

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: P913410

Luminaire Tested: DFN2DIP-HX2F0-060D020US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913410
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-HX2F0-060D020US927-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

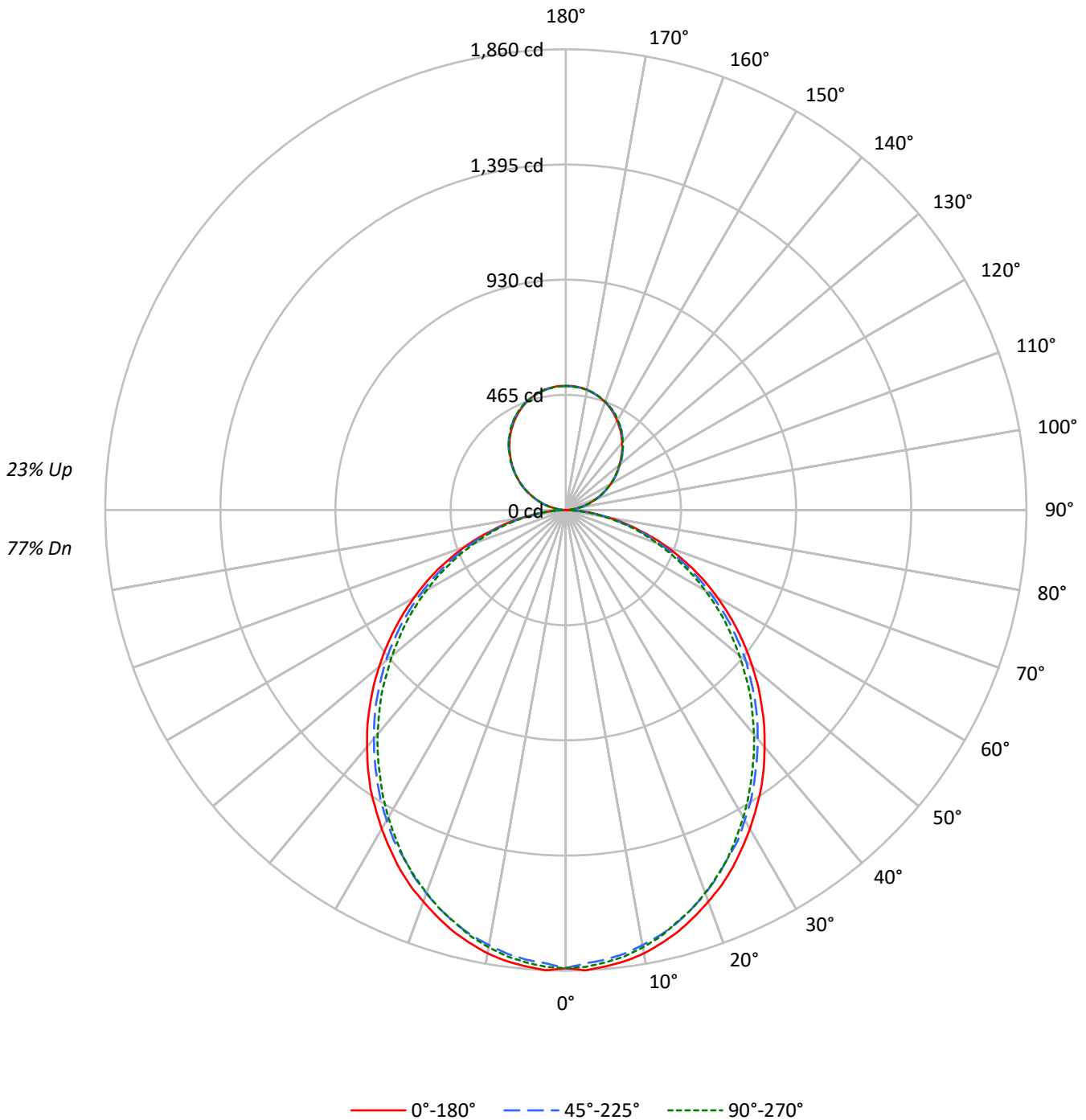
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6107.7 lumens
Efficiency: N/A
Efficacy: 81.8 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 (A_{in}): 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

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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			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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81	77			77
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68	65			65
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58	54			54
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49	46			46
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42	40			40
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37	34			34
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33	30			30
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29	27			27
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26	24			24
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24	22			22
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22	20			20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4357	4357	4357
5°	4357	4286	4318
10°	4315	4218	4251
15°	4245	4139	4152
20°	4152	4032	4051
25°	4060	3906	3935
30°	3946	3789	3790
35°	3837	3652	3637
40°	3705	3513	3490
45°	3572	3373	3340
50°	3427	3226	3167
55°	3274	3056	3006
60°	3101	2857	2822
65°	2911	2648	2604
70°	2670	2393	2368
75°	2339	2088	2140
80°	1936	1701	1727
85°	1314	1067	1070

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3572 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.1	2.9
10°-20°	489.8	8.0
20°-30°	719.8	11.8
30°-40°	836.0	13.7
40°-50°	834.9	13.7
50°-60°	728.0	11.9
60°-70°	538.2	8.8
70°-80°	304.5	5.0
80°-90°	81.8	1.3
90°-100°	31.0	0.5
100°-110°	98.5	1.6
110°-120°	168.6	2.8
120°-130°	221.7	3.6
130°-140°	248.9	4.1
140°-150°	244.1	4.0
150°-160°	204.7	3.4
160°-170°	135.8	2.2
170°-180°	47.5	0.8
0°-30°	1383.6	22.7
0°-40°	2219.6	36.3
0°-60°	3782.5	61.9
0°-90°	4707.0	77.1
90°-120°	298.1	4.9
90°-150°	1012.8	16.6
90°-180°	1401.0	22.9
0°-180°	6107.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1823	1837	1834	176
15°	1760	1750	1727	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1375	1357	1328	1318	1309	858
45°	1119	1106	1079	1060	1053	863
55°	847	836	814	793	784	757
65°	571	560	542	526	518	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	0	6	15	14	14	6
95°	22	26	27	27	26	25
105°	91	92	93	94	94	96
115°	169	172	171	170	169	167
125°	246	250	249	247	247	220
135°	318	323	324	323	322	246
145°	386	389	392	392	391	241
155°	442	443	444	447	445	203
165°	481	480	480	483	481	136
175°	500	499	498	501	498	48
180°	501	501	501	501	501	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.4	1849.4	1849.4	1849.4	1849.4
2.5°	1860.2	1851.3	1831.7	1849.4	1846.0
5°	1849.4	1842.5	1822.8	1837.0	1833.6
7.5°	1837.0	1826.5	1806.8	1821.1	1817.6
10°	1817.6	1805.1	1783.8	1797.9	1792.6
12.5°	1790.8	1780.2	1758.9	1767.8	1764.2
15°	1760.5	1750.0	1726.8	1734.0	1725.1
17.5°	1723.2	1712.7	1689.5	1698.3	1689.5
20°	1682.3	1671.7	1646.8	1652.1	1645.1
22.5°	1641.6	1625.5	1602.3	1602.3	1598.7
25°	1593.4	1579.3	1549.0	1552.4	1549.0
27.5°	1540.0	1527.6	1504.5	1499.3	1490.4
30°	1486.8	1472.4	1445.9	1440.6	1433.4
32.5°	1429.8	1419.3	1390.8	1380.0	1372.8
35°	1374.8	1357.0	1328.5	1317.7	1308.8
37.5°	1312.5	1296.4	1268.0	1255.4	1246.6
40°	1248.5	1234.1	1205.7	1189.9	1182.6
42.5°	1186.2	1171.9	1143.6	1125.7	1115.1
45°	1118.7	1106.2	1079.4	1060.0	1052.8
47.5°	1052.8	1040.4	1011.9	992.3	981.7
50°	983.4	974.5	949.7	924.7	915.8
52.5°	915.8	903.4	880.4	860.8	848.3
55°	846.6	835.8	814.5	793.2	784.3
57.5°	777.2	768.3	745.1	723.8	716.6
60°	707.7	700.8	675.9	656.2	650.9
62.5°	640.2	627.7	610.0	592.2	585.1
65°	570.9	560.2	542.5	526.4	517.5
67.5°	499.8	490.8	474.9	462.5	455.3
70°	434.0	426.8	410.7	398.3	391.3
72.5°	366.4	359.3	350.4	337.9	332.6
75°	298.7	295.3	286.2	275.7	279.2
77.5°	238.3	231.2	227.5	222.3	217.0
80°	177.9	176.0	172.5	167.2	163.6
82.5°	121.0	121.0	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	0.5	5.5	14.8	13.9	14.3
92.5°	9.3	12.7	13.2	13.6	13.6
95°	22.0	26.3	27.0	27.0	26.3
97.5°	36.7	40.6	42.3	42.3	42.3
100°	53.6	57.1	58.3	58.3	57.8
102.5°	71.5	74.0	75.7	76.1	75.7
105°	90.9	92.1	93.1	93.8	93.8
107.5°	110.3	112.1	112.1	112.4	110.3
110°	129.0	131.4	131.4	131.4	130.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	149.2	151.8	151.4	150.1	149.2
115°	169.2	171.6	170.9	170.4	169.2
117.5°	189.0	192.3	190.2	189.0	187.7
120°	208.9	212.2	208.9	208.9	207.6
122.5°	227.0	231.2	229.2	228.0	227.0
125°	246.1	249.9	248.7	247.3	246.8
127.5°	264.7	269.3	267.7	265.9	264.7
130°	282.0	287.5	286.7	285.8	284.2
132.5°	301.5	305.8	306.0	304.0	302.7
135°	318.3	323.0	323.8	323.4	322.2
137.5°	337.0	340.8	341.6	341.3	339.4
140°	353.5	357.3	359.4	359.4	357.7
142.5°	370.4	374.1	375.4	375.8	374.1
145°	386.4	389.4	391.9	392.3	390.6
147.5°	400.8	404.6	406.4	407.1	405.4
150°	415.6	418.1	419.8	421.1	419.8
152.5°	428.7	431.3	433.4	435.1	433.4
155°	441.9	443.1	444.4	446.6	445.2
157.5°	453.2	454.1	454.9	457.9	455.7
160°	463.3	464.2	464.7	467.2	465.4
162.5°	472.7	472.7	473.1	476.0	473.9
165°	480.7	480.2	480.2	483.2	481.2
167.5°	487.9	486.6	486.6	489.6	487.5
170°	493.4	492.2	491.7	494.7	492.2
172.5°	497.2	495.9	495.5	498.5	495.9
175°	500.2	499.0	498.0	501.1	498.5
177.5°	501.8	500.7	499.7	502.2	499.7
180°	501.1	501.1	501.1	501.1	501.1



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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	14.45	15.62	15.13	16.32	17.14	14.02	15.20	14.71	15.90	16.72
	3H	16.10	17.16	16.80	17.87	18.73	15.64	16.70	16.34	17.41	18.27
	4H	16.69	17.68	17.41	18.41	19.28	16.23	17.22	16.95	17.95	18.82
	6H	17.09	18.00	17.82	18.74	19.62	16.63	17.54	17.36	18.28	19.16
	8H	17.19	18.06	17.93	18.82	19.70	16.73	17.61	17.47	18.36	19.25
	12H	17.24	18.07	17.99	18.82	19.73	16.78	17.61	17.52	18.36	19.27
4H	2H	14.94	15.93	15.65	16.65	17.52	14.60	15.59	15.32	16.31	17.18
	3H	16.80	17.63	17.53	18.39	19.28	16.42	17.25	17.15	18.01	18.89
	4H	17.51	18.26	18.25	19.02	19.94	17.11	17.87	17.86	18.63	19.54
	6H	18.02	18.67	18.78	19.46	20.38	17.62	18.27	18.39	19.06	19.98
	8H	18.16	18.77	18.93	19.55	20.49	17.76	18.38	18.53	19.16	20.09
	12H	18.24	18.79	19.03	19.59	20.53	17.83	18.38	18.62	19.19	20.13
8H	4H	17.72	18.33	18.49	19.11	20.05	17.37	17.98	18.14	18.76	19.70
	6H	18.33	18.84	19.13	19.66	20.60	17.98	18.49	18.78	19.31	20.25
	8H	18.54	18.99	19.35	19.81	20.77	18.18	18.63	19.00	19.46	20.41
	12H	18.67	19.07	19.48	19.88	20.89	18.30	18.70	19.11	19.51	20.52
12H	4H	17.71	18.27	18.51	19.07	20.01	17.37	17.92	18.16	18.73	19.67
	6H	18.36	18.81	19.17	19.63	20.59	18.02	18.47	18.83	19.29	20.25
	8H	18.60	19.00	19.41	19.81	20.82	18.25	18.65	19.07	19.46	20.48