

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: P914196

Luminaire Tested: DFN2DIP-PN4F0-070D120US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914196
REPORT IS A COMBINATION OF REPORTS P899759 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D120US927-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

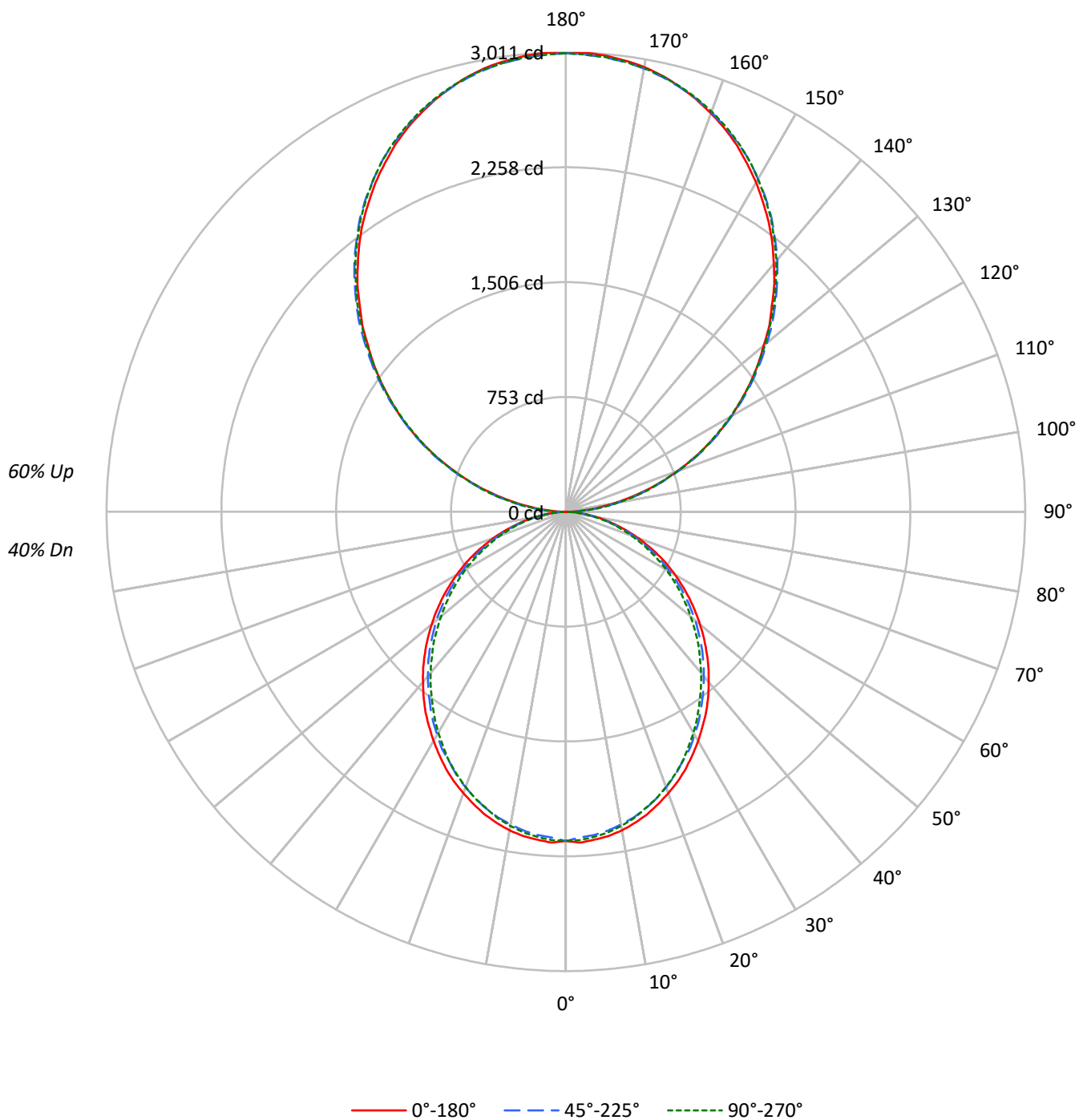
Lumens per Lamp: N/A
Luminaire Lumens: 13902.7 lumens
Efficiency: N/A
Efficacy: 81.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 170.2
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	105	105	105	105	95	95	95	95	78	78	78	61	61	61	47	47	47
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	68	79	73	67	63	59	56	53	47	45	43	36	35	33
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28
4	72	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	66	55	47	41	60	50	43	38	42	36	32	33	30	27	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	21	19
7	56	44	37	31	51	41	34	29	34	29	25	27	24	21	21	19	16
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13
10	45	34	27	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1575	1575	1575
5°	1578	1553	1564
10°	1565	1533	1543
15°	1542	1508	1510
20°	1511	1473	1477
25°	1480	1431	1438
30°	1441	1392	1388
35°	1404	1346	1336
40°	1359	1300	1286
45°	1314	1254	1235
50°	1265	1205	1176
55°	1213	1149	1122
60°	1155	1082	1060
65°	1091	1013	986
70°	1010	929	908
75°	898	828	836
80°	763	700	697
85°	552	477	466

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2354 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	7.80	8.58	8.85	9.63	11.04	7.36	8.14	8.41	9.19	10.60
	3H	9.46	10.16	10.51	11.21	12.64	8.98	9.67	10.03	10.73	12.16
	4H	10.05	10.71	11.11	11.76	13.20	9.56	10.22	10.62	11.28	12.72
	6H	10.44	11.05	11.52	12.11	13.56	9.95	10.56	11.03	11.62	13.07
	8H	10.55	11.13	11.63	12.20	13.65	10.06	10.63	11.13	11.71	13.16
	12H	10.59	11.14	11.68	12.21	13.68	10.09	10.64	11.18	11.71	13.18
4H	2H	8.26	8.91	9.33	9.97	11.41	7.90	8.56	8.97	9.62	11.06
	3H	10.12	10.67	11.19	11.75	13.20	9.71	10.26	10.79	11.35	12.80
	4H	10.83	11.33	11.91	12.41	13.88	10.41	10.92	11.50	11.99	13.47
	6H	11.34	11.78	12.43	12.88	14.34	10.92	11.35	12.01	12.45	13.92
	8H	11.49	11.90	12.58	12.99	14.47	11.06	11.47	12.15	12.56	14.04
	12H	11.56	11.93	12.67	13.03	14.52	11.12	11.49	12.23	12.59	14.08
8H	4H	11.02	11.42	12.11	12.52	14.00	10.65	11.05	11.74	12.14	13.63
	6H	11.65	11.98	12.76	13.12	14.60	11.27	11.61	12.39	12.74	14.22
	8H	11.87	12.17	12.99	13.28	14.78	11.49	11.78	12.61	12.90	14.40
	12H	12.00	12.26	13.13	13.37	14.91	11.60	11.86	12.72	12.97	14.51
12H	4H	11.00	11.37	12.11	12.47	13.96	10.64	11.00	11.75	12.11	13.60
	6H	11.68	11.97	12.80	13.09	14.59	11.31	11.61	12.44	12.72	14.22
	8H	11.92	12.18	13.04	13.29	14.83	11.55	11.80	12.67	12.92	14.45