

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: P904981

Luminaire Tested: DFN2DIP-4P3F0-050D060US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904981
REPORT IS A COMBINATION OF REPORTS P900596 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D060US835-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

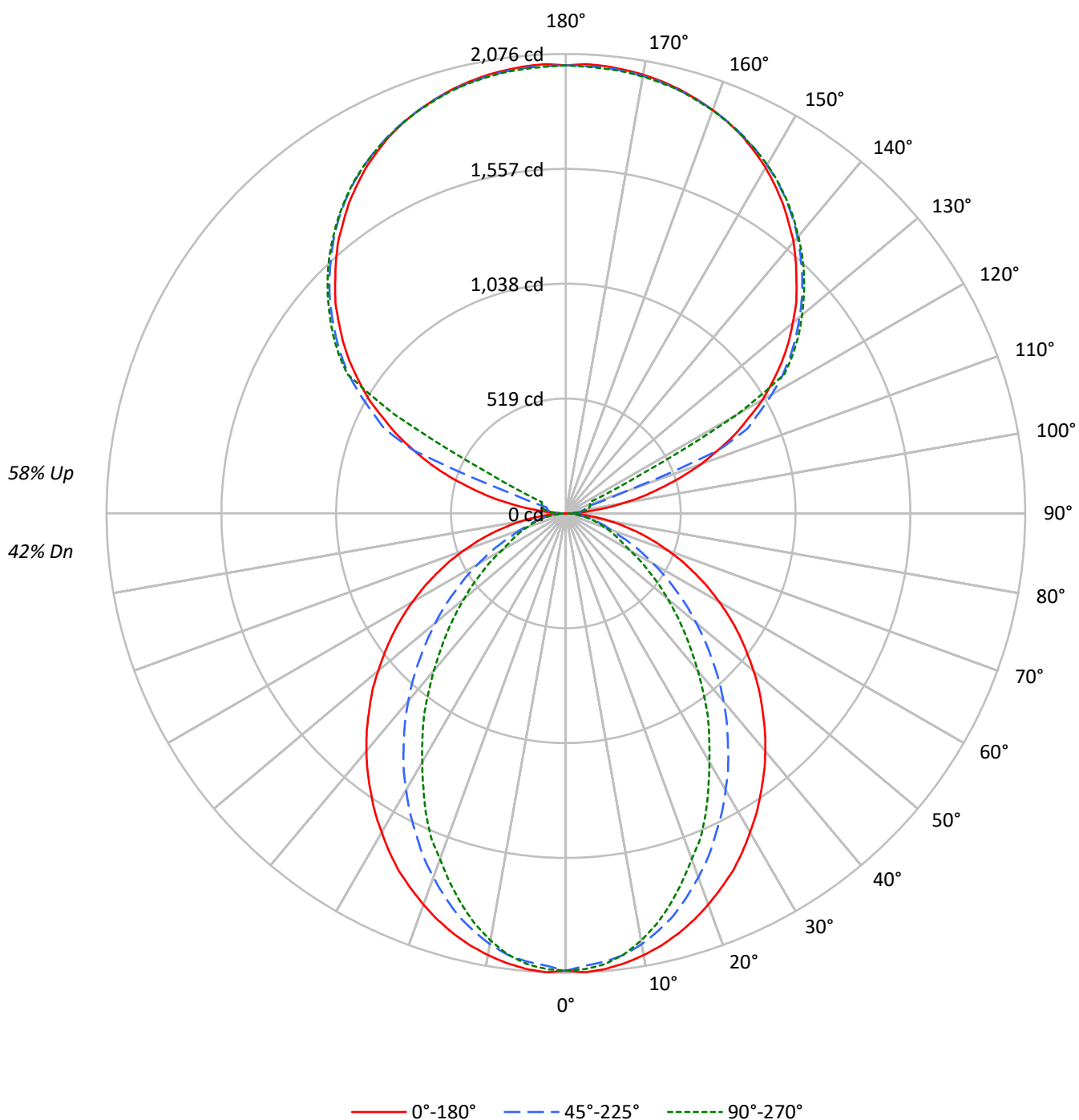
Lumens per Lamp: N/A
Luminaire Lumens: 10190.0 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 96
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	105	105	105	105		96	96	96	96		79	79	79		63	63	63		49	49	49
1	96	92	89	85		88	84	81	78		70	67	65		56	55	53		43	43	42
2	88	81	75	70		80	74	69	65		61	58	55		50	47	45		39	37	36
3	81	72	65	59		73	66	60	55		55	50	46		44	41	39		35	33	31
4	74	64	56	50		67	58	52	47		49	44	40		40	36	33		31	29	27
5	68	57	49	43		62	52	45	40		44	39	35		36	32	29		28	26	24
6	63	51	43	38		57	47	40	35		39	34	30		32	29	26		26	23	21
7	58	46	38	33		53	43	36	31		36	31	27		30	26	23		24	21	19
8	54	42	34	29		49	39	32	27		33	28	24		27	23	20		22	19	17
9	50	38	31	26		46	35	29	25		30	25	22		25	21	18		20	17	15
10	47	35	28	23		43	33	26	22		28	23	19		23	19	17		19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2355	2355	2355
5°	2357	2316	2332
10°	2332	2269	2255
15°	2299	2193	2137
20°	2255	2088	1993
25°	2210	1971	1853
30°	2150	1851	1676
35°	2091	1722	1521
40°	2031	1588	1343
45°	1962	1441	1182
50°	1890	1292	1025
55°	1814	1133	874
60°	1727	967	718
65°	1626	799	646
70°	1504	642	583
75°	1351	562	529
80°	1129	467	456
85°	766	304	338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1962 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	193.7	1.9
10°-20°	531.7	5.2
20°-30°	746.5	7.3
30°-40°	813.7	8.0
40°-50°	747.9	7.3
50°-60°	587.3	5.8
60°-70°	382.3	3.8
70°-80°	196.8	1.9
80°-90°	53.8	0.5
90°-100°	66.8	0.7
100°-110°	248.9	2.4
110°-120°	660.2	6.5
120°-130°	1094.9	10.7
130°-140°	1163.0	11.4
140°-150°	1080.9	10.6
150°-160°	869.0	8.5
160°-170°	560.0	5.5
170°-180°	192.7	1.9
0°-30°	1471.8	14.4
0°-40°	2285.5	22.4
0°-60°	3620.7	35.5
0°-90°	4253.6	41.7
90°-120°	975.8	9.6
90°-150°	4314.7	42.3
90°-180°	5936.0	58.3
0°-180°	10190.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2066	2066	2066	2066	2066	
5°	2066	2057	2033	2050	2044	196
15°	1966	1945	1881	1846	1827	554
25°	1784	1724	1601	1524	1496	821
35°	1537	1442	1277	1160	1118	962
45°	1257	1131	935	802	757	971
55°	956	810	608	496	460	854
65°	645	494	325	262	256	640
75°	344	213	150	136	135	364
85°	80	41	36	36	36	92
90°	1	18	29	37	40	10
95°	95	47	57	65	63	113
105°	445	489	89	105	111	476
115°	842	867	904	226	120	829
125°	1191	1210	1238	1248	1253	1062
135°	1474	1498	1511	1525	1522	1139
145°	1710	1708	1733	1744	1736	1069
155°	1883	1870	1887	1896	1884	868
165°	1984	1975	1980	1990	1980	560
175°	2029	2019	2022	2032	2018	193
180°	2025	2025	2025	2025	2025	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2066.5	2066.5	2066.5	2066.5	2066.5
2.5°	2075.8	2066.5	2045.9	2064.7	2060.9
5°	2066.5	2057.2	2032.8	2049.6	2044.1
7.5°	2049.6	2038.5	2012.3	2019.7	2010.3
10°	2027.2	2014.1	1976.8	1971.1	1959.9
12.5°	1999.2	1982.4	1931.8	1920.7	1900.0
15°	1965.5	1944.9	1881.4	1845.9	1827.2
17.5°	1926.2	1896.3	1817.7	1776.6	1746.6
20°	1881.4	1843.9	1750.4	1703.8	1662.5
22.5°	1832.8	1789.7	1681.2	1617.7	1589.7
25°	1784.1	1724.2	1600.8	1524.2	1496.0
27.5°	1726.2	1662.5	1526.0	1438.1	1395.1
30°	1664.5	1593.3	1443.7	1348.4	1297.8
32.5°	1604.6	1518.5	1365.3	1253.0	1206.2
35°	1537.3	1441.9	1277.4	1159.5	1118.3
37.5°	1471.8	1368.9	1195.1	1065.9	1019.3
40°	1402.6	1290.5	1108.9	976.2	927.6
42.5°	1331.6	1211.9	1023.0	884.5	837.9
45°	1256.8	1131.4	935.1	802.2	757.3
47.5°	1185.7	1053.0	851.0	718.1	677.0
50°	1107.2	974.4	768.7	639.5	600.4
52.5°	1030.4	890.1	690.1	566.7	531.2
55°	955.6	809.7	607.7	495.6	460.1
57.5°	879.0	729.4	534.9	430.2	400.2
60°	800.4	650.8	458.1	362.9	332.9
62.5°	723.8	574.2	392.7	303.0	288.1
65°	645.2	493.7	325.4	261.9	256.2
67.5°	570.4	418.9	261.9	230.0	224.4
70°	491.9	346.0	216.9	198.2	190.7
72.5°	417.1	278.6	181.4	166.5	162.7
75°	344.1	213.1	149.6	136.5	134.7
77.5°	271.2	151.4	117.9	110.3	106.5
80°	203.8	108.5	89.7	82.3	82.3
82.5°	142.1	73.0	61.7	57.9	57.9
85°	80.4	41.1	35.5	35.5	35.5
87.5°	30.0	14.9	14.9	13.1	13.1
90°	1.4	17.6	29.2	36.7	39.5
92.5°	36.7	30.8	35.1	38.1	39.5
95°	95.2	46.8	57.1	64.6	63.0
97.5°	171.4	51.3	74.6	79.2	80.6
100°	259.4	58.6	83.5	95.2	98.1
102.5°	356.0	353.2	86.5	102.5	107.0
105°	445.4	489.4	89.4	105.4	111.4
107.5°	549.5	586.0	92.4	108.4	114.3
110°	649.2	679.8	256.5	110.0	115.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	742.9	769.2	744.3	112.7	117.3
115°	842.5	867.4	904.1	225.7	120.2
117.5°	928.9	958.2	983.2	773.6	389.7
120°	1025.7	1047.6	1074.1	1091.6	893.8
122.5°	1107.6	1131.1	1160.5	1169.2	1170.8
125°	1191.2	1210.3	1238.1	1248.4	1252.7
127.5°	1267.4	1287.9	1310.0	1324.6	1326.0
130°	1339.2	1362.7	1378.7	1394.9	1393.5
132.5°	1412.5	1431.6	1447.6	1460.8	1459.4
135°	1474.1	1497.6	1510.6	1525.4	1522.4
137.5°	1538.4	1556.0	1570.8	1585.4	1581.1
140°	1601.4	1613.3	1629.3	1642.5	1635.2
142.5°	1654.3	1664.6	1683.6	1695.2	1687.9
145°	1710.0	1708.4	1733.3	1743.6	1736.3
147.5°	1758.2	1753.8	1778.7	1786.0	1780.3
150°	1805.2	1794.9	1818.4	1827.1	1819.8
152.5°	1844.7	1833.0	1854.9	1863.8	1853.5
155°	1882.8	1869.7	1887.3	1896.0	1884.3
157.5°	1913.6	1901.9	1915.1	1925.4	1913.6
160°	1940.0	1931.1	1940.0	1948.7	1938.5
162.5°	1963.3	1954.6	1961.9	1972.2	1959.0
165°	1983.9	1975.2	1979.5	1989.8	1979.5
167.5°	2000.0	1991.2	1995.7	2006.0	1992.7
170°	2013.3	2004.4	2007.4	2017.6	2004.4
172.5°	2022.0	2013.3	2016.2	2026.5	2013.3
175°	2029.3	2019.0	2022.0	2032.2	2017.6
177.5°	2032.2	2022.0	2023.5	2033.8	2020.6
180°	2024.9	2024.9	2024.9	2024.9	2024.9

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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	9.27	10.03	10.30	11.07	12.46	5.23	6.00	6.26	7.03	8.42
	3H	10.94	11.62	11.98	12.66	14.07	6.41	7.09	7.45	8.13	9.54
	4H	11.54	12.19	12.59	13.23	14.65	6.85	7.50	7.90	8.54	9.96
	6H	11.95	12.55	13.02	13.60	15.02	7.16	7.76	8.22	8.81	10.23
	8H	12.08	12.64	13.14	13.71	15.13	7.25	7.81	8.31	8.88	10.30
	12H	12.13	12.67	13.21	13.73	15.18	7.28	7.82	8.36	8.88	10.33
4H	2H	9.28	9.92	10.34	10.97	12.38	5.81	6.46	6.87	7.51	8.92
	3H	11.09	11.63	12.16	12.71	14.13	7.15	7.69	8.22	8.76	10.19
	4H	11.78	12.27	12.85	13.34	14.79	7.69	8.18	8.76	9.25	10.70
	6H	12.29	12.71	13.37	13.80	15.24	8.10	8.52	9.18	9.61	11.05
	8H	12.46	12.85	13.54	13.93	15.39	8.22	8.62	9.30	9.70	11.16
	12H	12.55	12.91	13.65	14.00	15.46	8.28	8.64	9.38	9.73	11.19
8H	4H	11.74	12.14	12.82	13.22	14.68	7.96	8.36	9.04	9.44	10.90
	6H	12.30	12.63	13.40	13.75	15.20	8.47	8.80	9.57	9.92	11.37
	8H	12.51	12.80	13.62	13.90	15.38	8.66	8.94	9.77	10.05	11.52
	12H	12.65	12.90	13.76	14.00	15.51	8.77	9.02	9.88	10.12	11.63
12H	4H	11.69	12.05	12.79	13.14	14.60	7.96	8.32	9.06	9.42	10.88
	6H	12.27	12.56	13.39	13.67	15.14	8.52	8.80	9.63	9.91	11.38
	8H	12.49	12.74	13.60	13.84	15.35	8.72	8.97	9.83	10.07	11.59