

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: P921482

Luminaire Tested: DFN2DIP-4P4F0-070D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921482
REPORT IS A COMBINATION OF REPORTS P899135 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D070US940-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

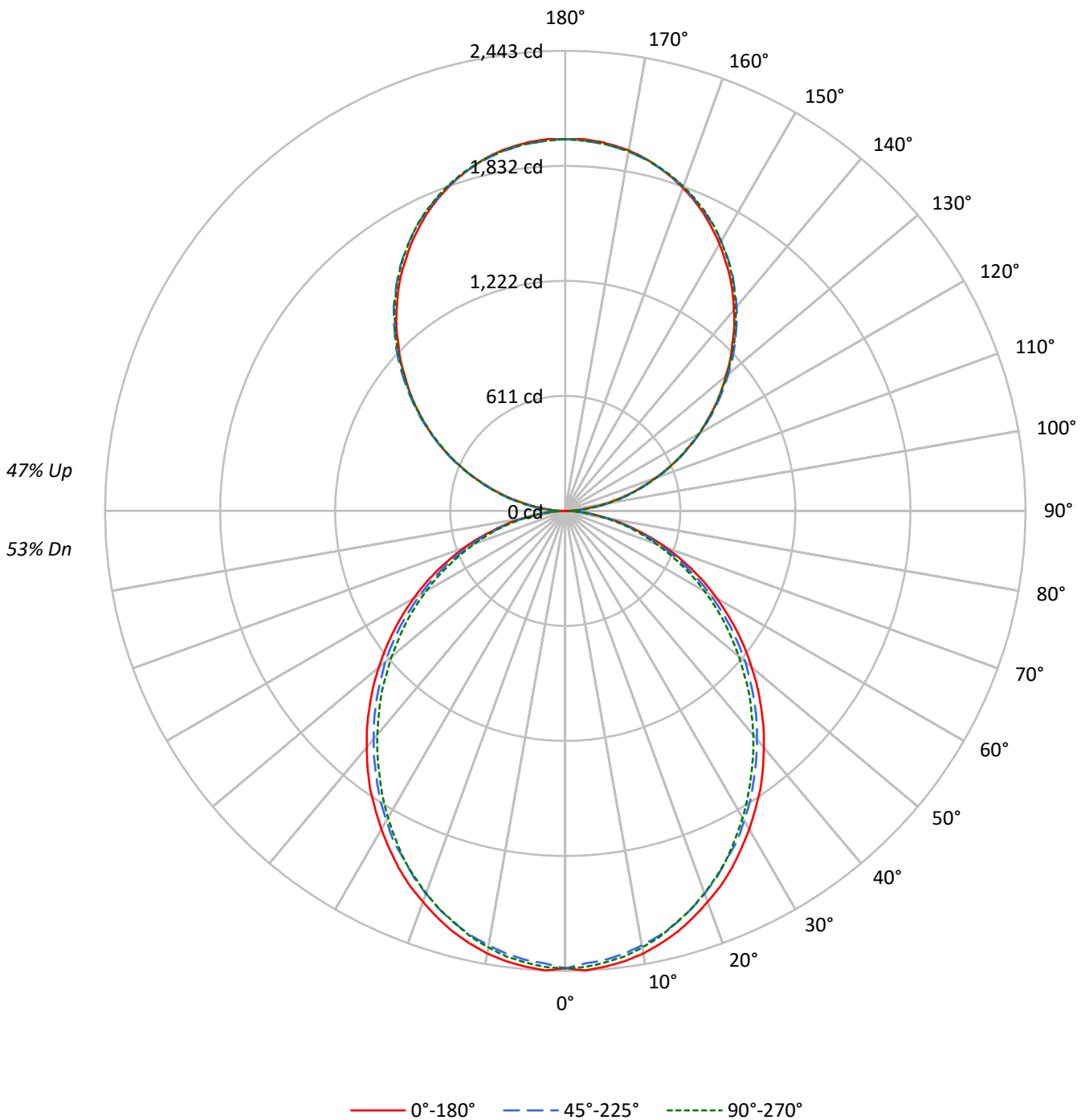
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11703.8 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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				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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53				53
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	45				45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	37				37
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	32				32
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	27				27
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	24				24
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	21				21
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	18				18
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	16				16
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	15				15
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	13				13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1576	1576	1576
5°	1578	1554	1565
10°	1566	1534	1544
15°	1543	1509	1512
20°	1512	1474	1478
25°	1481	1433	1440
30°	1442	1394	1390
35°	1406	1349	1338
40°	1361	1303	1289
45°	1316	1257	1238
50°	1266	1209	1179
55°	1215	1153	1126
60°	1157	1086	1064
65°	1093	1018	991
70°	1013	934	913
75°	901	834	842
80°	766	707	704
85°	556	486	475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1493 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	2.0
10°-20°	643.2	5.5
20°-30°	945.2	8.1
30°-40°	1097.8	9.4
40°-50°	1096.5	9.4
50°-60°	956.1	8.2
60°-70°	706.8	6.0
70°-80°	399.9	3.4
80°-90°	111.2	0.9
90°-100°	122.2	1.0
100°-110°	388.1	3.3
110°-120°	664.2	5.7
120°-130°	873.6	7.5
130°-140°	980.5	8.4
140°-150°	961.5	8.2
150°-160°	806.6	6.9
160°-170°	534.9	4.6
170°-180°	187.0	1.6
0°-30°	1817.0	15.5
0°-40°	2914.9	24.9
0°-60°	4967.4	42.4
0°-90°	6185.2	52.8
90°-120°	1174.5	10.0
90°-150°	3990.1	34.1
90°-180°	5519.0	47.2
0°-180°	11703.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	2	21	58	55	56	11
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	



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CATALOG NUMBER: DFN2DIP-4P4F0-070D070US940-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1



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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	9.13	10.02	10.06	10.97	12.20	8.68	9.57	9.62	10.52	11.75
	3H	10.80	11.59	11.74	12.55	13.81	10.31	11.10	11.25	12.06	13.31
	4H	11.39	12.14	12.35	13.11	14.37	10.90	11.65	11.85	12.61	13.87
	6H	11.80	12.49	12.76	13.46	14.73	11.29	11.99	12.26	12.96	14.23
	8H	11.90	12.56	12.88	13.55	14.82	11.40	12.06	12.38	13.05	14.32
	12H	11.95	12.58	12.94	13.56	14.86	11.44	12.07	12.43	13.05	14.35
4H	2H	9.59	10.35	10.56	11.31	12.57	9.24	9.99	10.20	10.96	12.22
	3H	11.47	12.10	12.44	13.09	14.37	11.06	11.69	12.03	12.68	13.96
	4H	12.19	12.76	13.17	13.75	15.05	11.76	12.34	12.75	13.33	14.63
	6H	12.71	13.21	13.71	14.22	15.51	12.28	12.77	13.27	13.78	15.08
	8H	12.86	13.33	13.86	14.33	15.64	12.43	12.89	13.42	13.89	15.21
	12H	12.94	13.36	13.96	14.38	15.70	12.49	12.91	13.51	13.93	15.25
8H	4H	12.39	12.85	13.38	13.85	15.17	12.01	12.47	13.01	13.48	14.79
	6H	13.03	13.41	14.05	14.46	15.77	12.64	13.03	13.66	14.07	15.38
	8H	13.25	13.59	14.28	14.62	15.95	12.86	13.20	13.89	14.23	15.56
	12H	13.39	13.69	14.42	14.71	16.09	12.98	13.27	14.01	14.30	15.67
12H	4H	12.38	12.79	13.39	13.81	15.13	12.01	12.43	13.02	13.45	14.76
	6H	13.06	13.40	14.09	14.43	15.76	12.69	13.02	13.72	14.06	15.39
	8H	13.31	13.60	14.34	14.63	16.00	12.93	13.22	13.96	14.25	15.62