

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: P919708

Luminaire Tested: DFN2DIP-PN4F0-090D080US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919708
REPORT IS A COMBINATION OF REPORTS P899691 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D080US935-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

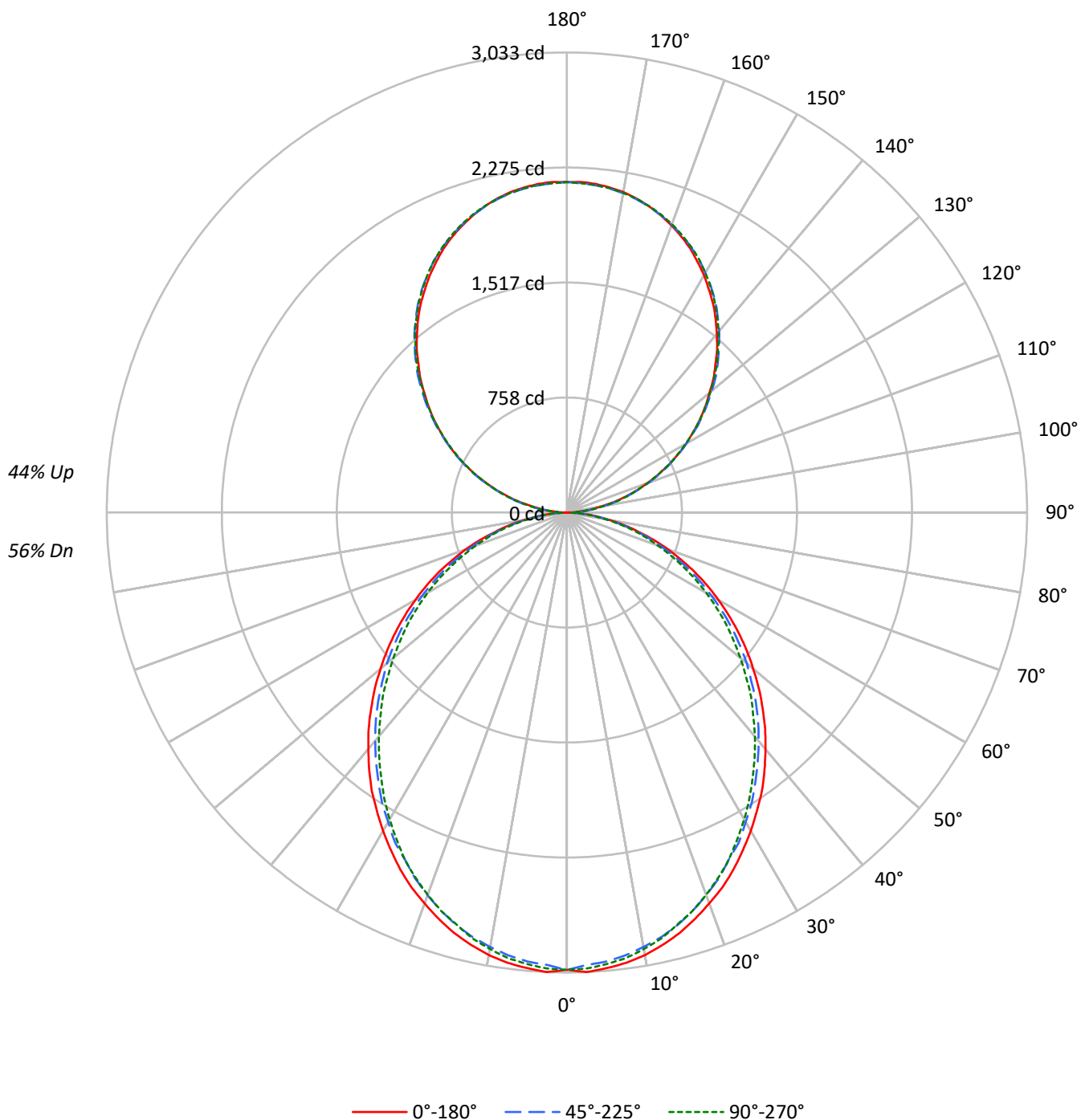
Lumens per Lamp: N/A
Luminaire Lumens: 13767.4 lumens
Efficiency: N/A
Efficacy: 94.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919708

CATALOG NUMBER: DFN2DIP-PN4F0-090D080US935-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P919708

CATALOG NUMBER: DFN2DIP-PN4F0-090D080US935-FLLFL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20
RC	80					70					50					30					0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	109	109	109	109		101	101	101	101		87	87	87		73	73	73		61	61	61
1	99	95	91	87		92	88	85	82		76	73	71		65	63	61		54	53	52
2	90	83	77	71		84	77	72	67		67	62	59		57	54	51		48	46	44
3	82	73	65	59		76	68	61	56		59	54	50		50	46	43		42	40	37
4	75	64	56	50		70	60	53	48		52	47	42		45	41	37		38	35	32
5	69	57	49	43		64	54	46	41		47	41	36		40	36	32		34	31	28
6	64	52	43	37		59	48	41	36		42	36	32		36	32	28		31	27	25
7	59	47	39	33		55	44	36	31		38	32	28		33	28	25		28	25	22
8	55	42	35	29		51	40	33	28		35	29	25		30	26	22		26	22	20
9	51	39	31	26		47	36	30	25		32	26	22		28	23	20		24	20	18
10	48	36	28	23		44	33	27	22		30	24	20		26	21	18		22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2201	2201	2201
5°	2204	2171	2185
10°	2187	2142	2156
15°	2154	2107	2110
20°	2111	2058	2063
25°	2068	2000	2009
30°	2014	1945	1940
35°	1962	1881	1867
40°	1899	1817	1797
45°	1836	1752	1726
50°	1767	1684	1643
55°	1695	1605	1568
60°	1613	1512	1481
65°	1525	1416	1378
70°	1411	1298	1269
75°	1255	1157	1168
80°	1066	977	974
85°	770	667	651

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1836 cd/sqm

TEST NUMBER: P919708

CATALOG NUMBER: DFN2DIP-PN4F0-090D080US935-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	283.8	2.1
10°-20°	798.5	5.8
20°-30°	1173.4	8.5
30°-40°	1362.9	9.9
40°-50°	1361.2	9.9
50°-60°	1186.9	8.6
60°-70°	877.4	6.4
70°-80°	496.4	3.6
80°-90°	137.2	1.0
90°-100°	134.8	1.0
100°-110°	428.3	3.1
110°-120°	733.0	5.3
120°-130°	964.0	7.0
130°-140°	1082.0	7.9
140°-150°	1061.0	7.7
150°-160°	890.1	6.5
160°-170°	590.3	4.3
170°-180°	206.3	1.5
0°-30°	2255.7	16.4
0°-40°	3618.6	26.3
0°-60°	6166.7	44.8
0°-90°	7677.7	55.8
90°-120°	1296.1	9.4
90°-150°	4403.1	32.0
90°-180°	6090.0	44.2
0°-180°	13767.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3015	3015	3015	3015	3015	
5°	3015	3004	2972	2995	2989	286
15°	2870	2853	2815	2827	2812	808
25°	2598	2575	2526	2531	2526	1195
35°	2241	2212	2166	2148	2134	1400
45°	1824	1804	1760	1728	1716	1408
55°	1380	1363	1328	1293	1279	1234
65°	931	913	884	858	844	920
75°	487	481	467	449	455	520
85°	119	116	113	104	102	132
90°	2	24	64	60	62	13
95°	96	114	118	118	114	107
105°	395	401	405	408	408	417
115°	736	746	743	741	736	728
125°	1070	1086	1081	1075	1073	956
135°	1384	1404	1408	1406	1401	1070
145°	1680	1693	1704	1706	1698	1050
155°	1921	1926	1932	1941	1935	884
165°	2090	2088	2088	2101	2092	590
175°	2174	2169	2165	2178	2167	207
180°	2178	2178	2178	2178	2178	

TEST NUMBER: P919708

CATALOG NUMBER: DFN2DIP-PN4F0-090D080US935-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3015.1	3015.1	3015.1	3015.1	3015.1
2.5°	3032.7	3018.2	2986.3	3015.1	3009.6
5°	3015.1	3003.8	2971.8	2994.9	2989.3
7.5°	2994.9	2977.7	2945.6	2969.1	2963.2
10°	2963.2	2942.9	2908.1	2931.2	2922.6
12.5°	2919.5	2902.3	2867.6	2881.9	2876.2
15°	2870.3	2853.1	2815.2	2826.9	2812.4
17.5°	2809.3	2792.1	2754.3	2768.8	2754.3
20°	2742.6	2725.4	2684.8	2693.4	2682.0
22.5°	2676.2	2650.1	2612.2	2612.2	2606.3
25°	2597.7	2574.6	2525.5	2531.0	2525.5
27.5°	2510.7	2490.4	2452.9	2444.3	2429.8
30°	2424.0	2400.5	2357.2	2348.5	2336.9
32.5°	2331.1	2313.8	2267.4	2249.9	2238.2
35°	2241.3	2212.3	2165.8	2148.4	2133.9
37.5°	2139.8	2113.6	2067.1	2046.9	2032.4
40°	2035.4	2012.1	1965.6	1939.7	1928.1
42.5°	1933.9	1910.6	1864.4	1835.2	1818.0
45°	1823.8	1803.5	1759.8	1728.1	1716.5
47.5°	1716.5	1696.2	1649.7	1617.7	1600.5
50°	1603.3	1588.8	1548.2	1507.6	1493.1
52.5°	1493.1	1472.8	1435.3	1403.3	1383.0
55°	1380.3	1362.7	1327.9	1293.2	1278.8
57.5°	1267.0	1252.6	1214.8	1180.0	1168.3
60°	1153.8	1142.5	1101.8	1069.9	1061.3
62.5°	1043.7	1023.4	994.5	965.6	953.9
65°	930.8	913.3	884.3	858.2	843.8
67.5°	814.8	800.1	774.2	754.0	742.3
70°	707.5	695.8	669.7	649.4	638.0
72.5°	597.4	585.7	571.2	551.0	542.3
75°	487.0	481.4	466.7	449.4	455.3
77.5°	388.5	376.9	371.0	362.4	353.8
80°	290.1	287.0	281.1	272.5	266.7
82.5°	197.2	197.2	194.4	182.7	182.7
85°	118.7	116.0	113.2	104.3	101.5
87.5°	52.3	46.4	40.6	32.0	28.9
90°	2.0	23.7	64.4	60.4	62.4
92.5°	40.7	55.2	57.2	59.1	59.1
95°	95.9	114.3	117.5	117.5	114.3
97.5°	159.6	176.7	183.9	183.9	183.9
100°	233.2	248.2	253.5	253.5	251.5
102.5°	310.6	321.8	329.0	331.0	329.0
105°	395.4	400.6	404.6	407.9	407.9
107.5°	479.4	487.3	487.3	488.6	479.4
110°	560.9	571.4	571.4	571.4	566.1

TEST NUMBER: P919708

CATALOG NUMBER: DFN2DIP-PN4F0-090D080US935-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	648.8	660.0	658.1	652.8	648.8
115°	735.6	746.1	742.8	740.8	735.6
117.5°	821.6	836.0	826.8	821.6	816.3
120°	908.3	922.7	908.3	908.3	902.3
122.5°	987.0	1005.5	996.3	991.0	987.0
125°	1069.8	1086.2	1081.0	1075.0	1073.1
127.5°	1150.6	1171.0	1163.7	1155.9	1150.6
130°	1226.1	1249.7	1246.5	1242.6	1235.4
132.5°	1310.9	1329.2	1330.6	1321.4	1316.1
135°	1383.7	1404.1	1408.1	1406.1	1400.8
137.5°	1465.2	1481.6	1484.9	1483.6	1475.7
140°	1536.8	1553.2	1562.4	1562.4	1555.1
142.5°	1610.3	1626.8	1632.0	1634.0	1626.8
145°	1680.0	1693.1	1703.6	1705.6	1698.3
147.5°	1742.3	1758.8	1766.6	1770.0	1762.7
150°	1806.7	1817.8	1825.1	1831.0	1825.1
152.5°	1863.8	1875.0	1884.2	1891.4	1884.2
155°	1921.0	1926.2	1932.2	1941.3	1935.4
157.5°	1970.2	1974.2	1977.5	1990.5	1981.4
160°	2014.2	2018.2	2020.2	2031.3	2023.4
162.5°	2054.9	2054.9	2056.9	2069.4	2060.2
165°	2089.7	2087.7	2087.7	2100.9	2091.7
167.5°	2121.2	2115.4	2115.4	2128.5	2119.3
170°	2144.9	2139.7	2137.7	2150.9	2139.7
172.5°	2161.4	2156.1	2154.1	2167.2	2156.1
175°	2174.5	2169.2	2165.2	2178.4	2167.2
177.5°	2181.7	2176.4	2172.5	2183.7	2172.5
180°	2178.4	2178.4	2178.4	2178.4	2178.4

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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	10.54	11.45	11.44	12.38	13.56	10.10	11.01	11.00	11.94	13.12
	3H	12.20	13.02	13.12	13.96	15.17	11.72	12.54	12.64	13.47	14.69
	4H	12.79	13.57	13.73	14.51	15.73	12.31	13.08	13.24	14.02	15.24
	6H	13.20	13.92	14.14	14.86	16.09	12.71	13.42	13.65	14.37	15.60
	8H	13.31	13.99	14.26	14.95	16.18	12.81	13.50	13.77	14.46	15.69
	12H	13.36	14.01	14.32	14.96	16.22	12.86	13.51	13.82	14.46	15.72
4H	2H	11.00	11.78	11.94	12.72	13.94	10.65	11.43	11.59	12.37	13.59
	3H	12.88	13.53	13.83	14.50	15.73	12.47	13.12	13.42	14.09	15.33
	4H	13.60	14.19	14.55	15.15	16.41	13.18	13.77	14.14	14.74	15.99
	6H	14.12	14.63	15.09	15.62	16.87	13.69	14.20	14.66	15.19	16.45
	8H	14.27	14.75	15.24	15.73	17.00	13.84	14.32	14.81	15.30	16.57
	12H	14.35	14.78	15.34	15.78	17.05	13.91	14.34	14.90	15.34	16.61
8H	4H	13.80	14.27	14.77	15.26	16.53	13.43	13.90	14.40	14.89	16.16
	6H	14.43	14.83	15.43	15.85	17.12	14.06	14.45	15.06	15.48	16.75
	8H	14.66	15.01	15.66	16.02	17.31	14.27	14.62	15.28	15.63	16.92
	12H	14.79	15.10	15.80	16.11	17.44	14.39	14.70	15.40	15.70	17.04
12H	4H	13.79	14.22	14.78	15.21	16.49	13.42	13.85	14.42	14.85	16.13
	6H	14.46	14.81	15.47	15.83	17.11	14.10	14.45	15.11	15.46	16.75
	8H	14.71	15.02	15.72	16.02	17.36	14.34	14.65	15.35	15.65	16.99

END OF REPORT