

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: P926530

Luminaire Tested: DFN2DIP-TR4F0-080D090US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926530
REPORT IS A COMBINATION OF REPORTS P900467 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D090US950-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

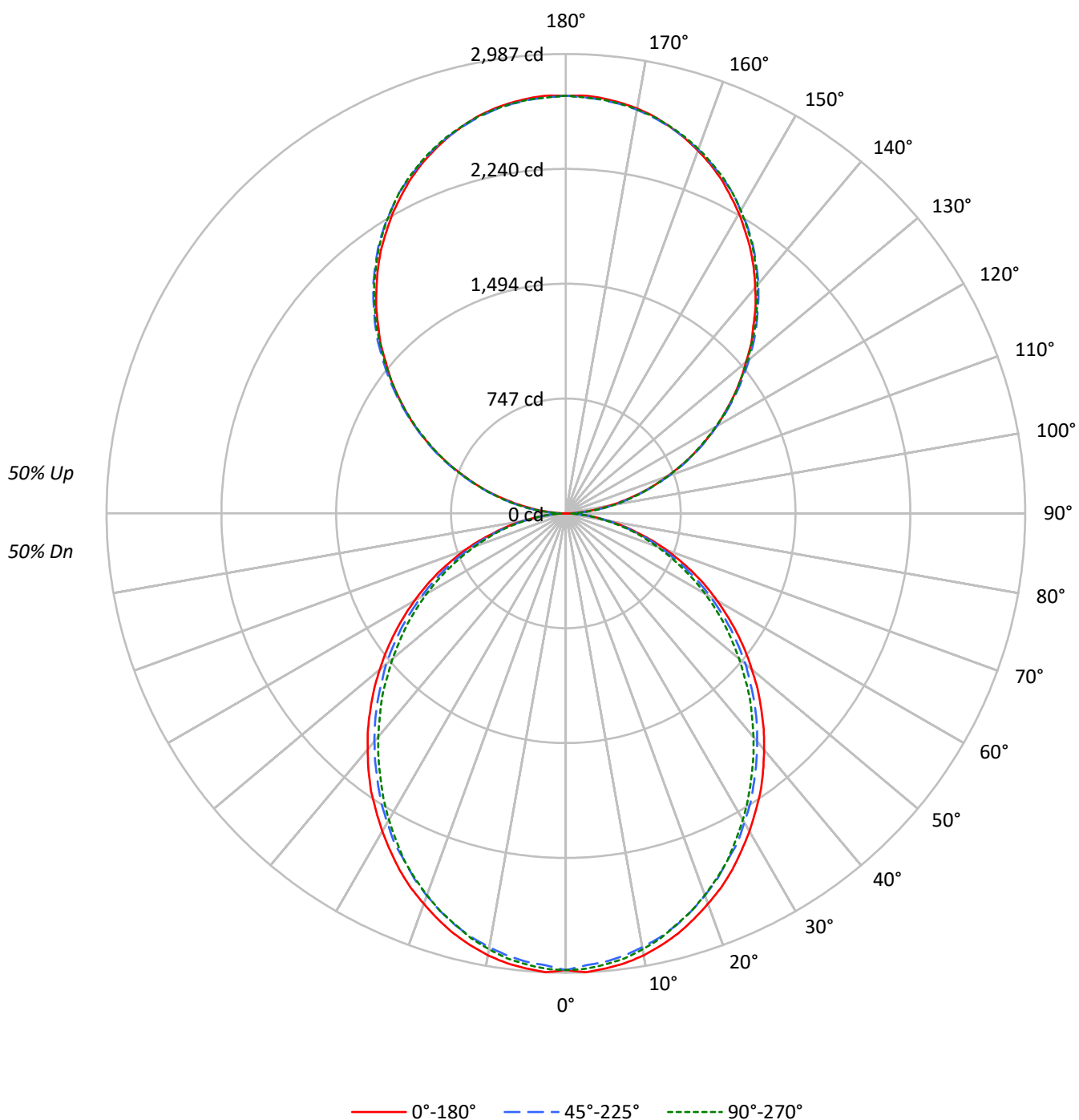
Lumens per Lamp: N/A
Luminaire Lumens: 15154.3 lumens
Efficiency: N/A
Efficacy: 106.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.7
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
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	75	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	63	56	50	68	59	52	46	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	25
6	63	51	43	37	58	47	40	35	40	35	31	34	30	26	28	25	22
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	22	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°	2359	2359	2359
5°	2363	2326	2342
10°	2344	2295	2310
15°	2309	2257	2261
20°	2263	2205	2210
25°	2217	2142	2151
30°	2159	2083	2076
35°	2104	2014	1997
40°	2036	1945	1922
45°	1968	1875	1846
50°	1895	1802	1756
55°	1817	1717	1675
60°	1730	1616	1581
65°	1635	1512	1470
70°	1513	1385	1351
75°	1345	1233	1241
80°	1143	1040	1031
85°	827	706	683

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2117 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	279.5	1.8
10°-20°	786.4	5.2
20°-30°	1155.7	7.6
30°-40°	1342.3	8.9
40°-50°	1340.6	8.8
50°-60°	1169.0	7.7
60°-70°	864.1	5.7
70°-80°	488.9	3.2
80°-90°	136.8	0.9
90°-100°	168.0	1.1
100°-110°	533.9	3.5
110°-120°	913.7	6.0
120°-130°	1201.6	7.9
130°-140°	1348.7	8.9
140°-150°	1322.6	8.7
150°-160°	1109.5	7.3
160°-170°	735.8	4.9
170°-180°	257.2	1.7
0°-30°	2221.6	14.7
0°-40°	3563.9	23.5
0°-60°	6073.6	40.1
0°-90°	7563.4	49.9
90°-120°	1615.6	10.7
90°-150°	5488.5	36.2
90°-180°	7591.0	50.1
0°-180°	15154.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2970	2970	2970	2970	2970	
5°	2970	2958	2927	2950	2944	282
15°	2827	2810	2773	2784	2770	796
25°	2558	2536	2487	2493	2487	1177
35°	2207	2179	2133	2116	2102	1378
45°	1796	1776	1733	1702	1691	1386
55°	1359	1342	1308	1274	1259	1215
65°	917	900	871	845	831	906
75°	480	474	460	443	448	512
85°	117	114	112	103	100	130
90°	2	30	80	75	78	15
95°	120	142	146	146	142	133
105°	493	499	504	508	508	520
115°	917	930	926	924	917	907
125°	1334	1354	1348	1340	1338	1192
135°	1725	1750	1755	1753	1746	1333
145°	2094	2110	2124	2126	2117	1308
155°	2394	2401	2408	2420	2413	1102
165°	2605	2602	2602	2619	2607	735
175°	2710	2704	2699	2716	2702	258
180°	2716	2716	2716	2716	2716	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2969.6	2969.6	2969.6	2969.6	2969.6
2.5°	2986.9	2972.7	2941.2	2969.6	2964.2
5°	2969.6	2958.4	2927.0	2949.7	2944.2
7.5°	2949.7	2932.7	2901.2	2924.2	2918.5
10°	2918.5	2898.4	2864.2	2886.9	2878.5
12.5°	2875.5	2858.5	2824.2	2838.4	2832.7
15°	2827.0	2810.0	2772.7	2784.2	2770.0
17.5°	2767.0	2750.0	2712.7	2727.0	2712.7
20°	2701.3	2684.3	2644.3	2652.8	2641.5
22.5°	2635.8	2610.0	2572.7	2572.7	2567.0
25°	2558.5	2535.8	2487.4	2492.8	2487.4
27.5°	2472.8	2452.8	2415.8	2407.3	2393.1
30°	2387.4	2364.3	2321.7	2313.2	2301.6
32.5°	2295.9	2278.9	2233.1	2215.9	2204.4
35°	2207.4	2178.9	2133.1	2115.9	2101.7
37.5°	2107.4	2081.6	2035.9	2015.9	2001.7
40°	2004.7	1981.6	1936.0	1910.5	1898.9
42.5°	1904.8	1881.7	1836.3	1807.4	1790.6
45°	1796.3	1776.3	1733.2	1702.0	1690.6
47.5°	1690.6	1670.5	1624.8	1593.3	1576.3
50°	1579.1	1564.8	1524.8	1484.8	1470.6
52.5°	1470.6	1450.6	1413.6	1382.2	1362.1
55°	1359.4	1342.1	1307.9	1273.7	1259.4
57.5°	1247.9	1233.7	1196.4	1162.2	1150.6
60°	1136.4	1125.2	1085.2	1053.7	1045.2
62.5°	1027.9	1008.0	979.5	951.0	939.5
65°	916.8	899.5	871.0	845.2	831.0
67.5°	802.5	788.0	762.5	742.6	731.1
70°	696.8	685.3	659.6	639.6	628.3
72.5°	588.3	576.9	562.6	542.6	534.1
75°	479.6	474.1	459.6	442.7	448.4
77.5°	382.6	371.1	365.4	356.9	348.4
80°	285.7	282.7	276.9	268.5	262.6
82.5°	194.2	194.2	191.5	179.9	179.9
85°	117.0	114.2	111.5	102.7	100.0
87.5°	51.5	45.8	40.0	31.5	28.5
90°	2.5	29.5	80.2	75.3	77.8
92.5°	50.8	68.8	71.3	73.6	73.6
95°	119.5	142.4	146.5	146.5	142.4
97.5°	198.9	220.2	229.2	229.2	229.2
100°	290.6	309.5	316.0	316.0	313.6
102.5°	387.2	401.2	410.1	412.6	410.1
105°	492.8	499.3	504.3	508.4	508.4
107.5°	597.6	607.4	607.4	609.0	597.6
110°	699.1	712.3	712.3	712.3	705.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	808.8	822.7	820.2	813.8	808.8
115°	916.9	930.0	925.9	923.5	916.9
117.5°	1024.1	1042.1	1030.7	1024.1	1017.5
120°	1132.2	1150.1	1132.2	1132.2	1124.8
122.5°	1230.4	1253.4	1241.9	1235.3	1230.4
125°	1333.6	1354.0	1347.5	1340.1	1337.7
127.5°	1434.2	1459.6	1450.7	1440.8	1434.2
130°	1528.4	1557.9	1553.8	1548.8	1539.9
132.5°	1634.0	1656.9	1658.5	1647.1	1640.6
135°	1724.8	1750.2	1755.2	1752.7	1746.2
137.5°	1826.3	1846.8	1851.0	1849.3	1839.5
140°	1915.6	1936.0	1947.5	1947.5	1938.5
142.5°	2007.3	2027.7	2034.3	2036.8	2027.7
145°	2094.1	2110.4	2123.5	2126.0	2117.0
147.5°	2171.9	2192.3	2202.1	2206.2	2197.3
150°	2252.1	2266.0	2275.0	2282.3	2275.0
152.5°	2323.3	2337.2	2348.7	2357.7	2348.7
155°	2394.5	2401.0	2408.5	2419.9	2412.6
157.5°	2455.9	2460.8	2464.9	2481.3	2469.8
160°	2510.7	2515.7	2518.2	2532.0	2522.2
162.5°	2561.5	2561.5	2564.0	2579.5	2568.1
165°	2604.9	2602.4	2602.4	2618.8	2607.4
167.5°	2644.2	2636.9	2636.9	2653.2	2641.7
170°	2673.7	2667.1	2664.7	2681.0	2667.1
172.5°	2694.1	2687.6	2685.1	2701.5	2687.6
175°	2710.5	2703.9	2699.1	2715.5	2701.5
177.5°	2719.5	2713.0	2708.0	2722.0	2708.0
180°	2715.5	2715.5	2715.5	2715.5	2715.5

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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	10.24	11.10	11.20	12.07	13.35	9.81	10.67	10.77	11.64	12.91
	3H	11.90	12.67	12.87	13.65	14.95	11.43	12.20	12.40	13.18	14.48
	4H	12.49	13.22	13.47	14.20	15.51	12.01	12.74	13.00	13.73	15.03
	6H	12.89	13.56	13.88	14.55	15.87	12.41	13.08	13.40	14.08	15.39
	8H	12.99	13.63	13.99	14.64	15.95	12.52	13.16	13.52	14.17	15.48
	12H	13.04	13.65	14.04	14.65	15.99	12.56	13.17	13.56	14.17	15.51
4H	2H	10.70	11.43	11.69	12.42	13.72	10.36	11.09	11.34	12.07	13.38
	3H	12.57	13.18	13.56	14.19	15.51	12.17	12.78	13.17	13.80	15.12
	4H	13.28	13.84	14.29	14.85	16.19	12.88	13.43	13.88	14.44	15.78
	6H	13.80	14.28	14.81	15.31	16.64	13.39	13.87	14.40	14.90	16.24
	8H	13.94	14.39	14.96	15.42	16.77	13.53	13.98	14.55	15.01	16.36
	12H	14.02	14.42	15.06	15.46	16.82	13.60	14.00	14.63	15.04	16.40
8H	4H	13.48	13.93	14.50	14.95	16.30	13.12	13.57	14.14	14.59	15.94
	6H	14.11	14.48	15.15	15.55	16.90	13.75	14.12	14.79	15.18	16.53
	8H	14.33	14.66	15.38	15.71	17.08	13.96	14.29	15.01	15.34	16.71
	12H	14.46	14.75	15.52	15.79	17.21	14.08	14.36	15.13	15.41	16.82
12H	4H	13.46	13.87	14.50	14.91	16.27	13.11	13.52	14.15	14.56	15.91
	6H	14.14	14.47	15.19	15.52	16.89	13.79	14.11	14.84	15.17	16.54
	8H	14.38	14.67	15.44	15.71	17.13	14.02	14.31	15.08	15.36	16.77