

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: P914908

Luminaire Tested: DFN2DIP-SQ4F0-070D120US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914908
REPORT IS A COMBINATION OF REPORTS P900169 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D120US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

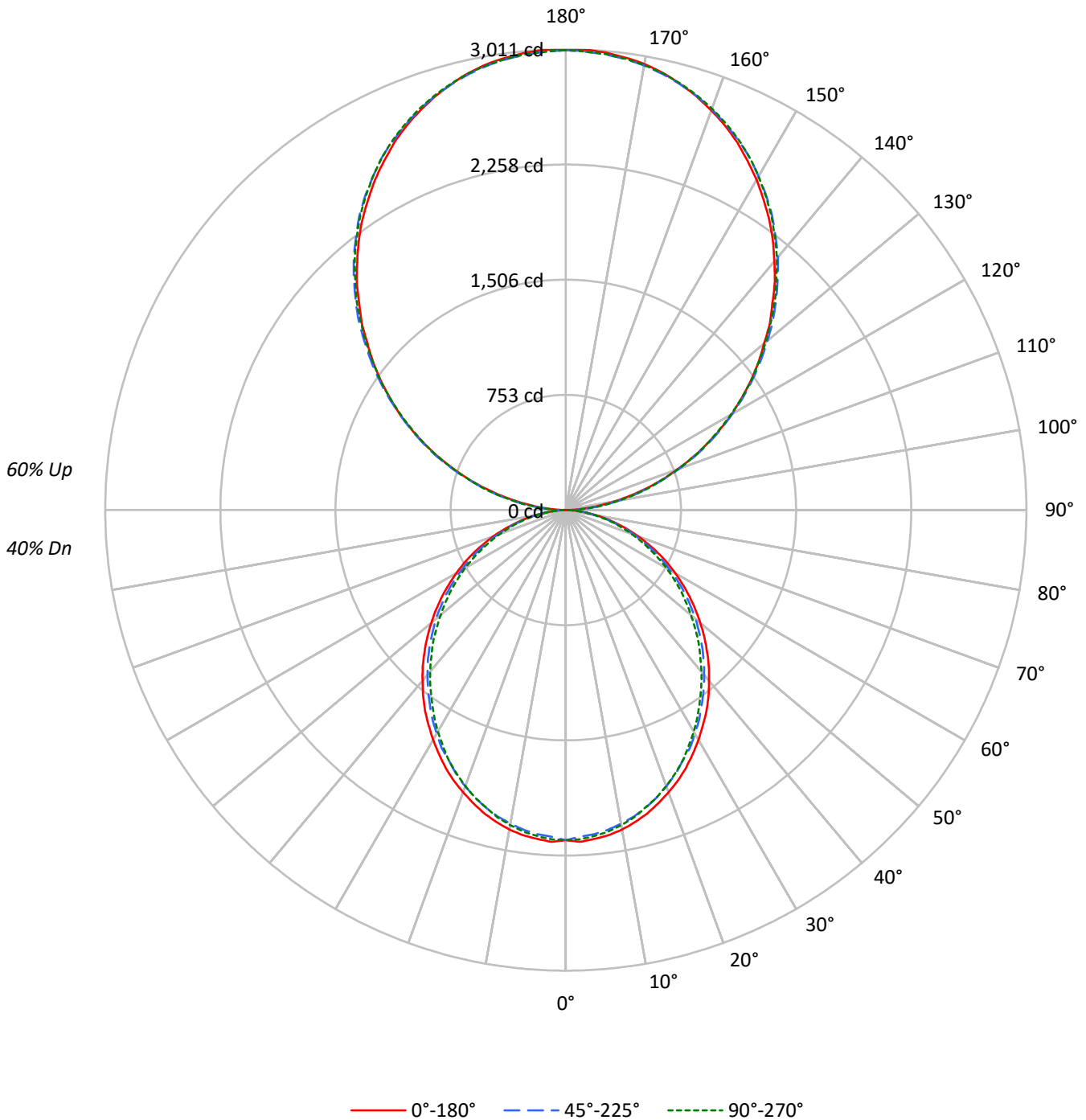
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13902.7 lumens
Efficiency: N/A
Efficacy: 91.8 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-Indirect

Input Watts (W): 151.4
Input Voltage (V):
Input Current (A_{in}): 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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	105	105	105	105	95	95	95	95	78	78	78	61	61	61	47	47	47	47	47	47	40
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39	39	39	39	33
2	87	80	74	68	79	73	67	63	59	56	53	47	45	43	36	35	33	33	33	33	28
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28	28	28	28	24
4	72	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	24	20
5	66	55	47	41	60	50	43	38	42	36	32	33	30	27	26	23	21	21	21	21	18
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	21	19	19	19	19	15
7	56	44	37	31	51	41	34	29	34	29	25	27	24	21	21	19	16	16	16	16	14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	15	12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13	13	13	13	11
10	45	34	27	22	41	31	25	20	26	21	18	21	17	15	17	14	12	12	12	12	10

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: 2366 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	1.5
10°-20°	571.4	4.1
20°-30°	839.7	6.0
30°-40°	975.3	7.0
40°-50°	974.1	7.0
50°-60°	849.4	6.1
60°-70°	627.9	4.5
70°-80°	355.2	2.6
80°-90°	102.3	0.7
90°-100°	186.0	1.3
100°-110°	591.1	4.3
110°-120°	1011.6	7.3
120°-130°	1330.4	9.6
130°-140°	1493.3	10.7
140°-150°	1464.3	10.5
150°-160°	1228.4	8.8
160°-170°	814.6	5.9
170°-180°	284.7	2.0
0°-30°	1614.2	11.6
0°-40°	2589.5	18.6
0°-60°	4412.9	31.7
0°-90°	5498.4	39.5
90°-120°	1788.7	12.9
90°-150°	6076.6	43.7
90°-180°	8404.0	60.4
0°-180°	13902.7	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°	3	33	89	83	86	14
95°	132	158	162	162	158	147
105°	546	553	558	563	563	576
115°	1015	1030	1025	1022	1015	1004
125°	1476	1499	1492	1484	1481	1319
135°	1910	1938	1943	1940	1933	1476
145°	2318	2337	2351	2354	2344	1449
155°	2651	2658	2667	2679	2671	1220
165°	2884	2881	2881	2900	2887	814
175°	3001	2994	2988	3006	2991	285
180°	3006	3006	3006	3006	3006	



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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°	2.7	32.6	88.8	83.4	86.1
92.5°	56.2	76.1	78.8	81.6	81.6
95°	132.3	157.7	162.2	162.2	157.7
97.5°	220.2	243.8	253.8	253.8	253.8
100°	321.8	342.6	349.8	349.8	347.1
102.5°	428.7	444.1	454.1	456.9	454.1
105°	545.7	552.9	558.3	562.8	562.8
107.5°	661.6	672.6	672.6	674.3	661.6
110°	774.0	788.5	788.5	788.5	781.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	895.5	910.9	908.2	900.9	895.5
115°	1015.1	1029.7	1025.1	1022.4	1015.1
117.5°	1133.8	1153.8	1141.1	1133.8	1126.6
120°	1253.5	1273.4	1253.5	1253.5	1245.4
122.5°	1362.3	1387.7	1375.0	1367.7	1362.3
125°	1476.5	1499.1	1491.9	1483.8	1481.0
127.5°	1588.0	1616.0	1606.1	1595.2	1588.0
130°	1692.2	1724.8	1720.3	1714.8	1704.9
132.5°	1809.1	1834.5	1836.3	1823.6	1816.4
135°	1909.7	1937.8	1943.3	1940.5	1933.3
137.5°	2022.1	2044.8	2049.3	2047.5	2036.6
140°	2120.9	2143.6	2156.2	2156.2	2146.3
142.5°	2222.5	2245.1	2252.3	2255.0	2245.1
145°	2318.5	2336.6	2351.1	2353.9	2343.9
147.5°	2404.6	2427.2	2438.2	2442.7	2432.7
150°	2493.5	2508.8	2518.8	2527.0	2518.8
152.5°	2572.3	2587.7	2600.4	2610.4	2600.4
155°	2651.1	2658.4	2666.6	2679.2	2671.1
157.5°	2719.2	2724.5	2729.1	2747.2	2734.5
160°	2779.8	2785.3	2788.0	2803.4	2792.5
162.5°	2836.0	2836.0	2838.8	2856.0	2843.3
165°	2884.1	2881.4	2881.4	2899.5	2886.8
167.5°	2927.6	2919.4	2919.4	2937.6	2924.9
170°	2960.2	2952.9	2950.2	2968.4	2952.9
172.5°	2982.9	2975.6	2972.9	2991.0	2975.6
175°	3001.0	2993.7	2988.3	3006.4	2991.0
177.5°	3011.0	3003.7	2998.2	3013.7	2998.2
180°	3006.4	3006.4	3006.4	3006.4	3006.4



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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	7.67	8.45	8.71	9.50	10.91	7.23	8.00	8.27	9.05	10.46
	3H	9.33	10.03	10.38	11.08	12.51	8.84	9.53	9.89	10.59	12.02
	4H	9.92	10.58	10.98	11.63	13.07	9.42	10.08	10.49	11.14	12.58
	6H	10.32	10.92	11.39	11.99	13.44	9.82	10.42	10.89	11.48	12.94
	8H	10.42	11.00	11.50	12.08	13.52	9.92	10.50	11.00	11.57	13.02
	12H	10.47	11.02	11.55	12.09	13.56	9.96	10.51	11.04	11.58	13.05
4H	2H	8.12	8.78	9.19	9.84	11.28	7.77	8.43	8.84	9.49	10.92
	3H	9.99	10.54	11.06	11.62	13.07	9.58	10.13	10.66	11.21	12.67
	4H	10.70	11.20	11.78	12.28	13.75	10.28	10.78	11.36	11.86	13.33
	6H	11.22	11.65	12.31	12.75	14.21	10.78	11.22	11.87	12.32	13.78
	8H	11.37	11.77	12.46	12.86	14.34	10.93	11.33	12.02	12.42	13.91
	12H	11.44	11.80	12.55	12.91	14.40	10.99	11.35	12.10	12.46	13.95
8H	4H	10.89	11.29	11.98	12.39	13.87	10.51	10.92	11.61	12.01	13.49
	6H	11.52	11.86	12.64	12.99	14.47	11.14	11.47	12.25	12.61	14.09
	8H	11.75	12.04	12.87	13.15	14.65	11.35	11.65	12.47	12.76	14.26
	12H	11.88	12.13	13.00	13.25	14.78	11.47	11.72	12.59	12.83	14.37
12H	4H	10.87	11.24	11.98	12.34	13.83	10.50	10.87	11.61	11.98	13.46
	6H	11.55	11.85	12.67	12.96	14.46	11.18	11.47	12.30	12.59	14.09
	8H	11.79	12.05	12.92	13.16	14.70	11.41	11.67	12.54	12.78	14.32