

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: P923144

Luminaire Tested: DFN2DIP-SQ4F0-090D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923144
REPORT IS A COMBINATION OF REPORTS P900083 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D070US940-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

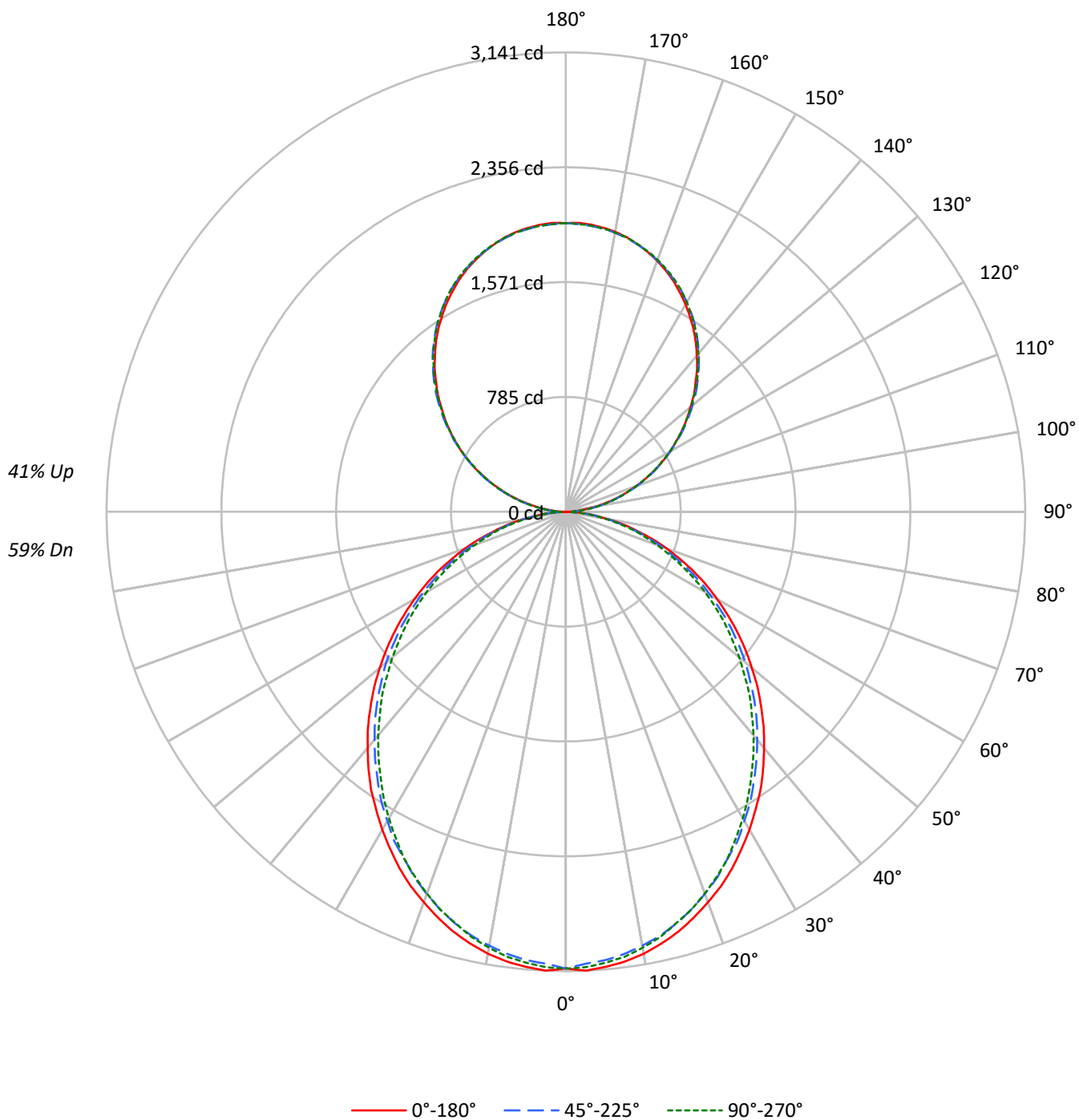
Lumens per Lamp: N/A
Luminaire Lumens: 13469.4 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 134.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923144

CATALOG NUMBER: DFN2DIP-SQ4F0-090D070US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923144

CATALOG NUMBER: DFN2DIP-SQ4F0-090D070US940-FLLFL

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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	95	91	88	93	89	86	83	78	75	73	67	65	63	57	56	54
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	50	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	42	39
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	33	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2191	2191	2191
5°	2195	2161	2176
10°	2177	2132	2147
15°	2145	2098	2102
20°	2101	2049	2055
25°	2058	1992	2001
30°	2004	1938	1933
35°	1953	1874	1860
40°	1890	1810	1791
45°	1828	1746	1720
50°	1759	1678	1638
55°	1687	1600	1563
60°	1606	1507	1477
65°	1517	1411	1376
70°	1405	1295	1267
75°	1248	1155	1167
80°	1060	976	975
85°	767	668	655

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1828 cd/sqm

TEST NUMBER: P923144

CATALOG NUMBER: DFN2DIP-SQ4F0-090D070US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.2
10°-20°	827.0	6.1
20°-30°	1215.3	9.0
30°-40°	1411.5	10.5
40°-50°	1409.7	10.5
50°-60°	1229.3	9.1
60°-70°	908.7	6.7
70°-80°	514.1	3.8
80°-90°	141.3	1.0
90°-100°	122.2	0.9
100°-110°	388.1	2.9
110°-120°	664.2	4.9
120°-130°	873.6	6.5
130°-140°	980.5	7.3
140°-150°	961.5	7.1
150°-160°	806.6	6.0
160°-170°	534.9	4.0
170°-180°	187.0	1.4
0°-30°	2336.2	17.3
0°-40°	3747.7	27.8
0°-60°	6386.7	47.4
0°-90°	7950.8	59.0
90°-120°	1174.5	8.7
90°-150°	3990.1	29.6
90°-180°	5519.0	41.0
0°-180°	13469.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	2	21	58	55	56	13
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	

TEST NUMBER: P923144

CATALOG NUMBER: DFN2DIP-SQ4F0-090D070US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
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

TEST NUMBER: P923144

CATALOG NUMBER: DFN2DIP-SQ4F0-090D070US940-FLLFL

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

TEST NUMBER: P923144

CATALOG NUMBER: DFN2DIP-SQ4F0-090D070US940-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	10.80	11.75	11.68	12.65	13.78	10.36	11.31	11.23	12.20	13.34
	3H	12.47	13.33	13.36	14.23	15.39	11.98	12.84	12.87	13.74	14.90
	4H	13.07	13.87	13.97	14.79	15.96	12.57	13.38	13.48	14.29	15.46
	6H	13.48	14.22	14.39	15.14	16.32	12.98	13.72	13.89	14.64	15.82
	8H	13.59	14.29	14.51	15.23	16.41	13.08	13.79	14.01	14.73	15.91
	12H	13.64	14.31	14.57	15.24	16.45	13.13	13.80	14.06	14.73	15.94
4H	2H	11.27	12.08	12.18	12.99	14.16	10.92	11.73	11.83	12.64	13.81
	3H	13.15	13.83	14.07	14.77	15.95	12.75	13.42	13.66	14.36	15.55
	4H	13.87	14.49	14.80	15.43	16.64	13.45	14.06	14.38	15.00	16.21
	6H	14.40	14.93	15.34	15.89	17.10	13.97	14.50	14.91	15.46	16.67
	8H	14.55	15.05	15.50	16.00	17.23	14.12	14.61	15.06	15.57	16.79
	12H	14.63	15.08	15.60	16.05	17.28	14.18	14.63	15.15	15.60	16.83
8H	4H	14.08	14.57	15.02	15.53	16.76	13.70	14.20	14.65	15.15	16.38
	6H	14.72	15.13	15.69	16.13	17.35	14.33	14.74	15.31	15.74	16.97
	8H	14.94	15.30	15.92	16.29	17.53	14.55	14.91	15.53	15.90	17.14
	12H	15.08	15.40	16.07	16.38	17.67	14.67	14.99	15.65	15.97	17.26
12H	4H	14.07	14.51	15.03	15.49	16.72	13.70	14.15	14.67	15.12	16.35
	6H	14.75	15.11	15.73	16.10	17.34	14.38	14.74	15.36	15.73	16.97
	8H	15.00	15.32	15.98	16.30	17.59	14.62	14.94	15.60	15.92	17.21