

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: P921108

Luminaire Tested: DFN2DIP-TR4F0-090D080US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921108
REPORT IS A COMBINATION OF REPORTS P900452 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D080US935-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

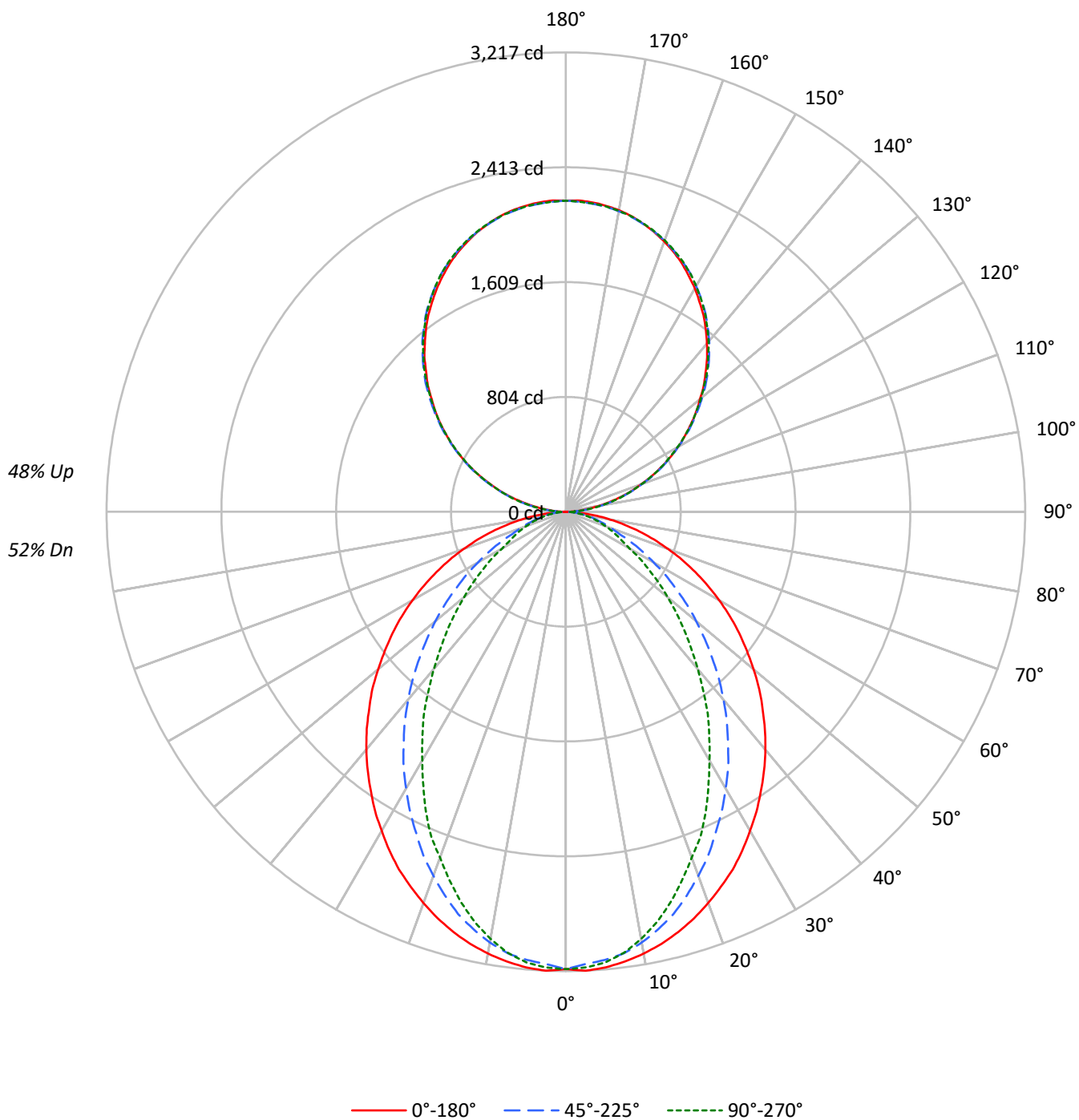
Lumens per Lamp: N/A
Luminaire Lumens: 12682.5 lumens
Efficiency: N/A
Efficacy: 86.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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
RCR																	
0	108	108	108	108	100	100	100	100	84	84	84		71	71	71		58
1	99	95	91	88	91	88	84	82	75	72	70		63	61	60		52
2	90	83	77	72	83	77	72	68	66	62	59		56	53	51		46
3	83	74	66	61	76	68	62	57	59	54	50		50	46	44		42
4	76	65	58	52	70	61	54	49	53	47	43		45	41	38		37
5	70	59	51	45	65	55	48	42	47	42	38		40	36	33		34
6	65	53	45	39	60	49	42	37	43	37	33		37	32	29		31
7	60	48	40	35	55	45	38	33	39	33	29		34	29	26		28
8	56	44	36	31	51	41	34	29	36	30	26		31	27	23		26
9	52	40	33	28	48	37	31	26	33	27	24		28	24	21		24
10	49	37	30	25	45	34	28	24	30	25	21		26	22	19		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2544	2544	2544
5°	2548	2504	2520
10°	2523	2455	2438
15°	2488	2374	2311
20°	2443	2262	2155
25°	2396	2136	2005
30°	2332	2008	1815
35°	2271	1870	1647
40°	2208	1726	1455
45°	2134	1568	1281
50°	2059	1408	1111
55°	1980	1236	948
60°	1888	1058	780
65°	1783	876	702
70°	1656	706	635
75°	1496	622	578
80°	1264	522	501
85°	880	348	376

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2134 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	2.4
10°-20°	824.0	6.5
20°-30°	1156.9	9.1
30°-40°	1261.0	9.9
40°-50°	1159.0	9.1
50°-60°	910.3	7.2
60°-70°	592.5	4.7
70°-80°	305.0	2.4
80°-90°	84.0	0.7
90°-100°	134.8	1.1
100°-110°	428.3	3.4
110°-120°	733.0	5.8
120°-130°	964.0	7.6
130°-140°	1082.0	8.5
140°-150°	1061.0	8.4
150°-160°	890.1	7.0
160°-170°	590.3	4.7
170°-180°	206.3	1.6
0°-30°	2281.0	18.0
0°-40°	3542.0	27.9
0°-60°	5611.3	44.2
0°-90°	6592.8	52.0
90°-120°	1296.1	10.2
90°-150°	4403.1	34.7
90°-180°	6090.0	48.0
0°-180°	12682.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	2	24	64	60	62	12
95°	96	114	118	118	114	107
105°	395	401	405	408	408	417
115°	736	746	743	741	736	728
125°	1070	1086	1081	1075	1073	956
135°	1384	1404	1408	1406	1401	1070
145°	1680	1693	1704	1706	1698	1050
155°	1921	1926	1932	1941	1935	884
165°	2090	2088	2088	2101	2092	590
175°	2174	2169	2165	2178	2167	207
180°	2178	2178	2178	2178	2178	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	2.0	23.7	64.4	60.4	62.4
92.5°	40.7	55.2	57.2	59.1	59.1
95°	95.9	114.3	117.5	117.5	114.3
97.5°	159.6	176.7	183.9	183.9	183.9
100°	233.2	248.2	253.5	253.5	251.5
102.5°	310.6	321.8	329.0	331.0	329.0
105°	395.4	400.6	404.6	407.9	407.9
107.5°	479.4	487.3	487.3	488.6	479.4
110°	560.9	571.4	571.4	571.4	566.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	648.8	660.0	658.1	652.8	648.8
115°	735.6	746.1	742.8	740.8	735.6
117.5°	821.6	836.0	826.8	821.6	816.3
120°	908.3	922.7	908.3	908.3	902.3
122.5°	987.0	1005.5	996.3	991.0	987.0
125°	1069.8	1086.2	1081.0	1075.0	1073.1
127.5°	1150.6	1171.0	1163.7	1155.9	1150.6
130°	1226.1	1249.7	1246.5	1242.6	1235.4
132.5°	1310.9	1329.2	1330.6	1321.4	1316.1
135°	1383.7	1404.1	1408.1	1406.1	1400.8
137.5°	1465.2	1481.6	1484.9	1483.6	1475.7
140°	1536.8	1553.2	1562.4	1562.4	1555.1
142.5°	1610.3	1626.8	1632.0	1634.0	1626.8
145°	1680.0	1693.1	1703.6	1705.6	1698.3
147.5°	1742.3	1758.8	1766.6	1770.0	1762.7
150°	1806.7	1817.8	1825.1	1831.0	1825.1
152.5°	1863.8	1875.0	1884.2	1891.4	1884.2
155°	1921.0	1926.2	1932.2	1941.3	1935.4
157.5°	1970.2	1974.2	1977.5	1990.5	1981.4
160°	2014.2	2018.2	2020.2	2031.3	2023.4
162.5°	2054.9	2054.9	2056.9	2069.4	2060.2
165°	2089.7	2087.7	2087.7	2100.9	2091.7
167.5°	2121.2	2115.4	2115.4	2128.5	2119.3
170°	2144.9	2139.7	2137.7	2150.9	2139.7
172.5°	2161.4	2156.1	2154.1	2167.2	2156.1
175°	2174.5	2169.2	2165.2	2178.4	2167.2
177.5°	2181.7	2176.4	2172.5	2183.7	2172.5
180°	2178.4	2178.4	2178.4	2178.4	2178.4

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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	10.57	11.42	11.52	12.37	13.62	6.54	7.39	7.49	8.35	9.59
	3H	12.25	13.00	13.21	13.97	15.24	7.73	8.49	8.69	9.46	10.73
	4H	12.86	13.57	13.83	14.54	15.82	8.19	8.90	9.16	9.87	11.15
	6H	13.28	13.94	14.26	14.91	16.20	8.51	9.17	9.49	10.14	11.43
	8H	13.41	14.03	14.40	15.03	16.31	8.60	9.23	9.59	10.22	11.51
	12H	13.47	14.06	14.46	15.05	16.36	8.64	9.24	9.64	10.23	11.54
4H	2H	10.59	11.30	11.57	12.28	13.55	7.14	7.86	8.12	8.83	10.10
	3H	12.42	13.01	13.41	14.02	15.31	8.49	9.09	9.48	10.09	11.38
	4H	13.11	13.66	14.11	14.65	15.97	9.04	9.58	10.04	10.58	11.89
	6H	13.63	14.09	14.64	15.11	16.43	9.46	9.93	10.47	10.95	12.26
	8H	13.80	14.24	14.81	15.25	16.58	9.59	10.03	10.60	11.04	12.37
	12H	13.90	14.29	14.93	15.32	16.65	9.66	10.05	10.69	11.08	12.41
8H	4H	13.08	13.52	14.09	14.53	15.86	9.32	9.76	10.33	10.77	12.10
	6H	13.65	14.01	14.68	15.06	16.39	9.84	10.20	10.88	11.26	12.58
	8H	13.86	14.18	14.91	15.22	16.56	10.03	10.35	11.08	11.39	12.73
	12H	14.00	14.28	15.05	15.32	16.70	10.16	10.43	11.20	11.47	12.85
12H	4H	13.03	13.43	14.06	14.45	15.79	9.33	9.72	10.36	10.75	12.08
	6H	13.62	13.94	14.66	14.98	16.32	9.89	10.21	10.93	11.25	12.59
	8H	13.84	14.12	14.89	15.16	16.54	10.10	10.38	11.15	11.42	12.80