

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: P917833

Luminaire Tested: DFN2DIP-SQ4F0-140D070US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917833
REPORT IS A COMBINATION OF REPORTS P901611 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D070US930-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

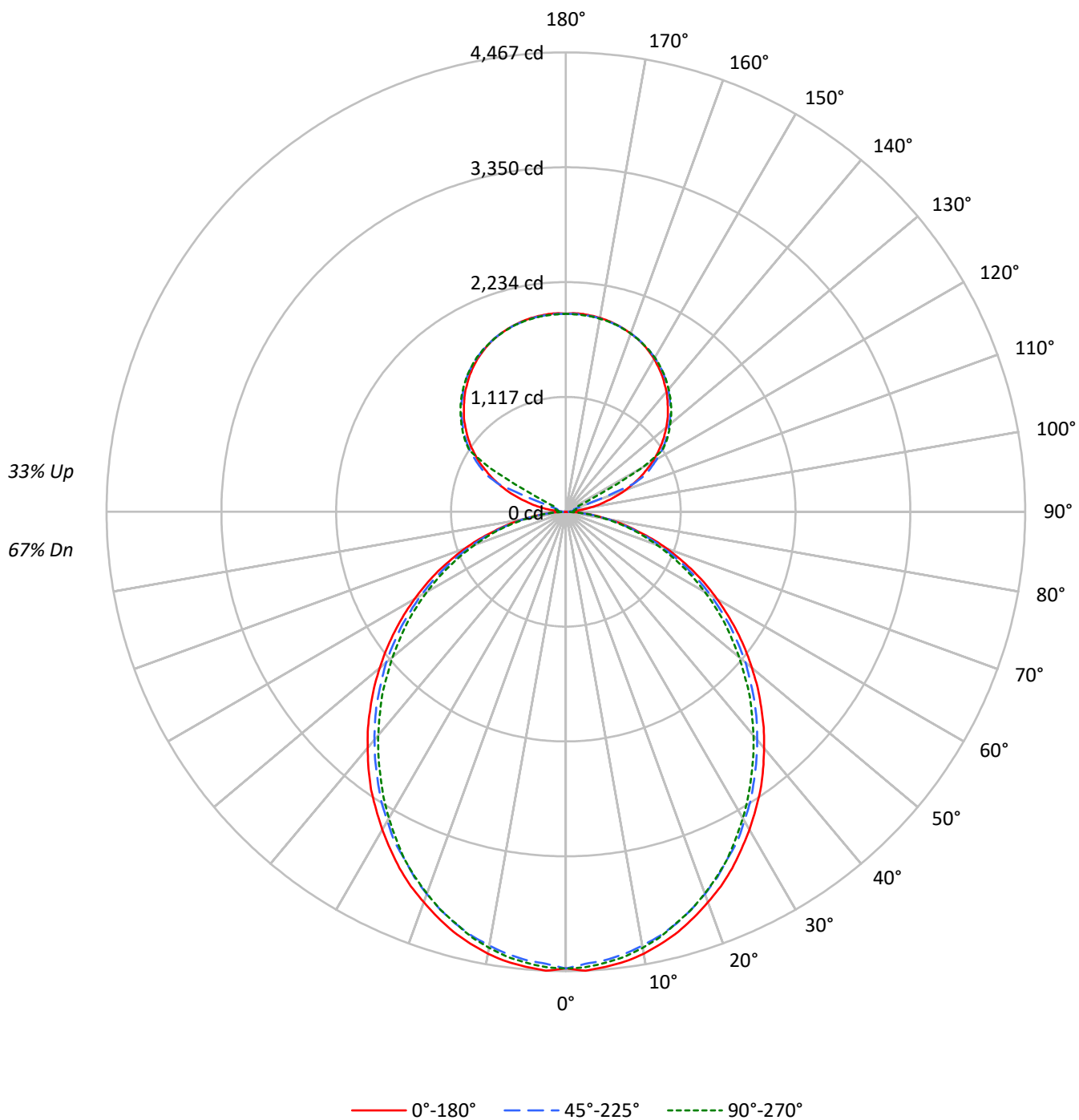
Lumens per Lamp: N/A
Luminaire Lumens: 16950.0 lumens
Efficiency: N/A
Efficacy: 86.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 196
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

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: 0°

Vertical Angle: 45°

Luminance: 2599 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	418.0	2.5
10°-20°	1176.1	6.9
20°-30°	1728.5	10.2
30°-40°	2007.5	11.8
40°-50°	2005.0	11.8
50°-60°	1748.3	10.3
60°-70°	1292.4	7.6
70°-80°	731.2	4.3
80°-90°	196.4	1.2
90°-100°	63.5	0.4
100°-110°	236.8	1.4
110°-120°	627.9	3.7
120°-130°	1041.5	6.1
130°-140°	1106.3	6.5
140°-150°	1028.1	6.1
150°-160°	826.6	4.9
160°-170°	532.6	3.1
170°-180°	183.3	1.1
0°-30°	3322.6	19.6
0°-40°	5330.1	31.4
0°-60°	9083.5	53.6
0°-90°	11303.4	66.7
90°-120°	928.2	5.5
90°-150°	4104.1	24.2
90°-180°	5647.0	33.3
0°-180°	16950.0	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°	1	17	28	35	38	16
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

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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°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

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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	12.65	13.68	13.45	14.50	15.51	12.20	13.24	13.00	14.06	15.07
	3H	14.32	15.25	15.14	16.08	17.12	13.83	14.76	14.65	15.59	16.63
	4H	14.92	15.80	15.75	16.64	17.69	14.43	15.31	15.26	16.14	17.20
	6H	15.33	16.14	16.18	16.99	18.06	14.83	15.64	15.68	16.49	17.56
	8H	15.45	16.22	16.30	17.08	18.15	14.94	15.72	15.79	16.58	17.65
	12H	15.50	16.24	16.36	17.10	18.19	14.99	15.73	15.85	16.59	17.68
4H	2H	13.13	14.01	13.96	14.85	15.90	12.77	13.65	13.61	14.49	15.54
	3H	15.01	15.75	15.86	16.62	17.69	14.61	15.34	15.45	16.21	17.28
	4H	15.74	16.41	16.60	17.28	18.37	15.32	15.98	16.17	16.85	17.95
	6H	16.27	16.85	17.14	17.74	18.84	15.84	16.41	16.71	17.31	18.40
	8H	16.42	16.96	17.30	17.85	18.96	15.99	16.53	16.86	17.42	18.53
	12H	16.51	16.99	17.41	17.90	19.02	16.06	16.54	16.96	17.45	18.57
8H	4H	15.95	16.49	16.83	17.38	18.49	15.57	16.11	16.45	17.00	18.11
	6H	16.59	17.04	17.50	17.97	19.08	16.21	16.66	17.12	17.59	18.70
	8H	16.82	17.22	17.73	18.14	19.27	16.43	16.82	17.34	17.75	18.87
	12H	16.96	17.31	17.88	18.23	19.41	16.55	16.90	17.47	17.82	18.99
12H	4H	15.94	16.43	16.84	17.34	18.45	15.58	16.06	16.47	16.97	18.09
	6H	16.63	17.02	17.54	17.95	19.07	16.25	16.65	17.17	17.57	18.70
	8H	16.88	17.23	17.80	18.14	19.32	16.50	16.85	17.42	17.76	18.94