

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: P914901

Luminaire Tested: DFN2DIP-SQ4F0-070D100US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914901
REPORT IS A COMBINATION OF REPORTS P901653 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D100US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

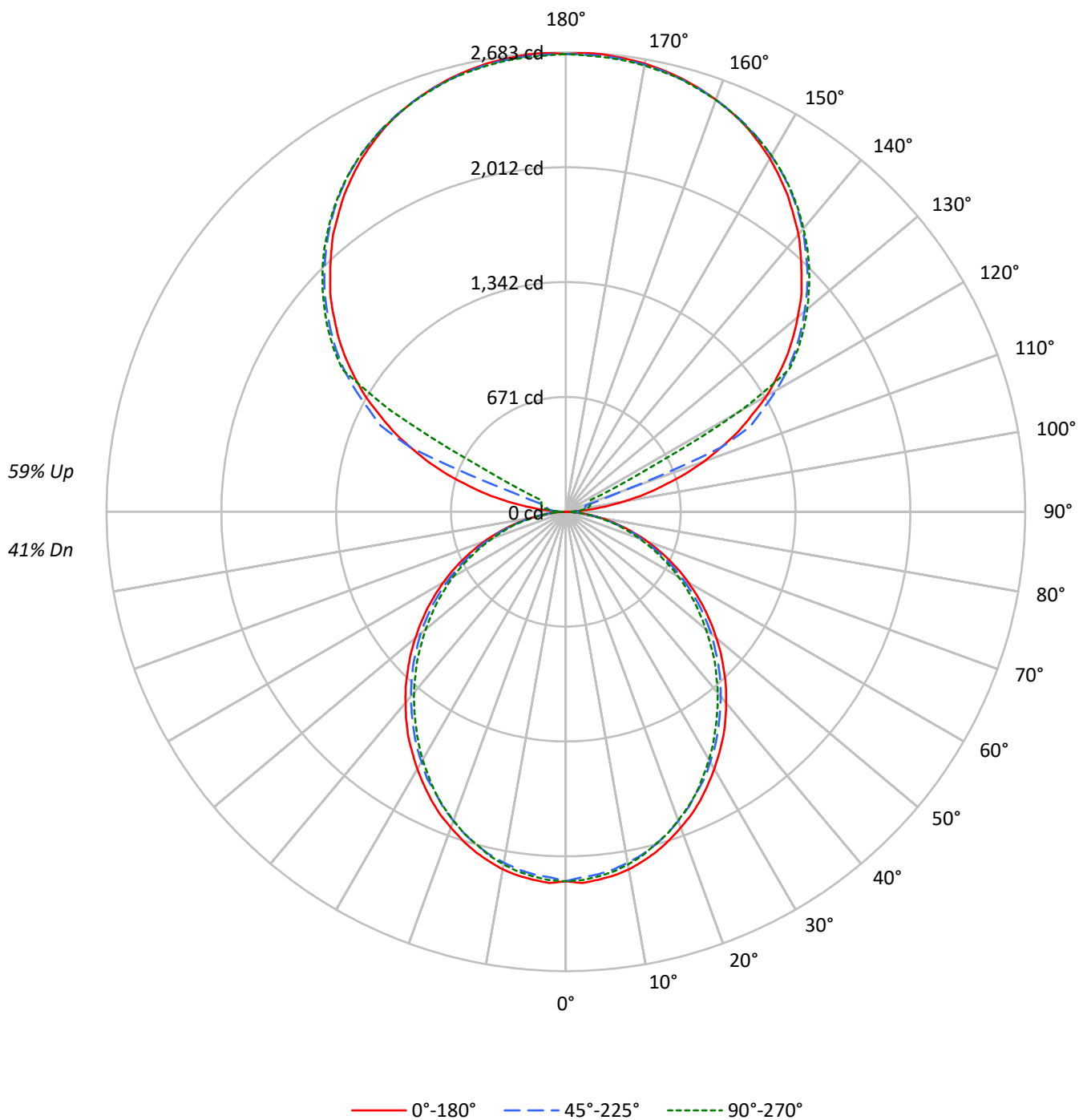
Lumens per Lamp: N/A
Luminaire Lumens: 13332.4 lumens
Efficiency: N/A
Efficacy: 98.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 136
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	84	87	84	80	77	69	66	64	55	54	52	42	41	41
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	39	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1514	1514	1514
5°	1516	1493	1503
10°	1504	1473	1483
15°	1482	1449	1452
20°	1452	1416	1420
25°	1422	1376	1383
30°	1385	1339	1335
35°	1350	1295	1285
40°	1306	1251	1237
45°	1263	1206	1189
50°	1215	1160	1132
55°	1166	1106	1080
60°	1110	1041	1021
65°	1049	975	950
70°	971	894	875
75°	863	798	806
80°	733	675	673
85°	530	462	452

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1432 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	1.5
10°-20°	571.4	4.3
20°-30°	839.7	6.3
30°-40°	975.3	7.3
40°-50°	974.1	7.3
50°-60°	849.4	6.4
60°-70°	627.9	4.7
70°-80°	355.2	2.7
80°-90°	98.5	0.7
90°-100°	88.1	0.7
100°-110°	328.6	2.5
110°-120°	871.6	6.5
120°-130°	1445.6	10.8
130°-140°	1535.6	11.5
140°-150°	1427.1	10.7
150°-160°	1147.4	8.6
160°-170°	739.3	5.5
170°-180°	254.5	1.9
0°-30°	1614.2	12.1
0°-40°	2589.5	19.4
0°-60°	4412.9	33.1
0°-90°	5494.5	41.2
90°-120°	1288.4	9.7
90°-150°	5696.7	42.7
90°-180°	7838.0	58.8
0°-180°	13332.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2127	2143	2139	205
15°	2054	2042	2015	2023	2013	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1002
45°	1305	1291	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	2	23	39	48	52	12
95°	126	62	75	85	83	149
105°	588	646	118	139	147	628
115°	1112	1145	1194	298	159	1095
125°	1573	1598	1635	1648	1654	1403
135°	1946	1977	1994	2014	2010	1503
145°	2258	2256	2288	2302	2292	1412
155°	2486	2469	2492	2503	2488	1146
165°	2619	2608	2614	2627	2614	740
175°	2679	2666	2670	2683	2664	255
180°	2674	2674	2674	2674	2674	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.7	2157.7	2157.7	2157.7	2157.7
2.5°	2170.3	2159.9	2137.0	2157.7	2153.7
5°	2157.7	2149.6	2126.7	2143.2	2139.2
7.5°	2143.2	2130.8	2107.9	2124.7	2120.5
10°	2120.5	2105.9	2081.1	2097.6	2091.4
12.5°	2089.2	2076.9	2052.1	2062.4	2058.2
15°	2054.0	2041.7	2014.6	2023.0	2012.6
17.5°	2010.4	1998.1	1971.0	1981.4	1971.0
20°	1962.6	1950.4	1921.3	1927.5	1919.3
22.5°	1915.1	1896.4	1869.3	1869.3	1865.1
25°	1859.0	1842.5	1807.3	1811.2	1807.3
27.5°	1796.7	1782.2	1755.3	1749.1	1738.8
30°	1734.6	1717.8	1686.9	1680.7	1672.3
32.5°	1668.1	1655.8	1622.5	1610.0	1601.6
35°	1603.8	1583.2	1549.9	1537.4	1527.0
37.5°	1531.2	1512.5	1479.2	1464.7	1454.4
40°	1456.6	1439.9	1406.6	1388.1	1379.7
42.5°	1383.9	1367.2	1334.2	1313.3	1300.9
45°	1305.1	1290.6	1259.3	1236.7	1228.3
47.5°	1228.3	1213.8	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.9	1068.5
52.5°	1068.5	1054.0	1027.1	1004.2	989.7
55°	987.7	975.2	950.3	925.4	915.0
57.5°	906.7	896.4	869.3	844.4	836.1
60°	825.7	817.5	788.5	765.6	759.5
62.5°	746.9	732.4	711.7	691.0	682.6
65°	666.1	653.5	632.9	614.2	603.8
67.5°	583.1	572.6	554.1	539.6	531.2
70°	506.3	498.0	479.2	464.7	456.5
72.5°	427.5	419.1	408.8	394.3	388.1
75°	348.5	344.5	333.9	321.6	325.8
77.5°	278.1	269.7	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.0	190.8
82.5°	141.1	141.1	139.1	130.8	130.8
85°	85.0	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.9	20.7
90°	1.8	23.2	38.6	48.5	52.1
92.5°	48.5	40.6	46.4	50.3	52.1
95°	125.6	61.8	75.3	85.2	83.2
97.5°	226.2	67.7	98.5	104.5	106.4
100°	342.5	77.4	110.3	125.6	129.6
102.5°	470.0	466.4	114.2	135.3	141.2
105°	588.1	646.2	118.1	139.2	147.0
107.5°	725.5	773.7	122.0	143.1	150.9
110°	857.1	897.5	338.6	145.2	152.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	980.9	1015.6	982.8	148.9	154.9
115°	1112.3	1145.2	1193.7	297.9	158.8
117.5°	1226.5	1265.1	1298.1	1021.4	514.6
120°	1354.2	1383.1	1418.1	1441.3	1180.1
122.5°	1462.4	1493.4	1532.2	1543.7	1545.8
125°	1572.7	1598.0	1634.7	1648.3	1654.0
127.5°	1673.3	1700.4	1729.6	1748.9	1750.7
130°	1768.1	1799.2	1820.4	1841.7	1839.8
132.5°	1864.9	1890.1	1911.3	1928.7	1926.9
135°	1946.2	1977.2	1994.5	2014.0	2010.1
137.5°	2031.2	2054.4	2073.9	2093.3	2087.5
140°	2114.3	2130.0	2151.1	2168.6	2158.9
142.5°	2184.2	2197.7	2222.8	2238.1	2228.6
145°	2257.7	2255.7	2288.5	2302.1	2292.4
147.5°	2321.3	2315.6	2348.4	2358.1	2350.6
150°	2383.4	2369.8	2400.9	2412.4	2402.7
152.5°	2435.5	2420.1	2449.1	2460.8	2447.2
155°	2485.9	2468.6	2491.8	2503.3	2487.9
157.5°	2526.5	2511.1	2528.6	2542.1	2526.5
160°	2561.4	2549.7	2561.4	2572.9	2559.4
162.5°	2592.2	2580.7	2590.4	2603.9	2586.5
165°	2619.3	2607.8	2613.6	2627.1	2613.6
167.5°	2640.7	2628.9	2635.0	2648.5	2631.0
170°	2658.1	2646.4	2650.3	2663.9	2646.4
172.5°	2669.6	2658.1	2662.0	2675.6	2658.1
175°	2679.2	2665.7	2669.6	2683.2	2663.9
177.5°	2683.2	2669.6	2671.7	2685.3	2667.7
180°	2673.5	2673.5	2673.5	2673.5	2673.5

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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	7.85	8.64	8.88	9.68	11.07	7.41	8.20	8.44	9.23	10.63
	3H	9.51	10.22	10.55	11.27	12.68	9.02	9.73	10.06	10.77	12.19
	4H	10.10	10.77	11.15	11.82	13.24	9.61	10.28	10.66	11.32	12.74
	6H	10.50	11.12	11.56	12.17	13.60	10.00	10.62	11.06	11.67	13.10
	8H	10.61	11.19	11.67	12.26	13.68	10.10	10.69	11.17	11.76	13.18
	12H	10.65	11.21	11.72	12.27	13.72	10.14	10.70	11.21	11.76	13.21
4H	2H	8.31	8.98	9.37	10.02	11.44	7.95	8.62	9.01	9.67	11.09
	3H	10.17	10.73	11.24	11.81	13.24	9.76	10.32	10.83	11.40	12.83
	4H	10.89	11.40	11.96	12.46	13.92	10.46	10.97	11.53	12.04	13.49
	6H	11.40	11.84	12.48	12.93	14.38	10.97	11.41	12.05	12.50	13.94
	8H	11.55	11.96	12.63	13.04	14.51	11.11	11.52	12.19	12.61	14.07
	12H	11.62	11.99	12.72	13.09	14.56	11.17	11.55	12.27	12.64	14.11
8H	4H	11.08	11.49	12.16	12.57	14.03	10.70	11.11	11.78	12.19	13.66
	6H	11.71	12.05	12.81	13.17	14.63	11.33	11.67	12.43	12.79	14.25
	8H	11.93	12.23	13.04	13.34	14.82	11.54	11.84	12.65	12.94	14.42
	12H	12.06	12.33	13.18	13.43	14.95	11.65	11.91	12.77	13.02	14.53
12H	4H	11.06	11.43	12.16	12.53	13.99	10.69	11.06	11.79	12.16	13.63
	6H	11.74	12.04	12.85	13.14	14.62	11.37	11.67	12.48	12.77	14.25
	8H	11.98	12.24	13.10	13.34	14.86	11.60	11.86	12.72	12.96	14.48