

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: P921362

Luminaire Tested: DFN2DIP-4P3F0-060D050US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921362
REPORT IS A COMBINATION OF REPORTS P899067 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D050US940-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

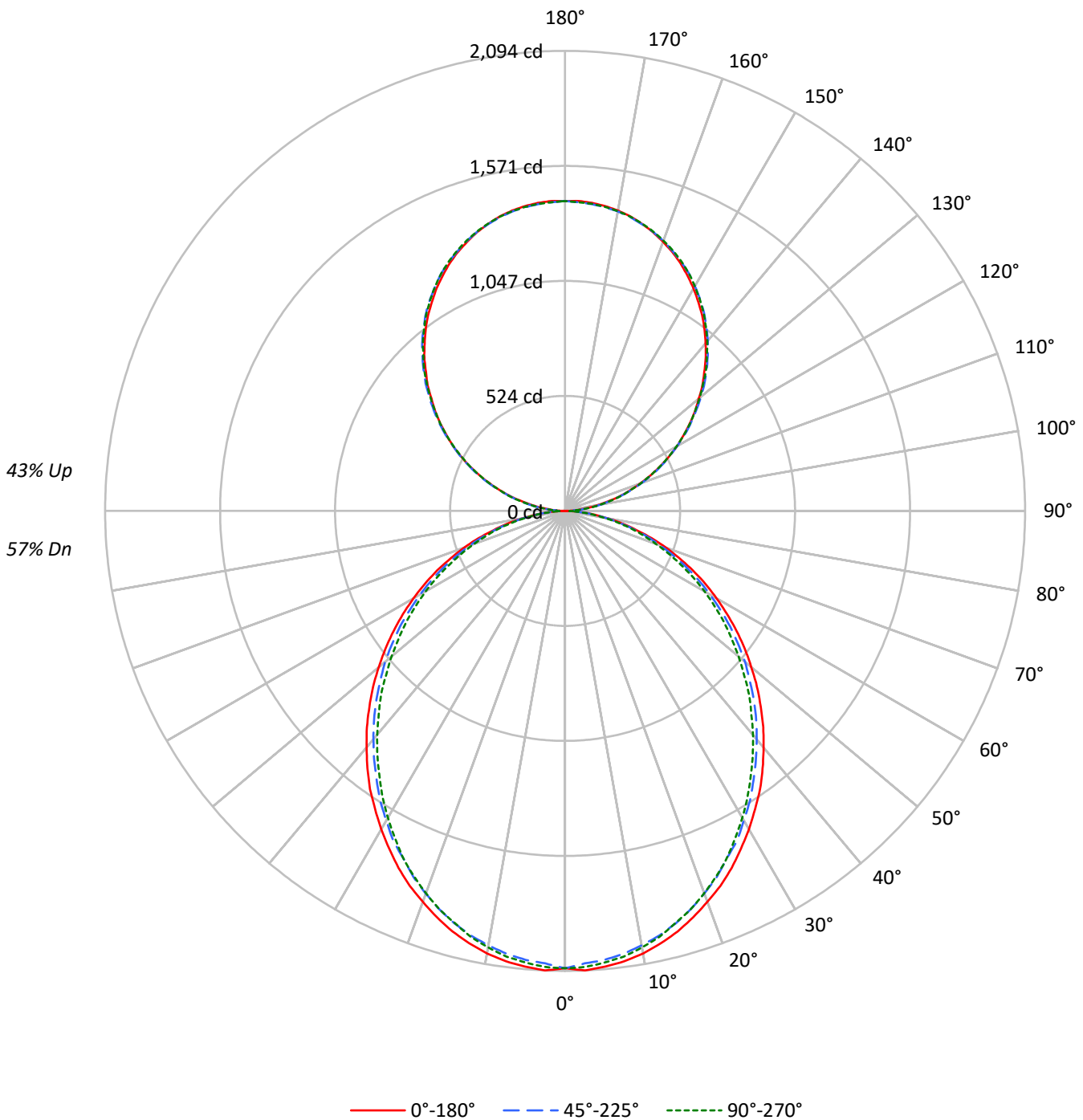
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9242.6 lumens
Efficiency: N/A
Efficacy: 92.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 100.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921362
CATALOG NUMBER: DFN2DIP-4P3F0-060D050US940-FLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P921362
 CATALOG NUMBER: DFN2DIP-4P3F0-060D050US940-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63	57	57	57	57
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	56	54	53	48	48	48	48
2	91	83	77	72	84	78	72	67	67	63	60	58	55	52	49	47	45	40	40	40	40
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	41	38	34	34	34	34
4	76	65	57	51	70	61	53	48	53	47	43	46	41	38	39	36	33	29	29	29	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29	26	26	26	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	22	22	22	22
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22	20	20	20	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18	18	18	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16	16	16	16
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17	15	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2372	2372	2372
5°	2375	2338	2354
10°	2354	2305	2322
15°	2318	2265	2271
20°	2270	2211	2219
25°	2222	2146	2160
30°	2162	2086	2084
35°	2105	2015	2004
40°	2035	1944	1928
45°	1966	1872	1850
50°	1889	1797	1759
55°	1809	1709	1676
60°	1719	1606	1581
65°	1620	1499	1469
70°	1494	1368	1347
75°	1320	1211	1234
80°	1110	1010	1020
85°	781	669	668

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1966 cd/sqm



TEST NUMBER: P921362

CATALOG NUMBER: DFN2DIP-4P3F0-060D050US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	2.1
10°-20°	551.3	6.0
20°-30°	810.2	8.8
30°-40°	941.0	10.2
40°-50°	939.8	10.2
50°-60°	819.5	8.9
60°-70°	605.8	6.6
70°-80°	342.7	3.7
80°-90°	94.5	1.0
90°-100°	87.3	0.9
100°-110°	277.2	3.0
110°-120°	474.5	5.1
120°-130°	624.0	6.8
130°-140°	700.4	7.6
140°-150°	686.8	7.4
150°-160°	576.1	6.2
160°-170°	382.1	4.1
170°-180°	133.5	1.4
0°-30°	1557.4	16.9
0°-40°	2498.4	27.0
0°-60°	4257.8	46.1
0°-90°	5300.8	57.4
90°-120°	838.9	9.1
90°-150°	2850.1	30.8
90°-180°	3942.0	42.7
0°-180°	9242.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	1	15	42	39	40	9
95°	62	74	76	76	74	69
105°	256	259	262	264	264	270
115°	476	483	481	480	476	471
125°	692	703	700	696	695	619
135°	896	909	911	910	907	692
145°	1087	1096	1103	1104	1099	679
155°	1243	1247	1251	1257	1253	572
165°	1353	1351	1351	1360	1354	382
175°	1408	1404	1402	1410	1403	134
180°	1410	1410	1410	1410	1410	



TEST NUMBER: P921362

CATALOG NUMBER: DFN2DIP-4P3F0-060D050US940-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	1.2	15.3	41.6	39.1	40.4
92.5°	26.4	35.7	37.0	38.3	38.3
95°	62.1	74.0	76.1	76.1	74.0
97.5°	103.3	114.3	119.0	119.0	119.0
100°	150.9	160.7	164.1	164.1	162.8
102.5°	201.1	208.3	212.9	214.3	212.9
105°	255.9	259.3	261.9	263.9	263.9
107.5°	310.3	315.4	315.4	316.3	310.3
110°	363.0	369.9	369.9	369.9	366.4



TEST NUMBER: P921362

CATALOG NUMBER: DFN2DIP-4P3F0-060D050US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	420.0	427.2	426.0	422.6	420.0
115°	476.1	483.0	480.8	479.6	476.1
117.5°	531.8	541.2	535.2	531.8	528.4
120°	587.9	597.3	587.9	587.9	584.1
122.5°	638.9	650.9	644.9	641.5	638.9
125°	692.5	703.1	699.7	695.9	694.6
127.5°	744.8	758.0	753.3	748.1	744.8
130°	793.7	809.0	806.8	804.3	799.6
132.5°	848.6	860.4	861.3	855.3	851.9
135°	895.7	908.8	911.4	910.2	906.8
137.5°	948.4	959.0	961.2	960.3	955.2
140°	994.7	1005.4	1011.3	1011.3	1006.7
142.5°	1042.3	1053.0	1056.4	1057.7	1053.0
145°	1087.4	1095.9	1102.7	1104.0	1099.3
147.5°	1127.8	1138.4	1143.5	1145.7	1140.9
150°	1169.5	1176.7	1181.3	1185.2	1181.3
152.5°	1206.5	1213.7	1219.6	1224.3	1219.6
155°	1243.4	1246.8	1250.6	1256.6	1252.8
157.5°	1275.3	1277.8	1280.0	1288.5	1282.5
160°	1303.8	1306.4	1307.6	1314.8	1309.7
162.5°	1330.2	1330.2	1331.4	1339.5	1333.6
165°	1352.7	1351.4	1351.4	1359.9	1354.0
167.5°	1373.1	1369.2	1369.2	1377.8	1371.8
170°	1388.4	1385.0	1383.8	1392.2	1385.0
172.5°	1399.0	1395.6	1394.4	1402.8	1395.6
175°	1407.6	1404.1	1401.6	1410.1	1402.8
177.5°	1412.2	1408.8	1406.2	1413.5	1406.2
180°	1410.1	1410.1	1410.1	1410.1	1410.1



TEST NUMBER: P921362
 CATALOG NUMBER: DFN2DIP-4P3F0-060D050US940-FLLFLL

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	10.89	11.82	11.78	12.73	13.90	10.45	11.38	11.34	12.29	13.45
	3H	12.55	13.39	13.46	14.31	15.50	12.06	12.90	12.97	13.82	15.01
	4H	13.14	13.93	14.06	14.86	16.05	12.65	13.44	13.57	14.36	15.56
	6H	13.54	14.27	14.47	15.20	16.41	13.04	13.77	13.97	14.70	15.91
	8H	13.65	14.34	14.58	15.29	16.50	13.14	13.84	14.08	14.79	16.00
	12H	13.69	14.36	14.64	15.30	16.53	13.19	13.85	14.13	14.79	16.02
4H	2H	11.36	12.15	12.28	13.07	14.27	11.00	11.79	11.93	12.72	13.92
	3H	13.22	13.88	14.16	14.84	16.05	12.82	13.48	13.75	14.43	15.64
	4H	13.94	14.54	14.88	15.49	16.73	13.51	14.12	14.46	15.07	16.30
	6H	14.45	14.97	15.41	15.95	17.18	14.02	14.54	14.98	15.52	16.75
	8H	14.60	15.09	15.56	16.06	17.31	14.16	14.65	15.12	15.62	16.87
	12H	14.68	15.11	15.66	16.10	17.36	14.23	14.67	15.21	15.65	16.91
8H	4H	14.14	14.62	15.10	15.59	16.84	13.76	14.24	14.72	15.21	16.46
	6H	14.76	15.17	15.75	16.18	17.43	14.38	14.78	15.37	15.79	17.04
	8H	14.98	15.34	15.98	16.34	17.60	14.59	14.94	15.58	15.94	17.21
	12H	15.11	15.43	16.11	16.42	17.73	14.70	15.02	15.70	16.01	17.32
12H	4H	14.12	14.56	15.10	15.55	16.80	13.76	14.19	14.73	15.18	16.44
	6H	14.79	15.15	15.79	16.15	17.41	14.42	14.78	15.41	15.78	17.04
	8H	15.03	15.35	16.03	16.34	17.65	14.65	14.97	15.65	15.96	17.27