

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: P916051

Luminaire Tested: DFN2DIP-4P4F0-080D070US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916051
REPORT IS A COMBINATION OF REPORTS P900657 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D070US930-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

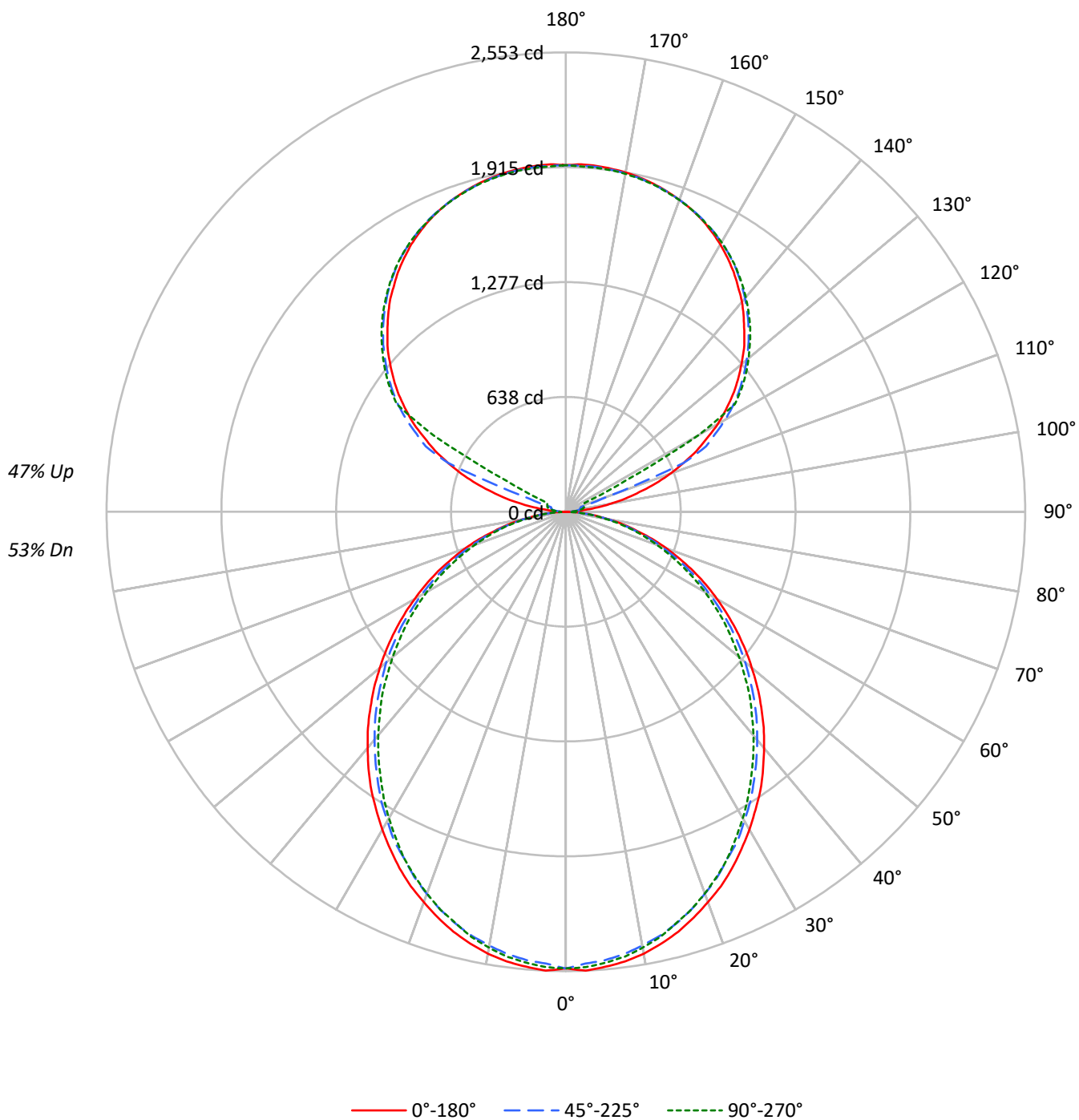
Lumens per Lamp: N/A
Luminaire Lumens: 12107.2 lumens
Efficiency: N/A
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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
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	85	85	85	72	72	72	59	59	59
1	99	94	90	87	91	87	84	81	75	72	70	63	61	60	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	76	67	61	56	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	53	47	51	46	42	44	40	36	37	33	31
5	69	57	49	43	63	53	46	41	46	40	36	39	35	31	33	30	27
6	63	51	43	37	59	48	41	35	41	36	31	35	31	28	30	26	24
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	25	30	25	22	25	22	19
9	51	38	31	26	47	36	29	25	31	26	22	27	23	20	23	20	17
10	47	35	28	23	44	33	26	22	29	24	20	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1646	1646	1646
5°	1649	1624	1635
10°	1636	1603	1614
15°	1612	1577	1580
20°	1580	1541	1545
25°	1547	1497	1504
30°	1507	1457	1453
35°	1469	1409	1398
40°	1422	1361	1347
45°	1375	1313	1294
50°	1323	1263	1232
55°	1269	1205	1176
60°	1209	1135	1112
65°	1143	1064	1036
70°	1058	976	954
75°	941	872	880
80°	801	739	736
85°	581	508	496

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1375 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.9	2.0
10°-20°	672.1	5.6
20°-30°	987.7	8.2
30°-40°	1147.1	9.5
40°-50°	1145.7	9.5
50°-60°	999.0	8.3
60°-70°	738.5	6.1
70°-80°	417.8	3.5
80°-90°	113.7	0.9
90°-100°	63.5	0.5
100°-110°	236.8	2.0
110°-120°	627.9	5.2
120°-130°	1041.5	8.6
130°-140°	1106.3	9.1
140°-150°	1028.1	8.5
150°-160°	826.6	6.8
160°-170°	532.6	4.4
170°-180°	183.3	1.5
0°-30°	1898.6	15.7
0°-40°	3045.8	25.2
0°-60°	5190.5	42.9
0°-90°	6460.6	53.4
90°-120°	928.2	7.7
90°-150°	4104.1	33.9
90°-180°	5647.0	46.6
0°-180°	12107.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
90°	1	17	28	35	38	11
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
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°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

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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	9.33	10.22	10.26	11.17	12.39	8.88	9.78	9.81	10.72	11.94
	3H	11.00	11.80	11.94	12.75	14.00	10.51	11.31	11.45	12.26	13.51
	4H	11.59	12.35	12.54	13.31	14.56	11.10	11.85	12.05	12.81	14.07
	6H	12.00	12.69	12.96	13.66	14.93	11.50	12.19	12.46	13.16	14.43
	8H	12.10	12.77	13.08	13.75	15.02	11.60	12.27	12.57	13.25	14.51
	12H	12.16	12.79	13.13	13.76	15.05	11.65	12.28	12.62	13.25	14.54
4H	2H	9.79	10.55	10.75	11.51	12.77	9.44	10.20	10.40	11.16	12.41
	3H	11.67	12.30	12.64	13.29	14.56	11.26	11.89	12.23	12.88	14.15
	4H	12.39	12.97	13.37	13.95	15.24	11.97	12.54	12.94	13.53	14.82
	6H	12.91	13.41	13.90	14.42	15.71	12.48	12.98	13.47	13.98	15.28
	8H	13.07	13.53	14.06	14.53	15.84	12.63	13.09	13.62	14.09	15.40
	12H	13.14	13.56	14.15	14.58	15.89	12.69	13.11	13.70	14.13	15.44
8H	4H	12.59	13.05	13.58	14.05	15.36	12.21	12.68	13.21	13.68	14.98
	6H	13.23	13.61	14.25	14.66	15.96	12.85	13.23	13.86	14.27	15.58
	8H	13.45	13.79	14.48	14.82	16.14	13.06	13.40	14.09	14.43	15.75
	12H	13.59	13.89	14.62	14.91	16.28	13.18	13.48	14.21	14.50	15.87
12H	4H	12.58	13.00	13.59	14.01	15.32	12.21	12.63	13.22	13.65	14.96
	6H	13.26	13.60	14.29	14.63	15.95	12.89	13.23	13.91	14.26	15.58
	8H	13.51	13.81	14.54	14.83	16.20	13.13	13.43	14.16	14.45	15.82