

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: P921594

Luminaire Tested: DFN2DIP-HX2F0-060D020US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921594
REPORT IS A COMBINATION OF REPORTS P899159 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-060D020US940-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

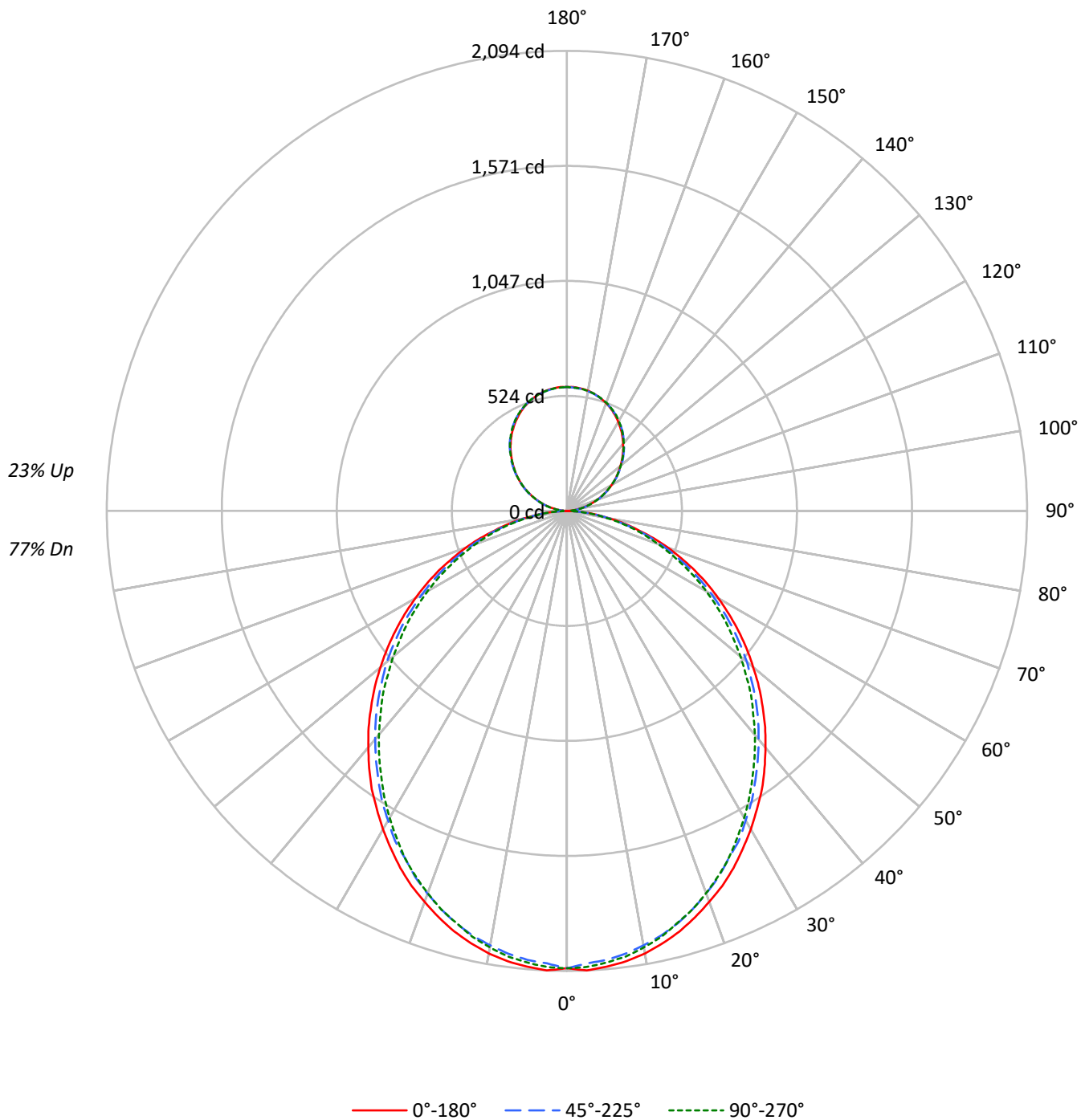
Lumens per Lamp: N/A
Luminaire Lumens: 6875.1 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 74.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921594

CATALOG NUMBER: DFN2DIP-HX2F0-060D020US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P921594

CATALOG NUMBER: DFN2DIP-HX2F0-060D020US940-FLLFL

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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4905	4905	4905
5°	4905	4825	4860
10°	4857	4748	4785
15°	4778	4659	4674
20°	4674	4538	4560
25°	4570	4397	4429
30°	4442	4265	4266
35°	4319	4110	4094
40°	4170	3954	3929
45°	4021	3797	3760
50°	3858	3631	3565
55°	3686	3441	3384
60°	3491	3216	3176
65°	3277	2980	2932
70°	3006	2694	2666
75°	2633	2351	2409
80°	2180	1914	1944
85°	1478	1201	1204

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4021 cd/sqm

TEST NUMBER: P921594

CATALOG NUMBER: DFN2DIP-HX2F0-060D020US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	2.8
10°-20°	551.3	8.0
20°-30°	810.2	11.8
30°-40°	941.0	13.7
40°-50°	939.8	13.7
50°-60°	819.5	11.9
60°-70°	605.8	8.8
70°-80°	342.7	5.0
80°-90°	92.1	1.3
90°-100°	34.9	0.5
100°-110°	110.9	1.6
110°-120°	189.8	2.8
120°-130°	249.6	3.6
130°-140°	280.2	4.1
140°-150°	274.7	4.0
150°-160°	230.4	3.4
160°-170°	152.8	2.2
170°-180°	53.4	0.8
0°-30°	1557.4	22.7
0°-40°	2498.4	36.3
0°-60°	4257.8	61.9
0°-90°	5298.4	77.1
90°-120°	335.6	4.9
90°-150°	1140.0	16.6
90°-180°	1577.0	22.9
0°-180°	6875.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	0	6	17	16	16	7
95°	25	30	30	30	30	28
105°	102	104	105	106	106	108
115°	190	193	192	192	190	188
125°	277	281	280	278	278	248
135°	358	364	364	364	363	277
145°	435	438	441	442	440	272
155°	497	499	500	503	501	229
165°	541	541	541	544	542	153
175°	563	562	561	564	561	53
180°	564	564	564	564	564	

TEST NUMBER: P921594

CATALOG NUMBER: DFN2DIP-HX2F0-060D020US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	0.5	6.2	16.7	15.6	16.1
92.5°	10.5	14.3	14.8	15.3	15.3
95°	24.8	29.6	30.4	30.4	29.6
97.5°	41.3	45.7	47.6	47.6	47.6
100°	60.4	64.3	65.6	65.6	65.1
102.5°	80.4	83.3	85.2	85.7	85.2
105°	102.4	103.7	104.8	105.6	105.6
107.5°	124.1	126.2	126.2	126.5	124.1
110°	145.3	147.9	147.9	147.9	146.6



TEST NUMBER: P921594

CATALOG NUMBER: DFN2DIP-HX2F0-060D020US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	168.0	170.9	170.4	169.0	168.0
115°	190.5	193.1	192.3	191.8	190.5
117.5°	212.8	216.5	214.1	212.8	211.3
120°	235.1	238.9	235.1	235.1	233.6
122.5°	255.6	260.3	258.0	256.6	255.6
125°	277.0	281.2	279.9	278.4	277.9
127.5°	297.9	303.2	301.3	299.3	297.9
130°	317.4	323.6	322.7	321.7	319.9
132.5°	339.4	344.2	344.5	342.1	340.7
135°	358.3	363.6	364.5	364.1	362.7
137.5°	379.3	383.6	384.5	384.1	382.1
140°	397.9	402.2	404.6	404.6	402.7
142.5°	417.0	421.2	422.6	423.0	421.2
145°	435.0	438.4	441.1	441.6	439.7
147.5°	451.1	455.4	457.4	458.2	456.4
150°	467.8	470.6	472.5	474.0	472.5
152.5°	482.6	485.4	487.9	489.7	487.9
155°	497.4	498.7	500.2	502.7	501.1
157.5°	510.1	511.1	512.0	515.4	513.0
160°	521.6	522.5	523.1	525.9	523.9
162.5°	532.1	532.1	532.5	535.8	533.4
165°	541.1	540.6	540.6	543.9	541.6
167.5°	549.2	547.7	547.7	551.1	548.8
170°	555.4	554.0	553.5	556.9	554.0
172.5°	559.6	558.2	557.8	561.2	558.2
175°	563.0	561.7	560.6	564.0	561.2
177.5°	564.9	563.6	562.5	565.3	562.5
180°	564.0	564.0	564.0	564.0	564.0

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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	14.86	16.03	15.54	16.73	17.56	14.44	15.61	15.12	16.31	17.13
	3H	16.52	17.57	17.21	18.28	19.14	16.06	17.11	16.75	17.82	18.68
	4H	17.10	18.09	17.82	18.82	19.69	16.64	17.64	17.36	18.36	19.23
	6H	17.50	18.42	18.23	19.15	20.03	17.04	17.96	17.77	18.69	19.57
	8H	17.60	18.48	18.34	19.23	20.11	17.14	18.02	17.88	18.77	19.66
	12H	17.65	18.49	18.40	19.23	20.15	17.19	18.02	17.93	18.77	19.68
4H	2H	15.35	16.34	16.07	17.06	17.93	15.01	16.00	15.73	16.72	17.59
	3H	17.21	18.04	17.94	18.80	19.69	16.83	17.66	17.56	18.42	19.30
	4H	17.92	18.67	18.67	19.43	20.35	17.52	18.28	18.27	19.04	19.96
	6H	18.43	19.08	19.19	19.87	20.79	18.03	18.69	18.80	19.47	20.40
	8H	18.57	19.18	19.34	19.97	20.90	18.17	18.79	18.95	19.57	20.51
	12H	18.65	19.20	19.44	20.00	20.95	18.24	18.79	19.03	19.60	20.54
8H	4H	18.13	18.74	18.90	19.52	20.46	17.78	18.39	18.55	19.17	20.11
	6H	18.74	19.25	19.54	20.07	21.01	18.39	18.90	19.19	19.72	20.66
	8H	18.95	19.40	19.76	20.22	21.18	18.59	19.05	19.41	19.87	20.82
	12H	19.08	19.48	19.89	20.29	21.30	18.71	19.11	19.53	19.92	20.93
12H	4H	18.13	18.68	18.92	19.48	20.42	17.78	18.33	18.57	19.14	20.08
	6H	18.77	19.22	19.58	20.05	21.00	18.43	18.88	19.24	19.70	20.66
	8H	19.01	19.41	19.82	20.22	21.23	18.66	19.06	19.48	19.87	20.89