

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: P918275

Luminaire Tested: DFN2DIP-TR4F0-060D090US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918275
REPORT IS A COMBINATION OF REPORTS P901983 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D090US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

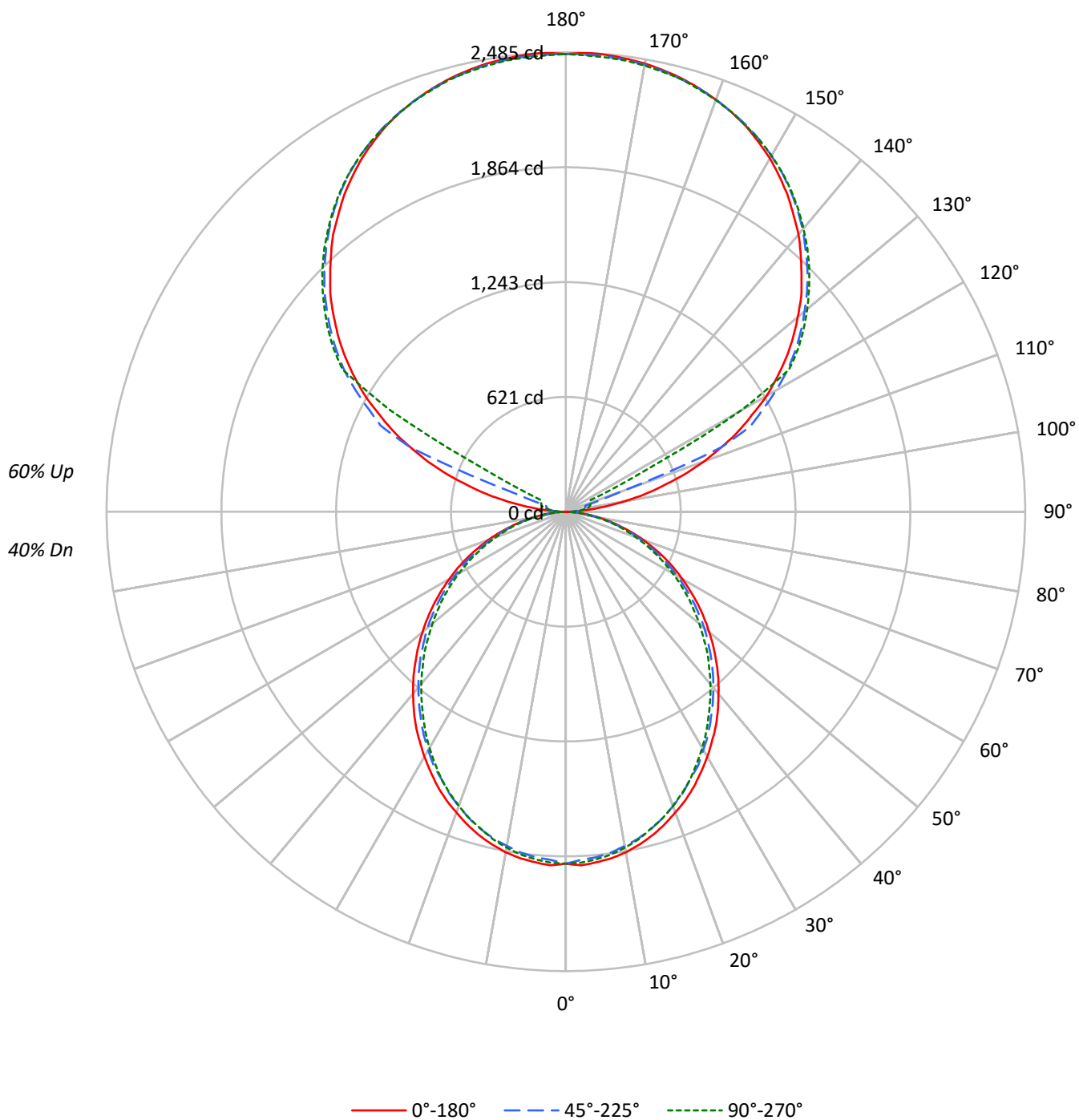
Lumens per Lamp: N/A
Luminaire Lumens: 12107.2 lumens
Efficiency: N/A
Efficacy: 100.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 121
Input Voltage (V):
Input Current (Ain): 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: P918275

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918275

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US930-FLONL

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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1512	1512	1512
5°	1515	1491	1501
10°	1502	1471	1481
15°	1480	1447	1449
20°	1450	1413	1416
25°	1421	1373	1379
30°	1384	1335	1331
35°	1348	1291	1280
40°	1305	1247	1232
45°	1262	1202	1183
50°	1214	1155	1126
55°	1165	1101	1073
60°	1109	1036	1013
65°	1048	969	942
70°	970	888	866
75°	862	791	796
80°	733	666	661
85°	530	452	438

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1315 cd/sqm

TEST NUMBER: P918275

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.5
10°-20°	504.1	4.2
20°-30°	740.8	6.1
30°-40°	860.4	7.1
40°-50°	859.3	7.1
50°-60°	749.3	6.2
60°-70°	553.9	4.6
70°-80°	313.4	2.6
80°-90°	87.1	0.7
90°-100°	81.7	0.7
100°-110°	304.4	2.5
110°-120°	807.3	6.7
120°-130°	1339.0	11.1
130°-140°	1422.3	11.7
140°-150°	1321.9	10.9
150°-160°	1062.8	8.8
160°-170°	684.8	5.7
170°-180°	235.7	1.9
0°-30°	1424.0	11.8
0°-40°	2284.3	18.9
0°-60°	3892.9	32.2
0°-90°	4847.2	40.0
90°-120°	1193.4	9.9
90°-150°	5276.6	43.6
90°-180°	7260.0	60.0
0°-180°	12107.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	2	22	36	45	48	11
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

TEST NUMBER: P918275

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

TEST NUMBER: P918275

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

TEST NUMBER: P918275

CATALOG NUMBER: DFN2DIP-TR4F0-060D090US930-FLLONL

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	7.71	8.49	8.74	9.53	10.94	7.27	8.05	8.31	9.10	10.50
	3H	9.36	10.06	10.41	11.11	12.54	8.89	9.59	9.94	10.64	12.06
	4H	9.94	10.61	11.00	11.66	13.09	9.47	10.13	10.53	11.19	12.62
	6H	10.34	10.95	11.41	12.01	13.45	9.86	10.47	10.93	11.53	12.98
	8H	10.44	11.02	11.52	12.10	13.54	9.97	10.55	11.04	11.62	13.06
	12H	10.49	11.04	11.57	12.11	13.57	10.01	10.56	11.09	11.63	13.09
4H	2H	8.16	8.82	9.22	9.88	11.31	7.81	8.47	8.88	9.53	10.96
	3H	10.02	10.57	11.09	11.65	13.10	9.62	10.18	10.70	11.26	12.70
	4H	10.73	11.23	11.81	12.31	13.77	10.32	10.83	11.40	11.90	13.37
	6H	11.24	11.67	12.33	12.77	14.23	10.83	11.26	11.92	12.36	13.82
	8H	11.38	11.79	12.47	12.88	14.36	10.97	11.38	12.06	12.47	13.95
	12H	11.45	11.82	12.56	12.92	14.41	11.03	11.40	12.14	12.50	13.98
8H	4H	10.92	11.32	12.01	12.41	13.89	10.56	10.96	11.65	12.05	13.53
	6H	11.54	11.88	12.66	13.01	14.49	11.18	11.52	12.29	12.65	14.12
	8H	11.76	12.06	12.88	13.17	14.67	11.40	11.69	12.51	12.80	14.30
	12H	11.89	12.15	13.01	13.26	14.79	11.51	11.77	12.63	12.88	14.41
12H	4H	10.90	11.27	12.01	12.37	13.85	10.55	10.91	11.65	12.02	13.50
	6H	11.57	11.87	12.69	12.98	14.47	11.22	11.52	12.34	12.63	14.12
	8H	11.81	12.07	12.93	13.18	14.71	11.45	11.71	12.58	12.82	14.35