

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: P920476

Luminaire Tested: DFN2DIP-SQ4F0-100D140US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920476
REPORT IS A COMBINATION OF REPORTS P900193 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US935-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

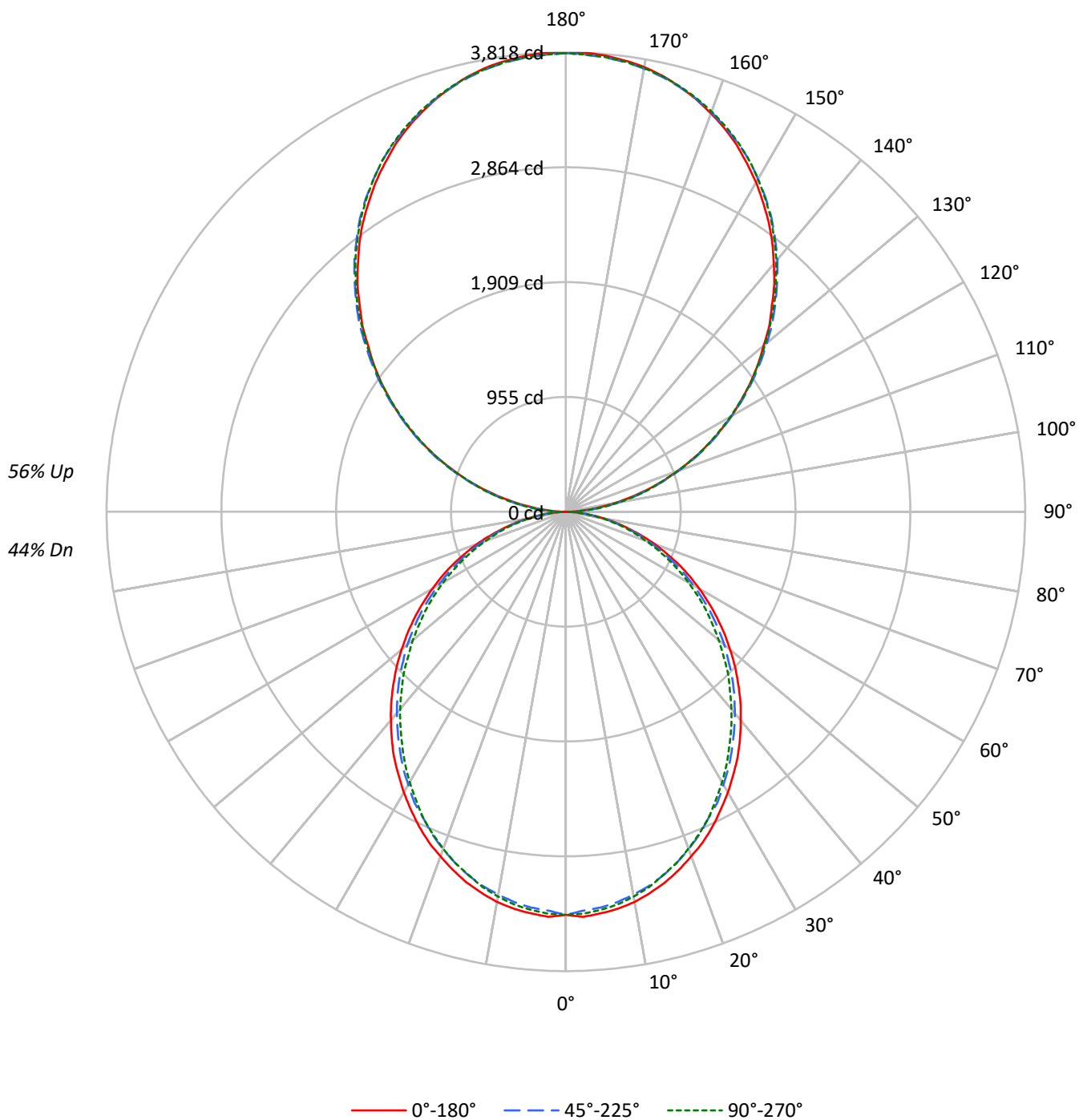
Lumens per Lamp: N/A
Luminaire Lumens: 19191.6 lumens
Efficiency: N/A
Efficacy: 96.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 198.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2351	2351	2351
5°	2354	2318	2334
10°	2335	2288	2303
15°	2301	2250	2255
20°	2254	2199	2205
25°	2208	2137	2147
30°	2150	2079	2073
35°	2096	2011	1995
40°	2028	1942	1921
45°	1961	1873	1845
50°	1887	1800	1758
55°	1810	1717	1677
60°	1723	1617	1585
65°	1628	1514	1476
70°	1507	1389	1359
75°	1339	1239	1252
80°	1138	1048	1046
85°	822	717	703

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3001 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.3	1.6
10°-20°	887.2	4.6
20°-30°	1303.8	6.8
30°-40°	1514.3	7.9
40°-50°	1512.4	7.9
50°-60°	1318.8	6.9
60°-70°	974.9	5.1
70°-80°	551.6	2.9
80°-90°	156.4	0.8
90°-100°	235.9	1.2
100°-110°	749.5	3.9
110°-120°	1282.7	6.7
120°-130°	1686.9	8.8
130°-140°	1893.5	9.9
140°-150°	1856.8	9.7
150°-160°	1557.6	8.1
160°-170°	1033.0	5.4
170°-180°	361.0	1.9
0°-30°	2506.3	13.1
0°-40°	4020.6	20.9
0°-60°	6851.8	35.7
0°-90°	8534.7	44.5
90°-120°	2268.1	11.8
90°-150°	7705.3	40.1
90°-180°	10657.0	55.5
0°-180°	19191.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3350	3350	3350	3350	3350	
5°	3350	3338	3302	3328	3322	318
15°	3189	3170	3128	3141	3125	898
25°	2886	2861	2806	2812	2806	1328
35°	2490	2458	2406	2387	2371	1555
45°	2026	2004	1955	1920	1907	1564
55°	1534	1514	1476	1437	1421	1371
65°	1034	1015	983	954	938	1023
75°	541	535	518	499	506	578
85°	132	129	126	116	113	147
90°	3	41	113	106	109	19
95°	168	200	206	206	200	187
105°	692	701	708	714	714	730
115°	1287	1306	1300	1296	1287	1273
125°	1872	1901	1892	1881	1878	1673
135°	2422	2457	2464	2461	2451	1872
145°	2940	2963	2981	2985	2972	1837
155°	3362	3371	3381	3397	3387	1547
165°	3657	3654	3654	3677	3660	1032
175°	3805	3796	3789	3812	3793	362
180°	3812	3812	3812	3812	3812	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3350.2	3350.2	3350.2	3350.2	3350.2
2.5°	3369.7	3353.6	3318.0	3350.2	3344.0
5°	3350.2	3337.6	3302.0	3327.7	3321.5
7.5°	3327.7	3308.5	3272.9	3298.9	3292.5
10°	3292.5	3269.9	3231.2	3256.9	3247.3
12.5°	3243.9	3224.8	3186.1	3202.2	3195.7
15°	3189.2	3170.1	3128.0	3141.0	3125.0
17.5°	3121.5	3102.4	3060.3	3076.4	3060.3
20°	3047.3	3028.2	2983.1	2992.7	2980.0
22.5°	2973.5	2944.5	2902.4	2902.4	2896.0
25°	2886.4	2860.8	2806.1	2812.2	2806.1
27.5°	2789.6	2767.1	2725.4	2715.8	2699.7
30°	2693.3	2667.3	2619.1	2609.5	2596.5
32.5°	2590.1	2570.9	2519.3	2499.8	2486.8
35°	2490.3	2458.1	2406.5	2387.0	2370.9
37.5°	2377.5	2348.4	2296.8	2274.2	2258.1
40°	2261.6	2235.6	2184.0	2155.3	2142.3
42.5°	2148.8	2122.8	2071.6	2039.1	2020.0
45°	2026.4	2003.9	1955.3	1920.1	1907.2
47.5°	1907.2	1884.6	1833.0	1797.4	1778.3
50°	1781.4	1765.3	1720.2	1675.1	1659.1
52.5°	1659.1	1636.5	1594.7	1559.3	1536.7
55°	1533.6	1514.2	1475.5	1436.8	1420.8
57.5°	1407.8	1391.7	1349.7	1311.1	1298.1
60°	1282.0	1269.4	1224.3	1188.7	1179.1
62.5°	1159.7	1137.1	1105.0	1072.9	1059.9
65°	1034.2	1014.8	982.7	953.6	937.5
67.5°	905.4	889.0	860.3	837.8	824.7
70°	786.1	773.1	744.1	721.5	708.9
72.5°	663.7	650.7	634.7	612.2	602.5
75°	541.1	534.9	518.5	499.4	505.8
77.5°	431.7	418.7	412.2	402.6	393.0
80°	322.3	318.9	312.4	302.8	296.4
82.5°	219.1	219.1	216.0	203.0	203.0
85°	131.9	128.9	125.8	115.9	112.8
87.5°	58.1	51.6	45.1	35.6	32.1
90°	3.4	41.4	112.6	105.7	109.2
92.5°	71.3	96.5	100.0	103.4	103.4
95°	167.8	200.0	205.7	205.7	200.0
97.5°	279.3	309.2	321.8	321.8	321.8
100°	408.0	434.5	443.6	443.6	440.1
102.5°	543.6	563.2	575.8	579.3	575.8
105°	691.9	701.1	708.0	713.7	713.7
107.5°	839.0	852.8	852.8	855.1	839.0
110°	981.5	999.9	999.9	999.9	990.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1135.5	1155.0	1151.6	1142.4	1135.5
115°	1287.2	1305.6	1299.8	1296.4	1287.2
117.5°	1437.8	1463.1	1447.0	1437.8	1428.6
120°	1589.5	1614.8	1589.5	1589.5	1579.2
122.5°	1727.4	1759.5	1743.5	1734.3	1727.4
125°	1872.2	1900.9	1891.7	1881.4	1877.9
127.5°	2013.5	2049.2	2036.5	2022.7	2013.5
130°	2145.7	2187.1	2181.3	2174.5	2161.8
132.5°	2294.0	2326.2	2328.5	2312.4	2303.2
135°	2421.6	2457.2	2464.1	2460.6	2451.4
137.5°	2564.1	2592.8	2598.6	2596.3	2582.5
140°	2689.3	2718.1	2734.2	2734.2	2721.5
142.5°	2818.0	2846.8	2856.0	2859.5	2846.8
145°	2939.9	2962.9	2981.3	2984.7	2972.1
147.5°	3049.1	3077.8	3091.6	3097.4	3084.7
150°	3161.7	3181.2	3193.9	3204.2	3193.9
152.5°	3261.7	3281.3	3297.4	3309.9	3297.4
155°	3361.7	3370.9	3381.2	3397.3	3387.0
157.5°	3447.9	3454.8	3460.5	3483.5	3467.4
160°	3524.9	3531.8	3535.3	3554.8	3540.9
162.5°	3596.1	3596.1	3599.6	3621.4	3605.3
165°	3657.1	3653.6	3653.6	3676.6	3660.5
167.5°	3712.2	3701.9	3701.9	3724.8	3708.7
170°	3753.6	3744.4	3740.9	3763.9	3744.4
172.5°	3782.4	3773.2	3769.7	3792.7	3773.2
175°	3805.4	3796.1	3789.3	3812.2	3792.7
177.5°	3817.9	3808.8	3801.9	3821.4	3801.9
180°	3812.2	3812.2	3812.2	3812.2	3812.2

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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	9.72	10.53	10.72	11.55	12.89	9.27	10.09	10.28	11.10	12.45
	3H	11.38	12.11	12.39	13.13	14.50	10.89	11.62	11.90	12.64	14.01
	4H	11.97	12.66	12.99	13.68	15.06	11.47	12.16	12.50	13.19	14.57
	6H	12.37	13.01	13.41	14.04	15.42	11.87	12.51	12.90	13.53	14.92
	8H	12.47	13.08	13.52	14.13	15.51	11.97	12.58	13.01	13.62	15.01
	12H	12.52	13.10	13.57	14.14	15.55	12.01	12.59	13.06	13.63	15.04
4H	2H	10.17	10.87	11.21	11.89	13.27	9.82	10.51	10.85	11.54	12.91
	3H	12.04	12.62	13.08	13.67	15.06	11.63	12.21	12.67	13.26	14.65
	4H	12.76	13.28	13.80	14.33	15.74	12.33	12.86	13.38	13.91	15.32
	6H	13.27	13.73	14.33	14.80	16.20	12.84	13.30	13.90	14.36	15.77
	8H	13.42	13.85	14.48	14.91	16.33	12.99	13.41	14.04	14.47	15.89
	12H	13.50	13.88	14.57	14.96	16.38	13.05	13.43	14.12	14.51	15.93
8H	4H	12.95	13.37	14.01	14.43	15.86	12.57	13.00	13.63	14.06	15.48
	6H	13.58	13.93	14.67	15.04	16.46	13.20	13.55	14.28	14.65	16.07
	8H	13.81	14.11	14.90	15.20	16.64	13.41	13.72	14.50	14.81	16.25
	12H	13.94	14.21	15.03	15.29	16.77	13.53	13.80	14.62	14.88	16.36
12H	4H	12.93	13.32	14.01	14.39	15.82	12.57	12.95	13.64	14.02	15.45
	6H	13.61	13.92	14.70	15.01	16.45	13.24	13.55	14.33	14.64	16.08
	8H	13.86	14.13	14.95	15.21	16.69	13.48	13.75	14.57	14.83	16.31