

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: P917448

Luminaire Tested: DFN2DIP-SQ3F0-090D080US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917448
REPORT IS A COMBINATION OF REPORTS P899943 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D080US930-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

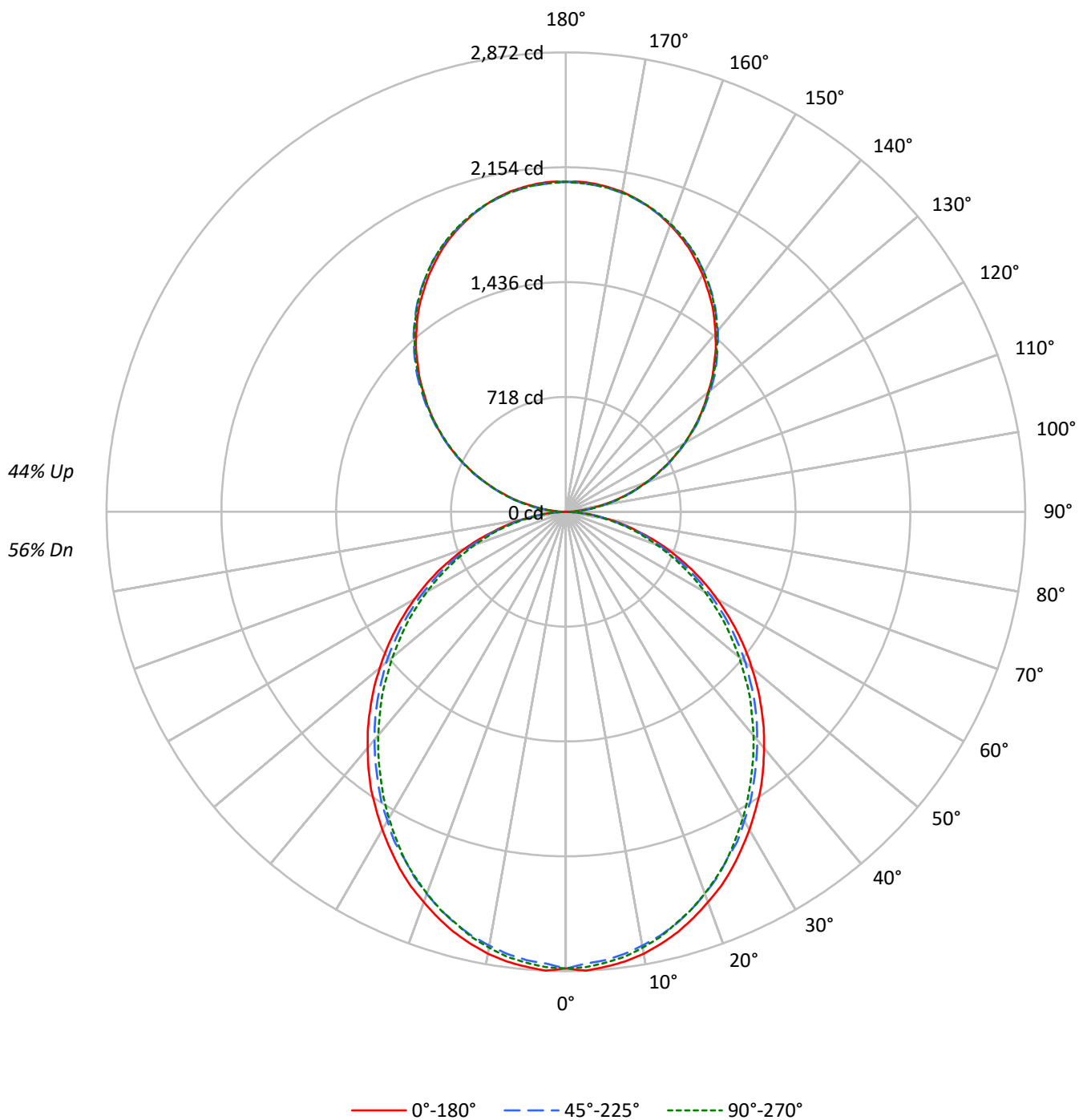
Lumens per Lamp: N/A
Luminaire Lumens: 13036.7 lumens
Efficiency: N/A
Efficacy: 88.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 148.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917448

CATALOG NUMBER: DFN2DIP-SQ3F0-090D080US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P917448

CATALOG NUMBER: DFN2DIP-SQ3F0-090D080US930-FLLFLL

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	101	101	101	101	87	87	87	73	73	73	61	61	61
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52
2	90	83	77	71	84	77	72	67	67	62	59	57	54	51	48	46	44
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	40	37
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22
8	55	42	35	29	51	40	33	28	35	29	25	30	26	22	26	22	20
9	51	39	31	26	47	36	30	25	32	26	22	28	23	20	24	20	18
10	48	36	28	23	44	33	27	22	30	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3271	3271	3271
5°	3275	3224	3246
10°	3246	3178	3201
15°	3196	3124	3132
20°	3130	3049	3060
25°	3063	2960	2978
30°	2981	2876	2874
35°	2902	2779	2763
40°	2806	2680	2658
45°	2710	2581	2551
50°	2605	2477	2426
55°	2495	2357	2311
60°	2370	2214	2180
65°	2233	2066	2025
70°	2060	1885	1857
75°	1820	1669	1701
80°	1530	1392	1407
85°	1076	923	920

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2710 cd/sqm

TEST NUMBER: P917448

CATALOG NUMBER: DFN2DIP-SQ3F0-090D080US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.7	2.1
10°-20°	756.1	5.8
20°-30°	1111.2	8.5
30°-40°	1290.5	9.9
40°-50°	1288.9	9.9
50°-60°	1123.9	8.6
60°-70°	830.8	6.4
70°-80°	470.1	3.6
80°-90°	129.9	1.0
90°-100°	127.6	1.0
100°-110°	405.6	3.1
110°-120°	694.1	5.3
120°-130°	912.8	7.0
130°-140°	1024.6	7.9
140°-150°	1004.7	7.7
150°-160°	842.8	6.5
160°-170°	558.9	4.3
170°-180°	195.4	1.5
0°-30°	2136.0	16.4
0°-40°	3426.5	26.3
0°-60°	5839.4	44.8
0°-90°	7270.2	55.8
90°-120°	1227.3	9.4
90°-150°	4169.4	32.0
90°-180°	5766.0	44.2
0°-180°	13036.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	2	22	61	57	59	13
95°	91	108	111	111	108	101
105°	374	379	383	386	386	395
115°	696	706	703	702	696	689
125°	1013	1029	1024	1018	1016	905
135°	1310	1330	1333	1332	1326	1013
145°	1591	1603	1613	1615	1608	994
155°	1819	1824	1830	1838	1833	837
165°	1979	1977	1977	1989	1981	558
175°	2059	2054	2050	2063	2052	196
180°	2063	2063	2063	2063	2063	

TEST NUMBER: P917448

CATALOG NUMBER: DFN2DIP-SQ3F0-090D080US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	1.9	22.4	61.0	57.2	59.1
92.5°	38.6	52.3	54.1	55.9	55.9
95°	90.8	108.2	111.3	111.3	108.2
97.5°	151.2	167.3	174.1	174.1	174.1
100°	220.8	235.1	240.0	240.0	238.1
102.5°	294.2	304.8	311.5	313.4	311.5
105°	374.4	379.4	383.1	386.2	386.2
107.5°	454.0	461.5	461.5	462.7	454.0
110°	531.1	541.0	541.0	541.0	536.1



TEST NUMBER: P917448

CATALOG NUMBER: DFN2DIP-SQ3F0-090D080US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	614.4	625.0	623.1	618.2	614.4
115°	696.5	706.5	703.4	701.5	696.5
117.5°	778.0	791.7	782.9	778.0	773.0
120°	860.1	873.8	860.1	860.1	854.4
122.5°	934.7	952.1	943.4	938.4	934.7
125°	1013.0	1028.6	1023.6	1018.0	1016.2
127.5°	1089.6	1108.8	1102.0	1094.5	1089.6
130°	1161.1	1183.4	1180.3	1176.6	1169.8
132.5°	1241.3	1258.7	1260.0	1251.2	1246.3
135°	1310.3	1329.6	1333.3	1331.5	1326.5
137.5°	1387.4	1403.0	1406.1	1404.8	1397.3
140°	1455.2	1470.7	1479.4	1479.4	1472.6
142.5°	1524.9	1540.4	1545.4	1547.3	1540.4
145°	1590.8	1603.2	1613.1	1615.0	1608.2
147.5°	1649.8	1665.4	1672.8	1676.0	1669.2
150°	1710.8	1721.3	1728.2	1733.8	1728.2
152.5°	1764.9	1775.5	1784.2	1791.0	1784.2
155°	1819.0	1824.0	1829.6	1838.3	1832.7
157.5°	1865.6	1869.4	1872.5	1884.9	1876.2
160°	1907.3	1911.1	1912.9	1923.5	1916.0
162.5°	1945.9	1945.9	1947.7	1959.6	1950.8
165°	1978.8	1976.9	1976.9	1989.4	1980.7
167.5°	2008.7	2003.1	2003.1	2015.5	2006.8
170°	2031.1	2026.1	2024.2	2036.7	2026.1
172.5°	2046.6	2041.7	2039.8	2052.2	2041.7
175°	2059.0	2054.1	2050.3	2062.8	2052.2
177.5°	2065.9	2060.9	2057.2	2067.8	2057.2
180°	2062.8	2062.8	2062.8	2062.8	2062.8

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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	11.87	12.79	12.78	13.71	14.90	11.43	12.34	12.33	13.27	14.45
	3H	13.53	14.35	14.45	15.29	16.50	13.04	13.86	13.96	14.80	16.01
	4H	14.12	14.90	15.05	15.83	17.05	13.62	14.40	14.56	15.34	16.56
	6H	14.52	15.23	15.46	16.18	17.41	14.02	14.73	14.96	15.68	16.91
	8H	14.62	15.30	15.57	16.27	17.50	14.12	14.80	15.07	15.77	17.00
	12H	14.67	15.32	15.63	16.28	17.53	14.16	14.81	15.12	15.77	17.02
4H	2H	12.33	13.11	13.27	14.05	15.27	11.98	12.76	12.92	13.70	14.92
	3H	14.20	14.85	15.15	15.82	17.05	13.79	14.44	14.74	15.41	16.65
	4H	14.91	15.51	15.87	16.47	17.73	14.49	15.08	15.45	16.05	17.31
	6H	15.43	15.94	16.40	16.93	18.18	14.99	15.51	15.97	16.49	17.75
	8H	15.58	16.05	16.55	17.03	18.31	15.14	15.62	16.11	16.60	17.87
	12H	15.65	16.08	16.64	17.08	18.36	15.20	15.63	16.19	16.63	17.91
8H	4H	15.11	15.59	16.08	16.57	17.84	14.73	15.21	15.71	16.19	17.46
	6H	15.74	16.13	16.74	17.16	18.43	15.35	15.75	16.35	16.77	18.04
	8H	15.95	16.30	16.96	17.31	18.60	15.56	15.91	16.57	16.92	18.21
	12H	16.09	16.39	17.10	17.40	18.73	15.68	15.98	16.69	16.99	18.32
12H	4H	15.10	15.53	16.09	16.53	17.80	14.73	15.16	15.72	16.16	17.44
	6H	15.77	16.11	16.77	17.13	18.42	15.39	15.74	16.40	16.75	18.04
	8H	16.01	16.31	17.02	17.32	18.65	15.63	15.93	16.64	16.94	18.27