

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: P910079

Luminaire Tested: DFN2DIP-TR4F0-060D060US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910079
REPORT IS A COMBINATION OF REPORTS P901929 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D060US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

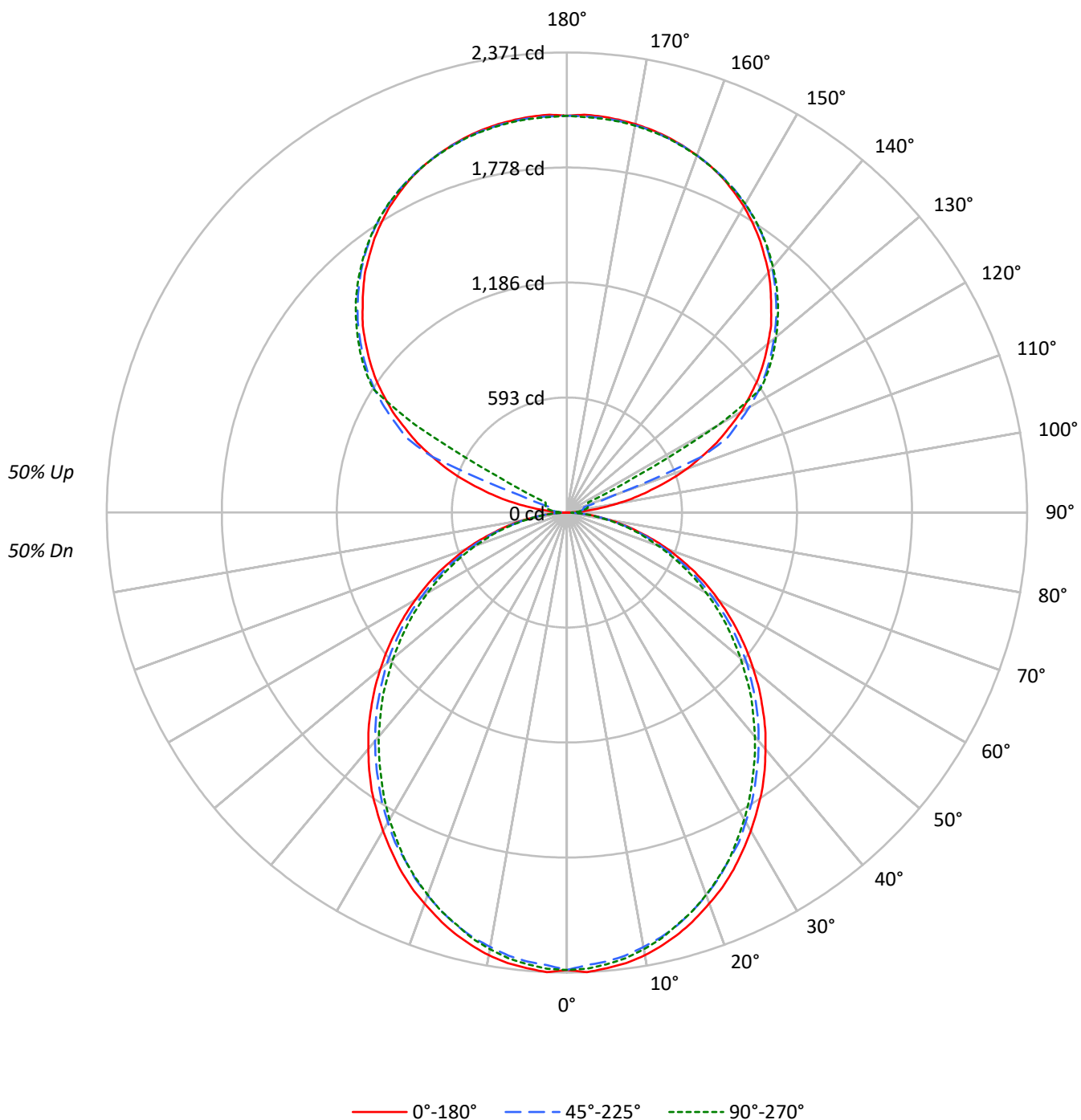
Lumens per Lamp: N/A
Luminaire Lumens: 11997.2 lumens
Efficiency: N/A
Efficacy: 122.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 98.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1873	1873	1873
5°	1876	1847	1859
10°	1861	1822	1834
15°	1833	1792	1795
20°	1797	1750	1754
25°	1760	1700	1708
30°	1714	1654	1648
35°	1670	1599	1586
40°	1616	1544	1526
45°	1563	1489	1465
50°	1504	1431	1394
55°	1443	1363	1329
60°	1373	1283	1255
65°	1298	1201	1167
70°	1201	1100	1073
75°	1068	979	985
80°	907	825	818
85°	656	560	543

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1563 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	1.8
10°-20°	624.4	5.2
20°-30°	917.5	7.6
30°-40°	1065.7	8.9
40°-50°	1064.4	8.9
50°-60°	928.1	7.7
60°-70°	686.1	5.7
70°-80°	388.2	3.2
80°-90°	106.0	0.9
90°-100°	67.4	0.6
100°-110°	251.4	2.1
110°-120°	666.7	5.6
120°-130°	1105.7	9.2
130°-140°	1174.5	9.8
140°-150°	1091.6	9.1
150°-160°	877.6	7.3
160°-170°	565.5	4.7
170°-180°	194.6	1.6
0°-30°	1763.8	14.7
0°-40°	2829.5	23.6
0°-60°	4821.9	40.2
0°-90°	6002.2	50.0
90°-120°	985.5	8.2
90°-150°	4357.2	36.3
90°-180°	5995.0	50.0
0°-180°	11997.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	18	30	37	40	11
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1489	1512	1526	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2004	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2038	195
180°	2045	2045	2045	2045	2045	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	262.0	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.4	103.5	108.1
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.8	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.8	751.6	113.8	118.5
115°	850.8	876.0	913.0	227.9	121.4
117.5°	938.1	967.7	992.9	781.2	393.5
120°	1035.8	1057.9	1084.7	1102.4	902.6
122.5°	1118.5	1142.3	1171.9	1180.7	1182.4
125°	1203.0	1222.2	1250.3	1260.7	1265.1
127.5°	1279.9	1300.6	1322.9	1337.7	1339.1
130°	1352.4	1376.1	1392.3	1408.7	1407.2
132.5°	1426.4	1445.7	1461.9	1475.2	1473.8
135°	1488.6	1512.4	1525.5	1540.4	1537.4
137.5°	1553.6	1571.4	1586.3	1601.0	1596.7
140°	1617.2	1629.2	1645.4	1658.7	1651.3
142.5°	1670.6	1681.0	1700.2	1711.9	1704.6
145°	1726.9	1725.3	1750.4	1760.8	1753.4
147.5°	1775.5	1771.1	1796.2	1803.6	1797.9
150°	1823.0	1812.6	1836.3	1845.1	1837.8
152.5°	1862.9	1851.1	1873.2	1882.2	1871.8
155°	1901.4	1888.1	1905.9	1914.7	1902.9
157.5°	1932.5	1920.7	1934.0	1944.4	1932.5
160°	1959.1	1950.2	1959.1	1967.9	1957.6
162.5°	1982.7	1973.9	1981.3	1991.7	1978.3
165°	2003.5	1994.7	1999.0	2009.4	1999.0
167.5°	2019.7	2010.8	2015.4	2025.8	2012.4
170°	2033.2	2024.2	2027.2	2037.5	2024.2
172.5°	2041.9	2033.2	2036.1	2046.5	2033.2
175°	2049.3	2038.9	2041.9	2052.2	2037.5
177.5°	2052.2	2041.9	2043.5	2053.9	2040.5
180°	2044.9	2044.9	2044.9	2044.9	2044.9

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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	9.45	10.31	10.41	11.28	12.56	9.02	9.88	9.98	10.85	12.12
	3H	11.11	11.88	12.08	12.86	14.16	10.64	11.41	11.61	12.39	13.69
	4H	11.70	12.43	12.68	13.41	14.72	11.22	11.96	12.21	12.94	14.24
	6H	12.10	12.77	13.09	13.76	15.08	11.62	12.30	12.61	13.29	14.60
	8H	12.20	12.84	13.20	13.85	15.16	11.73	12.37	12.73	13.38	14.69
	12H	12.25	12.86	13.25	13.86	15.20	11.77	12.38	12.77	13.38	14.72
4H	2H	9.91	10.64	10.90	11.63	12.93	9.57	10.30	10.56	11.28	12.59
	3H	11.78	12.39	12.77	13.40	14.72	11.39	12.00	12.38	13.01	14.33
	4H	12.49	13.05	13.50	14.06	15.40	12.09	12.65	13.09	13.65	14.99
	6H	13.01	13.49	14.02	14.52	15.85	12.60	13.08	13.61	14.11	15.45
	8H	13.16	13.61	14.17	14.63	15.98	12.74	13.19	13.76	14.22	15.57
	12H	13.23	13.64	14.27	14.67	16.03	12.81	13.21	13.84	14.25	15.61
8H	4H	12.69	13.14	13.71	14.16	15.51	12.33	12.78	13.35	13.80	15.15
	6H	13.32	13.69	14.36	14.76	16.11	12.96	13.33	14.00	14.39	15.74
	8H	13.54	13.87	14.59	14.92	16.29	13.17	13.50	14.22	14.55	15.92
	12H	13.67	13.96	14.73	15.01	16.42	13.29	13.58	14.34	14.62	16.03
12H	4H	12.67	13.08	13.71	14.12	15.48	12.32	12.73	13.36	13.77	15.12
	6H	13.35	13.68	14.40	14.73	16.10	13.00	13.33	14.05	14.38	15.74
	8H	13.59	13.88	14.65	14.93	16.34	13.23	13.52	14.29	14.57	15.98