

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: P925956

Luminaire Tested: DFN2DIP-SQ4F0-110D100US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925956
REPORT IS A COMBINATION OF REPORTS P900141 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D100US950-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

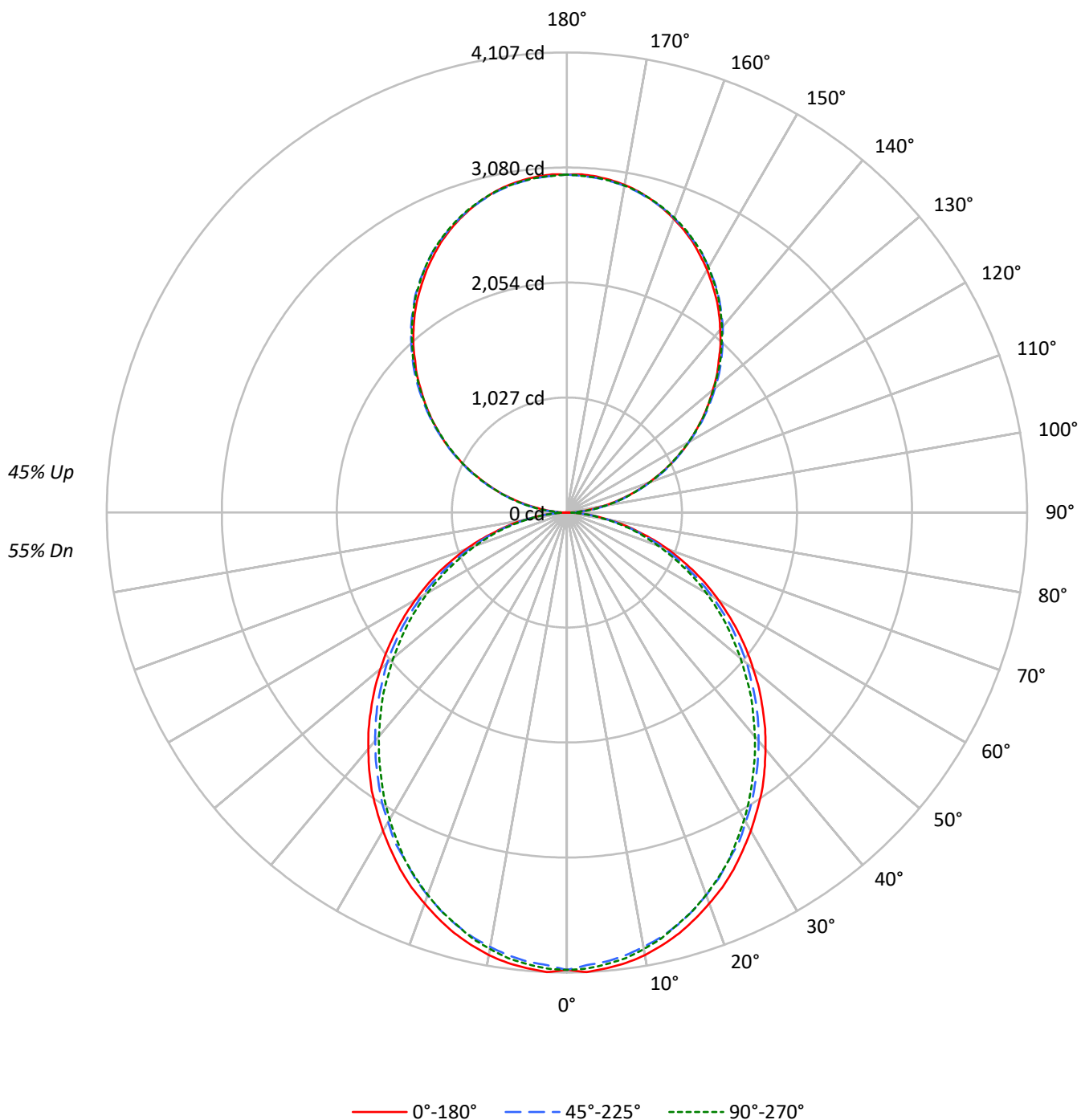
Lumens per Lamp: N/A
Luminaire Lumens: 18832.0 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 179.8
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

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20
RC	80					70					50					30					0
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	82		76	73	71		64	63	61		54	53	51
2	90	83	76	71		83	77	72	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		45	40	37		38	34	32
5	69	57	49	43		64	54	46	41		47	41	36		40	36	32		34	30	28
6	64	51	43	37		59	48	41	36		42	36	32		36	32	28		31	27	24
7	59	47	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	26	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

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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°	186.0	1.0
90°-100°	186.7	1.0
100°-110°	593.2	3.2
110°-120°	1015.2	5.4
120°-130°	1335.1	7.1
130°-140°	1498.6	8.0
140°-150°	1469.5	7.8
150°-160°	1232.7	6.5
160°-170°	817.5	4.3
170°-180°	285.7	1.5
0°-30°	3054.8	16.2
0°-40°	4900.4	26.0
0°-60°	8351.2	44.3
0°-90°	10397.7	55.2
90°-120°	1795.1	9.5
90°-150°	6098.3	32.4
90°-180°	8434.0	44.8
0°-180°	18832.0	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°	3	33	89	84	86	18
95°	133	158	163	163	158	148
105°	548	555	560	565	565	578
115°	1019	1033	1029	1026	1019	1008
125°	1482	1504	1497	1489	1486	1324
135°	1916	1945	1950	1948	1940	1481
145°	2327	2345	2360	2362	2352	1454
155°	2661	2668	2676	2689	2680	1225
165°	2894	2892	2892	2910	2897	817
175°	3012	3004	2999	3017	3002	286
180°	3017	3017	3017	3017	3017	

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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°	2.8	32.7	89.1	83.7	86.4
92.5°	56.4	76.4	79.2	81.9	81.9
95°	132.8	158.3	162.8	162.8	158.3
97.5°	221.0	244.7	254.7	254.7	254.7
100°	322.9	343.8	351.1	351.1	348.4
102.5°	430.3	445.7	455.7	458.4	455.7
105°	547.6	554.8	560.3	564.9	564.9
107.5°	664.0	675.0	675.0	676.8	664.0
110°	776.8	791.3	791.3	791.3	784.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	898.7	914.1	911.5	904.1	898.7
115°	1018.8	1033.3	1028.8	1026.0	1018.8
117.5°	1137.9	1158.0	1145.2	1137.9	1130.6
120°	1257.9	1278.0	1257.9	1257.9	1249.8
122.5°	1367.1	1392.6	1379.9	1372.6	1367.1
125°	1481.8	1504.5	1497.2	1489.0	1486.3
127.5°	1593.7	1621.8	1611.8	1600.9	1593.7
130°	1698.2	1730.9	1726.5	1720.9	1711.0
132.5°	1815.6	1841.0	1842.8	1830.2	1822.8
135°	1916.5	1944.7	1950.2	1947.5	1940.1
137.5°	2029.3	2052.1	2056.6	2054.8	2043.8
140°	2128.5	2151.2	2164.0	2164.0	2153.9
142.5°	2230.4	2253.1	2260.3	2263.1	2253.1
145°	2326.7	2344.9	2359.5	2362.2	2352.2
147.5°	2413.1	2435.9	2446.8	2451.4	2441.4
150°	2502.3	2517.8	2527.8	2535.9	2527.8
152.5°	2581.4	2596.9	2609.7	2619.7	2609.7
155°	2660.6	2667.9	2676.1	2688.8	2680.5
157.5°	2728.8	2734.3	2738.8	2757.0	2744.3
160°	2789.8	2795.2	2797.9	2813.3	2802.5
162.5°	2846.2	2846.2	2848.8	2866.1	2853.4
165°	2894.3	2891.6	2891.6	2909.8	2897.1
167.5°	2938.0	2929.8	2929.8	2948.1	2935.3
170°	2970.8	2963.5	2960.7	2979.0	2963.5
172.5°	2993.5	2986.2	2983.4	3001.7	2986.2
175°	3011.7	3004.4	2999.0	3017.1	3001.7
177.5°	3021.7	3014.4	3008.9	3024.4	3008.9
180°	3017.1	3017.1	3017.1	3017.1	3017.1

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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	11.41	12.32	12.32	13.25	14.44	10.96	11.87	11.87	12.80	14.00
	3H	13.08	13.89	14.00	14.83	16.05	12.59	13.40	13.51	14.34	15.56
	4H	13.67	14.44	14.61	15.39	16.61	13.18	13.95	14.11	14.89	16.12
	6H	14.08	14.79	15.02	15.74	16.98	13.58	14.29	14.52	15.24	16.48
	8H	14.18	14.86	15.14	15.83	17.07	13.68	14.36	14.64	15.33	16.57
	12H	14.24	14.88	15.20	15.84	17.11	13.73	14.37	14.69	15.33	16.60
4H	2H	11.88	12.65	12.82	13.59	14.82	11.52	12.29	12.46	13.24	14.47
	3H	13.75	14.40	14.70	15.37	16.61	13.34	13.99	14.30	14.96	16.21
	4H	14.47	15.06	15.43	16.03	17.30	14.05	14.64	15.01	15.60	16.87
	6H	14.99	15.50	15.97	16.49	17.76	14.56	15.07	15.54	16.06	17.33
	8H	15.15	15.62	16.12	16.61	17.89	14.71	15.18	15.69	16.17	17.45
	12H	15.22	15.65	16.22	16.65	17.94	14.77	15.20	15.77	16.21	17.49
8H	4H	14.67	15.15	15.65	16.13	17.41	14.30	14.77	15.27	15.76	17.04
	6H	15.31	15.70	16.31	16.73	18.01	14.93	15.32	15.93	16.35	17.63
	8H	15.53	15.88	16.55	16.90	18.19	15.14	15.49	16.15	16.50	17.80
	12H	15.67	15.98	16.69	16.99	18.33	15.26	15.57	16.28	16.57	17.92
12H	4H	14.66	15.09	15.66	16.09	17.38	14.29	14.72	15.29	15.72	17.01
	6H	15.34	15.69	16.35	16.70	18.00	14.97	15.32	15.98	16.33	17.63
	8H	15.59	15.89	16.60	16.90	18.25	15.21	15.51	16.22	16.52	17.86

END OF REPORT