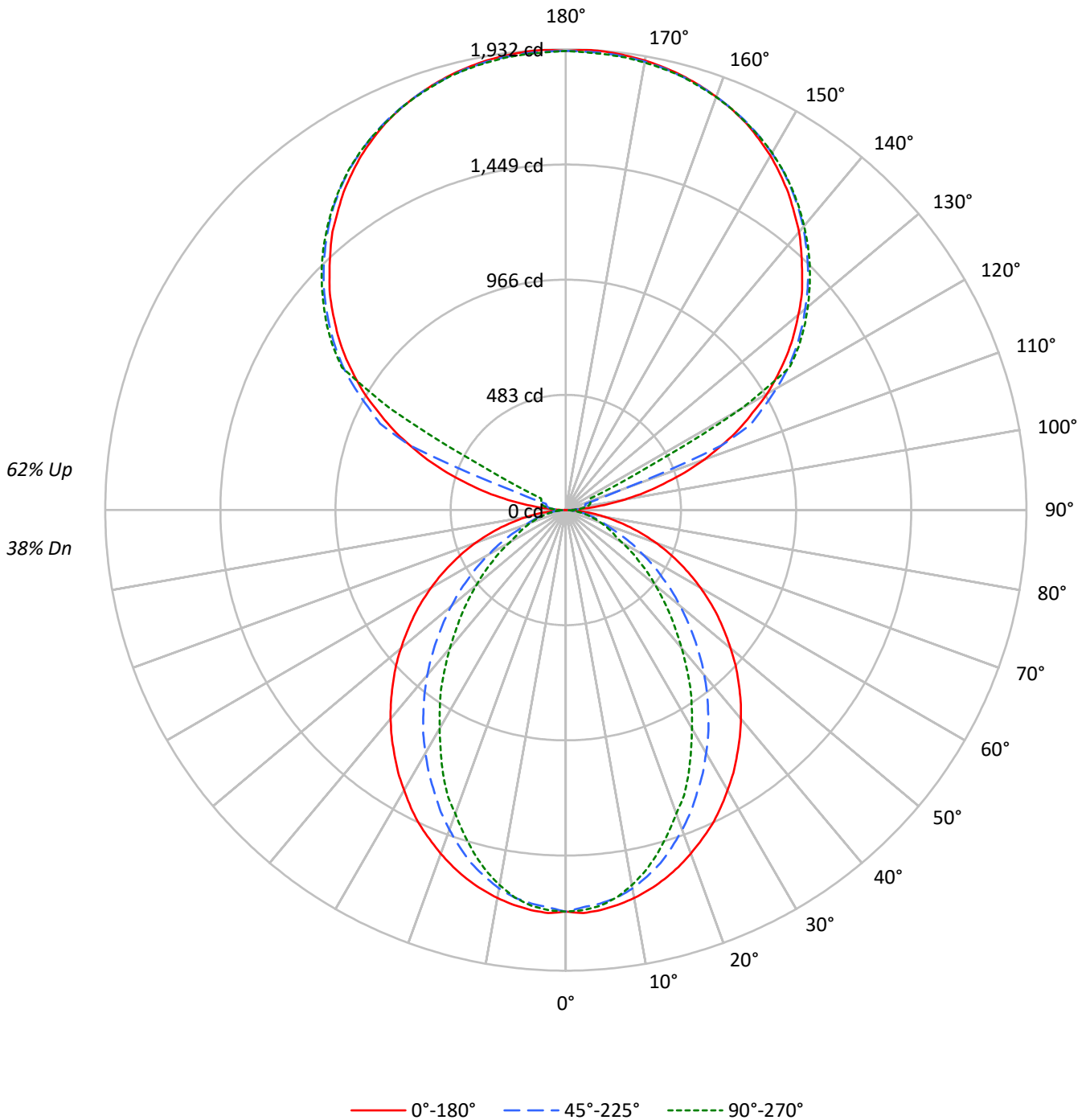
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9111.7 lumens
Efficiency: N/A
Efficacy: 95.2 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: Semi-Indirect

Input Watts (W): 95.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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				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°	1252	1252	1252
5°	1254	1233	1240
10°	1242	1208	1200
15°	1225	1169	1138
20°	1203	1114	1061
25°	1179	1052	987
30°	1149	989	894
35°	1118	921	811
40°	1087	851	717
45°	1051	773	631
50°	1014	694	548
55°	976	610	467
60°	931	522	385
65°	879	432	346
70°	817	349	314
75°	738	307	285
80°	625	258	248
85°	437	173	186

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1051 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.8	1.7
10°-20°	433.3	4.8
20°-30°	608.4	6.7
30°-40°	663.2	7.3
40°-50°	609.5	6.7
50°-60°	478.7	5.3
60°-70°	311.6	3.4
70°-80°	160.4	1.8
80°-90°	44.3	0.5
90°-100°	63.5	0.7
100°-110°	236.7	2.6
110°-120°	627.7	6.9
120°-130°	1041.1	11.4
130°-140°	1105.9	12.1
140°-150°	1027.8	11.3
150°-160°	826.3	9.1
160°-170°	532.4	5.8
170°-180°	183.3	2.0
0°-30°	1199.5	13.2
0°-40°	1862.7	20.4
0°-60°	2950.9	32.4
0°-90°	3467.1	38.1
90°-120°	927.9	10.2
90°-150°	4102.6	45.0
90°-180°	5645.0	62.0
0°-180°	9111.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1684	1684	1684	1684	1684	
5°	1684	1677	1657	1670	1666	160
15°	1602	1585	1533	1504	1489	451
25°	1454	1405	1305	1242	1219	669
35°	1253	1175	1041	945	911	784
45°	1024	922	762	654	617	791
55°	779	660	495	404	375	696
65°	526	402	265	213	209	521
75°	280	174	122	111	110	297
85°	66	34	29	29	29	75
90°	1	17	28	35	38	8
95°	90	44	54	61	60	107
105°	424	465	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1177	1187	1191	1010
135°	1402	1424	1436	1450	1448	1083
145°	1626	1624	1648	1658	1651	1017
155°	1790	1778	1794	1803	1792	825
165°	1886	1878	1882	1892	1882	533
175°	1930	1920	1923	1932	1918	184
180°	1925	1925	1925	1925	1925	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1684.2	1684.2	1684.2	1684.2	1684.2
2.5°	1691.8	1684.2	1667.4	1682.7	1679.6
5°	1684.2	1676.6	1656.7	1670.4	1665.9
7.5°	1670.4	1661.4	1640.0	1646.1	1638.4
10°	1652.2	1641.5	1611.1	1606.4	1597.3
12.5°	1629.3	1615.7	1574.4	1565.4	1548.5
15°	1601.9	1585.1	1533.3	1504.4	1489.2
17.5°	1569.9	1545.5	1481.4	1447.9	1423.5
20°	1533.3	1502.8	1426.6	1388.6	1354.9
22.5°	1493.7	1458.6	1370.2	1318.4	1295.6
25°	1454.0	1405.2	1304.7	1242.2	1219.2
27.5°	1406.9	1354.9	1243.7	1172.1	1137.0
30°	1356.6	1298.5	1176.6	1098.9	1057.7
32.5°	1307.7	1237.6	1112.7	1021.2	983.1
35°	1252.9	1175.1	1041.1	945.0	911.4
37.5°	1199.5	1115.7	974.0	868.7	830.7
40°	1143.1	1051.8	903.8	795.6	756.0
42.5°	1085.3	987.7	833.7	720.9	682.9
45°	1024.3	922.1	762.1	653.8	617.2
47.5°	966.3	858.2	693.6	585.3	551.8
50°	902.4	794.1	626.5	521.2	489.3
52.5°	839.8	725.4	562.4	461.9	432.9
55°	778.8	659.9	495.3	403.9	375.0
57.5°	716.4	594.5	435.9	350.6	326.2
60°	652.3	530.4	373.4	295.8	271.3
62.5°	589.9	468.0	320.1	246.9	234.8
65°	525.8	402.4	265.2	213.4	208.8
67.5°	464.9	341.4	213.4	187.4	182.9
70°	400.9	282.0	176.8	161.5	155.4
72.5°	339.9	227.1	147.8	135.7	132.6
75°	280.4	173.7	121.9	111.2	109.8
77.5°	221.0	123.4	96.1	89.9	86.8
80°	166.1	88.4	73.1	67.1	67.1
82.5°	115.8	59.5	50.3	47.2	47.2
85°	65.5	33.5	28.9	28.9	28.9
87.5°	24.4	12.1	12.1	10.7	10.7
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	162.9	48.8	71.0	75.3	76.6
100°	246.7	55.7	79.4	90.5	93.3
102.5°	338.5	335.9	82.2	97.5	101.7
105°	423.6	465.4	85.0	100.2	105.9
107.5°	522.4	557.2	87.9	103.1	108.7
110°	617.3	646.4	243.8	104.6	110.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.4	731.4	707.7	107.2	111.5
115°	801.1	824.7	859.6	214.6	114.3
117.5°	883.3	911.1	934.9	735.5	370.6
120°	975.2	996.1	1021.3	1038.0	849.9
122.5°	1053.1	1075.5	1103.5	1111.7	1113.2
125°	1132.6	1150.8	1177.3	1187.0	1191.1
127.5°	1205.1	1224.5	1245.6	1259.5	1260.8
130°	1273.4	1295.7	1310.9	1326.3	1325.0
132.5°	1343.0	1361.2	1376.5	1389.0	1387.7
135°	1401.6	1423.9	1436.4	1450.4	1447.6
137.5°	1462.8	1479.6	1493.6	1507.5	1503.3
140°	1522.7	1533.9	1549.2	1561.7	1554.8
142.5°	1572.9	1582.7	1600.7	1611.8	1604.9
145°	1625.9	1624.5	1648.1	1657.9	1650.9
147.5°	1671.7	1667.7	1691.3	1698.2	1692.8
150°	1716.4	1706.7	1729.0	1737.3	1730.3
152.5°	1754.0	1742.9	1763.7	1772.1	1762.4
155°	1790.2	1777.8	1794.5	1802.8	1791.7
157.5°	1819.5	1808.4	1821.0	1830.7	1819.5
160°	1844.7	1836.2	1844.7	1852.9	1843.1
162.5°	1866.8	1858.5	1865.5	1875.2	1862.7
165°	1886.3	1878.1	1882.2	1891.9	1882.2
167.5°	1901.7	1893.2	1897.6	1907.3	1894.8
170°	1914.3	1905.9	1908.6	1918.4	1905.9
172.5°	1922.6	1914.3	1917.1	1926.8	1914.3
175°	1929.5	1919.7	1922.6	1932.3	1918.4
177.5°	1932.3	1922.6	1924.1	1933.8	1921.2
180°	1925.4	1925.4	1925.4	1925.4	1925.4



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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	6.70	7.44	7.76	8.50	9.94	2.67	3.42	3.73	4.47	5.91
	3H	8.37	9.04	9.44	10.10	11.56	3.86	4.52	4.93	5.59	7.04
	4H	8.98	9.61	10.06	10.68	12.13	4.31	4.93	5.39	6.00	7.46
	6H	9.40	9.97	10.48	11.05	12.52	4.62	5.20	5.71	6.27	7.74
	8H	9.52	10.07	10.61	11.16	12.62	4.71	5.26	5.81	6.35	7.82
	12H	9.58	10.10	10.68	11.18	12.67	4.75	5.27	5.85	6.36	7.85
4H	2H	6.71	7.34	7.80	8.41	9.87	3.26	3.89	4.35	4.96	6.42
	3H	8.53	9.05	9.62	10.15	11.62	4.60	5.13	5.70	6.22	7.69
	4H	9.22	9.70	10.32	10.79	12.28	5.15	5.63	6.25	6.71	8.21
	6H	9.73	10.14	10.84	11.25	12.74	5.57	5.98	6.67	7.09	8.57
	8H	9.91	10.29	11.01	11.39	12.89	5.69	6.08	6.80	7.18	8.68
	12H	10.00	10.34	11.12	11.46	12.97	5.76	6.10	6.88	7.22	8.72
8H	4H	9.18	9.57	10.29	10.67	12.17	5.42	5.81	6.53	6.91	8.41
	6H	9.75	10.06	10.87	11.21	12.71	5.94	6.26	7.07	7.40	8.90
	8H	9.96	10.24	11.10	11.36	12.88	6.13	6.41	7.27	7.53	9.05
	12H	10.10	10.34	11.24	11.46	13.02	6.25	6.49	7.39	7.61	9.17
12H	4H	9.13	9.48	10.25	10.59	12.10	5.42	5.77	6.55	6.89	8.39
	6H	9.72	10.00	10.86	11.12	12.64	5.99	6.27	7.12	7.39	8.91
	8H	9.94	10.18	11.08	11.30	12.86	6.20	6.44	7.33	7.56	9.12