

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: P917856

Luminaire Tested: DFN2DIP-SQ4F0-140D140US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917856
REPORT IS A COMBINATION OF REPORTS P900199 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D140US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

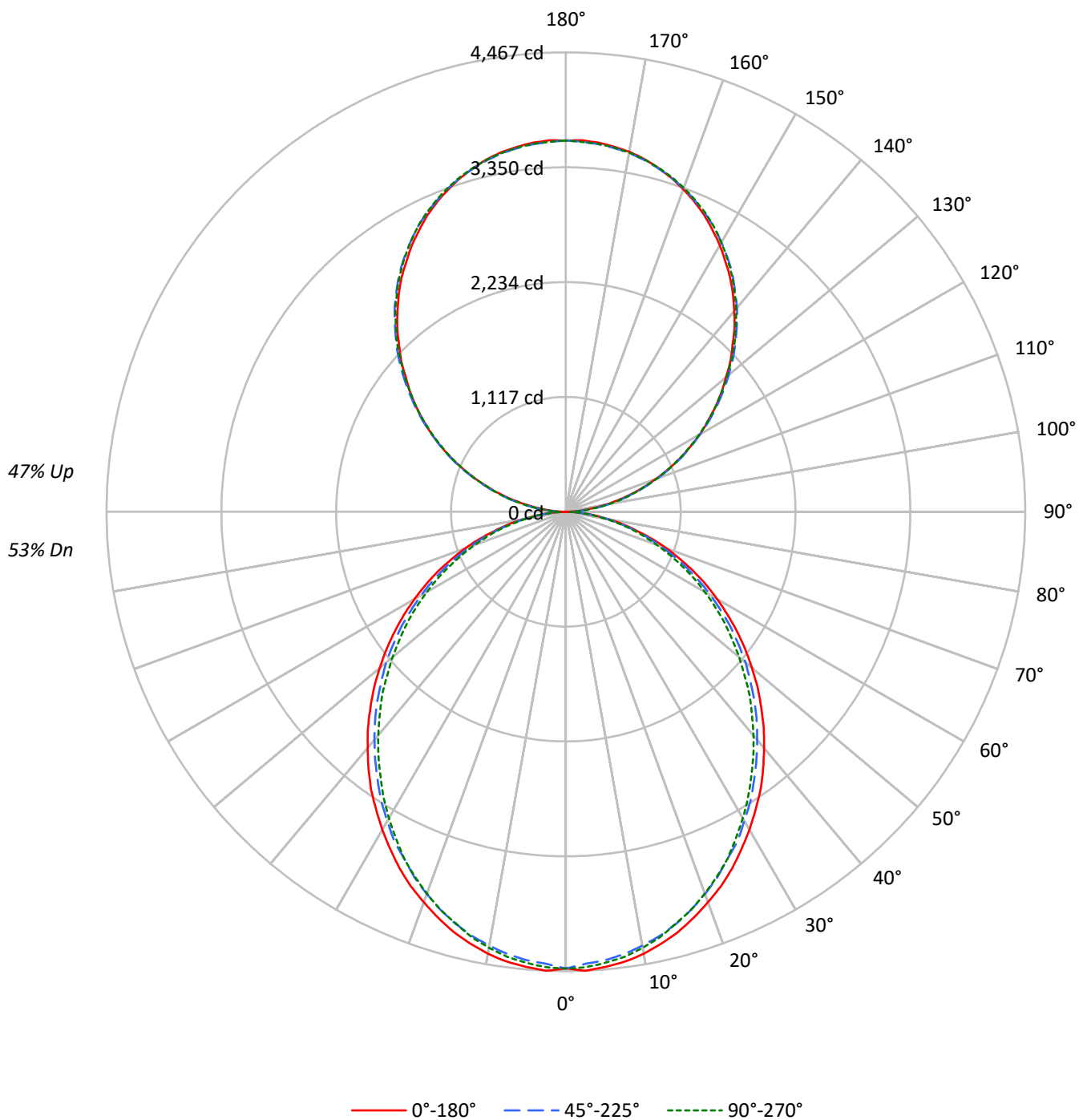
Lumens per Lamp: N/A
Luminaire Lumens: 21401.6 lumens
Efficiency: N/A
Efficacy: 85.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 249.6
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

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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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3116	3116	3116
5°	3121	3074	3095
10°	3096	3033	3053
15°	3050	2983	2989
20°	2989	2915	2923
25°	2928	2832	2846
30°	2851	2756	2748
35°	2778	2665	2645
40°	2689	2574	2547
45°	2599	2483	2446
50°	2502	2387	2330
55°	2400	2276	2223
60°	2284	2144	2101
65°	2158	2007	1956
70°	1998	1841	1801
75°	1775	1642	1660
80°	1508	1389	1386
85°	1090	950	932

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2842 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	418.0	2.0
10°-20°	1176.1	5.5
20°-30°	1728.5	8.1
30°-40°	2007.5	9.4
40°-50°	2005.0	9.4
50°-60°	1748.3	8.2
60°-70°	1292.4	6.0
70°-80°	731.2	3.4
80°-90°	203.2	0.9
90°-100°	223.4	1.0
100°-110°	709.8	3.3
110°-120°	1214.6	5.7
120°-130°	1597.4	7.5
130°-140°	1793.0	8.4
140°-150°	1758.2	8.2
150°-160°	1474.9	6.9
160°-170°	978.1	4.6
170°-180°	341.9	1.6
0°-30°	3322.6	15.5
0°-40°	5330.1	24.9
0°-60°	9083.5	42.4
0°-90°	11310.3	52.8
90°-120°	2147.7	10.0
90°-150°	7296.4	34.1
90°-180°	10091.0	47.2
0°-180°	21401.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4441	4441	4441	4441	4441	
5°	4441	4424	4377	4411	4403	422
15°	4228	4202	4147	4164	4143	1191
25°	3826	3792	3720	3728	3720	1761
35°	3301	3259	3190	3164	3143	2062
45°	2686	2657	2592	2546	2528	2073
55°	2033	2007	1956	1905	1884	1818
65°	1371	1345	1303	1264	1243	1356
75°	717	709	687	662	671	766
85°	175	171	167	154	150	195
90°	3	39	107	100	103	21
95°	159	189	195	195	189	177
105°	655	664	670	676	676	691
115°	1219	1236	1231	1228	1219	1206
125°	1773	1800	1791	1782	1778	1584
135°	2293	2327	2333	2330	2321	1772
145°	2784	2806	2823	2826	2814	1739
155°	3183	3192	3202	3217	3207	1465
165°	3463	3460	3460	3482	3466	977
175°	3603	3595	3588	3610	3591	342
180°	3610	3610	3610	3610	3610	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4441.3	4441.3	4441.3	4441.3	4441.3
2.5°	4467.1	4445.8	4398.7	4441.3	4433.2
5°	4441.3	4424.5	4377.4	4411.4	4403.3
7.5°	4411.4	4386.1	4338.9	4373.3	4364.7
10°	4364.7	4334.9	4283.7	4317.7	4304.9
12.5°	4300.4	4275.0	4223.8	4245.1	4236.5
15°	4227.9	4202.5	4146.8	4164.1	4142.7
17.5°	4138.2	4112.9	4057.1	4078.4	4057.1
20°	4039.9	4014.5	3954.7	3967.4	3950.6
22.5°	3942.0	3903.5	3847.7	3847.7	3839.2
25°	3826.4	3792.4	3720.0	3728.1	3720.0
27.5°	3698.2	3668.4	3613.1	3600.4	3579.1
30°	3570.4	3536.0	3472.1	3459.5	3442.2
32.5°	3433.6	3408.3	3339.8	3314.0	3296.7
35°	3301.3	3258.7	3190.3	3164.5	3143.1
37.5°	3151.8	3113.3	3044.8	3015.0	2993.6
40°	2998.2	2963.8	2895.3	2857.3	2840.0
42.5°	2848.7	2814.2	2746.3	2703.2	2677.8
45°	2686.4	2656.6	2592.2	2545.5	2528.3
47.5°	2528.3	2498.4	2430.0	2382.9	2357.5
50°	2361.6	2340.3	2280.5	2220.6	2199.3
52.5°	2199.3	2169.4	2114.1	2067.0	2037.2
55°	2033.1	2007.3	1956.1	1904.9	1883.6
57.5°	1866.3	1845.0	1789.3	1738.1	1720.9
60°	1699.6	1682.9	1623.0	1575.9	1563.2
62.5°	1537.4	1507.5	1464.8	1422.3	1405.1
65°	1371.1	1345.2	1302.7	1264.1	1242.8
67.5°	1200.3	1178.5	1140.4	1110.5	1093.3
70°	1042.1	1024.9	986.4	956.5	939.7
72.5°	880.0	862.7	841.4	811.5	798.8
75°	717.3	709.1	687.4	662.0	670.6
77.5°	572.3	555.1	546.4	533.8	521.1
80°	427.3	422.7	414.2	401.5	392.8
82.5°	290.4	290.4	286.3	269.1	269.1
85°	174.9	170.8	166.7	153.6	149.5
87.5°	77.0	68.4	59.8	47.1	42.6
90°	3.3	39.2	106.6	100.1	103.4
92.5°	67.5	91.4	94.7	97.9	97.9
95°	158.9	189.4	194.8	194.8	189.4
97.5°	264.5	292.8	304.8	304.8	304.8
100°	386.4	411.4	420.0	420.0	416.8
102.5°	514.8	533.3	545.3	548.5	545.3
105°	655.2	663.9	670.4	675.8	675.8
107.5°	794.4	807.6	807.6	809.7	794.4
110°	929.4	946.8	946.8	946.8	938.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1075.2	1093.7	1090.5	1081.7	1075.2
115°	1218.9	1236.3	1230.9	1227.6	1218.9
117.5°	1361.5	1385.4	1370.2	1361.5	1352.7
120°	1505.1	1529.1	1505.1	1505.1	1495.3
122.5°	1635.7	1666.1	1651.0	1642.3	1635.7
125°	1772.9	1800.0	1791.3	1781.5	1778.2
127.5°	1906.7	1940.4	1928.4	1915.4	1906.7
130°	2031.8	2071.0	2065.6	2059.0	2047.1
132.5°	2172.2	2202.7	2204.9	2189.6	2180.9
135°	2293.0	2326.8	2333.3	2330.0	2321.3
137.5°	2428.0	2455.2	2460.7	2458.5	2445.4
140°	2546.6	2573.8	2589.1	2589.1	2577.1
142.5°	2668.5	2695.7	2704.4	2707.7	2695.7
145°	2783.8	2805.6	2823.1	2826.3	2814.3
147.5°	2887.2	2914.4	2927.5	2933.0	2921.0
150°	2993.9	3012.4	3024.3	3034.1	3024.3
152.5°	3088.6	3107.1	3122.3	3134.3	3122.3
155°	3183.3	3192.0	3201.8	3217.0	3207.2
157.5°	3264.9	3271.4	3276.8	3298.6	3283.4
160°	3337.8	3344.4	3347.6	3366.1	3353.0
162.5°	3405.3	3405.3	3408.5	3429.2	3414.0
165°	3463.0	3459.7	3459.7	3481.5	3466.2
167.5°	3515.2	3505.4	3505.4	3527.1	3511.9
170°	3554.4	3545.7	3542.4	3564.2	3545.7
172.5°	3581.6	3572.9	3569.6	3591.4	3572.9
175°	3603.4	3594.6	3588.1	3609.9	3591.4
177.5°	3615.3	3606.6	3600.1	3618.5	3600.1
180°	3609.9	3609.9	3609.9	3609.9	3609.9

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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	11.49	12.38	12.42	13.33	14.56	11.05	11.93	11.98	12.88	14.11
	3H	13.16	13.95	14.10	14.91	16.17	12.67	13.46	13.61	14.42	15.68
	4H	13.75	14.50	14.71	15.47	16.73	13.26	14.01	14.21	14.97	16.23
	6H	14.16	14.85	15.12	15.82	17.09	13.65	14.35	14.62	15.32	16.59
	8H	14.26	14.92	15.24	15.91	17.18	13.76	14.42	14.74	15.41	16.68
	12H	14.31	14.94	15.29	15.92	17.22	13.80	14.43	14.78	15.41	16.71
4H	2H	11.96	12.71	12.92	13.67	14.94	11.60	12.36	12.57	13.32	14.58
	3H	13.83	14.46	14.80	15.45	16.73	13.42	14.05	14.40	15.04	16.32
	4H	14.55	15.12	15.53	16.11	17.41	14.12	14.70	15.11	15.69	16.99
	6H	15.07	15.56	16.06	16.57	17.87	14.64	15.13	15.63	16.14	17.44
	8H	15.22	15.68	16.22	16.69	18.00	14.78	15.25	15.78	16.25	17.56
	12H	15.30	15.72	16.31	16.74	18.05	14.85	15.27	15.86	16.29	17.60
8H	4H	14.75	15.21	15.74	16.21	17.53	14.37	14.83	15.37	15.84	17.15
	6H	15.38	15.77	16.41	16.81	18.12	15.00	15.38	16.02	16.43	17.74
	8H	15.61	15.95	16.64	16.98	18.31	15.22	15.55	16.25	16.59	17.92
	12H	15.74	16.04	16.78	17.07	18.44	15.33	15.63	16.37	16.66	18.03
12H	4H	14.73	15.15	15.75	16.17	17.49	14.37	14.78	15.38	15.80	17.12
	6H	15.41	15.75	16.44	16.78	18.11	15.04	15.38	16.07	16.41	17.74
	8H	15.66	15.96	16.69	16.98	18.36	15.28	15.58	16.31	16.60	17.98

END OF REPORT