

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: P922916

Luminaire Tested: DFN2DIP-SQ3F0-090D110US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922916
REPORT IS A COMBINATION OF REPORTS P899997 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D110US940-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

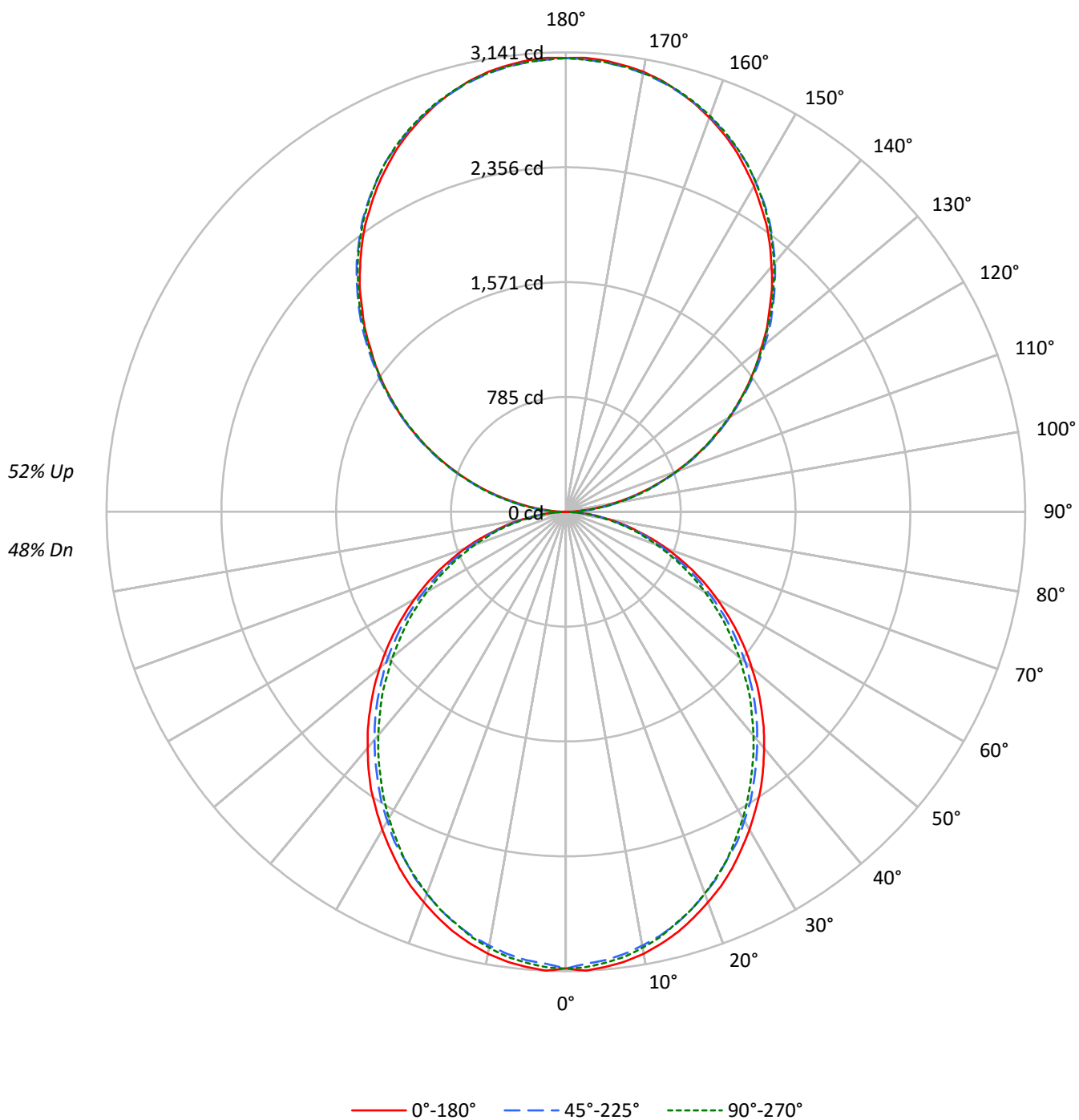
Lumens per Lamp: N/A
Luminaire Lumens: 16626.0 lumens
Efficiency: N/A
Efficacy: 95.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 173.7
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: P922916

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P922916

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US940-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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	31	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	26	30	26	23	25	22	19
8	54	41	34	28	49	38	32	27	33	27	24	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3578	3578	3578
5°	3581	3526	3551
10°	3550	3476	3501
15°	3496	3416	3425
20°	3423	3334	3347
25°	3350	3237	3257
30°	3260	3146	3143
35°	3174	3039	3022
40°	3069	2931	2907
45°	2964	2823	2790
50°	2849	2709	2653
55°	2728	2578	2528
60°	2592	2421	2384
65°	2443	2260	2214
70°	2253	2062	2032
75°	1991	1825	1861
80°	1673	1522	1538
85°	1178	1010	1006

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3119 cd/sqm

TEST NUMBER: P922916

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	1.8
10°-20°	827.0	5.0
20°-30°	1215.3	7.3
30°-40°	1411.5	8.5
40°-50°	1409.7	8.5
50°-60°	1229.3	7.4
60°-70°	908.7	5.5
70°-80°	514.1	3.1
80°-90°	144.5	0.9
90°-100°	192.0	1.2
100°-110°	609.9	3.7
110°-120°	1043.8	6.3
120°-130°	1372.7	8.3
130°-140°	1540.8	9.3
140°-150°	1511.0	9.1
150°-160°	1267.5	7.6
160°-170°	840.6	5.1
170°-180°	293.8	1.8
0°-30°	2336.2	14.1
0°-40°	3747.7	22.5
0°-60°	6386.7	38.4
0°-90°	7954.0	47.8
90°-120°	1845.7	11.1
90°-150°	6270.1	37.7
90°-180°	8672.0	52.2
0°-180°	16626.0	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°	3	34	92	86	89	16
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	

TEST NUMBER: P922916

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US940-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°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2

TEST NUMBER: P922916

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US940-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2

TEST NUMBER: P922916

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US940-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	11.46	12.30	12.44	13.29	14.60	11.02	11.86	11.99	12.85	14.15
	3H	13.12	13.87	14.10	14.87	16.19	12.63	13.38	13.61	14.38	15.70
	4H	13.70	14.42	14.70	15.42	16.75	13.21	13.92	14.21	14.92	16.25
	6H	14.10	14.75	15.11	15.76	17.11	13.60	14.25	14.61	15.26	16.61
	8H	14.20	14.83	15.21	15.85	17.19	13.70	14.32	14.71	15.35	16.69
	12H	14.24	14.84	15.27	15.86	17.22	13.73	14.33	14.76	15.35	16.71
4H	2H	11.92	12.63	12.92	13.63	14.97	11.56	12.28	12.57	13.28	14.61
	3H	13.78	14.37	14.79	15.40	16.75	13.37	13.96	14.38	15.00	16.34
	4H	14.49	15.03	15.51	16.05	17.42	14.06	14.61	15.08	15.63	17.00
	6H	15.00	15.47	16.03	16.51	17.88	14.56	15.03	15.60	16.08	17.44
	8H	15.14	15.58	16.18	16.62	18.00	14.70	15.14	15.74	16.18	17.56
	12H	15.21	15.61	16.26	16.66	18.05	14.76	15.16	15.82	16.21	17.60
8H	4H	14.68	15.12	15.71	16.15	17.53	14.30	14.74	15.33	15.78	17.16
	6H	15.30	15.66	16.36	16.74	18.12	14.92	15.28	15.97	16.36	17.74
	8H	15.52	15.84	16.58	16.90	18.30	15.12	15.44	16.19	16.51	17.91
	12H	15.65	15.93	16.71	16.99	18.42	15.23	15.52	16.30	16.58	18.01
12H	4H	14.66	15.06	15.71	16.11	17.50	14.29	14.69	15.34	15.74	17.13
	6H	15.33	15.65	16.39	16.71	18.11	14.96	15.28	16.02	16.34	17.74
	8H	15.57	15.85	16.63	16.91	18.35	15.18	15.47	16.25	16.53	17.96