

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: P910090

Luminaire Tested: DFN2DIP-TR4F0-060D090US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910090
REPORT IS A COMBINATION OF REPORTS P900463 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D090US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

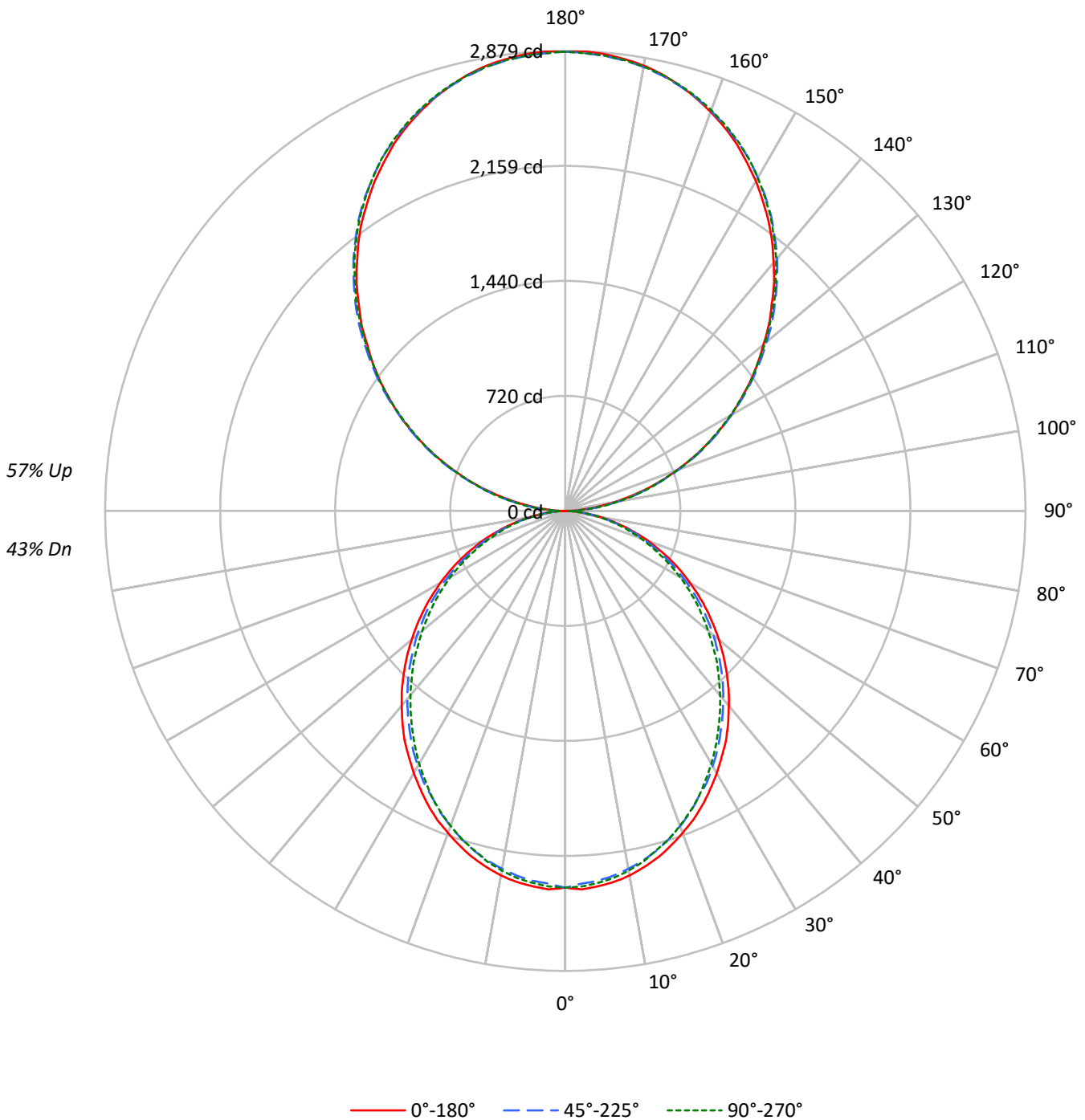
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14042.2 lumens
Efficiency: N/A
Efficacy: 116.1 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): 121
Input Voltage (V):
Input Current (A_{in}): 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

TEST NUMBER: P910090
CATALOG NUMBER: DFN2DIP-TR4F0-060D090US840-FLLFL

Luminous Intensity Polar Plot





TEST NUMBER: P910090

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US840-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49	49	49	49	49	43
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42	44	43	42	44	36
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35	38	37	35	38	30
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30	34	32	30	34	26
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26	30	28	26	30	22
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22	27	25	22	27	19
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20	25	22	20	25	17
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18	23	20	18	23	15
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16	21	18	16	21	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	19	16	14	19	12
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13	18	15	13	18	11

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: 90°
 Vertical Angle: 90°
 Luminance: 2240 cd/sqm



TEST NUMBER: P910090

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	1.6
10°-20°	624.4	4.4
20°-30°	917.5	6.5
30°-40°	1065.7	7.6
40°-50°	1064.4	7.6
50°-60°	928.1	6.6
60°-70°	686.1	4.9
70°-80°	388.2	2.8
80°-90°	110.6	0.8
90°-100°	177.9	1.3
100°-110°	565.2	4.0
110°-120°	967.2	6.9
120°-130°	1272.0	9.1
130°-140°	1427.7	10.2
140°-150°	1400.0	10.0
150°-160°	1174.4	8.4
160°-170°	778.9	5.5
170°-180°	272.2	1.9
0°-30°	1763.8	12.6
0°-40°	2829.5	20.1
0°-60°	4821.9	34.3
0°-90°	6006.8	42.8
90°-120°	1710.2	12.2
90°-150°	5809.9	41.4
90°-180°	8035.0	57.2
0°-180°	14042.2	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°	3	31	85	80	82	14
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	



TEST NUMBER: P910090

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US840-FLLFLL

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°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0



TEST NUMBER: P910090

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5



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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	8.74	9.54	9.76	10.56	11.94	8.31	9.11	9.32	10.13	11.50
	3H	10.39	11.11	11.42	12.15	13.54	9.92	10.64	10.95	11.67	13.06
	4H	10.98	11.66	12.02	12.70	14.09	10.51	11.19	11.54	12.22	13.62
	6H	11.37	12.00	12.42	13.04	14.45	10.90	11.53	11.95	12.57	13.98
	8H	11.48	12.07	12.53	13.13	14.54	11.00	11.60	12.06	12.66	14.06
	12H	11.52	12.09	12.58	13.14	14.57	11.04	11.61	12.10	12.66	14.09
4H	2H	9.19	9.87	10.24	10.91	12.31	8.85	9.53	9.89	10.57	11.96
	3H	11.05	11.62	12.11	12.69	14.10	10.66	11.23	11.71	12.29	13.70
	4H	11.76	12.28	12.82	13.34	14.77	11.36	11.88	12.42	12.94	14.37
	6H	12.28	12.72	13.35	13.80	15.23	11.87	12.31	12.94	13.39	14.82
	8H	12.42	12.84	13.49	13.91	15.36	12.01	12.43	13.08	13.50	14.95
	12H	12.49	12.87	13.58	13.96	15.41	12.07	12.45	13.16	13.54	14.98
8H	4H	11.96	12.37	13.03	13.45	14.89	11.60	12.01	12.67	13.09	14.53
	6H	12.58	12.93	13.68	14.04	15.48	12.22	12.57	13.32	13.68	15.12
	8H	12.81	13.11	13.91	14.20	15.66	12.44	12.74	13.54	13.84	15.30
	12H	12.93	13.20	14.04	14.29	15.79	12.55	12.82	13.65	13.91	15.41
12H	4H	11.94	12.32	13.03	13.40	14.85	11.59	11.96	12.68	13.05	14.50
	6H	12.61	12.92	13.71	14.01	15.47	12.26	12.57	13.36	13.66	15.12
	8H	12.85	13.12	13.96	14.21	15.71	12.50	12.76	13.60	13.86	15.35