

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: P920568

Luminaire Tested: DFN2DIP-SQ4F0-140D090US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920568
REPORT IS A COMBINATION OF REPORTS P900127 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US935-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

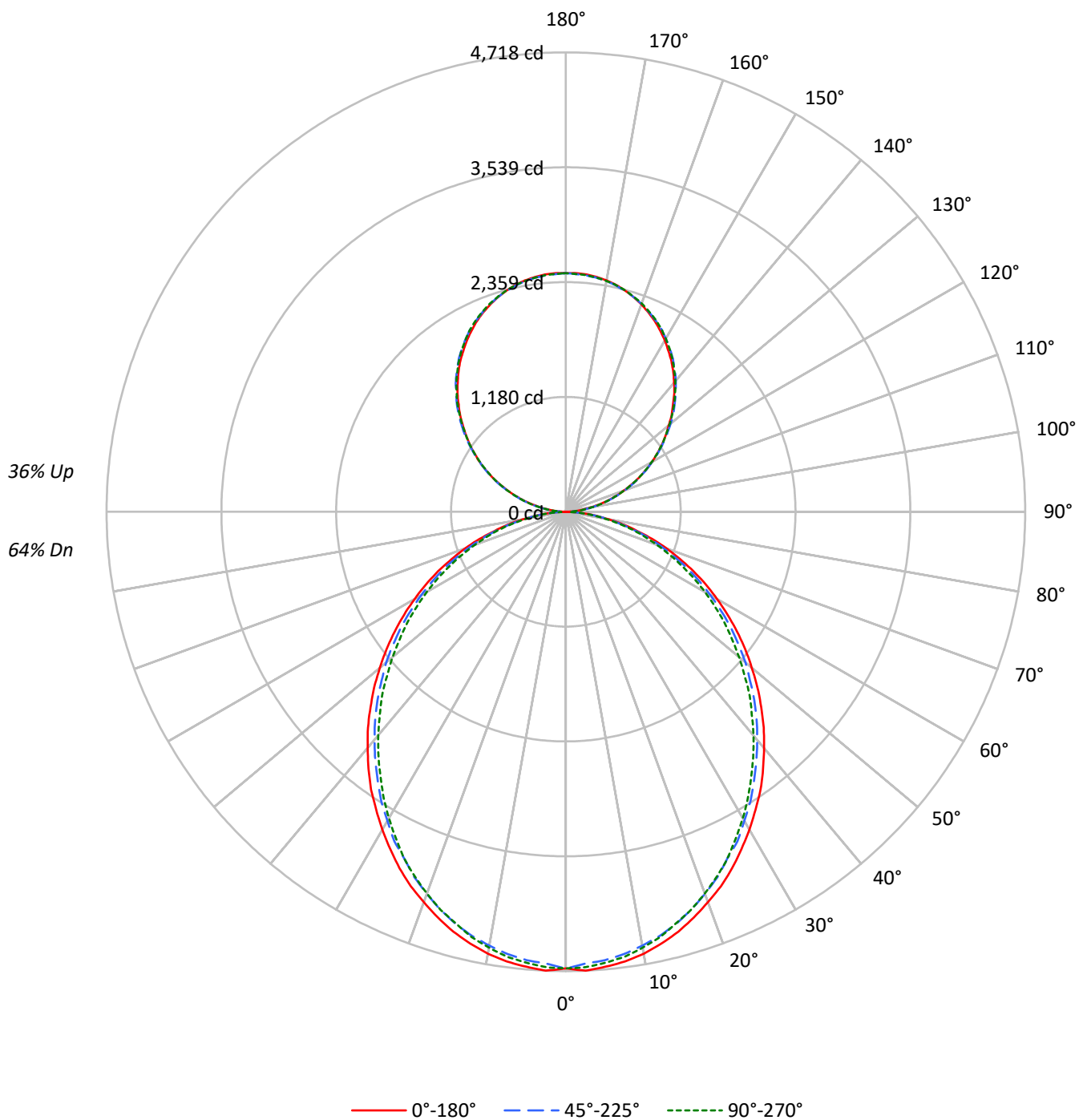
Lumens per Lamp: N/A
Luminaire Lumens: 18791.2 lumens
Efficiency: N/A
Efficacy: 89.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 210.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P920568

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P920568

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	61	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49
3	84	74	67	61	78	70	63	58	62	56	52	54	50	47	47	44	42
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36
5	70	59	50	44	66	55	48	42	49	43	38	43	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3291	3291	3291
5°	3296	3246	3268
10°	3269	3203	3225
15°	3221	3151	3156
20°	3156	3078	3087
25°	3092	2991	3006
30°	3011	2910	2902
35°	2934	2815	2793
40°	2839	2718	2690
45°	2745	2622	2584
50°	2642	2520	2461
55°	2534	2403	2348
60°	2412	2264	2219
65°	2279	2120	2066
70°	2110	1944	1903
75°	1875	1734	1753
80°	1593	1467	1464
85°	1151	1004	984

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2745 cd/sqm

TEST NUMBER: P920568

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	441.4	2.3
10°-20°	1242.1	6.6
20°-30°	1825.4	9.7
30°-40°	2120.0	11.3
40°-50°	2117.4	11.3
50°-60°	1846.3	9.8
60°-70°	1364.8	7.3
70°-80°	772.2	4.1
80°-90°	210.8	1.1
90°-100°	151.6	0.8
100°-110°	481.8	2.6
110°-120°	824.6	4.4
120°-130°	1084.4	5.8
130°-140°	1217.2	6.5
140°-150°	1193.6	6.4
150°-160°	1001.3	5.3
160°-170°	664.0	3.5
170°-180°	232.1	1.2
0°-30°	3508.9	18.7
0°-40°	5628.9	30.0
0°-60°	9592.6	51.0
0°-90°	11940.4	63.5
90°-120°	1458.0	7.8
90°-150°	4953.4	26.4
90°-180°	6851.0	36.5
0°-180°	18791.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4690	4690	4690	4690	4690	
5°	4690	4672	4623	4659	4650	445
15°	4465	4438	4379	4398	4375	1257
25°	4041	4005	3928	3937	3928	1859
35°	3486	3441	3369	3342	3319	2177
45°	2837	2806	2738	2688	2670	2189
55°	2147	2120	2066	2012	1989	1920
65°	1448	1421	1376	1335	1312	1432
75°	758	749	726	699	708	809
85°	185	180	176	162	158	206
90°	2	27	72	68	70	18
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	

TEST NUMBER: P920568

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4690.3	4690.3	4690.3	4690.3	4690.3
2.5°	4717.5	4695.0	4645.3	4690.3	4681.7
5°	4690.3	4672.5	4622.8	4658.7	4650.1
7.5°	4658.7	4631.9	4582.1	4618.5	4609.4
10°	4609.4	4577.8	4523.8	4559.7	4546.2
12.5°	4541.4	4514.6	4460.6	4483.0	4474.0
15°	4464.9	4438.1	4379.2	4397.5	4374.9
17.5°	4370.2	4343.4	4284.5	4307.0	4284.5
20°	4266.3	4239.6	4176.4	4189.8	4172.1
22.5°	4162.9	4122.3	4063.4	4063.4	4054.4
25°	4040.9	4005.0	3928.5	3937.1	3928.5
27.5°	3905.5	3874.0	3815.6	3802.2	3779.7
30°	3770.6	3734.2	3666.7	3653.4	3635.1
32.5°	3626.1	3599.3	3527.0	3499.8	3481.5
35°	3486.4	3441.4	3369.1	3341.9	3319.3
37.5°	3328.4	3287.8	3215.5	3184.0	3161.4
40°	3166.2	3129.9	3057.6	3017.5	2999.2
42.5°	3008.3	2972.0	2900.2	2854.7	2827.9
45°	2837.0	2805.5	2737.5	2688.2	2670.0
47.5°	2670.0	2638.4	2566.2	2516.4	2489.7
50°	2494.0	2471.5	2408.3	2345.1	2322.6
52.5°	2322.6	2291.0	2232.7	2182.9	2151.4
55°	2147.1	2119.8	2065.7	2011.6	1989.2
57.5°	1970.9	1948.4	1889.6	1835.6	1817.3
60°	1794.8	1777.2	1714.0	1664.2	1650.8
62.5°	1623.6	1592.0	1547.0	1502.0	1483.8
65°	1447.9	1420.6	1375.7	1335.0	1312.5
67.5°	1267.6	1244.6	1204.4	1172.8	1154.6
70°	1100.5	1082.4	1041.7	1010.1	992.4
72.5°	929.3	911.0	888.5	857.0	843.6
75°	757.5	748.9	725.9	699.1	708.2
77.5°	604.3	586.2	577.0	563.7	550.3
80°	451.2	446.4	437.4	424.0	414.8
82.5°	306.7	306.7	302.4	284.2	284.2
85°	184.7	180.4	176.1	162.2	157.9
87.5°	81.4	72.2	63.2	49.8	44.9
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9

TEST NUMBER: P920568

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7

TEST NUMBER: P920568

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-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	12.59	13.58	13.42	14.44	15.50	12.14	13.14	12.97	13.99	15.06
	3H	14.26	15.16	15.10	16.02	17.11	13.77	14.67	14.61	15.53	16.62
	4H	14.86	15.70	15.72	16.57	17.68	14.36	15.21	15.22	16.08	17.18
	6H	15.27	16.05	16.14	16.93	18.04	14.77	15.55	15.64	16.43	17.54
	8H	15.38	16.12	16.26	17.02	18.13	14.88	15.62	15.76	16.52	17.63
	12H	15.43	16.14	16.32	17.03	18.17	14.92	15.63	15.81	16.52	17.66
4H	2H	13.06	13.91	13.93	14.78	15.88	12.71	13.56	13.57	14.43	15.53
	3H	14.95	15.65	15.82	16.56	17.67	14.54	15.25	15.42	16.15	17.27
	4H	15.67	16.31	16.56	17.21	18.36	15.25	15.89	16.13	16.79	17.93
	6H	16.20	16.75	17.10	17.68	18.82	15.76	16.32	16.67	17.24	18.39
	8H	16.35	16.87	17.26	17.79	18.95	15.91	16.44	16.82	17.35	18.51
	12H	16.43	16.90	17.36	17.84	19.00	15.98	16.45	16.91	17.39	18.55
8H	4H	15.88	16.40	16.78	17.32	18.47	15.50	16.02	16.41	16.94	18.10
	6H	16.52	16.95	17.45	17.91	19.07	16.14	16.57	17.07	17.53	18.68
	8H	16.74	17.13	17.69	18.08	19.25	16.35	16.73	17.30	17.68	18.86
	12H	16.89	17.22	17.83	18.16	19.39	16.47	16.81	17.42	17.75	18.98
12H	4H	15.87	16.34	16.80	17.28	18.44	15.50	15.97	16.43	16.91	18.07
	6H	16.55	16.93	17.49	17.88	19.06	16.18	16.56	17.12	17.51	18.69
	8H	16.80	17.14	17.75	18.08	19.31	16.42	16.76	17.37	17.70	18.93