

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: P925953

Luminaire Tested: DFN2DIP-SQ4F0-110D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925953
REPORT IS A COMBINATION OF REPORTS P901643 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D090US950-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

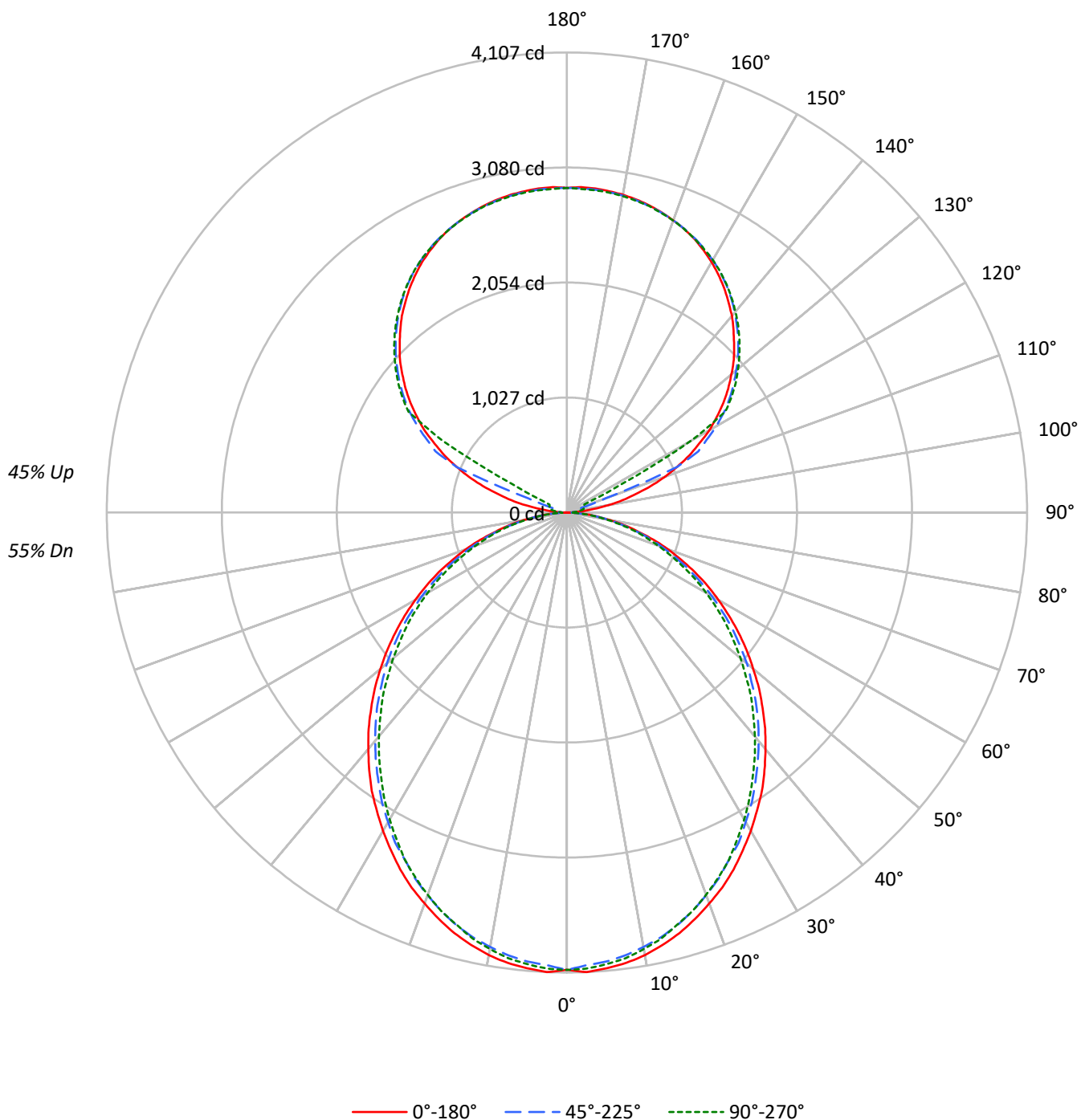
Lumens per Lamp: N/A
Luminaire Lumens: 18889.2 lumens
Efficiency: N/A
Efficacy: 109.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 171.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P925953

CATALOG NUMBER: DFN2DIP-SQ4F0-110D090US950-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P925953

CATALOG NUMBER: DFN2DIP-SQ4F0-110D090US950-FLLONL

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	108	108	108	108		101	101	101	101		86	86	86		73	73	73		61	61	61
1	99	95	91	87		92	88	85	81		76	73	71		64	62	61		54	52	51
2	90	83	76	71		83	77	71	67		66	62	59		56	53	51		47	45	43
3	82	73	65	59		76	68	61	56		58	53	49		50	46	43		42	39	37
4	75	64	56	50		70	60	53	47		52	46	42		44	40	37		37	34	32
5	69	57	49	43		64	54	46	41		47	41	36		40	35	32		34	30	28
6	64	51	43	37		59	48	41	35		42	36	32		36	32	28		31	27	24
7	59	46	38	33		55	44	36	31		38	32	28		33	28	25		28	24	22
8	55	42	34	29		51	40	33	28		35	29	25		30	25	22		26	22	19
9	51	39	31	26		47	36	29	25		32	26	22		28	23	20		24	20	18
10	48	35	28	23		44	33	27	22		29	24	20		26	21	18		22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2865	2865	2865
5°	2870	2826	2845
10°	2846	2788	2807
15°	2805	2743	2748
20°	2748	2680	2687
25°	2692	2604	2617
30°	2621	2534	2527
35°	2554	2451	2432
40°	2472	2367	2342
45°	2390	2282	2249
50°	2300	2194	2142
55°	2206	2092	2044
60°	2100	1971	1931
65°	1984	1846	1799
70°	1837	1693	1656
75°	1632	1510	1526
80°	1387	1277	1275
85°	1002	874	857

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2390 cd/sqm

TEST NUMBER: P925953

CATALOG NUMBER: DFN2DIP-SQ4F0-110D090US950-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	384.3	2.0
10°-20°	1081.3	5.7
20°-30°	1589.1	8.4
30°-40°	1845.7	9.8
40°-50°	1843.4	9.8
50°-60°	1607.4	8.5
60°-70°	1188.2	6.3
70°-80°	672.3	3.6
80°-90°	182.5	1.0
90°-100°	95.6	0.5
100°-110°	356.2	1.9
110°-120°	944.7	5.0
120°-130°	1566.8	8.3
130°-140°	1664.3	8.8
140°-150°	1546.8	8.2
150°-160°	1243.6	6.6
160°-170°	801.3	4.2
170°-180°	275.8	1.5
0°-30°	3054.8	16.2
0°-40°	4900.4	25.9
0°-60°	8351.2	44.2
0°-90°	10394.2	55.0
90°-120°	1396.4	7.4
90°-150°	6174.3	32.7
90°-180°	8495.0	45.0
0°-180°	18889.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4083	4083	4083	4083	4083	
5°	4083	4068	4024	4056	4048	388
15°	3887	3864	3812	3828	3809	1095
25°	3518	3487	3420	3428	3420	1619
35°	3035	2996	2933	2909	2890	1895
45°	2470	2442	2383	2340	2324	1906
55°	1869	1845	1798	1751	1732	1671
65°	1260	1237	1198	1162	1143	1246
75°	659	652	632	609	617	704
85°	161	157	153	141	138	179
90°	2	25	42	53	56	17
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	

TEST NUMBER: P925953

CATALOG NUMBER: DFN2DIP-SQ4F0-110D090US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4083.3	4083.3	4083.3	4083.3	4083.3
2.5°	4107.0	4087.4	4044.1	4083.3	4075.8
5°	4083.3	4067.9	4024.5	4055.7	4048.3
7.5°	4055.7	4032.5	3989.2	4020.8	4012.9
10°	4012.9	3985.3	3938.3	3969.5	3957.9
12.5°	3953.8	3930.4	3883.4	3902.9	3895.0
15°	3887.1	3863.7	3812.5	3828.3	3808.7
17.5°	3804.6	3781.3	3730.0	3749.6	3730.0
20°	3714.2	3690.8	3635.9	3647.5	3632.2
22.5°	3624.2	3588.8	3537.5	3537.5	3529.6
25°	3518.0	3486.8	3420.1	3427.6	3420.1
27.5°	3400.1	3372.6	3321.7	3310.1	3290.5
30°	3282.6	3250.9	3192.2	3180.5	3164.7
32.5°	3156.8	3133.5	3070.5	3046.8	3031.0
35°	3035.2	2996.0	2933.1	2909.3	2889.8
37.5°	2897.7	2862.3	2799.4	2771.8	2752.3
40°	2756.5	2724.8	2661.9	2626.9	2611.1
42.5°	2619.0	2587.3	2524.9	2485.3	2462.0
45°	2469.9	2442.3	2383.2	2340.4	2324.5
47.5°	2324.5	2297.0	2234.1	2190.8	2167.4
50°	2171.2	2151.7	2096.6	2041.7	2022.1
52.5°	2022.1	1994.5	1943.8	1900.4	1872.9
55°	1869.2	1845.4	1798.4	1751.3	1731.7
57.5°	1715.9	1696.3	1645.1	1597.9	1582.1
60°	1562.6	1547.2	1492.2	1448.8	1437.2
62.5°	1413.4	1386.0	1346.8	1307.6	1291.8
65°	1260.5	1236.8	1197.7	1162.3	1142.7
67.5°	1103.5	1083.6	1048.5	1021.1	1005.2
70°	958.1	942.3	906.9	879.4	863.9
72.5°	809.0	793.2	773.6	746.1	734.4
75°	659.4	652.0	631.9	608.7	616.6
77.5°	526.1	510.3	502.4	490.7	479.1
80°	392.9	388.7	380.7	369.1	361.2
82.5°	267.0	267.0	263.3	247.5	247.5
85°	160.8	157.0	153.3	141.2	137.5
87.5°	70.8	62.9	55.0	43.3	39.1
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6

TEST NUMBER: P925953

CATALOG NUMBER: DFN2DIP-SQ4F0-110D090US950-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7

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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	11.39	12.30	12.31	13.23	14.43	10.95	11.86	11.86	12.79	13.99
	3H	13.06	13.88	13.99	14.82	16.04	12.57	13.39	13.50	14.33	15.55
	4H	13.65	14.43	14.59	15.37	16.60	13.16	13.93	14.10	14.88	16.11
	6H	14.06	14.77	15.01	15.72	16.97	13.56	14.27	14.51	15.22	16.47
	8H	14.17	14.85	15.13	15.81	17.06	13.67	14.34	14.62	15.31	16.55
	12H	14.22	14.86	15.18	15.83	17.09	13.71	14.35	14.67	15.32	16.58
4H	2H	11.86	12.63	12.81	13.58	14.81	11.51	12.28	12.45	13.22	14.45
	3H	13.74	14.38	14.69	15.36	16.60	13.33	13.97	14.28	14.95	16.19
	4H	14.46	15.04	15.42	16.01	17.28	14.03	14.62	15.00	15.59	16.86
	6H	14.98	15.48	15.96	16.48	17.75	14.55	15.05	15.52	16.05	17.31
	8H	15.13	15.60	16.11	16.59	17.87	14.69	15.17	15.67	16.15	17.44
	12H	15.21	15.64	16.21	16.64	17.93	14.76	15.19	15.76	16.19	17.48
8H	4H	14.66	15.13	15.64	16.12	17.40	14.28	14.75	15.26	15.74	17.02
	6H	15.29	15.69	16.30	16.72	18.00	14.91	15.30	15.92	16.33	17.61
	8H	15.52	15.86	16.53	16.88	18.18	15.13	15.47	16.14	16.49	17.79
	12H	15.66	15.96	16.67	16.97	18.32	15.24	15.55	16.26	16.56	17.90
12H	4H	14.64	15.07	15.64	16.08	17.36	14.28	14.70	15.27	15.71	17.00
	6H	15.33	15.67	16.34	16.69	17.99	14.95	15.30	15.97	16.32	17.62
	8H	15.57	15.88	16.59	16.89	18.23	15.19	15.50	16.21	16.51	17.85

END OF REPORT