

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: P902314

Luminaire Tested: DFN2DIP-4P4F0-040D070US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902314
REPORT IS A COMBINATION OF REPORTS P899129 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D070US830-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

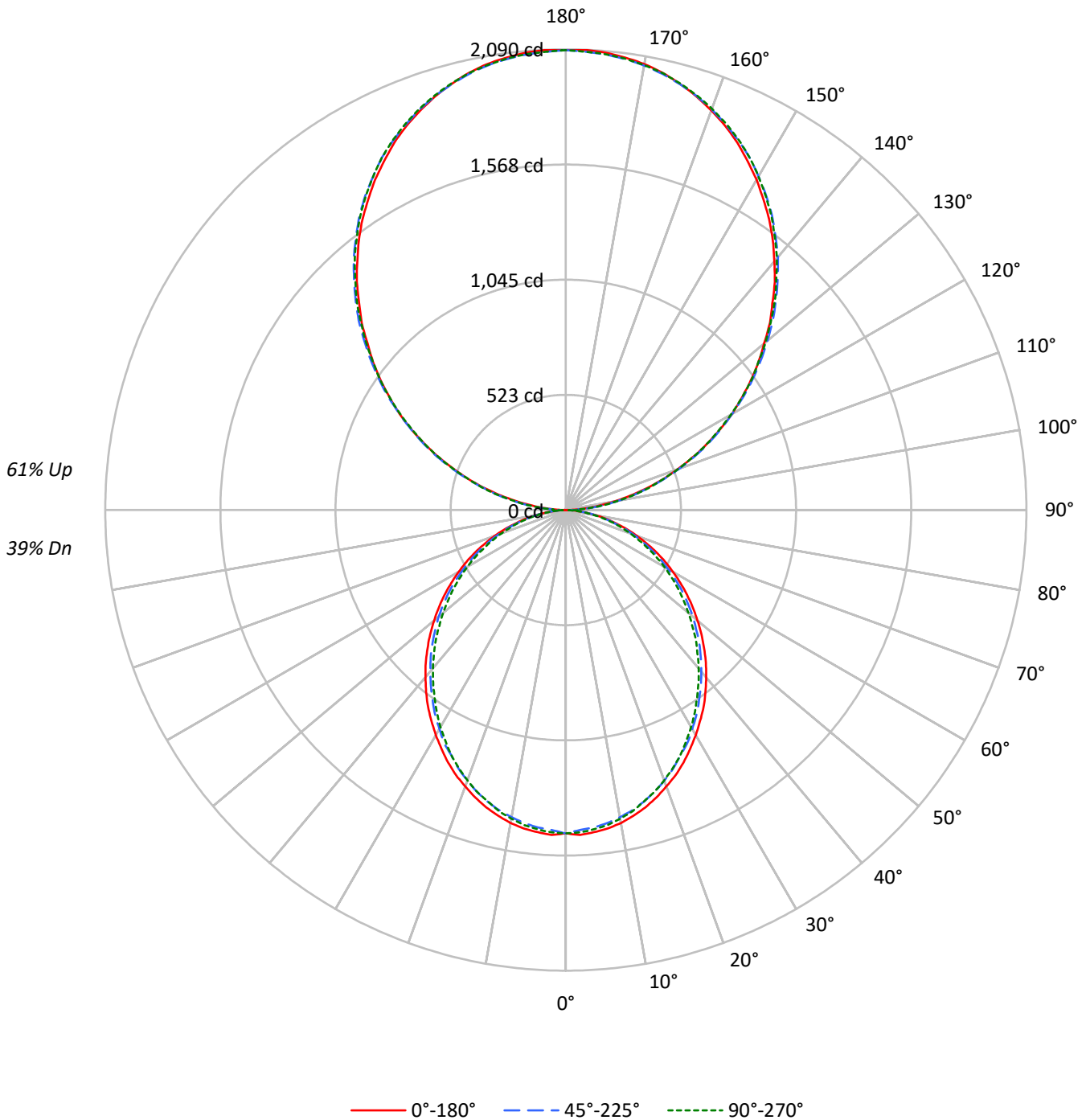
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9571.5 lumens
Efficiency: N/A
Efficacy: 95.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	77	77	77	61	61	61	46	46	46	39				39
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39	33				33
2	87	79	73	68	79	72	67	63	59	56	52	47	45	42	36	34	33	28				28
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28	23				23
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24	20				20
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	26	23	21	17				17
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18	15				15
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16	14				14
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15	12				12
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13	11				11
10	45	34	26	22	41	31	25	20	26	21	18	21	17	15	17	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	952	952	952
5°	953	939	945
10°	946	926	933
15°	932	911	913
20°	913	891	893
25°	894	865	870
30°	871	842	840
35°	849	815	808
40°	822	787	778
45°	795	759	748
50°	765	730	712
55°	734	696	680
60°	699	656	643
65°	660	615	599
70°	612	564	552
75°	544	504	509
80°	463	427	426
85°	336	293	287

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1580 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.4
10°-20°	388.5	4.1
20°-30°	570.9	6.0
30°-40°	663.1	6.9
40°-50°	662.3	6.9
50°-60°	577.5	6.0
60°-70°	426.9	4.5
70°-80°	241.5	2.5
80°-90°	69.7	0.7
90°-100°	129.1	1.3
100°-110°	410.3	4.3
110°-120°	702.1	7.3
120°-130°	923.3	9.6
130°-140°	1036.4	10.8
140°-150°	1016.3	10.6
150°-160°	852.6	8.9
160°-170°	565.4	5.9
170°-180°	197.6	2.1
0°-30°	1097.5	11.5
0°-40°	1760.6	18.4
0°-60°	3000.3	31.3
0°-90°	3738.4	39.1
90°-120°	1241.5	13.0
90°-150°	4217.6	44.1
90°-180°	5833.0	60.9
0°-180°	9571.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	23	62	58	60	9
95°	92	109	113	113	109	102
105°	379	384	388	391	391	400
115°	705	715	712	710	705	697
125°	1025	1040	1036	1030	1028	916
135°	1326	1345	1349	1347	1342	1025
145°	1609	1622	1632	1634	1627	1005
155°	1840	1845	1851	1860	1854	847
165°	2002	2000	2000	2012	2004	565
175°	2083	2078	2074	2087	2076	198
180°	2087	2087	2087	2087	2087	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	1.9	22.6	61.6	57.9	59.8
92.5°	39.0	52.9	54.8	56.6	56.6
95°	91.8	109.4	112.6	112.6	109.4
97.5°	152.9	169.2	176.2	176.2	176.2
100°	223.3	237.8	242.8	242.8	240.9
102.5°	297.6	308.2	315.2	317.1	315.2
105°	378.7	383.7	387.5	390.7	390.7
107.5°	459.2	466.7	466.7	468.1	459.2
110°	537.2	547.3	547.3	547.3	542.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	621.5	632.3	630.4	625.3	621.5
115°	704.6	714.6	711.5	709.6	704.6
117.5°	786.9	800.8	792.0	786.9	781.9
120°	870.0	883.8	870.0	870.0	864.3
122.5°	945.5	963.1	954.3	949.2	945.5
125°	1024.7	1040.5	1035.5	1029.8	1027.9
127.5°	1102.1	1121.6	1114.7	1107.2	1102.1
130°	1174.5	1197.1	1194.0	1190.2	1183.3
132.5°	1255.7	1273.3	1274.5	1265.7	1260.7
135°	1325.5	1344.9	1348.8	1346.8	1341.8
137.5°	1403.4	1419.2	1422.3	1421.1	1413.5
140°	1472.1	1487.8	1496.6	1496.6	1489.7
142.5°	1542.5	1558.2	1563.2	1565.1	1558.2
145°	1609.2	1621.7	1631.8	1633.7	1626.8
147.5°	1669.0	1684.7	1692.2	1695.4	1688.5
150°	1730.6	1741.3	1748.2	1753.9	1748.2
152.5°	1785.3	1796.0	1804.8	1811.8	1804.8
155°	1840.0	1845.0	1850.8	1859.5	1853.9
157.5°	1887.3	1891.0	1894.1	1906.8	1897.9
160°	1929.4	1933.2	1935.0	1945.7	1938.1
162.5°	1968.4	1968.4	1970.3	1982.2	1973.4
165°	2001.7	1999.8	1999.8	2012.4	2003.6
167.5°	2031.9	2026.3	2026.3	2038.8	2030.0
170°	2054.6	2049.6	2047.7	2060.2	2049.6
172.5°	2070.3	2065.2	2063.3	2075.9	2065.2
175°	2082.8	2077.8	2074.1	2086.6	2075.9
177.5°	2089.8	2084.7	2080.9	2091.7	2080.9
180°	2086.6	2086.6	2086.6	2086.6	2086.6



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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	6.01	6.78	7.06	7.83	9.25	5.57	6.34	6.61	7.39	8.81
	3H	7.67	8.36	8.73	9.42	10.86	7.18	7.87	8.24	8.93	10.37
	4H	8.26	8.91	9.33	9.98	11.42	7.76	8.42	8.83	9.48	10.93
	6H	8.66	9.26	9.73	10.33	11.78	8.16	8.76	9.23	9.83	11.28
	8H	8.76	9.34	9.84	10.42	11.87	8.26	8.83	9.34	9.92	11.37
	12H	8.81	9.36	9.90	10.43	11.91	8.30	8.85	9.39	9.92	11.40
4H	2H	6.46	7.12	7.54	8.18	9.62	6.11	6.76	7.18	7.83	9.27
	3H	8.33	8.87	9.41	9.96	11.42	7.92	8.47	9.00	9.56	11.01
	4H	9.04	9.54	10.13	10.62	12.10	8.62	9.12	9.70	10.20	11.68
	6H	9.56	9.99	10.65	11.09	12.56	9.13	9.56	10.22	10.66	12.13
	8H	9.71	10.11	10.80	11.20	12.69	9.27	9.67	10.37	10.77	12.26
	12H	9.78	10.14	10.89	11.25	12.75	9.33	9.69	10.44	10.80	12.30
8H	4H	9.23	9.63	10.33	10.73	12.22	8.86	9.26	9.95	10.35	11.84
	6H	9.87	10.20	10.98	11.34	12.82	9.48	9.82	10.60	10.95	12.44
	8H	10.09	10.38	11.21	11.50	13.00	9.70	9.99	10.82	11.11	12.61
	12H	10.22	10.48	11.35	11.59	13.13	9.81	10.07	10.94	11.18	12.72
12H	4H	9.21	9.58	10.33	10.69	12.18	8.85	9.21	9.96	10.32	11.81
	6H	9.90	10.19	11.02	11.31	12.81	9.52	9.82	10.65	10.93	12.44
	8H	10.14	10.39	11.27	11.51	13.05	9.76	10.01	10.89	11.13	12.67